North Iris Residential Project
Technical Appendices

SCH #2021060702

City Case Nos: PHG 20-0032, PL 20-0738, PL 20-0739,
PL 21-0126, PL 21-0127, PL 21-0128

Volume II
September 2022

Prepared for:

City of Escondido
Planning Division
201 North Broadway
Escondido, CA 92025
Contact: Jay Paul

Prepared by:

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Gualala, CA 95445
Contact: Sophia Habl Mitchell

Appendix A
NOP and NOP Comment Letters

NOTICE OF PREPARATION AND
NOTICE OF PUBLIC SCOPING MEETING

Date of Issuance: July 1, 2021

TO: **State Agencies**
Responsible Agencies
Local and Public Agencies
Trustee Agencies
Interested Parties

FROM: **Mike Strong**
City of Escondido
201 N. Broadway
Escondido, CA 92025

Subject: Notice of Preparation and Notice of Public Scoping Meeting, North Iris Residential Project (Case Nos: PHG 20-0032, PL 20-0738, PL 20-0739, PL 21-0126, PL 21-0127, and PL 21-0128)

The City of Escondido will be the Lead Agency for the preparation of an Environmental Impact Report (EIR) for the North Iris Residential Project (proposed project). We need to know the views of your agency (and the views of other interested parties) as to the scope and content of the environmental information germane to your agency's statutory responsibilities in connection with the proposed project.

Project Title:	North Iris Residential Project
Project Applicant:	Hallmark Communities, Inc. (c/o Mariana McGrain)
Project Location:	Four parcels addressed as 2039, 2047, 2085, and 2089 North Iris Avenue, plus a fifth unaddressed parcel (Assessor's Parcel Number 224-310-20-00); in Escondido, San Diego County, California

Information about the project description, location, and scope of the EIR is provided in the following pages of this notice, as well as in the Initial Study Part I form submitted by the applicant. To review the Initial Study Part I, please visit the Project's website at this link:

https://www.escondido.org/north-iris-condominiums

Please send your response by U.S. mail or email to the following address. Responses should be received no later than **5 p.m. PDT on Monday, August 2, 2021.**

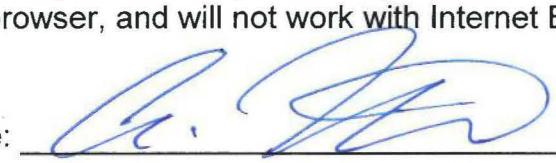
Jay Paul
Senior Planner
City of Escondido Planning Division
201 North Broadway
Escondido, CA 92025
jpaul@escondido.org

In your response, please include the name and contact information for the representative in your agency. In the event that no response or request for additional time is received by the City by the end of the review period, the City may presume that you have no response.

The City will also conduct a virtual Public Scoping Meeting on **Thursday, July 22, 2021, from 3 p.m. to 5 p.m.** Your agency and the public are invited to attend. The purpose of this scoping meeting is to further define the issues, feasible alternatives, and potential mitigation measures that may warrant in-depth analysis in the EIR. This will be a drop-in meeting, and participants may join at any time within the two-hour timeframe. If you would like to participate in the virtual scoping meeting, please visit the following videoconference link anytime between 3 p.m. and 5 p.m. on July 22, 2021:

https://meet.escondido.org/northiris

A staff member will be available in the videoconference room to answer questions about the project and record any comments provided by attendees. Please note that the link works best with the Google Chrome browser, and will not work with Internet Explorer.

Signature: 

Adam Finestone, AICP
City Planner
City of Escondido

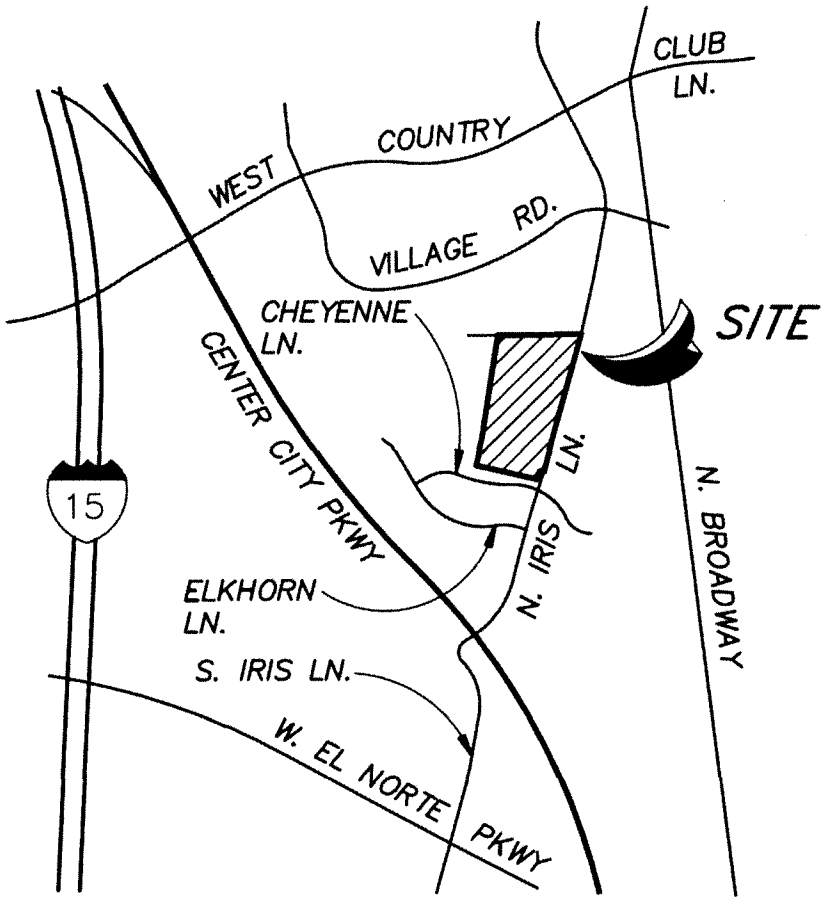
NOTICE OF PREPARATION AND
NOTICE OF PUBLIC SCOPING MEETING

NOP Comment Period: July 1 to August 2, 2021

North Iris Residential Project
(City Case Nos: PHG 20-0032, PL 20-0738, PL 20-0739, PL 21-0126, PL 21-0127, and PL 21-0128)

Introduction and Project Location

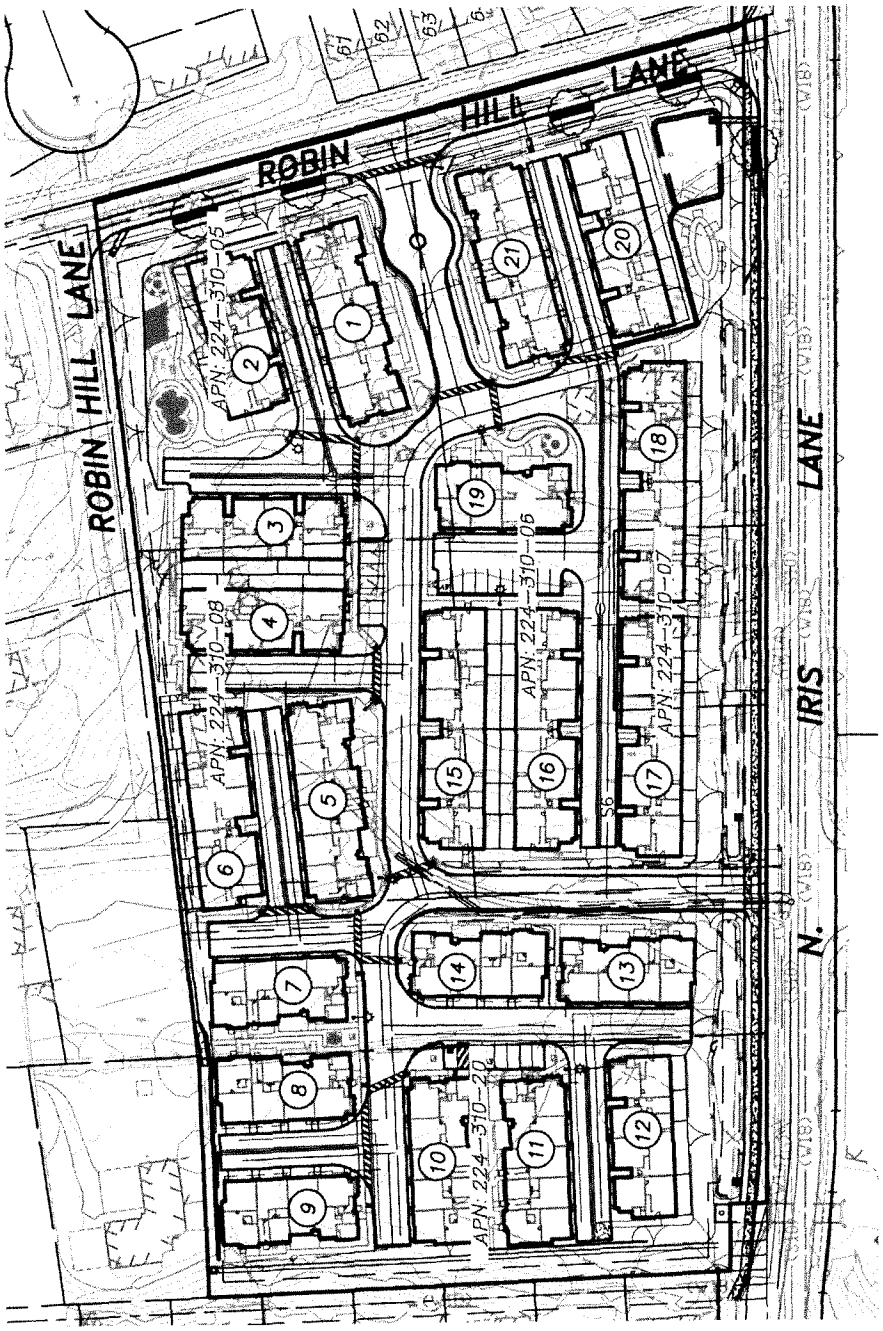
The City of Escondido will be the Lead Agency for the preparation of an Environmental Impact Report (EIR), as defined in Section 15161 of the CEQA Guidelines, for the proposed North Iris Residential Project (proposed project). The proposed project is located at the southwest corner of North Iris Lane and Robin Hill Lane, and is currently within County of San Diego's jurisdiction. The following figure depicts the location of the project within the region.



VICINITY MAP
NOT TO SCALE

Project Description

The project proposes to build 102 attached condominium dwelling units on a 7.7-acre site. Units will range in size from 1,228 square feet to 1,913 square feet, and will contain two to three stories. A private two-car garage will be included with each unit, and 26 guest parking spaces will be located throughout the development. The project proposes approximately 61,738 square feet of open space in the form of private decks and patios, a tot lot, a barbeque area, a fitness circuit, seating areas, and landscaping. Primary vehicular access to the site will be from Robin Hill Lane, with secondary emergency access will be provided on North Iris Lane. The following figure is an illustrative site plan of the proposed project.



Project Entitlements/Approvals

The proposed project consists of the following entitlements and agency approvals, which will be processed concurrently:

1. Annexation to the City of Escondido
2. General Plan Amendment from Suburban (S) to Urban III (U-3)
3. Prezone to Planned Development- Residential (PD-R)
4. Master Development Plan
5. Precise Development Plan
6. Tentative Subdivision Map
7. Certification of a Final Environmental Impact Report

The EIR will consider all potential environmental effects of the proposed project to determine the level of significance of the environmental effect, and will analyze the potential effects to the detail necessary to make appropriate determinations on significance. In addition, the EIR may consider those environmental issues which are raised by responsible agencies, trustee agencies, and members of the public or related agencies during the NOP process. An electronic version of this notice, including the Initial Study Part I form, can be found on the City's website:

https://www.escondido.org/north-iris-condominiums

We need to know the views of your agency or organization as to the scope and content of the environmental information germane to your agency's statutory responsibilities or of interest to you in connection with the proposed project. This includes the following for responsible and trustee agencies:

1. Whether your agency will be a responsible or trustee agency.
2. List of permits or approvals required by your agency for the proposed project.
3. If your agency would like to meet with the City regarding the proposed project.
4. Significant environmental issues and reasonable alternatives and/or mitigation measure(s).

Due to the time limits mandated by state law, responses from responsible agencies, other agencies, and organizations must be sent and received by the City of Escondido not later than 30 days following the publication of this Notice of Preparation (**August 2, 2021**).

Project-related comments may be sent to:

Jay Paul
Senior Planner
City of Escondido Planning Division
201 N. Broadway
Escondido, CA 92025
afinestone@escondido.org

If response from your agency or organization is not received, we will presume that your agency or organization has no response. A responsible agency, trustee agency, or other public agency may request a meeting with City representatives in accordance with Section 15082(c) of the CEQA Guidelines.

Public Scoping Meeting

The City will also conduct a virtual Public Scoping Meeting on **Thursday, July 22, 2021, from 3 p.m. to 5 p.m.** Your agency representative(s) and the public are invited to attend to provide comment. The purpose of this scoping meeting is to further define the issues, feasible alternatives, and potential mitigation measures that may warrant in-depth analysis in the EIR. This will be a drop-in meeting, and participants may join at any time within the two-hour timeframe. The meeting may be accessed at the following link:

https://meet.escondido.org/northiris

Please note that the above link will work best with the Google Chrome browser, and will not work with Internet Explorer.

Issues to be Addressed in the EIR

An Initial Study Part I form has been prepared for the project and is available at the City's Project website at the following link:

https://www.escondido.org/north-iris-condominiums

In accordance with Section 15063 of the CEQA Guidelines, a full Initial Study checklist will be prepared for the project, and will be posted at the above link when available. The Initial Study will identify all areas of concern to be covered in the EIR. Staff expects that traffic and transportation, air quality, greenhouse gas emissions, biological resources, cultural and tribal resources, and noise will be covered in the EIR document, but this is not necessarily an exhaustive list.

STATE OF CALIFORNIA Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION

RECEIVED
JUL 07 2021
PLANNING DIVISION

July 1, 2021

Adam Finestone, City Planner
City of Escondido
201 N Broadway
Escondido, CA 92025

Re: 2021060702, North Iris Lane Residential Project, San Diego County

Dear Mr. Finestone:

The Native American Heritage Commission (NAHC) has received the Notice of Preparation (NOP), Draft Environmental Impact Report (DEIR) or Early Consultation for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code §21000 et seq.), specifically Public Resources Code §21084.1, states that a project that may cause a substantial adverse change in the significance of a historical resource, is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit.14, §15064.5 (b) (CEQA Guidelines §15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an Environmental Impact Report (EIR) shall be prepared. (Pub. Resources Code §21080 (d); Cal. Code Regs., tit. 14, § 5064 subd.(a)(1) (CEQA Guidelines §15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources within the area of potential effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a separate category of cultural resources, "tribal cultural resources" (Pub. Resources Code §21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment. (Pub. Resources Code §21084.2). Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code §21084.3 (a)). **AB 52 applies to any project for which a notice of preparation, a notice of negative declaration, or a mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. §800 et seq.) may also apply.

The NAHC recommends consultation with California Native American tribes that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments.

Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.

CHAIRPERSON
Laura Miranda
Luiseño

VICE CHAIRPERSON
Reginald Pagaling
Chumash

SECRETARY
Merri Lopez-Keifer
Luiseño

PARLIAMENTARIAN
Russell Attebery
Karuk

COMMISSIONER
William Mungary
Paiute/White Mountain Apache

COMMISSIONER
Julie Tumamait-Stenslie
Chumash

COMMISSIONER
[Vacant]

COMMISSIONER
[Vacant]

COMMISSIONER
[Vacant]

EXECUTIVE SECRETARY
Christina Snider
Pomo

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project: Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a lead agency shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:

a. A brief description of the project.

b. The lead agency contact information.

c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code §21080.3.1 (d)).

d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code §21073).

2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code §21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or Environmental Impact Report. (Pub. Resources Code §21080.3.1(b)).

a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code §65352.4 (SB 18). (Pub. Resources Code §21080.3.1 (b)).

3. Mandatory Topics of Consultation If Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:

a. Alternatives to the project.

b. Recommended mitigation measures.

c. Significant effects. (Pub. Resources Code §21080.3.2 (a)).

4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:

a. Type of environmental review necessary.

b. Significance of the tribal cultural resources.

c. Significance of the project's impacts on tribal cultural resources.

d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code §21080.3.2 (a)).

5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code §6254 (r) and §6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code §21082.3 (c)(1)).

6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:

a. Whether the proposed project has a significant impact on an identified tribal cultural resource.

b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code §21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code §21082.3 (b)).

7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:

a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or

b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code §21080.3.2 (b)).

8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code §21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code §21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code §21082.3 (a)).

9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code §21084.3 (b). (Pub. Resources Code §21082.3 (e)).

10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

a. Avoidance and preservation of the resources in place, including, but not limited to:

i. Planning and construction to avoid the resources and protect the cultural and natural context.

ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.

b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:

i. Protecting the cultural character and integrity of the resource.

ii. Protecting the traditional use of the resource.

iii. Protecting the confidentiality of the resource.

c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.

d. Protecting the resource. (Pub. Resource Code §21084.3 (b)).

e. Please note that a federally recognized California Native American tribe or a non-federally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code §815.3 (c)).

f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code §5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An Environmental Impact Report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:

a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code §21080.3.1 and §21080.3.2 and concluded pursuant to Public Resources Code §21080.3.2.

b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.

c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code §21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code §21082.3 (d)).

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code §65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf.

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code §65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code §65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code §5097.9 and §5097.993 that are within the city's or county's jurisdiction. (Gov. Code §65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
    a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
    b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason, we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: http://nahc.ca.gov/resources/forms/.

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
    a. If part or all of the APE has been previously surveyed for cultural resources.
    b. If any known cultural resources have already been recorded on or adjacent to the APE.
    c. If the probability is low, moderate, or high that cultural resources are located in the APE.
    d. If a survey is required to determine whether previously unrecorded cultural resources are present.

2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
    a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
    b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.

3. Contact the NAHC for:
   a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
   b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.

4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
   a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, §15064.5(f) (CEQA Guidelines §15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
   b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
   c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code §7050.5, Public Resources Code §5097.98, and Cal. Code Regs., tit. 14, §15064.5, subdivisions (d) and (e) (CEQA Guidelines §15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

If you have any questions or need additional information, please contact me at my email address: Andrew.Green@nahc.ca.gov.

Sincerely,

Andrew Green

Andrew Green
Cultural Resources Analyst

cc: State Clearinghouse

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State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4201
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

July 29, 2021

Jay Paul
Senior Planner
City of Escondido Planning Division
201 North Broadway
Escondido, California 92025
Jpaul@escondido.org

Subject: North Iris Lane Residential Project, Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR), SCH# 2021060702

Dear Mr. Paul:

The California Department of Fish and Wildlife (CDFW) received a Notice of Preparation (NOP) of a Draft Environmental Impact Report (DEIR) from the City of Escondido (City) for the North Iris Lane Residential Project (Project) pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1]

Thank you for the opportunity to provide comments and recommendations regarding the activities involved in the North Iris Lane Residential Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

CDFW Role

CDFW is California's Trustee Agency for fish and wildlife resources and holds those resources in trust by statute for all the people of the State [Fish & G. Code, §§ 711.7, subdivision (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines, § 15386, subdivision (a)]. CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species (Id., § 1802). Similarly, for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect state fish and wildlife resources.

CDFW is also submitting comments as a Responsible Agency under CEQA (Pub. Resources Code, § 21069; CEQA Guidelines, § 15381). CDFW expects that it may need to exercise regulatory authority as provided by the Fish and Game Code, including lake and streambed alteration regulatory authority (Fish & G. Code, § 1600 et seq.). Likewise, to the extent

[1] CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

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implementation of the Project as proposed may result in "take" (see Fish & G. Code, § 2050) of any species protected under the California Endangered Species Act (CESA; Fish & G. Code, § 2050 et seq.) or the Native Plant Protection Act (NPPA; Fish & G. Code, §1900 et seq.), CDFW recommends the Project proponent obtain appropriate authorization under the Fish and Game Code.

CDFW also administers the Natural Community Conservation Planning (NCCP) program, a California regional habitat conservation planning program. The City of Escondido has participated in the NCCP program by preparing a draft Subarea Plan (SAP) under the North County Multiple Habitat Conservation Program (MHCP). However, the Escondido SAP has not been finalized and has not been adopted by the City or received permits from the Wildlife Agencies (jointly, CDFW and the U.S. Fish and Wildlife Service (USFWS)).

PROJECT DESCRIPTION SUMMARY

Proponent: City of Escondido

Objective: The Project proposes to build 102 multifamily attached condominium dwelling units on a 7.7-acre site in Escondido. The units will range in size from 1,228 to 1,913 square feet and will consist of two to three stories. Each unit will have a private two-car covered garage; 26 uncovered guest parking spots will be located throughout the development. The Project will also include private decks and patios, a tot lot, a barbeque area, a fitness circuit, seating areas, and landscaping. Primary access to the site will be from Robin Hill Lane. The Project also plans to detach the assessor parcel numbers (APNs) from the county jurisdiction and annex into the City of Escondido. It also includes a general plan amendment (GPA) to "change the land use to U3 and rezone to R3 18 DU/acre (PD-R-18)".

Location: The Project site is located at the southwest corner of North Iris Lane and Robin Hill Lane in the City of Escondido, San Diego County. The site is east of Interstate 15 (I-15) and northeast of Center City Parkway. Surrounding the Project site are track home communities, private residences, a school, and a multifamily senior living development. The Project site consists of non-native grasslands and mature trees. The site has existing homes and an active horse corral. An above surface drainage channel captures rainwater runoff from properties located to the west. The water drains southwest to the culvert inlet located at the southwest corner of the Project site.

COMMENTS AND RECOMMENDATIONS

CDFW offers the following comments and recommendations to assist the City in adequately identifying and/or mitigating Project impacts on biological resources and to ensure regional conservation objectives in the MHCP and draft Escondido SAP would not be eliminated by implementation of the Project.

Specific Comments

1) Biological Baseline Assessment. CDFW recommends providing a complete assessment and impact analysis of the flora and fauna within and adjacent to the Project site, with emphasis

DocuSign Envelope ID: CA4913C0-E541-478E-92C1-9B1066CDDB94

upon identifying endangered, threatened, sensitive, regionally and locally unique species, including any Covered Species under the City's draft SAP, and sensitive habitats. Although CDFW recognizes the Escondido SAP was not adopted, it remains a valuable reference to evaluate the importance of local biological resources and the potential implications to long-term conservation objectives within and beyond the City's boundaries. Absent this recognition the City's actions could cause further decline of species and their requisite habitats, including biological connectivity, leading to the need to list species as threatened or endangered. The Project impact analysis should therefore address direct, indirect, and cumulative biological impacts, as well as provide specific mitigation or avoidance measures necessary to offset those impacts. CDFW recommends avoiding any sensitive natural communities found on or adjacent to the Project. The DEIR should include the following information:

a) Information on the regional setting that is critical to an assessment of environmental impacts, with special emphasis on resources that are rare or unique to the region [CEQA Guidelines, § 15125(c)]. The DEIR should include measures to fully avoid and otherwise protect Sensitive Natural Communities from Project-related impacts. Project implementation may result in impacts to rare or endangered plants or plant communities that have been recorded in the Project vicinity. CDFW considers these communities as threatened habitats having both regional and local significance. Plant communities, alliances, and associations with a state-wide ranking of S1, S2, S3 and S4 should be considered sensitive and declining at the local and regional level. These ranks can be obtained by visiting https://www.wildlife.ca.gov/Data/VegCAMP/Natural-Communities#sensitive%20natural%20communities;

b) A complete floristic assessment within and adjacent to the Project area, with particular emphasis upon identifying endangered, threatened, sensitive, and locally unique species and sensitive habitats. This should include a thorough, recent, floristic-based assessment of special status plants and natural communities.

c) A complete, recent, assessment of the biological resources associated with each habitat type onsite and within adjacent areas that could also be affected by the Project. CDFW's California Natural Diversity Database (CNDDB) should be reviewed to obtain current information on any previously reported sensitive species and habitat. CDFW recommends that CNDDB Field Survey Forms be completed and submitted to CNDDB to document survey results. Online forms can be obtained and submitted at http://www.dfg.ca.gov/biogeodata/cnddb/submitting_data_to_cnddb.asp;

d) The DEIR should have a complete, recent, assessment of rare, threatened, and endangered, and other sensitive species onsite and within the area of potential effect, including California Species of Special Concern and California Fully Protected Species (Fish & G. Code, §§ 3511, 4700, 5050 and 5515). Species to be addressed should include all those which meet the CEQA definition of endangered, rare, or threatened species (CEQA Guidelines, § 15380). Seasonal variations in use of the Project area should also be addressed. Focused species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are necessary. Acceptable species-specific

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survey procedures should be developed in consultation with CDFW and USFWS; and,

e) A recent, wildlife and rare plant survey. CDFW generally considers biological field assessments for wildlife to be valid for a one-year period, and assessments for rare plants may be considered valid for a period of up to three years as long as there was not a prevailing drought during the time of the botanical survey. Some aspects of the proposed Project may warrant periodic updated surveys for certain sensitive taxa, particularly if build out could occur over a protracted time frame, or in phases.

2) Sensitive Bird Species. Project activities occurring during the breeding season of nesting birds could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment in habitat directly adjacent to the Project boundary. The Project could also lead to the loss of foraging habitat for sensitive bird species.

a) CDFW recommends that measures be taken, primarily, to avoid Project impacts to nesting birds. Migratory nongame native bird species are protected by international treaty under the Federal Migratory Bird Treaty Act (MBTA) of 1918 (Code of Federal Regulations, Title 50, § 10.13). Sections 3503, 3503.5, and 3513 of the California Fish and Game Code prohibit take of all birds and their active nests including raptors and other migratory nongame birds (as listed under the MBTA).

b) Project activities including (but not limited to) staging and disturbances to native and nonnative vegetation, structures, and substrates should occur outside of the avian breeding season which generally runs from February 15 through August 31 (as early as January 1 for some raptors) to avoid take of birds or their eggs. If avoidance of the avian breeding season is not feasible, CDFW recommends surveys by a qualified biologist with experience in conducting breeding bird surveys to detect protected native birds occurring in suitable nesting habitat that is to be disturbed and (as access to adjacent areas allows) any other such habitat within 300-feet of the disturbance area (within 500-feet for raptors). Project personnel, including all contractors working onsite, should be instructed on the sensitivity of the area. Reductions in the nest buffer distance may be appropriate depending on the avian species involved, ambient levels of human activity, screening vegetation, or possibly other factors.

3) Tree Removal: Based off aerial imagery, the Project site contains several mature trees. Although some of the current tree inventory may be non-native, these mature trees can still serve as habitat for native fauna. Habitat loss is one of the leading causes of native biodiversity loss. To compensate for any loss of trees, CDFW recommends replacing all non-native trees removed as a result of the proposed work activities at least a 1:1 ratio with native trees.

a) Due to tree removal, Project activities have the potential to result in the spread of tree insect pests and disease into areas not currently exposed to these stressors. This could result in expediting the loss of oaks, alders, sycamore, and other trees in California which support a high biological diversity including special status species.

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To reduce impacts to less than significant, the final environmental document should describe an infectious tree disease management plan and how it will be implemented to avoid significant impacts under CEQA. All trees identified for removal resulting from the Project should be inspected for contagious tree diseases including but not limited to: thousand canker fungus (*Geosmithia morbida*), see http://www.thousandcankers.com/; Polyphagous Shot Hole Borer (*Euwallacea spp*.), see http://eskalenlab.ucr.edu/avocado.html); and goldspotted oak borer (*Agrilus auroguttatus), see* http://ipm.ucanr.edu/PMG/PESTNOTES/pn74163.html. To avoid the spread of infectious tree diseases, diseased trees should not be transported from the Project site without first being treated using best available management practices relevant for each tree disease observed.

4) Lake and Streambed: An above surface drainage channel is on the southern portion of the Project site. The site is within 0.25 mile of Escondido Creek. CDFW has regulatory authority over activities in streams and/or lakes that will divert or obstruct the natural flow, or change the bed, channel, or bank (which may include associated riparian resources) of any river, stream, or lake or use material from a river, stream, or lake. For any such activities, the Project applicant (or "entity") must provide written notification to CDFW pursuant to section 1600 et seq. of the Fish and Game Code. Based on this notification and other information, CDFW determines whether a Lake and Streambed Alteration Agreement (LSAA) with the applicant is required prior to conducting the proposed activities. CDFW's issuance of a LSAA for a Project that is subject to CEQA will require CEQA compliance actions by CDFW as a Responsible Agency. To minimize additional requirements by CDFW pursuant to section 1600 et seq. and/or under CEQA, the DEIR should fully identify the potential impacts to the stream or riparian resources and provide adequate avoidance, mitigation, monitoring, and reporting commitments for issuance of the LSAA. CDFW recommends the Applicant submit a Lake and Streambed Alteration Notification to CDFW.

5) Landscaping: The Project Description includes landscaping throughout the Project site. Habitat loss and invasive plants are a leading cause of native biodiversity loss. CDFW recommends that the DEIR also stipulate that no invasive plant material shall be used. Furthermore, we recommend using native, locally appropriate plant species for landscaping on the Project site. A list of invasive/exotic plants that should be avoided as well as suggestions for suitable landscape plants can be found at California Native Plant Council https://www.cal-ipc.org/solutions/prevention/landscaping/.

General Comments

1) Project Description and Alternatives. To enable CDFW to adequately review and comment on the Project from the standpoint of the protection of plants, fish, and wildlife, we recommend the following information be included in the DEIR:

   a) A complete discussion of the purpose and need for, and description of, the Project, including all staging areas and access routes to the construction and staging areas;

   b) A range of feasible alternatives to Project component location and design features to ensure that alternatives to the proposed Project are fully considered and evaluated. The

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alternatives should avoid or otherwise minimize direct and indirect impacts to sensitive biological resources and wildlife movement areas.

2) Compensatory Mitigation. The DEIR should include mitigation measures for adverse Project-related impacts to sensitive plants, animals, and habitats. Mitigation measures should emphasize avoidance and reduction of Project impacts. For unavoidable impacts, onsite habitat restoration or enhancement should be discussed in detail. If onsite mitigation is not feasible or would not be biologically viable and therefore would not adequately mitigate the loss of biological functions and values, offsite mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed. Areas proposed as mitigation lands should be protected in perpetuity with a conservation easement, financial assurance, and dedicated to a qualified entity for long-term management and monitoring. Under Government Code section 65967, the Lead Agency must exercise due diligence in reviewing the qualifications of a governmental entity, special district, or non-profit organization to effectively manage and steward land, water, or natural resources on mitigation lands that it approves.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a data base which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be found at the following link: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/CNDDB_FieldSurveyForm.pdf. The completed form can be mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov. The types of information reported to CNDDB can be found at the following link: http://www.dfg.ca.gov/biogeodata/cnddb/plants_and_animals.asp.

FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

CONCLUSION

CDFW appreciates the opportunity to comment on the NOP to assist the City in identifying and mitigating Project impacts on biological resources and ensuring Project consistency with the requirement of the draft SAP under the San Diego County MHCP.

Questions regarding this letter or further coordination should be directed to Emily Gray, Environmental Scientist, at Emily.Gray@wildlife.ca.gov.

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Sincerely,

DocuSigned by:
Jennifer Turner
C3D449ECB7C14DE...

For David Mayer
Environmental Program Manager
South Coast Region

ec:
Jonathan Snyder, US Fish and Wildlife Service, Jonathan_Snyder@fws.gov
State Clearinghouse, Sacramento, state.clearinghouse@opr.ca.gov
Karen Drewe, CDFW, Karen.Drewe@wildlife.ca.gov
Jennifer Turner, CDFW, Jennifer.Turner@wildlife.ca.gov
Jennifer Ludovissy, CDFW, Jennifer.Ludovissy@wildlife.ca.gov

References

California Department of Fish and Wildlife. 2020. California Natural Diversity Database. Available from: https://wildlife.ca.gov/Data/CNDDB.

California Department of Fish and Wildlife. 2020. Lake and Streambed Alteration Program. Available from: https://wildlife.ca.gov/Conservation/LSA

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deepwater habitats of the United States. U.S. Fish and Wildlife Service. FWS/OBS-79/31. Washington, DC.

Sproul, F., T. Keeler-Wolf, P. Gordon-Reedy, J. Dunn, and K. Harper. 2011. Vegetation Classification Manual for Western San Diego County. Prepared for San Diego Association of Governments. February 2011.

MEADOWBROOK VILLAGE CHRISTIAN
RETIREMENT COMMUNITY
100 HOLLAND GLEN
ESCONDIDO, CALIFORNIA 92026

July 27, 2021

Via email: jpaul@escondido.org

Jay Paul
Senior Planner
City of Escondido Planning Division
201 North Broadway
Escondido, CA 92025

Re: Case Number PHG 20-0032
North Iris Lane, Hallmark Communities, Inc.
Scoping for EIR

Dear Mr. Paul:

Meadowbrook Village Christian Retirement Community ("Meadowbrook") has the following comments regarding the scoping for the above project.

1. At the public scoping meeting, an opinion was voiced that the entry and exit of Meadowbrook onto North Iris Lane (approximately 590 feet south of Robin Hill Lane) was not used very much. This is emphatically not true. During COVID-19 this entrance and exit was closed, but only because of the need to limit access to the retirement community to only one entrance. As we are all aware, the elderly residents of retirement communities were especially susceptible to COVID-19, and for many months Meadowbrook allowed no visitors at all. It was necessary to screen all entrants from the one entrance and exit to the community on North Broadway.

However, the entrance and exit on North Iris Lane will soon be reopened and it is our expectation that this entrance and exit will be used as much as the entrance and exit on North Broadway. This is especially true as the new apartment building with 66 units immediately adjacent to the North Iris Land entrance was opened for occupancy just as COVID-19 hit, and the building is just now beginning to fill up.

2. At the scoping meeting it was explained that, in addition to the project access using Robin Hill Lane from North Iris Lane, and contrary to the Notice of the Scoping Meeting and the Site Plan and Tentative Map posted online, the Hallmark project will have a second access onto North Iris Lane apparently directly across from the Meadowbrook entrance and exit.

North Iris Lane can be very busy at times, and it can be difficult to exit Meadowbrook onto North Iris Lane, particularly when making a left turn. With the addition of the traffic from the proposed project, and with having to check not only traffic coming from the right or the left but also now from straight ahead, the intersection has the potential to become very dangerous. The traffic studies in the EIR need to pay careful attention to this, and it seems likely that some sort of traffic control will be needed to make this a safe intersection. Perhaps this point of entrance and exit from the project should be eliminated.

3. The project is very dense compared to the surrounding neighborhoods. We question whether the density is compatible with the existing community.

4. The notice of the scoping meeting and the project documents online showed that the project access across from the Meadowbrook entrance and exit onto North Iris Lane was to be an emergency access only with a Knox box. If that important element of the project changes, it seems that there should be a new notice to the community and a new scoping meeting with the correct information. This type of misinformation is concerning and should not be a part of our public process.

Thank you for your consideration.

Sincerely,

Arnold Veldkamp

Arnold Veldkamp
Secretary of the Board of Directors
Meadowbrook Village Christian Retirement Community

Jay Paul

From: Audrey Brouwer <audreyabrouwer@gmail.com>
Sent: Thursday, July 22, 2021 9:42 AM
To: Jay Paul; glen@trib-la.com
Subject: [EXT] Case Number: PHG 20-0032

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Jay,

I would like to add some additional comments to Glen's email. In the almost 30 years we have lived on the corner of Iris Lane and Cheyenne Lane, we have seen this area transition from a quiet, rural neighborhood to a noisy traffic route for residents outside of our neighborhood. Last spring, the speed of the cars travelling on Iris was so bad, we had an Escondido police officer parked in front of our house writing tickets left and right. The police department even put up a speed monitoring sign and following sign to remind drivers this is a residential neighborhood. I don't know if traffic studies include accidents, but the corner of Iris and Center CIty have had many accidents due to the change in elevation and curve on Iris and the speed of drivers. Adding more drivers will only increase the number of accidents at this intersection.

I am also concerned about the extra traffic and how it will affect the residents/guests of Meadowbrook Village Christian Community when they exit the back gate. When I leave my mom's place, it can take some time just to get onto Iris with the existing traffic and speed of cars.

I support property owner's rights and understand the need for housing, but a project this size is not appropriate for the location. I believe single family homes would be a more appropriate use for this location.

Thank you,

Audrey Brouwer

Jay Paul

From: Glen Brouwer <glen@trib-la.com>
Sent: Thursday, July 22, 2021 9:08 AM
To: Jay Paul
Cc: abrouwer@superiorrm.com
Subject: [EXT] Case Number: PHG 20-0032

CAUTION: This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender email address AND know the content is safe.

Jay,

I hope that you and your family are doing well. I've not had any projects in Escondido so we haven't had a chance to catch up.

I wanted to provide a few comments on this project. Audrey and I live at 305 Cheyenne Lane which is the southwest corner of Iris Lane and Cheyenne. We have lived in this home for nearly 30 years so we have seen the traffic increase over the years. We have noticed the traffic has increased pretty dramatically over the last several years. I'm sure that this is due to the new homes built east of us off Vista way etc. What we've seen is people use Iris as the quicker way to get to Centre City so at times in the morning, we have traffic backed up to Cheyenne Lane as they wait for the stop light at Centre City. I generally leave for work around 7 am so the traffic isn't as bad then but at times I when I leave around 7:30 it can be difficult to turn west on to Iris and nearly impossible to turn east. The traffic is generally worse during the school year and lessens during the rest of the year. I'm sure that the city will require traffic studies of the builder so they can show how the new development will affect the traffic. What is important in doing that study is that the builder do the traffic studies at the time when schools are fully in session. This past year with schools and most everything else being closed due to the virus, the traffic was at a lower level but as things begin to open up again we are seeing the increase in the traffic. My concern is the traffic studies will be done during a low use time and when everything really opens up, we will have a terrible issue with traffic. The project proposes 102 condos which most likely will be 2-3 bedrooms. As I look at that, there will be a minimum of 204 cars associated to the project and if the condos end up being rental units the number of cars could increase to one per bedroom. Thinking on those really concerns me as there are many more trips based on the number of cars associated with the project.

As a landscape architect who works with builders, I'm pretty much a pro-builder person. Also I fully believe that California and especially North County needs more homes but I'm greatly concerned about how that development occurs. This project seems to be too much for the small, busy street that is Iris Lane.

I appreciate you taking the time to read this.

Thank you,

Glen

Glen Brouwer, ASLA
Partner
California Licensed Landscape Architect #3465

Tributary LA. Inc.
2725 Jefferson Street, Suite 14

Jay Paul

From: Claude Dillard <cldox4life@gmail.com>
Sent: Wednesday, July 28, 2021 4:12 PM
To: Jay Paul
Subject: Re: [EXT] N. Iris Apartment Building Meeting

Thank you for the document. I am very disappointed there were only "3" non-staff/applicant/consultants participating. Hopefully, you received meaningful comments from other sources.

This is far too important. The dangerous driving along N. Iris Lane between Village and CC Pkwy, especially southbound, has "yet" to cause death, as far as I know. I risk being T-boned by the "unable to see" speeders heading for CCP. The increased density will dramatically threaten the Meadowbrook Village Christian Retirement Community and all nearby neighborhoods.

Major road widening and repairs, sidewalks, and realignments would be needed along N. Iris, S. Iris, and their intersections at Centre City Parkway. Imagine the triple, quadruple numbers of cars in lines, blocking side streets, along N. Iris, especially, but S. Iris, as well, waiting to access North and South CCP.

You have an approved project, Item 130, at 1802 N. Centre City Parkway: 96-bed residential care facility which will impact the intersection at Iris Lanes. Plus, Item 142, Solaris Business Park will impact traffic patterns: Country Club, Village, N. Iris, N. Broadway, Centre Center Pkwy, etc.

Crime will be a major concern, as well.

Thank You.

Claude Dillard
327 Elkhorn Lane
92026

Appendix B
Project Plans

TENTATIVE SUBDIVISION MAP AND PLANNED DEVELOPMENT PERMIT PLANS FOR:

N. IRIS LANE

PROJECT ID: PHG20-0032

LEGAL DESCRIPTION

PORTIONS OF LOT 6 IN SECTION 4, TOWNSHIP 12 SOUTH, RANGE 2 WEST, SAN BERNARDINO BASE AND MERIDIAN, IN THE COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO THE OFFICIAL PLAT THEREOF.

SOURCE OF TOPOGRAPHY

TOPOGRAPHIC INFORMATION SHOWN HEREON IS BY SB&O INC., DATED AUGUST, 2020.

BENCHMARK

CITY OF ESCONDIDO BENCHMARK #722: CHISELED SQUARE ON TOP OF CURB, AT NORTH EDGE OF A PEDESTRIAN RAMP, ON THE NW CORNER OF N. IRIS LANE AND CHEYENNE LANE.

ELEVATION 710.47' NGVD 29

BASIS OF BEARINGS

THE BASIS OF BEARINGS FOR THIS SURVEY IS THE NORTH AMERICAN DATUM OF 1983 (NAD83) EXPRESSED IN THE TERMS OF THE CALIFORNIA COORDINATE SYSTEM (CCS83), ZONE 6, EPOCH 1992, AS DETERMINED LOCALLY BY A LINE BETWEEN CITY OF ESCONDIDO POINT "1015" AND "1013 PER RECORD OF SURVEY 14236, BEING S05°13'11"E.

QUOTED BEARINGS FROM REFERENCE MAPS OR DEEDS MAY OR MAY NOT BE IN TERMS OF SAID SYSTEM.

THE COMBINED SCALE FACTOR AT POINT "1015" IS 0.999922968.

GRID DISTANCE = GROUND DISTANCE TIMES COMBINED SCALE FACTOR.

CONVERGENCE ANGLE AT POINT "1015" IS: −0°28'19.877".

ASSESSOR'S PARCEL NUMBER

224–310–05, 224–310–06, 224–310–07, 224–310–08, 224–310–20

CONDOMINIUM STATEMENT

THIS IS A CONDOMINIUM PROJECT AS DEFINED IN SECTION 4125, ET. SQ. OF THE CIVIL CODE OF THE STATE OF CALIFORNIA AND IS TO BE FILED PURSUANT TO THE SUBDIVISION AP ACT. THIS PROJECT PROPOSED A MAXIMUM OF 102 RESIDENTIAL CONDOMINIUMS.

UTILITIES

WATER:	RINCON WATER DISTRICT
SEWER:	CITY OF ESCONDIDO UTILITIES CONSTRUCTION AND ENGINEERING DIVISION
GAS:	SAN DIEGO GAS & ELECTRIC
ELECTRIC:	SAN DIEGO GAS & ELECTRIC
TRASH:	EDCO

EARTHWORK QUANTITIES

GRADE AREA:	7.70 AC.	MAX CUT DEPTH:	±15 FT.
CUT:	17,700 C.Y.	MAX CUT SLOPE RATIO (2:1 MAX):	2:1
FILL:	33,000 C.Y.	MAX FILL DEPTH:	±10 FT.
NET IMPORT:	15,300 C.Y.	MAX FILL SLOPE RATIO (2:1 MAX):	2:1

* EARTHWORK QUANTITIES ARE APPROXIMATE

DEVELOPMENT NOTES

1. GROSS PROJECT AREA = 7.704 AC.
   NET PROJECT AREA (REMOVE ROBIN HILL LANE EASEMENT AND IRIS LANE DEDICATION) = 6.987 AC.
2. NUMBER OF EXISTING LOTS = 5.
   NUMBER OF PROPOSED LOTS = 1.
   NUMBER OF PROPOSED DWELLING UNITS = 102.
   GROSS DENSITY (DU/AC) = 13.2 DU/AC.
   NET DENSITY (DU/AC) = 14.6 DU/AC.
3. A. PROPOSED GENERAL PLAN DESIGNATION: URBAN III (REQUIRES GPA).
   B. PROPOSED ZONING: PD–R–18.
4. ALL BUILDINGS ARE 2 STORY WITH 3 STORY POPUP.
5. ALL LOTS/UNITS SHALL BE CONNECTED TO A SANITARY SEWER SYSTEM.
6. ZONE "X" FIRM MAP NO: 06073C813G AND 06073C811G, EFFECTIVE 5–16–2012.
7. ALL ONSITE WATER, SEWER AND STORM DRAIN SHALL BE OWNED AND MAINTAINED BY THE HOA.
8. SETBACKS:
   FRONT = 15 FEET.
   SIDE (INTERIOR) = 5 FEET
   SIDE (CORNER) = 10 FEET.
   BACK = 10 FEET.

LIST OF ABBREVIATIONS

A.P.	ACCESSIBLE PARKING	IRR.	IRRIGATION
AC.	ACRE	L.P.	LOW POINT
A.D.A.	AMERICANS WITH DISABILITIES ACT	MAX.	MAXIMUM
APPROX.	APPROXIMATE	MIN.	MINIMUM
A.C.	ASPHALT CONCRETE	MOD.	MODIFIED
BMP	BEST MANAGEMENT PRACTICES	N.A.P.	NOT A PART
B.W.	BOTTOM OF WALL	O.C.	ON CENTER
C.B.	CATCH BASIN	PKWY.	PARKWAY
℄	CENTERLINE	P.V.C.	POLYVINYL CHLORIDE
C.O.	CLEANOUT	P.C.C.	PORTLAND CEMENT CONCRETE
CONC.	CONCRETE	P.P.	POWER POLE
C.Y.	CUBIC YARD	PVT.	PRIVATE
D.G.	DECOMPOSED GRANITE	ℙ	PROPERTY LINE
DIA.	DIAMETER	R.Y.S.	REAR YARD SETBACK
DWG.	DRAWING	RCBC	REINFORCED CONCRETE BOX CULVERT
DWY., D/W	DRIVEWAY	RPDA	REDUCED PRESSURE DETECTOR ASSEMBLY
D.U.	DWELLING UNIT	R.C.P.	REINFORCED CONCRETE PIPE
E.P.	EDGE OF PAVEMENT	R.C.B.C.	REINFORCED CONCRETE BOX CULVERT
ELEV.	ELEVATION	R/W	RIGHT–OF–WAY
EXIST.	EXISTING	S.C.O.	SEWER CLEANOUT
E.O.E.	EXISTING OVERHEAD ELECTRIC	S.M.H.	SEWER MANHOLE
F.F.	FINISHED FLOOR	S.Y.S.	SIDE YARD SETBACK
F.G.	FINISHED GRADE	SIM.	SIMILAR
F.S.	FINISHED SURFACE	S.F.	SQUARE FEET
FS	FIRE SERVICE	S.D.	STORM DRAIN
℈	FLOWLINE	S.D.C.O.	STORM DRAIN CLEANOUT
F.Y.S.	FRONT YARD SETBACK	S.G.	SUBGRADE
G.F.	GARAGE FLOOR	STA.	STATION
G.B.	GRADE BREAK	ST. LT.	STREET LIGHT
GR.	GRATE	T.W.C.	TIME WARNER CABLE
GTR.	GUTTER	T.C.	TOP OF CURB
H.H.	HANDHOLE	T.W.	TOP OF WALL
H.P.	HIGH POINT	TRANS.	TRANSFORMER
HR.	HOUR	TYP.	TYPICAL
I.E.	INVERT ELEVATION	U.N.O.	UNLESS NOTED OTHERWISE
		V.W.D.	VALLECITOS WATER DISTRICT

CIVIL ENGINEER/ LAND SURVEYOR

SB&O, INC.
3990 RUFFIN ROAD, SUITE 120
SAN DIEGO, CA. 92123
(858) 560–1141
CONTACT: AARON PARKER

LANDSCAPE ARCHITECT

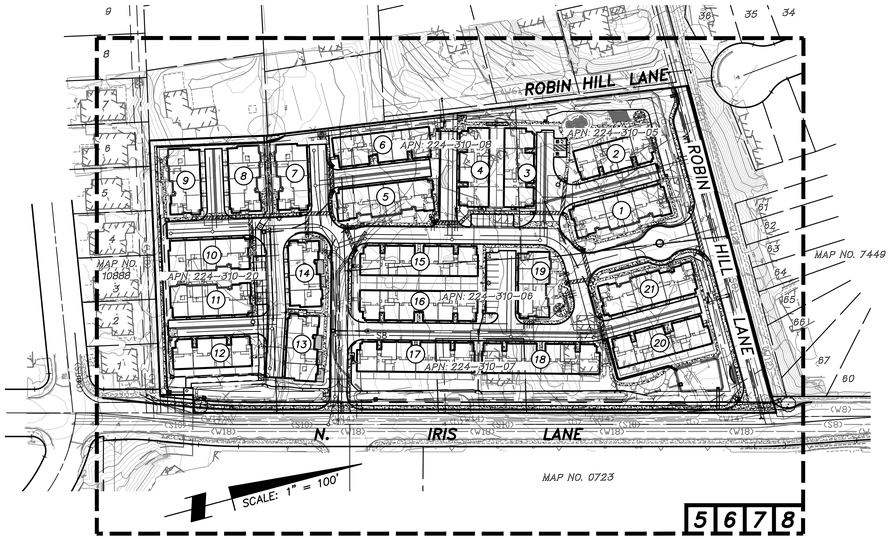
GMP
4010 SORRENTO VALLEY ROAD, SUITE 200
SAN DIEGO, CA. 92121
(858) 558–8977
CONTACT: JOHN PATTERSON

ARCHITECT

WHA
680 NEWPORT CENTER DRIVE, SUITE 300
NEWPORT BEACH, CA. 92660
(949) 250–0607
CONTACT: NICK MANEA

SOILS ENGINEER

GEOCON, INC.
6960 FLANDERS DRIVE
SAN DIEGO, CA. 92121
(858) 558–6900
CONTACT: JOE PAGNILLO



KEY MAP

SCALE: 1" = 100'

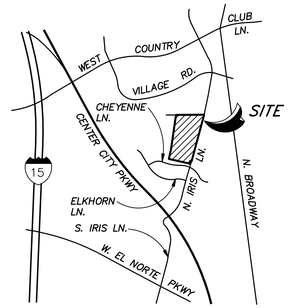
DEVELOPMENT SUMMARY

P1 Product Type		P2 Product Type	
Plan Type	Garage Standard	Plan Type	Garage Standard
1	2-car 20'0 " x 20'0 "	1	1-car 12'0 " x 20'0 "
2	2 -car 20'0 " x 20'0 "	2	2-car 20'0 " x 20'0 "
3	2-car 20'0 " x 20'0"	3	2-car 20'0" x 20'0"
4	2-car 20'0 " x 20'0"		

Required Parking Ratio	Required ParkingSpaces
1.75 spaces per 2BR unit	24.50 (RESIDENT)
2 spaces per 3+ BR unit	176.00 (RESIDENT)
25% of Total Units (102 * 25% = 25.5)	25.50 (GUEST)
Total Parking Required	**226**
Parking Provided	
Total Garage Spaces Provided	204
Open Guest Spaces (non-ADA)	21
ADA Spaces	2
Guest Electric VehicleCharging Spaces	3
Total Garage Spaces	**204**
Total Guest Parking	**26**
Total Project ParkingProvided	**230**

OPEN SPACE	
	PROVIDED (S.F.)
PRIVATE OPEN SPACE PATIOS/DECKS	21,434
COMMON OPEN SPACE AREA WITH GRADES LESS THAN 10%	64,247
RECREATIONAL AREAS	11,359
TOTAL	97,040

DWELLING UNITS			
	UNITS	PARKING/DU	REQ. PARKING
2 BDRM	14	1.75	24.5
3 BDRM	30	2	60
4 BDRM	58	2	116
TOTALS	102		
GUEST PARKING		0.25	25.5
GRAND TOTAL	102		226



VICINITY MAP

NOT TO SCALE

KEY MAP LEGEND

SHEET LIMITS

5 SHEET NUMBER

SHEET INDEX

SHEET NO.	DESCRIPTION
1	TITLE SHEET AND KEY MAP
2–4	DETAILS, SITE SECTIONS AND TYPICAL SECTIONS
5	EXISTING CONDITIONS
6	AREA CIRCULATION AND FIRE DEPARTMENT PLANS
7	HORIZONTAL CONTROL AND UTILITY PLANS
8	GRADING AND STORM DRAIN PLANS

OWNER/APPLICANT CERTIFICATE

HALL LAND COMPANY
740 LOMAS SANTA FE DRIVE, SUITE 204
SOLANA BEACH, CA. 92075
(858) 481–3310
CONTACT: MARIANA MCGRAIN

WE HEREBY CERTIFY THAT WE ARE THE RECORD OWNERS OF THE PROPERTY SHOWN ON THE ATTACHED TENTATIVE MAP AND THAT SAID MAP SHOWS OUR ENTIRE CONTIGUOUS OWNERSHIP. WE UNDERSTAND THAT PROPERTY IS CONSIDERED CONTIGUOUS EVEN IF IT IS SEPARATED BY ROADS, STREETS, UTILITY EASEMENTS, OR RAILROAD RIGHT OF WAY.

APPLICANT/AGENT FOR OWNER DATE

LEGEND

PROJECT BOUNDARY
STREET CENTERLINE
6" CURB AND GUTTER
6" OR 0" CURB (SEE PLAN FOR TYPE)
BUILDING NO.
TRANSFORMER PAD (APPROXIMATE LOCATION)
TREE WELL (PER CITY OF ESCONDIDO GREEN STREET STANDARDS)
P.C.C. CONCRETE
BROW DITCH (TYPE "B")
PEDESTRIAN RAMP
4" P.C.C. SIDEWALK
DIRECTION OF DRAINAGE
SLOPE (2:1 MAX., U.N.O.)
DAYLIGHT LINE
RETAINING WALL (TYPE PER PLAN)
PROPOSED CONTOUR
EASEMENT
SETBACK LINE
P.V.C. WATER MAIN (SIZE PER PLAN)
8" P.V.C. FIRE WATER
3" WATER BACKFLOW ASSEMBLY
3" ABOVE GROUND WATER METER
2" BACKFLOW ASSEMBLY
2" WATER METER
8" FIRE WATER DCDA
FIRE SERVICE LATERAL
STORM DRAIN (SIZE PER PLAN)
STORM DRAIN CLEANOUT
STORM DRAIN INLET (TYPE PER PLAN)
OUTLET CONTROL STRUCTURE
STORM DRAIN CATCH BASIN
P.V.C. SEWER MAIN (SIZE PER PLAN)
SEWER MANHOLE
SEWER CLEANOUT
FIRE LANE

EXISTING LEGEND

EXISTING TYPE "A–4" CLEANOUT
EXISTING TYPE "B–1" CURB INLET
EXISTING CONTOUR
EXISTING CURB AND GUTTER
EXISTING STRIPING
EXISTING GAS
EXISTING ELECTRIC
EXISTING STORM DRAIN
EXISTING SEWER MAIN
EXISTING WATER MAIN
EXISTING FIRE HYDRANT
EXISTING FENCE
EXISTING STREET LIGHT
EXISTING BUILDING
EXISTING EASEMENT
EXISTING RETAINING WALL

REGISTERED PROFESSIONAL ENGINEER — STEPHEN C. OTT — No. C70666 — CIVIL — STATE OF CALIFORNIA

SB&O INC.
PLANNING ENGINEERING SURVEYING
3990 Ruffin Road, Suite 120
San Diego, Ca. 92123
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858-560-8157 Fax

Stephen C. Ott 4–14–2022
STEPHEN C. OTT P.E. C70666 DATE

Prepared By:
Name: SB&O INC.
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Phone #: (858) 560–1141
Project Address:
N. IRIS LANE
ESCONDIDO, CA.
Project Name:
N. IRIS LANE
Sheet Title:
TITLE SHEET/KEY MAP

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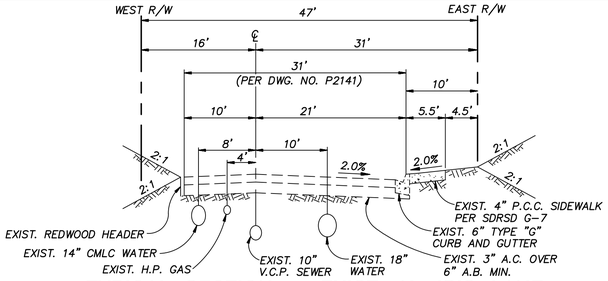
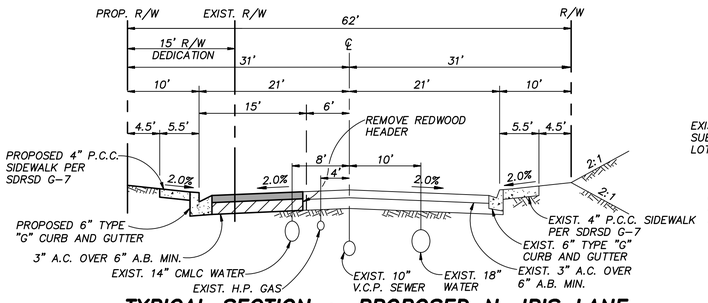


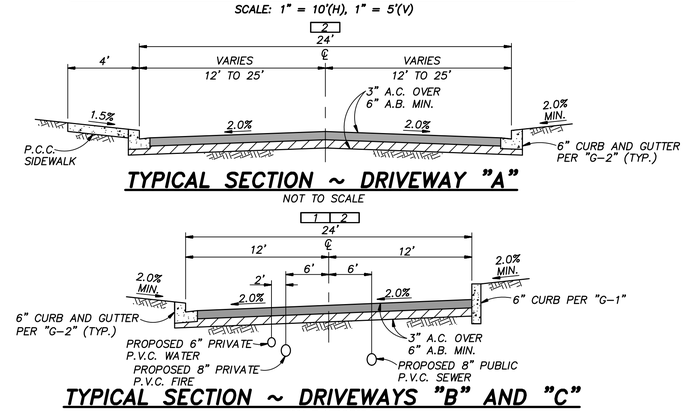
TYPICAL SECTION ~ EXIST. N. IRIS LANE

SCALE: 1" = 10'(H), 1" = 5'(V)



TYPICAL SECTION ~ PROPOSED N. IRIS LANE

SCALE: 1" = 10'(H), 1" = 5'(V)



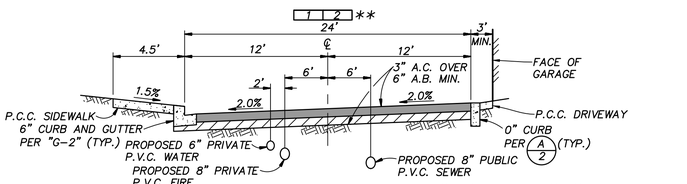
TYPICAL SECTION ~ DRIVEWAY "A"

NOT TO SCALE

TYPICAL SECTION ~ DRIVEWAYS "B" AND "C"

NOT TO SCALE

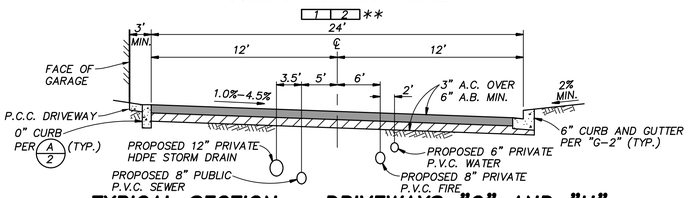
DRIVEWAY "B" – FROM STA. 16+98.54 TO STA. 19+95.96
DRIVEWAY "C" – FROM STA. 20+30.88 TO STA. 22+26.04
NOTE: UTILITIES SHOWN FOR DRIVEWAY "B" ONLY



TYPICAL SECTION ~ DRIVEWAYS "B" AND "J"

NOT TO SCALE

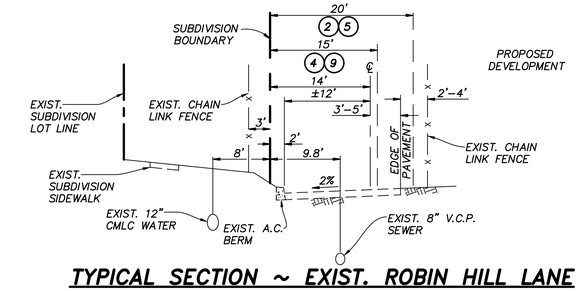
DRIVEWAY "B" – FROM STA. 15+44.90 TO 16+89.54
NOTE: UTILITIES SHOWN FOR DRIVEWAY "B" ONLY
**SEE PLAN VIEW WHERE APPLICABLE



TYPICAL SECTION ~ DRIVEWAYS "C" AND "H"

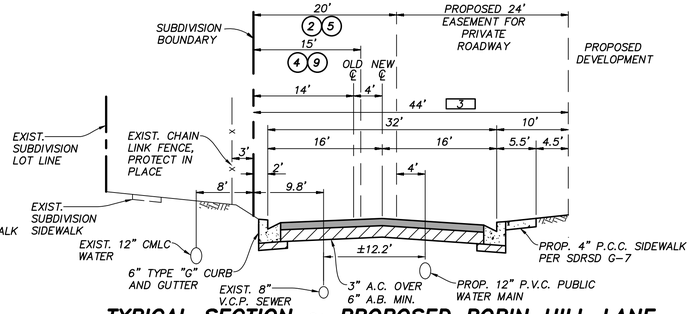
NOT TO SCALE

DRIVEWAY "C" – FROM STA. 23+95.90 TO STA. 25+05.66
NOTE: UTILITIES SHOWN FOR DRIVEWAY "C" ONLY
**SEE PLAN VIEW WHERE APPLICABLE



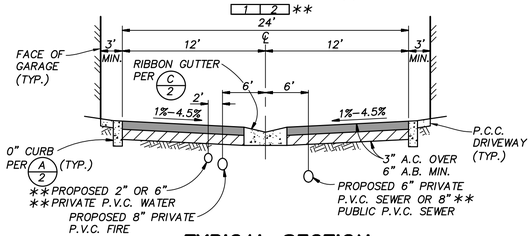
TYPICAL SECTION ~ EXIST. ROBIN HILL LANE

SCALE: 1" = 10'(H), 1 = 5'(V)



TYPICAL SECTION ~ PROPOSED ROBIN HILL LANE

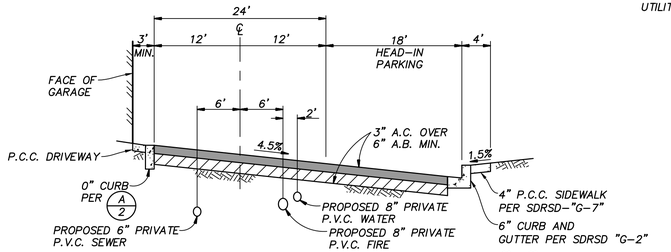
SCALE: 1" = 10'(H), 1" = 5'(V)



TYPICAL SECTION

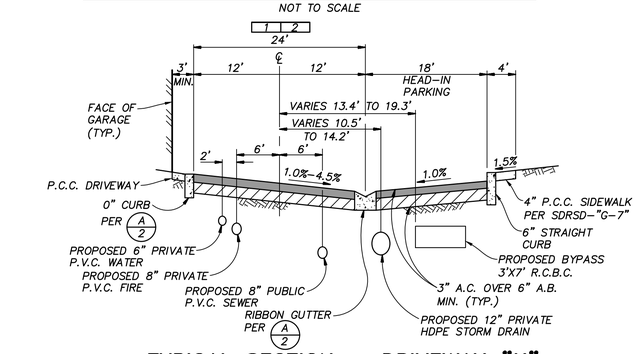
DRIVEWAYS "D","E","F","I","L","M" AND "N"

NOT TO SCALE
**SEE PLAN VIEW WHERE APPLICABLE



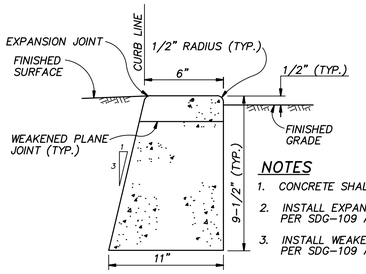
TYPICAL SECTION ~ PVT. DRIVEWAY "G"

NOT TO SCALE



TYPICAL SECTION ~ DRIVEWAY "K"

(DRIVEWAY "C" = STA. 13+47.00 TO STA. 13+65.00)
NOT TO SCALE

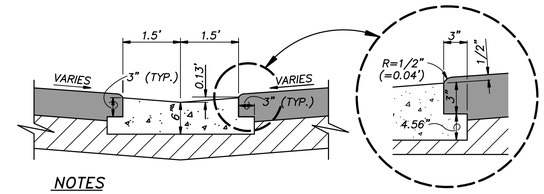


NOTES

1. CONCRETE SHALL BE 520-C-2500.
2. INSTALL EXPANSION JOINTS AT 45' INTERVALS PER SDG-109 AND G-10.
3. INSTALL WEAKENED PLANE JOINTS 15' INTERVALS PER SDG-109 AND G-10

A/2 DETAIL ~ 0" CURB

NOT TO SCALE



NOTES

1. CONCRETE SHALL BE 560-C-3250.
2. IN ALL CASES SUBGRADE SHALL BE COMPACTED TO 95% MIN RELATIVE COMPACTION TO A DEPTH OF 12".
3. WEAKENED PLANE JOINTS AT 15' INTERVALS. SEE SDRSD G-10 FOR GUTTER AND CONCRETE PAVEMENT JOINT DETAILS.

C/2 DETAIL ~ 3' RIBBON GUTTER

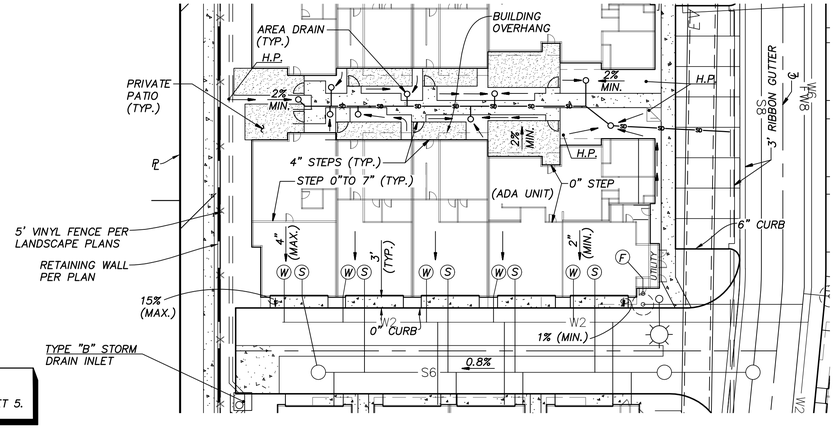
NOT TO SCALE

EASEMENT NOTE:

(#) FOR EXIST. EASEMENT NOTES SEE SHEET 5.

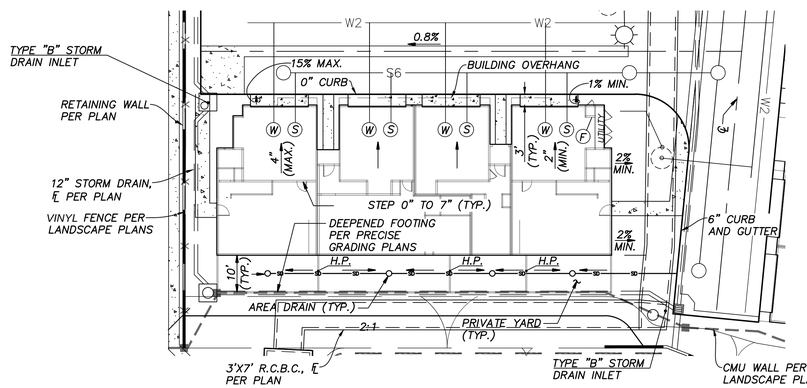
PROPOSED EASEMENTS

1. PROPOSED 24' WIDE PUBLIC UTILITY AND ACCESS EASEMENT FOR CITY UTILITIES.
2. PROPOSED 24' WIDE EMERGENCY ACCESS EASEMENT.
3. PROPOSED 44' WIDE PUBLIC UTILITY AND ACCESS EASEMENT FOR CITY UTILITIES.



TYPICAL GRADING DETAIL ~ INTERLOCKING

SCALE 1" = 20'



TYPICAL GRADING DETAIL ~ STANDARD

SCALE 1" = 20'

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Project Name:
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REGISTERED PROFESSIONAL ENGINEER
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4-14-2022

STEPHEN C. OTT P.E. C70666 DATE

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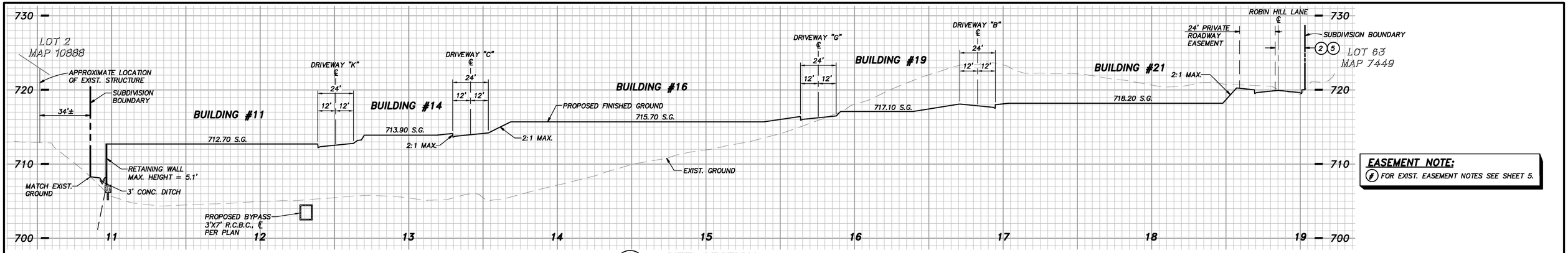
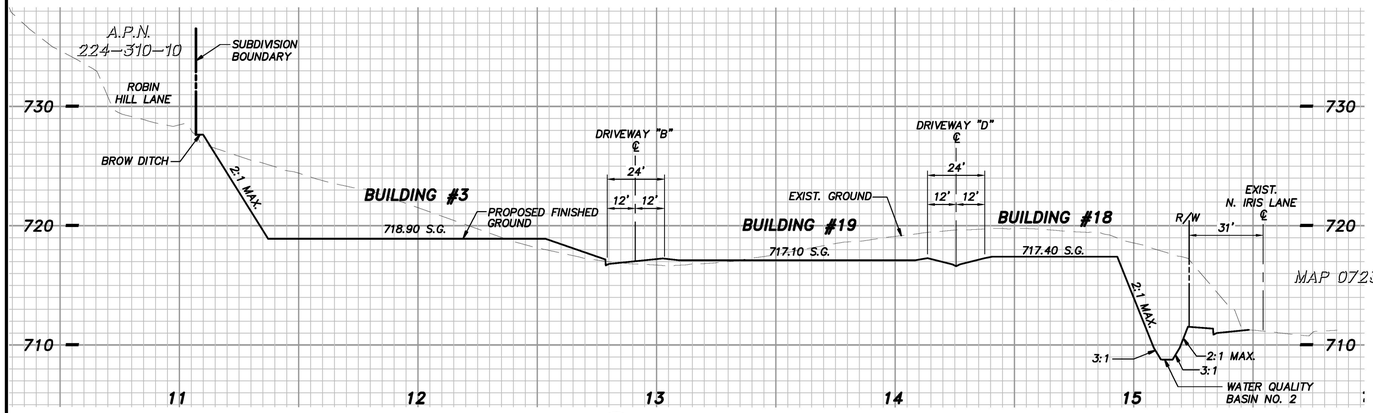
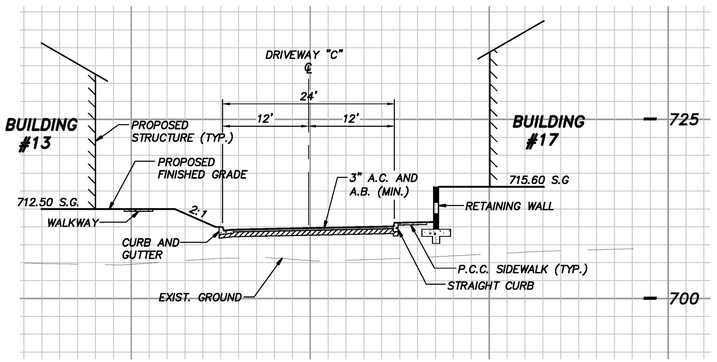


EASEMENT NOTE:
(#) FOR EXIST. EASEMENT NOTES SEE SHEET 5.

A/3 **SITE SECTION**
SCALE: 1" = 30'(H), 1" = 6'(V)
SEE SHEET 7



B/3 **SITE SECTION**
SCALE: 1" = 30'(H), 1" = 6'(V)
SEE SHEET 7



C/3 **SITE SECTION**
SCALE: 1" = 10'(H), 1" = 10'(V)
STA. 20+85.00
SEE SHEET 7

BIOFILTRATION DETAIL NOTES

1. PLANTING.
2. 30 MIL. P.V.C. LINER. ALL JOINTS TO BE SEALED WITH 12" MIN. OVERLAP. SEAL ALL PENETRATIONS.
3. 6" SLOTTED P.V.C. SUBDRAIN (ASTM D-3034), 3" MIN. FROM BOTTOM.
4. OUTLET CONTROL STRUCTURE WITH GRATED TOP.
5. ORIFICE PLATE.
6. OUTLET PIPE.
7. SUBDRAIN CLEANOUT PER SDRSD SC-01. RIM = F.G. + 0.6'
8. INSTALL WELL AGED SHREDDED HARDWOOD MULCH THAT HAS BEEN STOCKPILED OR STORED FOR AT LEAST 12 MONTHS. MULCH MUST BE NON-FLOATING.
9. FILTER COURSE TO BE 3" CLEAN AND WASHED SAND (ASTM NO. 33) OVER 3" LAYER OF ASTM NO. 8 STONE.
10. SOIL MEDIA, INFILTRATION = (BSM SPECIFICATION PER APPENDIX G OF COUNTY OF SAN DIEGO L.I.D. HANDBOOK JUNE 2014)

PER COUNTY OF SAN DIEGO L.I.D. HANDBOOK:

BSM COMPOSITION	SAND	SANDY LOAM			COMPOST
		SAND	SILT	CLAY	
VOLUME	65%	20%			15%
WEIGHT	75-80%	10% MAX.		3% MAX.	9% MAX.[1]

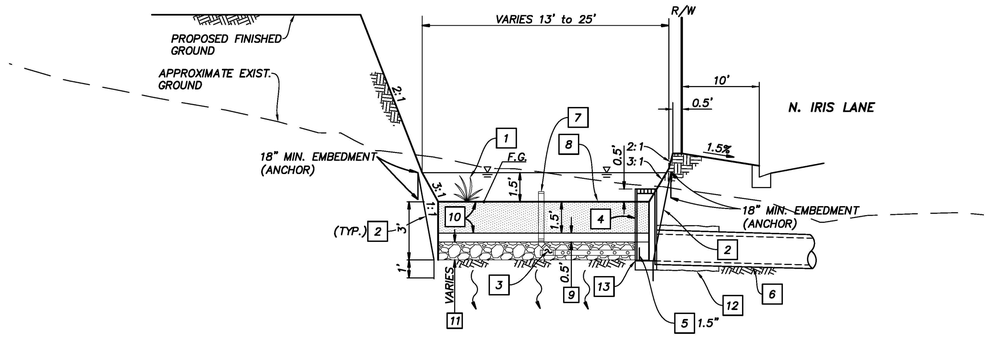
9% COMPOST BY WEIGHT RESULTS IN APPROXIMATELY 5% ORGANIC MATTER BY WEIGHT.

11. AGGREGATE STORAGE LAYER ASTM NO. 57 ROCK.
12. 2-SACK SLURRY BACKFILL AROUND STORM DRAIN LINE, PIPE ZONE. SLURRY BACKFILL TO START AT STORM DRAIN BOX AND EXTEND AT LEAST 5 FEET BEYOND LINER.
13. SEAL PVC LINER AROUND PIPES:
USE A PIPE BOOT AND PVC SKIRT TO SEAL ALL LINER PENETRATIONS FOR PIPES, PVC SKIRT SHOULD BE SEALED TO THE PARENT LINER PER MANUFACTURER'S RECOMMENDATIONS (TYPICALLY A WEDGE WELDER). THE PIPE BOOT SLEEVE SHOULD BE ATTACHED TO THE PIPE USING BUTYL TAPE AND STAINLESS STEEL BAND CLAMP.

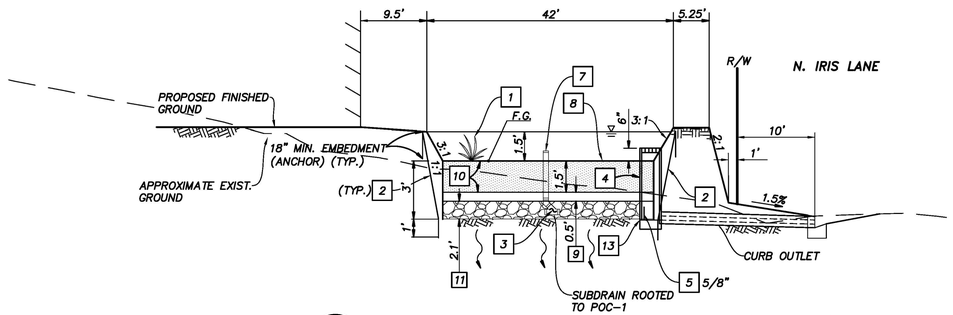
ATTACH THE LINER TO CONCRETE STRUCTURES:

1. PREPARE A PVC SKIRT FOR CONCRETE STRUCTURE.
2. ATTACHED THE LINER TO THE CONCRETE STRUCTURE USING A STAINLESS STEEL BATTEN STRIP. ALSO ADHERE THE LINER TO THE CONCRETE USING A WATER PROOF ADHESIVE PER THE MANUFACTURE'S RECOMMENDATIONS (TYPICALLY A POLYURETHANE).
3. THE PVC SKIRT TO BE SEALED TO THE PARENT LINER PER MANUFACTURER'S RECOMMENDATIONS (TYPICALLY A WEDGE WELDER).

14. EMBED LINER 12" VERTICAL.



D/3 **SECTION ~ BIOFILTRATION BASIN (BMP-1 AND BMP-2)**
NOT TO SCALE
SEE SHEET 8



E/3 **SECTION ~ BIOFILTRATION BASIN (BMP-3)**
NOT TO SCALE
SEE SHEET 8

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Stephen C. Ott 4-14-2022
STEPHEN C. OTT P.E. C70666 DATE

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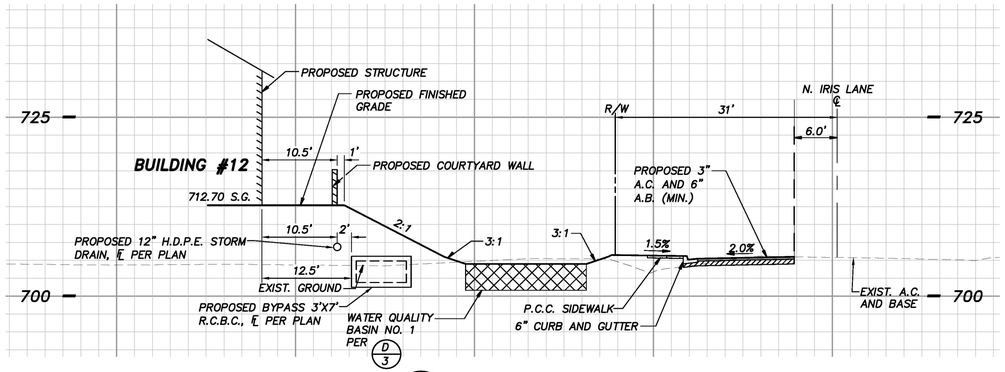
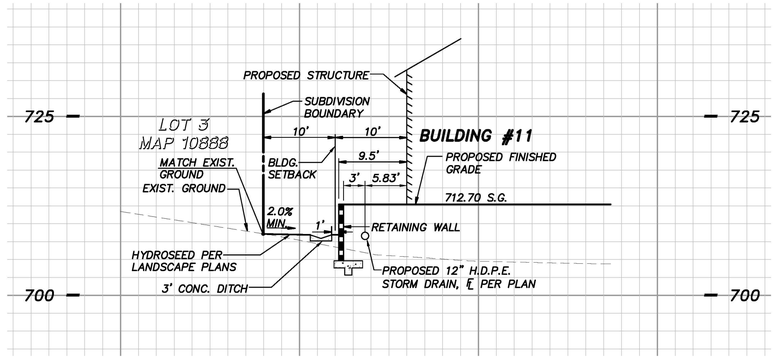


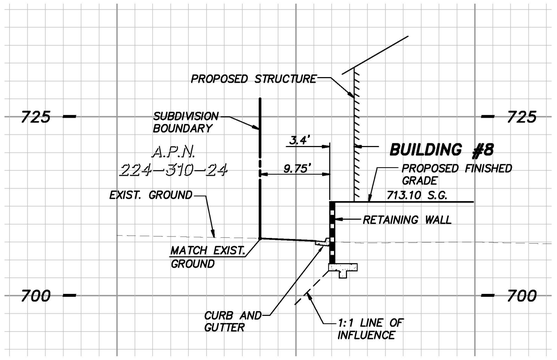
D/4 SITE SECTION

SCALE: 1" = 10'(H), 1" = 10'(V)
SEE SHEET 7



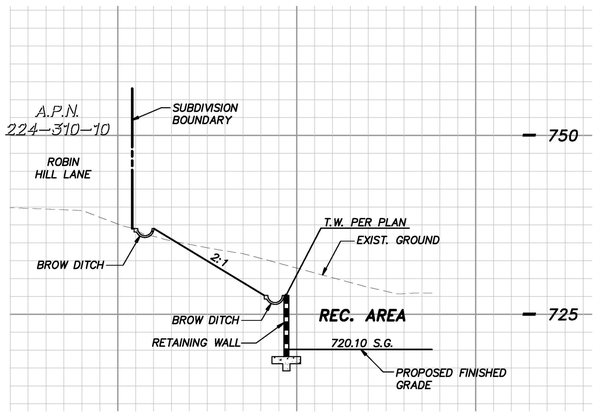
E/4 SITE SECTION

SCALE: 1" = 10'(H), 1" = 10'(V)
SEE SHEET 7



F/4 SITE SECTION

SCALE: 1" = 10'(H), 1" = 10'(V)
SEE SHEET 7



G/4 SITE SECTION

SCALE: 1" = 10'(H), 1" = 10'(V)
SEE SHEET 7

GRAPHIC SCALE

10 0 10 20 30

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STEPHEN C. OTT P.E. C70666 4-14-2022 DATE

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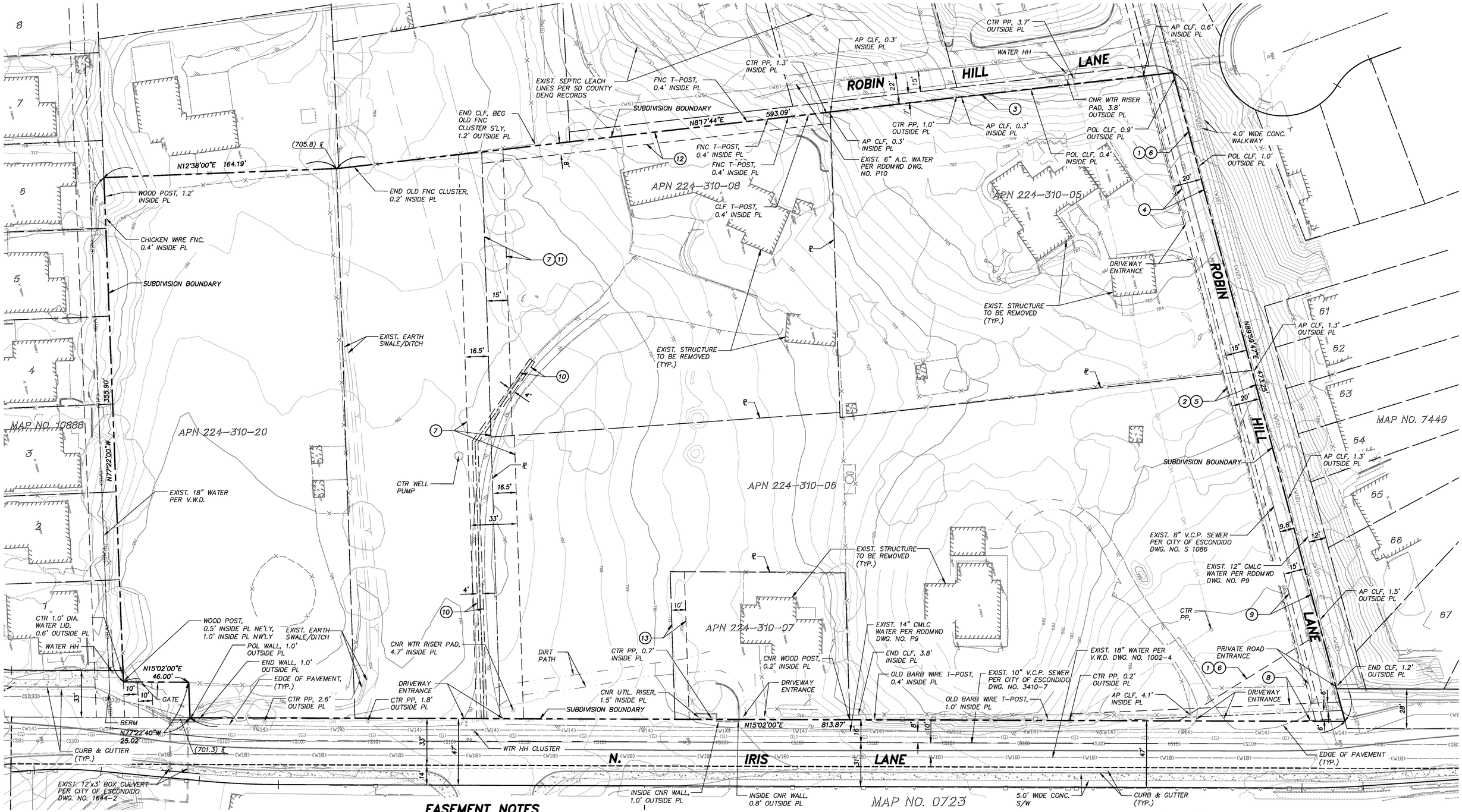

LEGEND

	SYMBOL
BOUNDARY LINE	
EX. LOT LINE	
CENTERLINE	
RIGHT-OF-WAY LINE	
EASEMENT LINE	
BUILDING	
OVERHEAD POWER LINES	OH
CHAIN LINK FENCE	
CURB	
EDGE OF CONCRETE	
EDGE OF PAVEMENT	

LEGEND (CONT.)

	SYMBOL
RETAINING WALL	
GAS LINE	(G)
SEWER LINE	(S10)
STORM DRAIN LINE	
WATER LINE	(W18)
WATER VALVE	
MANHOLE	MH
SIGN	
EASEMENT ITEM NO.	(8)

EASEMENT NOTES

1. SDG&E EASEMENT FOR PUBLIC UTILITIES, INGRESS AND EGRESS PER BOOK 2199, PAGE 1, REC. 7-29-1946. EASEMENT TO BE PARTIALLY QUITCLAIMED.
2. EASEMENT FOR INGRESS AND EGRESS FOR ROAD PER BOOK 3766, PAGE 97, REC. 9-6-1950. EASEMENT TO REMAIN.
3. SDG&E EASEMENT FOR PUBLIC UTILITIES, INGRESS AND EGRESS PER DOC. 138116, BOOK 7755, PAGE 220 REC. 7-6-1959. EASEMENT TO REMAIN.
4. EASEMENT FOR UNDERGROUND UTILITIES, TO INCLUDE, BUT NOT LIMITED TO SEWER AND ALL INCIDENTAL PURPOSES PER DOC. 85-109395, REC. 4-1-1985. EASEMENT TO REMAIN.
5. EASEMENT FOR ROAD AND INCIDENTAL PURPOSES PER DOC. 77607, REC. 9-19-1945. EASEMENT TO REMAIN.
6. SDG&E EASEMENT FOR PUBLIC UTILITIES, INGRESS AND EGRESS PER BOOK 2199, PAGE 1, REC. 7-29-1946. EASEMENT TO BE PARTIALLY QUITCLAIMED.
7. EASEMENT FOR ROAD, SEWER, WATER, GAS, POWER, TELEPHONE LINES AND APPURTENANCES THERETO PER DOC. 208807, BOOK 7393, PAGE 414, REC. 12-12-1958. EASEMENT TO BE QUITCLAIMED.
8. SDG&E EASEMENT FOR PUBLIC UTILITIES, INGRESS AND EGRESS PER DOC. 322078 REC. 12-12-1972. EASEMENT TO BE QUITCLAIMED.
9. EASEMENT FOR UNDERGROUND UTILITIES, TO INCLUDE, BUT NOT LIMITED TO SEWER AND ALL INCIDENTAL PURPOSES PER DOC. 85-109397, REC. 4-1-1985. EASEMENT TO REMAIN.
10. SDG&E EASEMENT FOR PUBLIC UTILITIES, INGRESS AND EGRESS PER DOC. 1988-382682, REC. 8-4-1988. EASEMENT TO BE QUITCLAIMED.
11. EASEMENT FOR ROAD AND UTILITY PURPOSES PER BOOK 7393, PAGE 414, REC. 12-12-1958. EASEMENT TO BE QUITCLAIMED.
12. SDG&E EASEMENT FOR PUBLIC UTILITY PURPOSES PER BOOK 7755, PAGE 234, REC. 7-5-1959. EASEMENT TO BE QUITCLAIMED.
13. EASEMENT FOR ROAD PURPOSES PER DOC. 31674, REC. 2-23-1961. EASEMENT TO BE QUITCLAIMED.

SCALE: 1" = 30'

GRAPHIC SCALE

30 0 30 60 90

REGISTERED PROFESSIONAL ENGINEER — STEPHEN C. OTT — No. C70666 — CIVIL — STATE OF CALIFORNIA

SB&O INC.
PLANNING ENGINEERING SURVEYING
3990 Ruffin Road, Suite 120
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858-560-1141
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Stephen C. Ott — 4-14-2022

STEPHEN C. OTT P.E. C70666 DATE

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Address: 3990 RUFFIN ROAD, SUITE 120
SAN DIEGO, CALIFORNIA 92123
Phone #: (858) 560-1141
Project Address:
N. IRIS LANE
ESCONDIDO, CA.
Project Name:
N. IRIS LANE
Sheet Title:
EXISTING CONDITIONS

Revision 14:	
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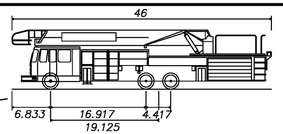
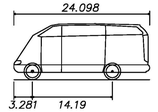


EFD Firetruck

Overall Length	46.000ft
Overall Width	8.500ft
Overall Body Height	10.467ft
Min Body Ground Clearance	0.897ft
Track Width	8.200ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	45.00°

A/6 DETAIL ~ CITY OF ESCONDIDO FIRE TRUCK TEMPLATE
NOT TO SCALE



Mercedes Sprinter Panel Van 518CDI Extra Long Super High Roof

Overall Length	24.098ft
Overall Width	6.539ft
Overall Body Height	9.942ft
Min Body Ground Clearance	1.312ft
Track Width	6.539ft
Lock-to-lock time	5.00s
Wall to Wall Turning Radius	25.591ft

B/6 DETAIL ~ MERCEDES 518CDI EXTRA LONG DELIVERY VAN TEMPLATE
NOT TO SCALE

ROBIN HILL LANE
ROBIN HILL LANE
N. IRIS LANE
SUBDIVISION BOUNDARY
MAP NO. 10888
MAP NO. 7449
MAP NO. 0723
POSSIBLE FUTURE CURB RETURN, R=25'
CONNECT TO EXIST. CURB RETURN, PROVIDE INLINE PED RAMP
PRIMARY VEHICLE ACCESS GATE WITH KNOX BOX FOR ENTRY
BLDG'S 1 & 2 FDC AND PIV
BLDG 3 FDC AND PIV
BLDG 4 & 15 FDC AND PIV
BLDG'S 5 & 6 FDC AND PIV
BLDG'S 7 & 14 FDC AND PIV
BLDG'S 8, 9 & 10 FDC AND PIV
BLDG 11 FDC AND PIV
BLDG 12 FDC AND PIV
BLDG 13 FDC AND PIV
BLDG'S 16, 17 & 18 FDC AND PIV
BLDG'S 19, 20 & 21 FDC AND PIV
FIRE RISER
DWY "A"
DWY "B"
DWY "C"
DWY "D"
DWY "E"
DWY "H"
DWY "I"
DWY "J"
DWY "K"
DWY "L"
DWY "M"
DWY "N"
STORM WATER QUALITY BASIN
STORM WATER QUALITY BASIN
STORM WATER QUALITY BASIN
DRIVEWAY PER G-5-E
SECONDARY VEHICLE ACCESS WITH KNOX BOX FOR EMERGENCY ONLY
℄ MEADOWBROOK DEVELOPMENT PER DWG. NO. P-2413 AND P-2414
EXIST. R/W
PROPOSED R/W
EXIST. ℄ STRIPING
POINT "O"
POINT "E"
EXIST. F.H.
400' SIGHT DISTANCE LINE BASED ON 35 MPH SPEED LIMIT
400' SIGHT DISTANCE LINE BASED ON 35 MPH SPEED LIMIT

LEGEND

- VEHICLE ACCESS
- FIRE LANE (SEE NOTE 1)
- ACCESSIBLE PATH OF TRAVEL
- FIRE HYDRANT
- "VISITABLE UNIT/ HANDICAP PARKING STALL
- FIRE TRUCK BODY
- FIRE TRUCK TRACK
- FIRE TRUCK OVERHANG
- FIRE DEPARTMENT CONNECTION (SEE NOTE 3)
- 3' CLEARANCE

NOTES

1. ALL FIRE ACCESS ROADS WILL PROVIDE 13'-6" VERTICAL CLEARANCE, 24' MIN. STREET WIDTH, AND THE REQUIRED 75,000 LBS LOADING CAPACITY PER CITY OF ESCONDIDO STRUCTURAL SECTIONS.
2. THERE ARE NO PROPOSED STREET GRADES EXCEEDING 15% GRADE.
3. FIRE DEPARTMENT CONNECTION (FDC) PER CITY OF OCEANSIDE STD. DWG. W-21

PROPOSED EASEMENTS

1. PROPOSED 24' WIDE PUBLIC UTILITY AND ACCESS EASEMENT FOR CITY UTILITIES.
2. PROPOSED 24' WIDE EMERGENCY ACCESS EASEMENT.
3. PROPOSED 44' WIDE PUBLIC UTILITY AND ACCESS EASEMENT FOR CITY UTILITIES.

EASEMENT NOTE:
(#) FOR EXIST. EASEMENT NOTES SEE SHEET 5.
FOR PROP. EASEMENT NOTES SEE THIS SHEET.

SCALE: 1" = 30'
GRAPHIC SCALE
30' 0 30' 60' 90'

REGISTERED PROFESSIONAL ENGINEER
STEPHEN C. OTT
No. C70666
CIVIL
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STEPHEN C. OTT P.E. C70666 4-14-2022
DATE

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Project Address:
N. IRIS LANE
ESCONDIDO, CA.
Project Name:
N. IRIS LANE
Sheet Title:
AREA CIRCULATION AND FIRE DEPARTMENT PLANS

Revision 14:
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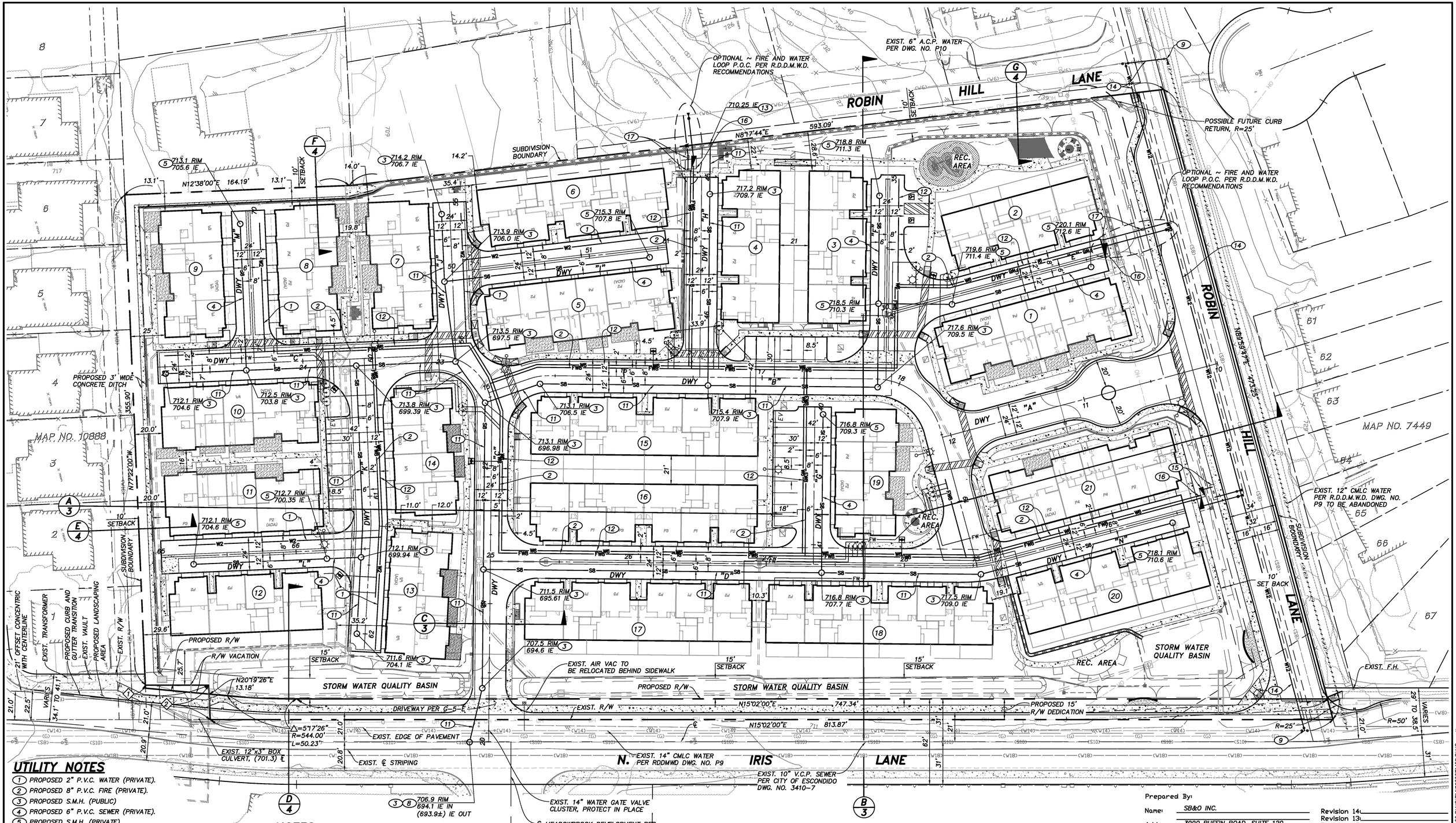

UTILITY NOTES

1. PROPOSED 2" P.V.C. WATER (PRIVATE).
2. PROPOSED 8" P.V.C. FIRE (PRIVATE).
3. PROPOSED S.M.H. (PUBLIC)
4. PROPOSED 6" P.V.C. SEWER (PRIVATE).
5. PROPOSED S.M.H. (PRIVATE)
8. CONNECT TO EXIST. 10" V.C.P. SEWER PER CITY OF ESCONDIDO DWG. NO. 3410-7.
9. CONNECT TO EXIST 12" OR 14" WATER PER R.D.D.M.W.D. DWG. NO. P9 AND P10.
11. PROPOSED 8" P.V.C. SEWER (PUBLIC), SEE NOTE 1.
12. PROPOSED 6" P.V.C. WATER (PRIVATE).
13. 8" SEWER MAIN STUB AND RISER FOR FUTURE DEVELOPMENT.
14. PROPOSED 12" P.V.C. WATER (PUBLIC)
15. 3" METER AND 3" BACKFLOW PER W.A.S. WR-02, WS-04A AND WS-4B.
16. 8" FIRE DCDA PER R.D.D.M.W.D. W-7.
17. 2" WATER METER AND 2" BACKFLOW PER R.D.D.M.W.D., W-2 AND W-6.
18. FDC AND BUILDING FIRE SERVICE, SEE SHEET 6.

NOTES

1. THERE SHALL BE NO TREES OR DEEP ROOTED BUSHES PLANTED WITHIN 15-FEET OF THE 8" PUBLIC SEWER MAIN.
2. OVERHEAD UTILITIES ALONG THE PROPERTY FRONTAGE WILL BE UNDERGROUNDED IN ACCORDANCE WITH THE CITY'S UNDERGROUNDING ORDINANCE.

EASEMENT NOTE:

(#) FOR EXIST. EASEMENT NOTES SEE SHEET 5.

[#] FOR PROP. EASEMENT NOTES SEE SHEET 6.

BOUNDARY DATA TABLE

◇	△/BEARING	RADIUS	LENGTH
1	N15°02'00"E	——	46.00'
2	N77°22'40"W	——	25.02'

SCALE: 1" = 30'

GRAPHIC SCALE

30 0 30 60 90

REGISTERED PROFESSIONAL ENGINEER STEPHEN C. OTT No. C70666 CIVIL STATE OF CALIFORNIA

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STEPHEN C. OTT P.E. C70666 4-14-2022 DATE

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Phone #: (858) 560-1141
Project Address: N. IRIS LANE ESCONDIDO, CA.
Project Name: N. IRIS LANE
Sheet Title: HORIZONTAL CONTROL AND UTILITY PLANS

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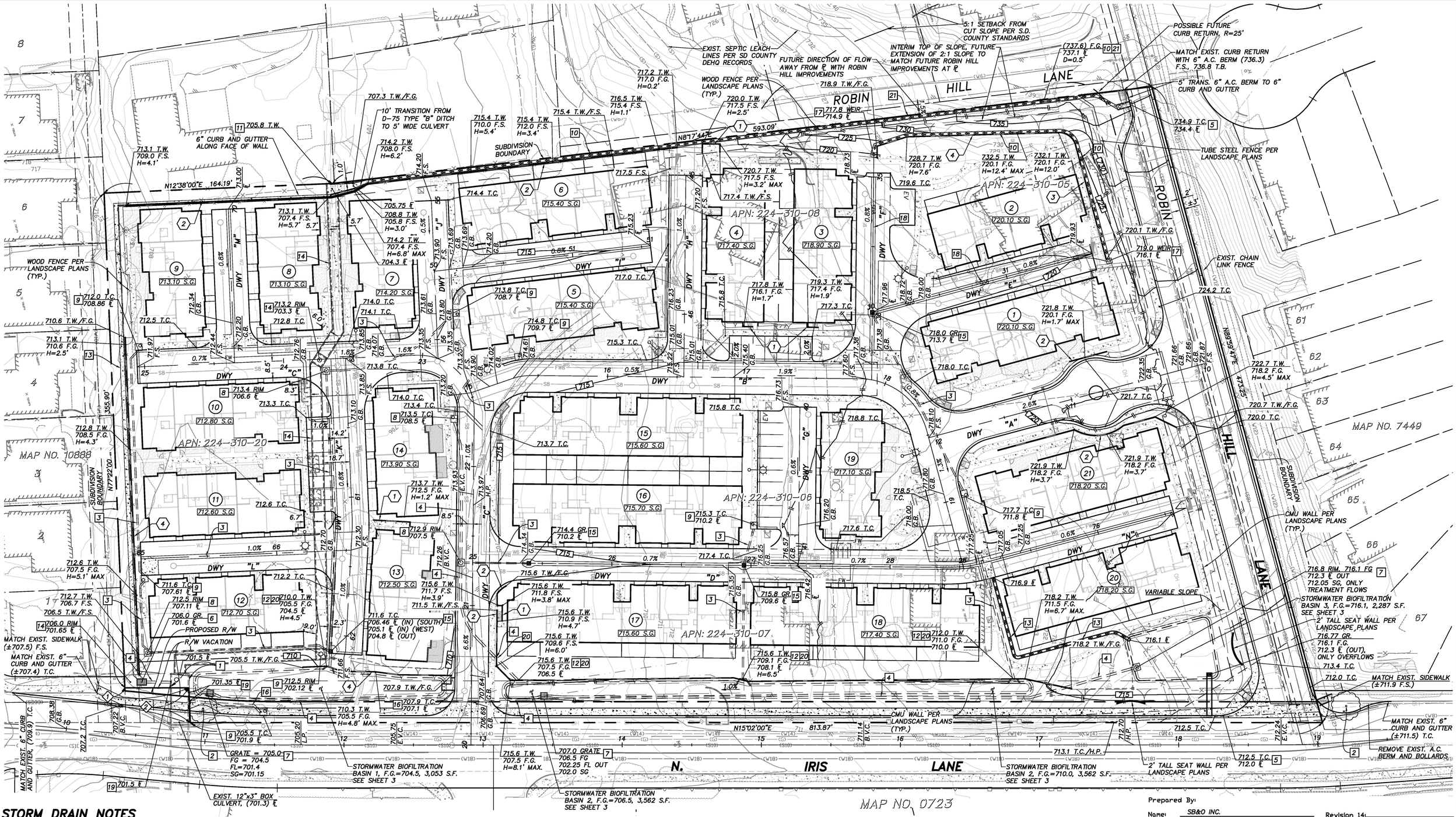

STORM DRAIN NOTES

1. EXTEND EXISTING 12'x3' RCBC.
2. PROPOSED 20' STREET TREE BMP PER CITY OF ESCONDIDO GREEN STREET STANDARDS WITH 12" CURB CUT.
3. PROPOSED PRIVATE 12" H.D.P.E. STORM DRAIN.
4. PROPOSED PRIVATE 18" H.D.P.E. STORM DRAIN.
5. PROPOSED CURB OUTLET.
6. PROPOSED MOD. TYPE "G" CATCH BASIN.
7. PROPOSED BASIN OUTLET CONTROL STRUCTURE.
8. PROPOSED STORM DRAIN CLEANOUT (SDCO).
9. PROPOSED STORM DRAIN CURB INLET.
10. PROPOSED CONC. BROW DITCH, D-75, TYPE B
11. PROPOSED 15' CUTOFF WALL AT EXIST. DITCH WITH WEEP HOLES.
12. PROPOSED STORM DRAIN HEADWALL.
13. PROPOSED CONCRETE RECTANGULAR CHANNEL, W=2', H=0.5', AT 0.5%
14. PROPOSED BYPASS 3'x7' R.C.B.C., S=0.0056.
15. PROPOSED 24"x24" BROOKS BOX.
16. PROPOSED PUBLIC 18" R.C.P. STORM DRAIN.
17. PROPOSED TYPE "F" CATCH BASIN.
18. PROPOSED PRIVATE 8" STORM DRAIN.
19. CONNECT TO PROPOSED 12"x3" RCBC.
20. PROVIDE CORE IN RETAINING WALL FOR STORM DRAIN PIPE.
21. INTERIM BROW DITCH ELEVATIONS TO MATCH EXISTING GRADE AT ℄

GRADING NOTES

1. RETAINING WALL PER SDRSD C-01.
2. RETAINING WALL PER SDRSD C-05.
3. RETAINING WALL PER SDRSD C-06.
4. MODIFIED RETAINING WALL PER SDRSD C-06 (FOR HEIGHT, SURCHARGE, AND FENCING EXCEEDING 6').

BOUNDARY DATA TABLE

◇	△/BEARING	RADIUS	LENGTH
1	N15°02'00"E	———	46.00'
2	N77°22'40"W	———	25.02'

NOTE: ALL SLOPES ARE 2:1 MAX UNLESS OTHERWISE NOTED. SEE LANDSCAPE PLANS FOR SLOPE PLANTING.

EASEMENT NOTE:
(#) FOR EXIST. EASEMENT NOTES SEE SHEET 5.
[#] FOR PROP. EASEMENT NOTES SEE SHEET 6.

NOTE: FOR TYPICAL GRADING DETAILS, SEE SHEET 2.

NOTE: OVERHEAD UTILITIES ALONG THE PROPERTY FRONTAGE WILL BE UNDERGROUNDED IN ACCORDANCE WITH THE CITY'S UNDERGROUNDING ORDINANCE.

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Stephen C. Ott 4-14-2022
STEPHEN C. OTT P.E. C70666 DATE

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Project Address: N. IRIS LANE ESCONDIDO, CA.
Project Name: N. IRIS LANE
Sheet Title: GRADING AND STORM DRAIN PLANS

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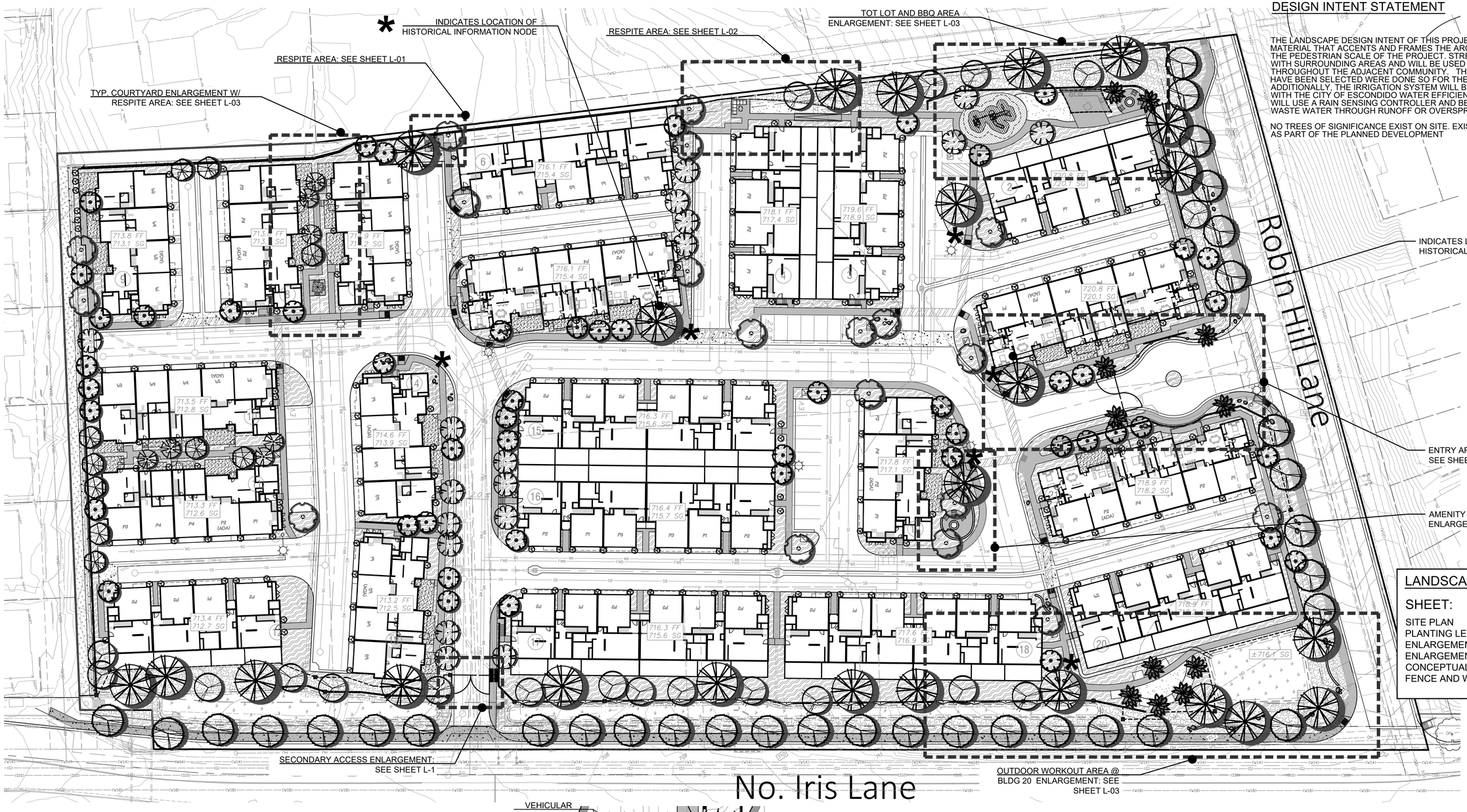


DESIGN INTENT STATEMENT

THE LANDSCAPE DESIGN INTENT OF THIS PROJECT IS TO PROVIDE PLANT MATERIAL THAT ACCENTS AND FRAMES THE ARCHITECTURE AND ENHANCES THE PEDESTRIAN SCALE OF THE PROJECT. STREET TREES ARE CONSISTENT WITH SURROUNDING AREAS AND WILL BE USED TO PROVIDE CONTINUITY THROUGHOUT THE ADJACENT COMMUNITY. THE PLANT MATERIALS THAT HAVE BEEN SELECTED WERE DONE SO FOR THEIR LOW WATER USE QUALITIES. ADDITIONALLY, THE IRRIGATION SYSTEM WILL BE DESIGNED IN COMPLIANCE WITH THE CITY OF ESCONDIDO WATER EFFICIENT LANDSCAPE ORDINANCE, IT WILL USE A RAIN SENSING CONTROLLER AND BE ADJUSTABLE SO AS NOT TO WASTE WATER THROUGH RUNOFF OR OVERSPRAY.

NO TREES OF SIGNIFICANCE EXIST ON SITE. EXISTING TREES TO BE REMOVED AS PART OF THE PLANNED DEVELOPMENT

LANDSCAPE SHEET INDEX:

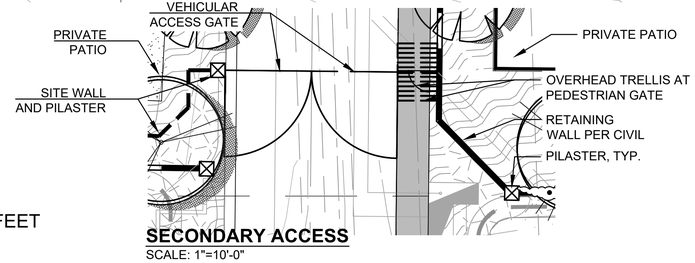
SHEET:	SHEET #:
SITE PLAN	L-1
PLANTING LEGEND & ENLARGEMENTS	L-2
ENLARGEMENTS	L-3
CONCEPTUAL IMAGERY	L-4
FENCE AND WALL PLAN	L-5 TO L-6

TOTAL TREES PROPOSED (NOT INCLUDING STREET TREES): 171

TOTAL UNITS PROPOSED PER ARCHITECT PLAN: 102

MINIMUM TREE SEPARATION DISTANCE

TRAFFIC SIGNALS (STOP SIGN) - 20 FEET
UNDERGROUND UTILITY LINES - 5 FEET (10' FOR SEWER)
ABOVE GROUND UTILITY STRUCTURES - 10 FEET
DRIVEWAY (ENTRIES) - 10 FEET
INTERSECTIONS (INTERSECTING CURB LINES OF TWO STREETS) - 25 FEET



SECONDARY ACCESS
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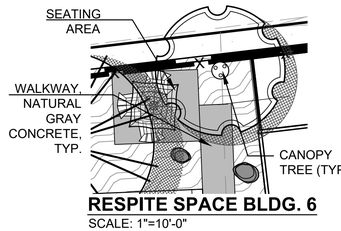

RESPITE SPACE BLDG. 6
SCALE: 1"=10'-0"

30 15 0 30 60 90
SCALE: 1"=30'-0"

LICENSED LANDSCAPE ARCHITECT
John P. Patterson No. 5665
STATE OF CALIFORNIA
NOT FOR CONSTRUCTION
Signature Date
3/31/2022
Date

1ST SUBMITTAL 03-03-2021
2ND SUBMITTAL 07-09-2021
3RD SUBMITTAL 12-10-2021
4TH SUBMITTAL 03-16-2022

L-1

SHEET 01 OF 6

GMP JOB# 20-071

IRIS AVE.: ESCONDIDO, CA

HALLMARK COMMUNITIES

740 LOMAS SANTA FE DR., SUITE 204
SOLANA BEACH, CALIFORNIA 92075

CONCEPT PLAN

CONCEPTUAL LANDSCAPE PLAN

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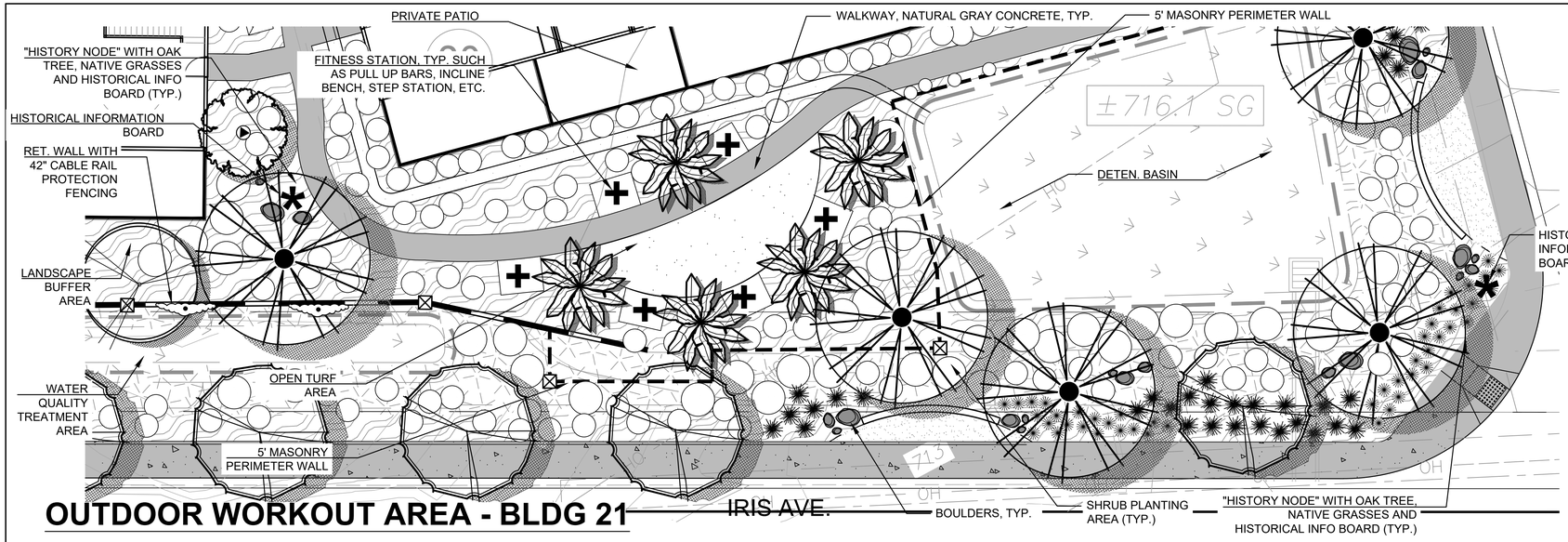
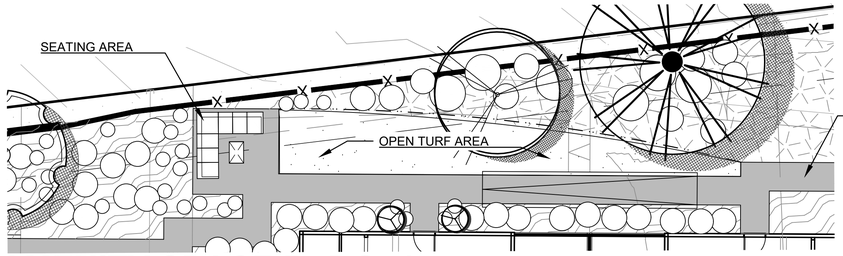
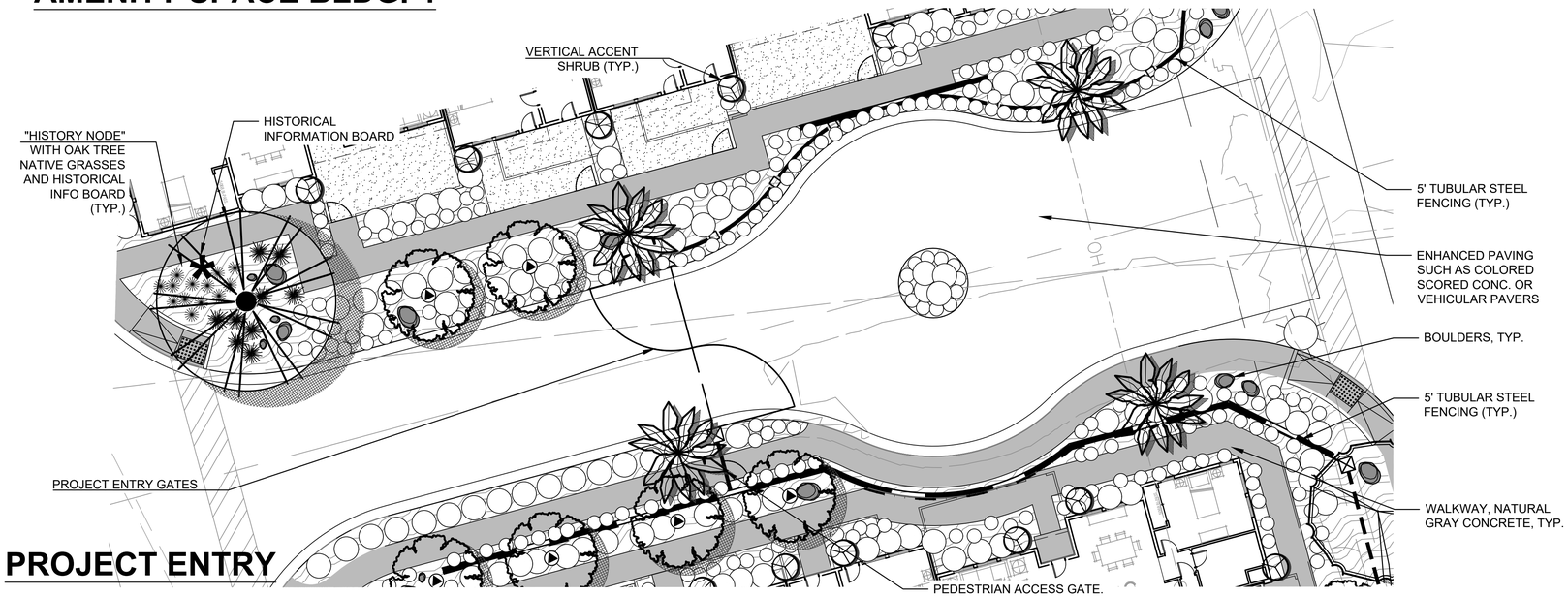
Suite 102
Carlsbad, CA 92010
gmplandarch.com
T 858 558 8977
LANDSCAPE ARCHITECTURE & PLANNING



OUTDOOR WORKOUT AREA - BLDG 21



AMENITY SPACE BLDG. 4



PROJECT ENTRY

CONCEPT_PLANT_SCHEDULE

	WUCOLS
COURTYARD (24" BOX, MAX SPREAD 15' / MAX HEIGHT 20')	
CHILOPSIS LINEARIS `ARTS SEEDLESS` / DESERT WILLOW	L
RHAPHIOLEPIS INDICA `MAJESTIC BEAUTY` TM / INDIAN HAWTHORN	M
UMBELLULARIA CALIFORNICA / CALIFORNIA LAUREL	M
COLUMNAR (15 GAL.)	
PRUNUS CARLINIANA / CAROLINA CHERRY	M
PODOCARPUS GRACILIOR / FERN PINE	M
COMMON AREAS/ACCENT (24" BOX, MAX SPREAD 20' / MAX HEIGHT 25')	
CERCIS OCCIDENTALIS/WESTERN REDBUD	L
OLEA EUROPAEA / EUROPEAN OLIVE	L
PARKINSONIA ACULEATA / MEXICAN PALO VERDE	L
RHUS LANCEA / AFRICAN SUMAC MULTI-TRUNK	L
SLOPE (50% 15 GAL., 50% 24" BOX)	
ARBUTUS UNEDO / STRAWBERRY TREE MULTI-TRUNK	L
MELALEUCA LINARIIFOLIA / FLAXLEAF PAPERBARK	L
QUERCUS AGRIFOLIA / COAST LIVE OAK	L
RHUS LANCEA / AFRICAN SUMAC MULTI-TRUNK	L
PALMS (10' BTH, MAX SPREAD 15' / MAX HEIGHT 50')	
ARECASTRUM ROMANZOFFIANIUM / QUEEN PALM	L
WASHINGTONIA ROBUSTA / MEXICAN FAN PALM	L
STREET TREE (24" BOX, MAX SPREAD 30' / MAX HEIGHT 40')	
KOELREUTERIA PANICULATA / GOLDEN RAIN TREE	L

	WUCOLS
SHRUB (MEDIUM, 50% 1 GAL, 50% 5 GAL.)	
BOUGAINVILLEA X `TEMPLE FIRE` / BOUGAINVILLEA	L
CALLISTEMON VIMINALIS `LITTLE JOHN` / DWARF WEEPING BOTTLEBRUSH	L
CARISSA MACROCARPA / NATAL PLUM	M
LIGUSTRUM JAPONICUM `TEXANUM` / WAX LEAF PRIVET	M
MYRTUS COMMUNIS / COMMON MYRTLE	M
PITTOSPORUM CRASSIFOLIUM / KARO PITTOSPORUM	M
ROSMARINUS OFFICINALIS `TUSCAN BLUE` / TUSCAN BLUE ROSEMARY	L
GRASS (1 GAL.)	
CAREX PRAEGRACILIS / SLENDER SEDGE	M
CHONDROPETALUM TECTORUM / CAPE RUSH	M
FESTUCA CALIFORNICA / BLUE FESCUE	L
MUHLENBERGIA RIGENS / DEER GRASS	L
ACCENT SHRUB (50% 1 GAL, 50% 5 GAL.)	
AGAVE ATTENUATA / AGAVE	L
AGAVE VILMORINIANA / OCTOPUS AGAVE	L
ALOE GLAUCA / ALOE	L
ALOE SPICATA / LEBOMBO ALOE	L
ANIGOZANTHOS X `BUSH GOLD` / KANGAROO PAW	L
DASYLIRION WHEELERI / GREY DESERT SPOON	L
PHORMIUM X `DARK DELIGHT` / PURPLE FLAX	M
SHRUB (SMALL, 50% 1 GAL, 50% 5 GAL.))	
DIANELLA TASMANICA `VARIEGATA` / FLAX LILY	M
DIETES BICOLOR / FORTNIGHT LILY	M
LOMANDRA LONGIFOLIA `BREEZE` / DWARF MAT RUSH	M
SLOPE SHRUBS (50% 1 GAL, 50% 5 GAL.)	
ARCTOSTAPHYLOS HOOKERI / HOOKER`S MANZANITA	L
CEANOTHUS CUNEATUS / BUCKBRUSH	L
CEANOTHUS PROSTRATUS / SQUAW CARPET	L
CISTUS LAURIFOLIUS / ROCKROSE	L
CISTUS X PURPUREUS / ORCHID ROCKROSE	L
ENCELIA CALIFORNICA / CALIFORNIA ENCELIA	L
LANTANA MONTEVIDENSIS / TRAILING LANTANA	L
RHUS INTEGRIFOLIA / LEMONADE BERRY	L
SLOPES (FLATS)	
BACCHARIS PILULARIS `TWIN PEAKS` / TWIN PEAKS COYOTE BRUSH	L
MYOPORUM PARVIFOLIUM `PUTAH CREEK` / PUTAH CREEK MYOPORUM	L
ROSMARINUS OFFICINALIS `PROSTRATUS` / DWARF ROSEMARY	L
VINES	
BOUGAINVILLEA LA JOLLA / LA JOLLA BOUGAINVILLEA	L
MACFADYENA UNGUIS-CATI / YELLOW TRUMPET VINE	L
WATER QUALITY BASINS (1 GAL.)	
CAREX TUMULICOLA / BERKELEY SEDGE	M
CHONDROPETALUM TECTORUM / CAPE RUSH	M
MUHLENBERGIA RIGENS / DEER GRAS	L
TURF	H
NON IRRIGATED HYDROSEED MIX	L



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3RD SUBMITTAL 12-10-2021
4TH SUBMITTAL 03-16-2022

L-2

SHEET 02 OF 6

GMP JOB# 20-071

10 5 0 10 20 30
SCALE: 1"=10'-0"

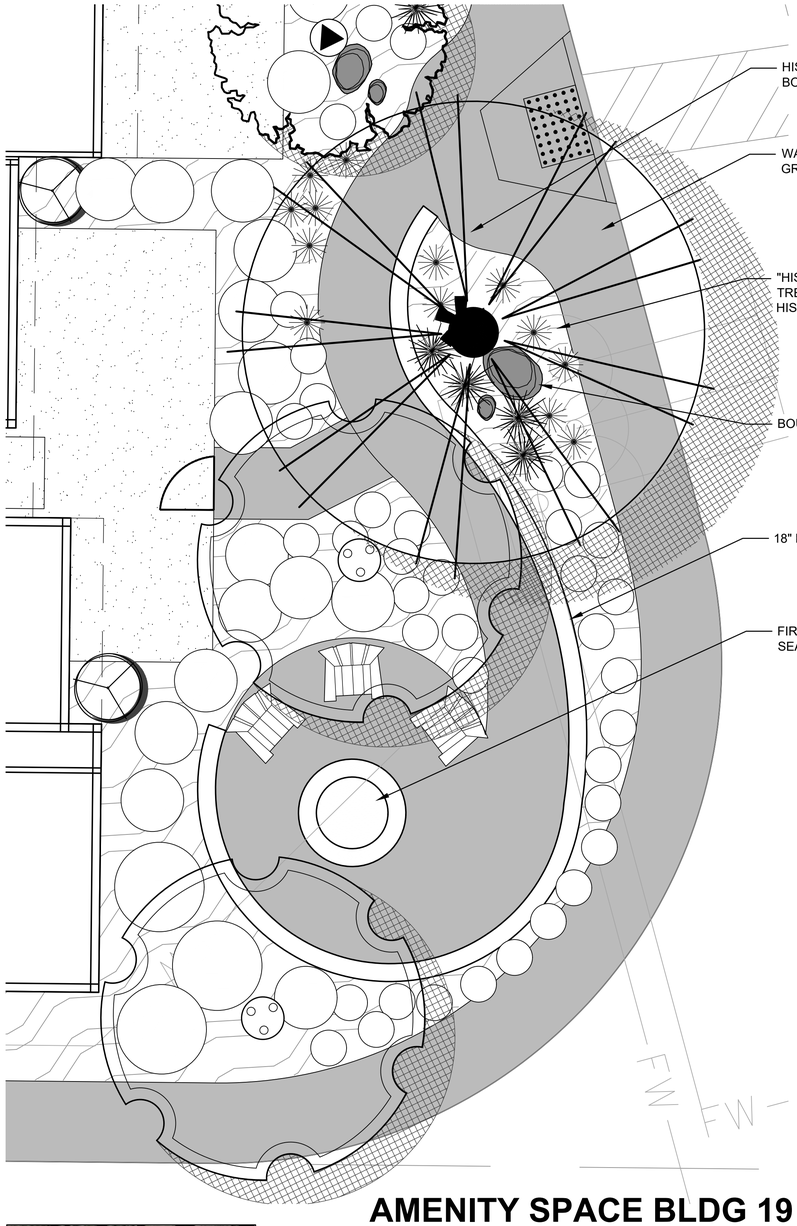
IRIS AVE.: ESCONDIDO, CA

HALLMARK COMMUNITIES
740 LOMAS SANTA FE DR., SUITE 204
SOLANA BEACH, CALIFORNIA 92075

CONCEPT PLAN

PLANTING LEGEND & ENLARGEMENTS

gmp
3176 Lionshead Ave
Suite 102
Carlsbad, CA 92010
gmplandarch.com
T 858 558 8977
LANDSCAPE ARCHITECTURE & PLANNING

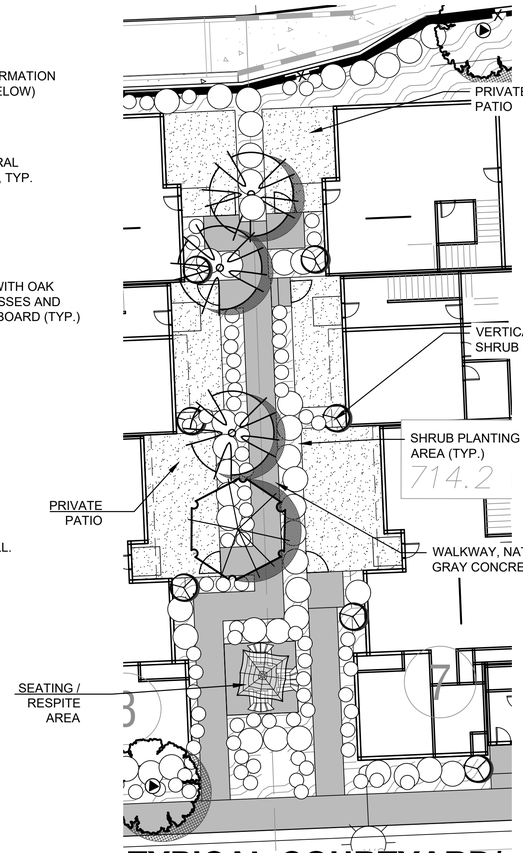


AMENITY SPACE BLDG 19

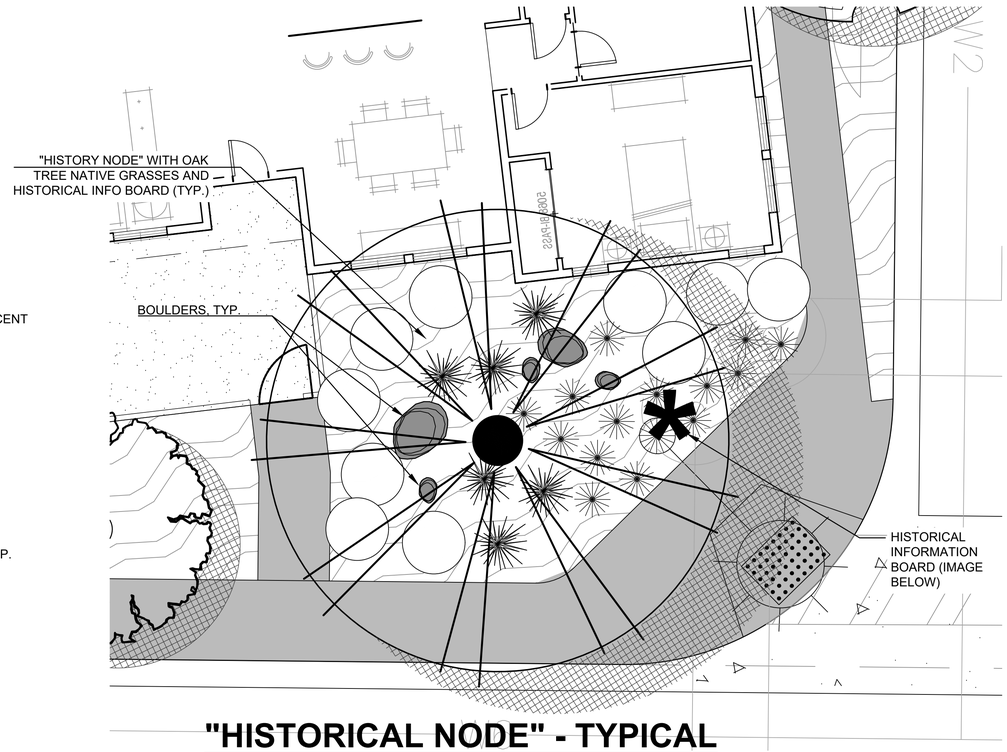


SAMPLE HISTORICAL INFORMATION BOARD

HISTORIC PHOTOGRAPHS AND/OR LANDMARKS TO BE DISPLAYED IN STATIONS ACROSS THE COMMUNITY



TYPICAL COURTYARD/ WALKWAY LAYOUT



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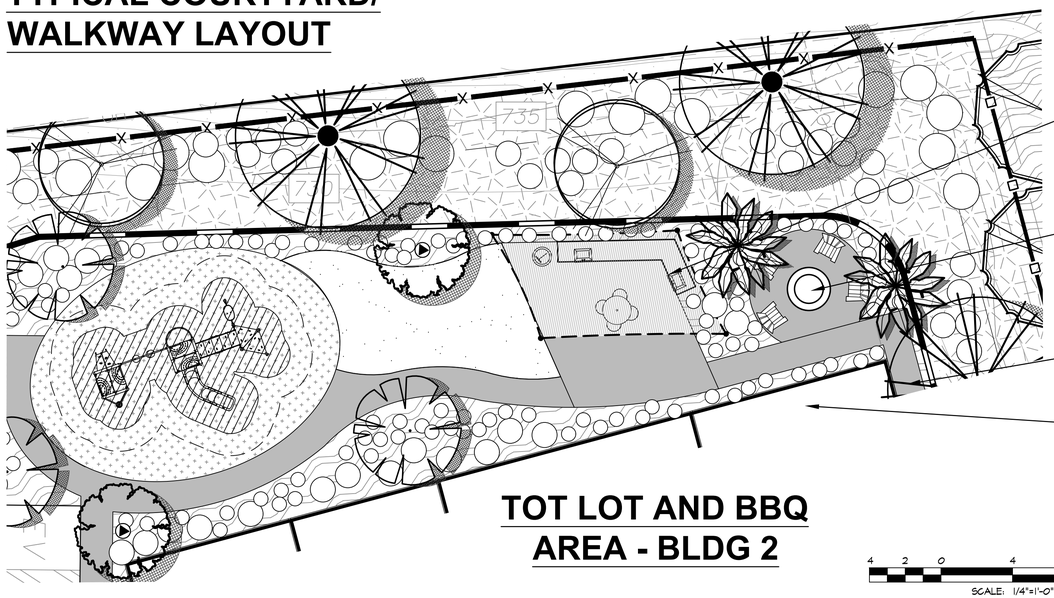

TOT LOT AND BBQ AREA - BLDG 2

4 2 0 4 8 12

SCALE: 1/4"=1'-0"

LICENSED LANDSCAPE ARCHITECT
John P. Patterson
No. 5600
Renewal Date
3/31/2022
Date
STATE OF CALIFORNIA
NOT FOR CONSTRUCTION

1ST SUBMITTAL 03-03-2021
2ND SUBMITTAL 07-09-2021
3RD SUBMITTAL 12-10-2021
4TH SUBMITTAL 03-16-2022

L-3

SHEET 03 OF 6

GMP JOB# 20-071

***IRIS AVE.*: ESCONDIDO, CA**

HALLMARK COMMUNITIES

740 LOMAS SANTA FE DR., SUITE 204
SOLANA BEACH, CALIFORNIA 92075

CONCEPT PLAN

ENLARGEMENTS

gmp
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Suite 102
Carlsbad, CA 92010
gmplandarch.com
T 858 558 8977
LANDSCAPE ARCHITECTURE & PLANNING

NATIVE GRASSES



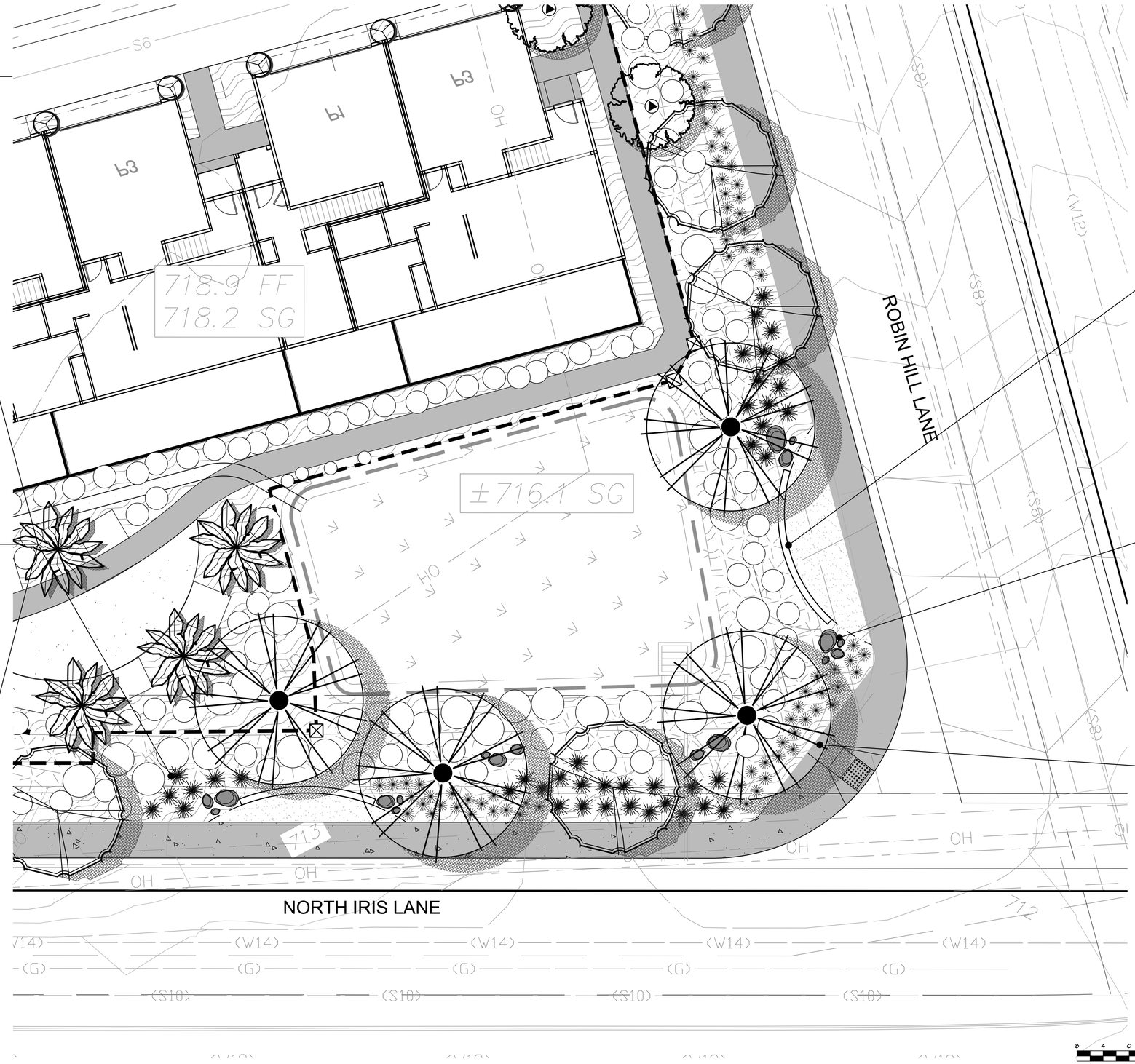
CAREX PRAEGRACILIS
SLENDER SEDGE



FESTUCA CALIFORNICA
BLUE FESCUE



MUHLENBERGIA RIGENS
DEER GRASS





RETAINING SEATWALL
WITH DG PAVING



BOULDERS



QUERCUS AGRIFOLIA
COAST LIVE OAK

LICENSED LANDSCAPE ARCHITECT
John P. Patterson
NOT FOR CONSTRUCTION
3/21/2022
STATE OF CALIFORNIA

1ST SUBMITTAL 03-03-2021
2ND SUBMITTAL 07-09-2021
3RD SUBMITTAL 12-10-2021
4TH SUBMITTAL 03-16-2022

L-4

SHEET 04 OF 6

8 4 0 8 16 24
SCALE: 1/8"=1'-0"

GMP JOB# 20-071

IRIS AVE.: ESCONDIDO, CA

HALLMARK COMMUNITIES
740 LOMAS SANTA FE DR., SUITE 204
SOLANA BEACH, CALIFORNIA 92075

CONCEPT PLAN

CONCEPTUAL IMAGERY

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Suite 102
Carlsbad, CA 92010
gmplandarch.com
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LANDSCAPE
ARCHITECTURE
& PLANNING

PRIVATE PATIO FENCING TO BE VINYL FENCING

PRIVATE PATIO FENCING TO BE VINYL FENCING

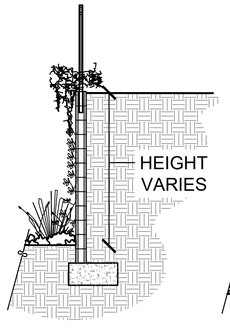
Robin Hill Lane

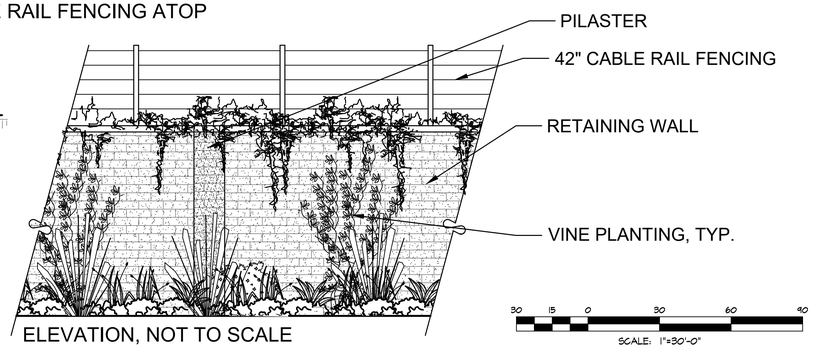
CONCEPTUAL FENCE AND WALL LEGEND

- 6' TUBE STEEL FENCE (DETAIL A / L-6)
- RETAINING WALL PER CIVIL ENGINEER
- 6' VINYL FENCE (DETAIL B / L-6)
- RETAINING WALL WITH 42" CABLE RAIL ATOP (DETAIL C / L-6)
- RETAINING WALL WITH 42" TS FENCING ATOP (DETAIL D / L-6)
- 6' FREESTANDING MASONRY WALL (DETAIL E / L-6)
- DECORATIVE LOW WALL (DETAIL F / L-6)
- OR — VEHICULAR GATE / PEDESTRIAN GATE

RETAINING WALL WITH VINE PLANTING AND CABLE RAIL FENCING ATOP







ELEVATION, NOT TO SCALE

SCALE: 1"=30'-0"

1ST SUBMITTAL 03-03-2021
2ND SUBMITTAL 07-09-2021
3RD SUBMITTAL 12-10-2021
4TH SUBMITTAL 03-16-2022

L-5

SHEET 05 OF 6

GMP JOB# 20-071

IRIS AVE.: ESCONDIDO, CA

HALLMARK COMMUNITIES

740 LOMAS SANTA FE DR., SUITE 204
SOLANA BEACH, CALIFORNIA 92075

CONCEPT PLAN

FENCE & WALL PLAN

gmp
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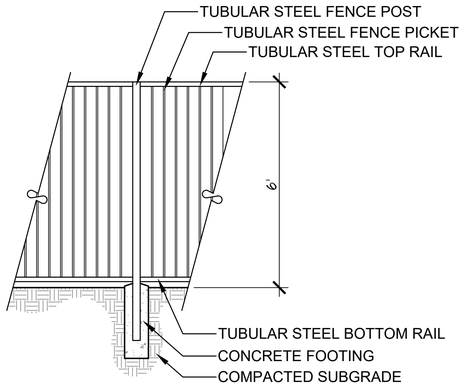
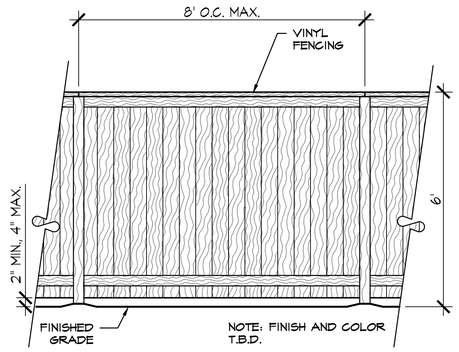
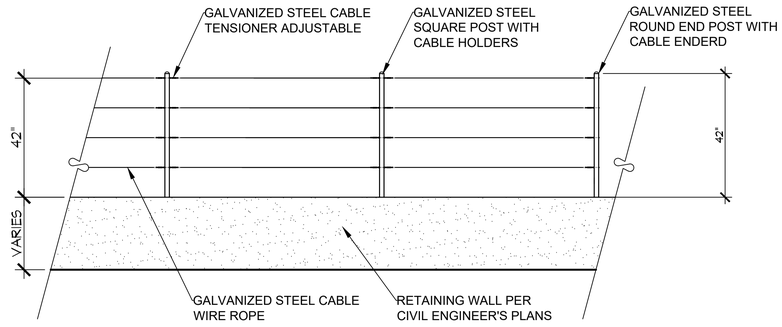
Suite 102
Carlsbad, CA 92010
gmplandarch.com
T 858 558 8977
LANDSCAPE ARCHITECTURE & PLANNING



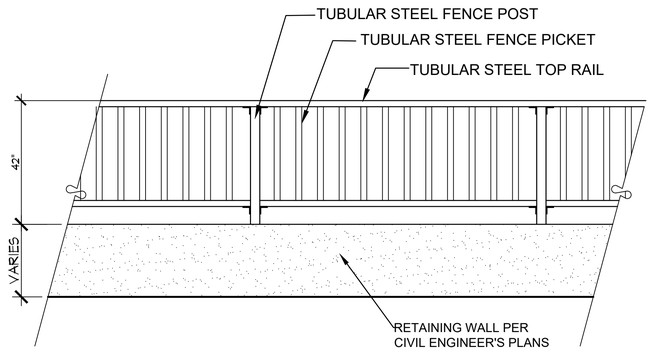
A TUBULAR STEEL FENCE



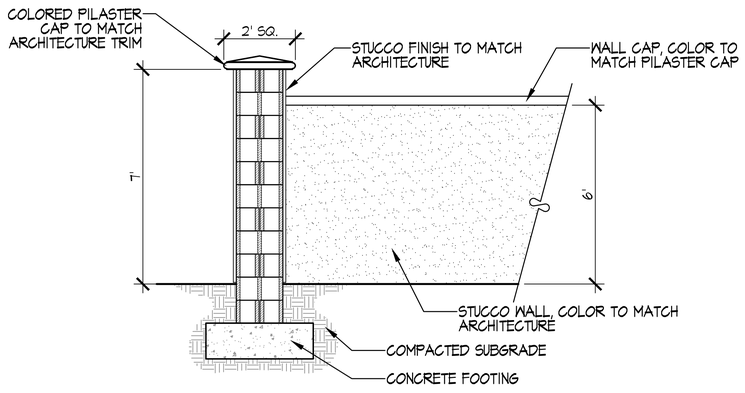
B VINYL FENCING



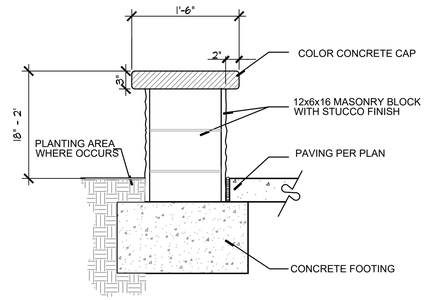
C CABLE GUARDRAIL ATOP RETAINING WALL



D TUBE STEEL FENCE ATOP RETAINING WALL



E PILASTER AND STUCCO WALL



F TYPICAL SITE SEAT WALL

LICENSED LANDSCAPE ARCHITECT
John P. Patterson
No. 5603
Expiration Date
3/31/2023
STATE OF CALIFORNIA

NOT FOR CONSTRUCTION

1ST SUBMITTAL 03-03-2021
2ND SUBMITTAL 07-09-2021
3RD SUBMITTAL 12-10-2021
4TH SUBMITTAL 03-16-2022

L-6

SHEET 06 OF 6

GMP JOB# 20-071

IRIS AVE.: ESCONDIDO, CA

HALLMARK COMMUNITIES

740 LOMAS SANTA FE DR., SUITE 204
SOLANA BEACH, CALIFORNIA 92075

CONCEPT PLAN

FENCE & WALL PLAN

gmp
3176 Lionshead Ave
Suite 102
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gmplandarch.com
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LANDSCAPE ARCHITECTURE & PLANNING

OPEN SPACE EXHIBIT

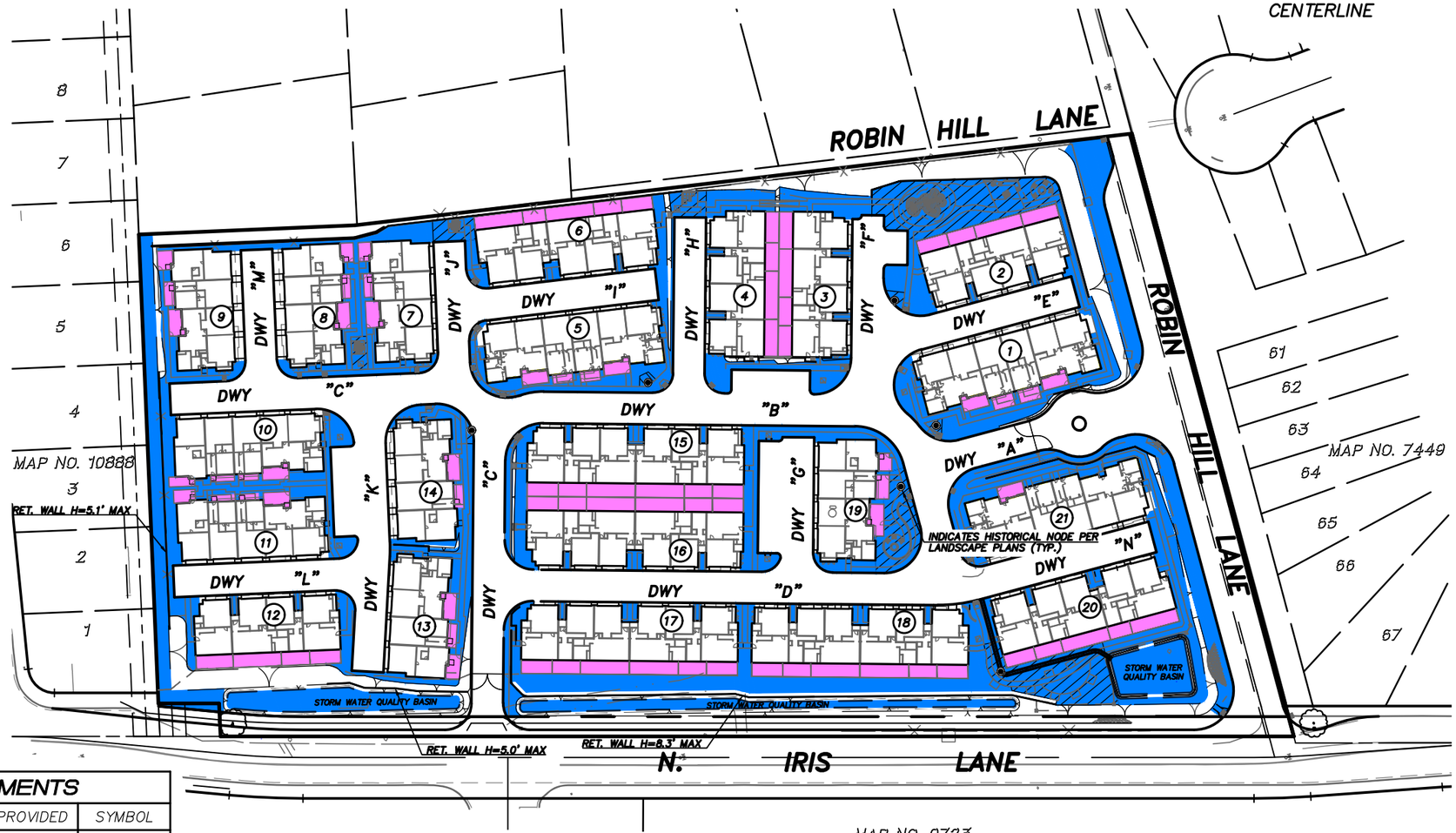
N. IRIS LANE, ESCONDIDO, CA.

LEGEND

BOUNDARY LINE

RIGHT-OF-WAY

CENTERLINE



OPEN SPACE REQUIREMENTS		
	PROVIDED	SYMBOL
	SQ. FT.	
TOTAL GROSS AREA	335,576	
TOTAL NET AREA (AFTER DEDICATION)	303,495	
TOTAL NUMBER OF UNITS	102	
PRIVATE OPEN SPACE PATIOS/DECKS	21,434	
COMMON OPEN SPACE AREA WITH GRADES LESS THAN 10%, SEE NOTE	64,247	
RECREATIONAL AREAS	11,359	
TOTAL	97,040	

SCALE: 1" = 100'

GRAPHIC SCALE

100 0 100 200 300

SB&O INC. PLANNING ENGINEERING SURVEYING

12/15/21

Plotted: 12/15/2021 2:59 PM S:\75282 N. IRIS LANE\03 DWG\EX\75282EX02 N IRIS LANE OPEN SPACE.DWG - cole.fargo

Appendix C
Air Quality Report

AIR QUALITY ASSESSMENT

Iris Lane Multi-Family Development
City of Escondido, CA

Project Proponent:

Hall Land Co.
740 Lomas Santa Fe Drive, Suite 204
Solana Beach, CA 92075

Prepared by:

Ldn Consulting, Inc.
42428 Chisolm Trail
Murrieta, CA 92562

July 26, 2022

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1.3 Project Description 1

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LIST OF COMMON ACRONYMS

Air Quality Impact Assessments (AQIA)

Assembly Bill 32 (AB32)

Best Available Control Technology (BACT)

California Ambient Air Quality Standards (CAAQS)

California Air Resource Board (CARB)

California Environmental Quality Act (CEQA)

Cubic Yards (CY)

Carbon Dioxide (CO_2)

Diesel Particulate Matter (DPM)

Diesel Particulate Filter (DPF)

Dwelling Unit per Acre (DU/Acre)

Environmental Protection Agency (EPA)

Hazardous Air Pollutants (HAPs)

Hydrogen Sulfide (H_2S)

Level of Service (LOS)

Methane (CH_4)

National ambient air quality standards (NAAQS)

Nitrous Oxide (N_2O)

Project Design Feature (PDF)

Reactive Organic Gas (ROG)

Regional Air Quality Strategy (RAQS)

San Diego Air Basin (SDAB)

San Diego Air Pollution Control District (SDAPCD)

Specific Plan Area (SPA)

State Implementation Plan (SIP)

Toxic Air Contaminants (TACs)

Vehicle Miles Traveled (VMT)

EXECUTIVE SUMMARY

This Air Quality Assessment has been completed to determine the air quality impacts associated with the annexation and development of the proposed 102-unit multi-family development project with up to 230 parking locations. The Project is located at 2085 N Iris Lane on a 7.69-acre site. All phases (i.e., grading and construction) of the proposed Project are anticipated to start in 2023 and completed roughly 20 months later in 2025. Project design features (PDFs) have been included in this Project. The applicant has agreed to implement all PDFs, which will be included in the Project's Conditions of Approval and are shown in Section 1.3 of this report.

During construction of the proposed Project, fugitive dust emissions will be expected during grading operations from heavy equipment usage and from construction workers commuting to and from the site. During short-term construction activities, the proposed Project will generate construction emissions at less than significant levels based on thresholds established by the City of Escondido and will NOT require mitigation. It should be noted that emissions analyzed within this report considered blasting. Also, based on the Project size, emissions, and relative location to nearby cumulative projects, the proposed Project would not contribute to a significant cumulative construction impact.

Air Quality emissions from the operation of the proposed Project, including project generated traffic would not exceed air quality significance thresholds established by the City of Escondido, and therefore will generate less than significant air quality impacts under CEQA. In addition, the project traffic study indicated that under no scenario (existing, near term or long term) would the project have effects on nearby intersections because the Project traffic does not exceed the City's LOS D thresholds. Given this the project would not have a potential to increase Carbon Monoxide (CO) hot spots at any of the nearby intersections.

The proposed project shall be annexed into the City of Escondido from the County of San Diego. Under the County's General plan, the project site has a zoning density of R24 or 24 dwelling units per acre (DU/acre) and the project applicant is seeking an Urban 3 General Plan land-use designation that allows up to 18 du/ac and this specific project would be 13.2 DU/acre. The project zoning would be Planned Development-Residential (PD-R). Since SANDAG regional growth projections are based on zoning classifications of R24 within the County, a reduction from 24 to 18 units per acre would decrease projected growth within the region. Given this, the proposed density of 13.2 DU/Acre would produce no significant cumulative air quality impacts.

Finally, a screening-level health risk assessment was conducted to determine the potential for the proposed Project to result in a significant impact on nearby sensitive receptors during short-term construction activities. The result of the health risk assessment indicates that the proposed Project would increase diesel particulates to a level which would not exceed the 10 in one million cancer

risk threshold. Also, as a design feature, the project will utilize Tier 4 construction equipment. This equipment is considered Best Available Control Technology (BACT) which is required when cancer risk is between 1 and 10 per million exposed. Given this, no significant health risk impacts would be expected.

1.0 INTRODUCTION

1.1 Purpose of this Study

The purpose of this Air Quality Assessment is to determine potential air quality impacts (if any) that may be created by either construction or operational emissions (short term or long term) from the proposed Project. Should impacts be determined, the intent of this study would be to recommend suitable mitigation measures to reduce impacts to the extent feasible.

1.2 Project Location

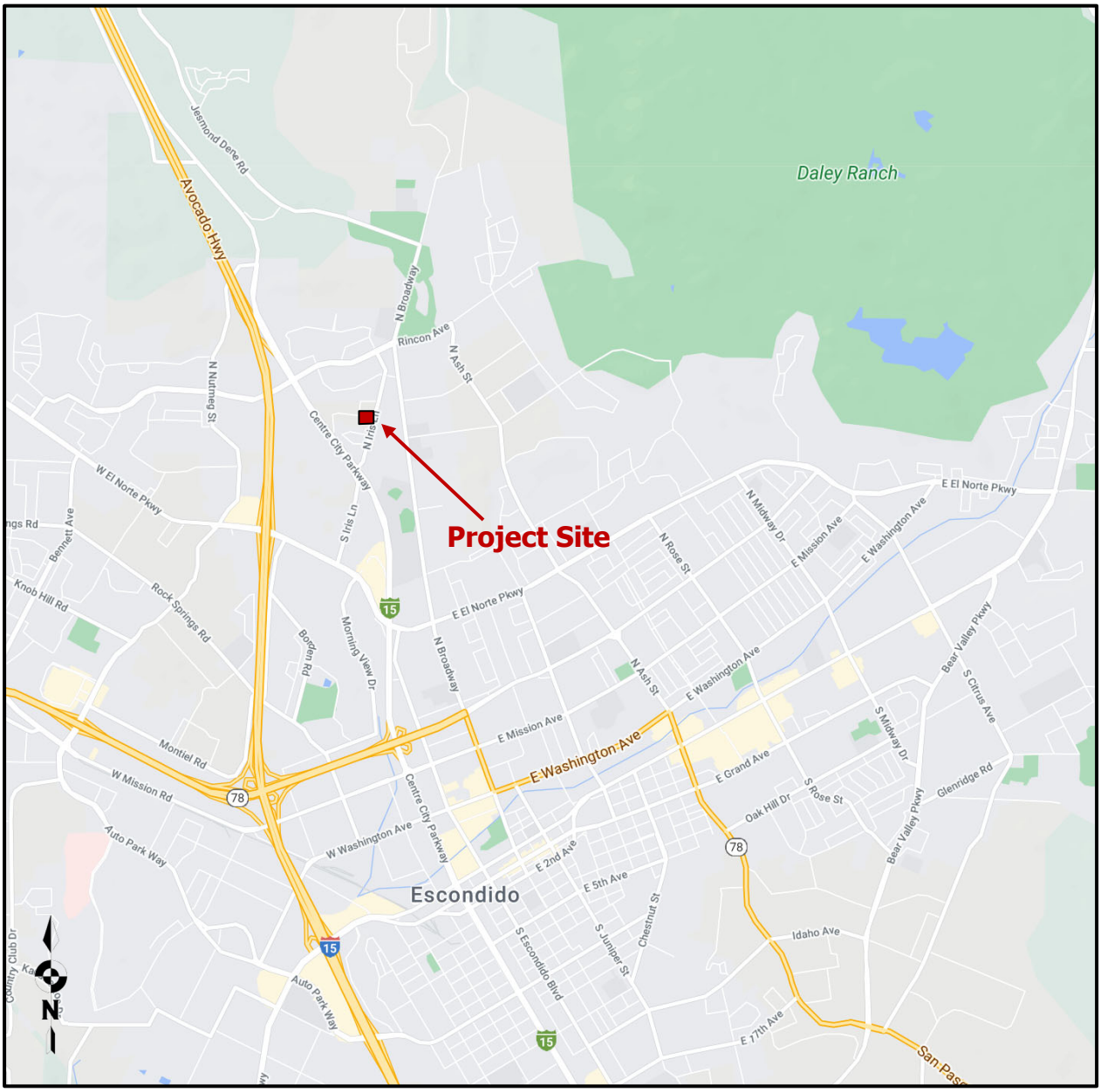
The Project site is located on a 7.69-acre site located in the northern area of the City of Escondido on 2085 North Iris Lane. A Project vicinity map is shown in Figure 1-A.

1.3 Project Description

The Project proposes the development of 102 multi-family residential units with approximately 230 parking spaces within a 7.69 acre footprint. The proposed project would require demolishing the existing structures onsite (approximately 10,000 Square Feet (SF). It is expected that the Project would begin work sometime in 2022 and be completed in 2023. The project also may require some blasting-related activities and materials blasted would be exported offsite and clean soils would be brought in to replace. Grading of the Project site will consist of approximately 6,812 cubic yards (CY) export and 22,112 CY of import. A list of Project PDFs are provided below. The Project site plan is shown in Figure 1-B.

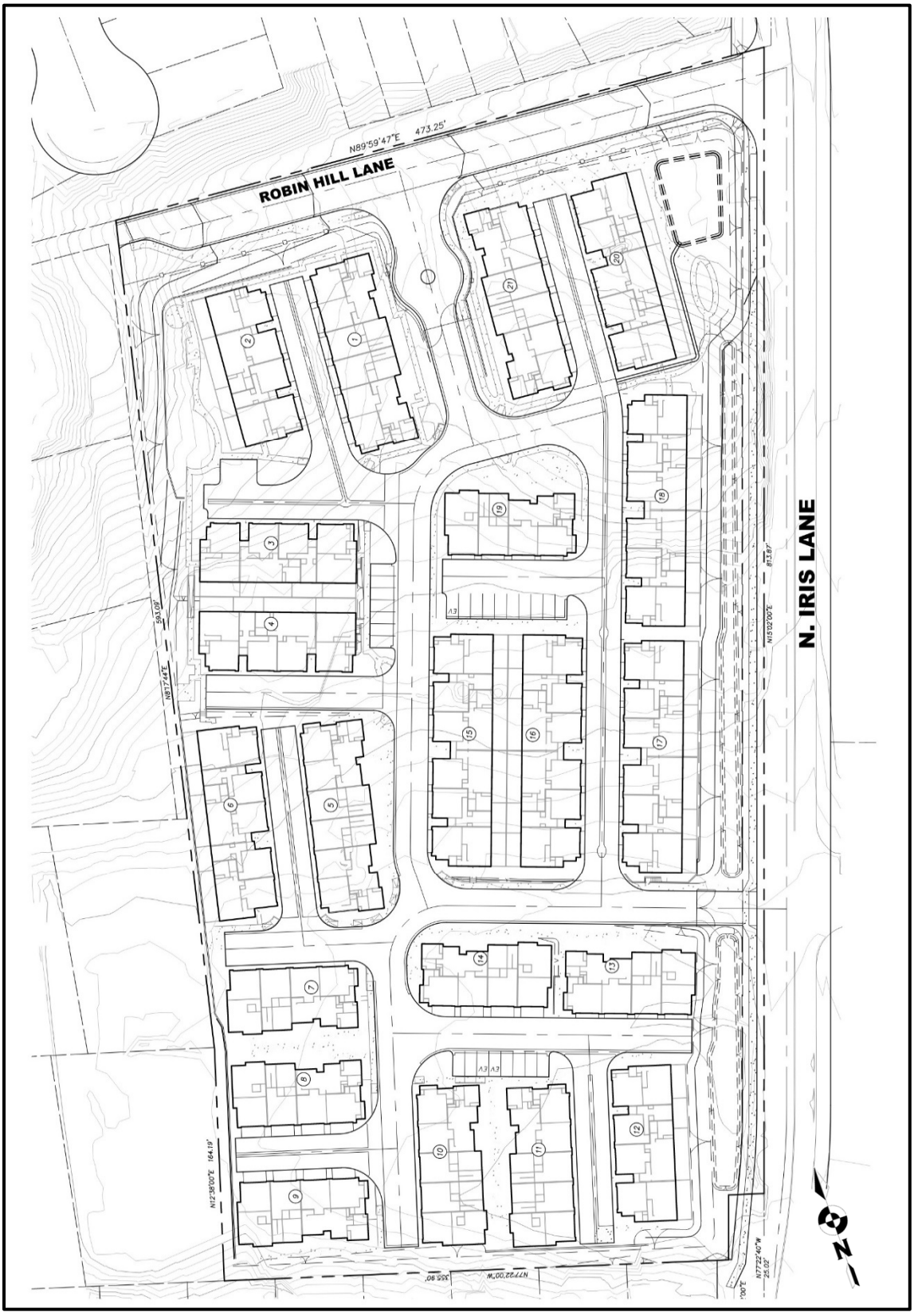
1. The Project would install Low Flow water fixtures in all the units.
2. All lights within the facility will be designed use LED technology and would be for both indoor and outdoor areas.
3. The Project would provide separate waste containers to allow for simpler material separations or the Project would pay for a waste collection service that recycles the materials in accordance with AB 341 to achieve a 75% waste diversion. All green waste will be diverted from landfills and recycled as mulch.
4. The Project would not install hearth options.
5. The Project will utilize Energy Star Appliances
6. The Project would utilize Tier 4 construction Equipment with Diesel Particulate Filters (DPF) attached or equivalent.
7. The Project will plant 102 trees to sequester Carbon Dioxide (CO_2)
8. The Project shall install 2kW of solar per unit or roughly 204 kilowatts (KW) of solar in total at the project site.
9. The Project will install Electric Heat Pump Water Heaters in all units.

Figure 1-A: Project Vicinity Map



Source: (Google, 2020)

Figure 1-B: Project Site Development Plan



Source: (SB&O Inc., 2021)

2.0 EXISTING ENVIRONMENTAL SETTING

2.1 Existing Setting

The Project site lies in the northern portion of the County of San Diego in the City of Escondido. The existing site is occupied by residential uses. The Project would demolish approximately 10,000 SF of existing buildings prior to construction. The site is mostly disturbed and is surrounded by residential uses. Elevations onsite average about 720 feet above sea level.

2.2 Climate (Escondido)

Climate within the San Diego Air Basin (SDAB) area often varies dramatically over short geographical distances with cooler temperatures on the western coast gradually warming to the east as prevailing winds from the west heat up. Most of southern California is dominated by high-pressure systems for much of the year, which keeps San Diego mostly sunny and warm. Typically, during the winter months, the high-pressure system drops to the south and brings cooler, moister weather from the north. It is common for inversion layers to develop within high-pressure areas, which mostly define pressure patterns over the SDAB. These inversions are caused when a thin layer of the atmosphere increases in temperature with height. An inversion acts like a lid preventing vertical mixing of air through convective overturning.

Meteorological trends within Escondido produce daytime highs ranging between 65ºF in the winter to approximately 88ºF in the summer with August usually being the hottest month. Median temperatures range from approximately 57ºF in the winter to approximately 78ºF in the summer. Precipitation is generally about 16.2 inches per year (WRCC, 2018). Prevailing wind patterns for the area vary during any given month during the year and also vary depending on the time of day or night. The predominant pattern though throughout the year is usually from the west or westerly (WRCC, 2018).

2.3 Regulatory Standards

2.3.1 Federal Standards and Definitions

The Federal Air Quality Standards were developed per the requirements of The Federal Clean Air Act, which is a federal law that was passed in 1970 and further amended in 1990. This law provides the basis for the national air pollution control effort. An important element of the act included the development of national ambient air quality standards (NAAQS) for major air pollutants.

The Clean Air Act established two types of air quality standards otherwise known as primary and secondary standards. ***Primary Standards*** set limits for the intention of protecting public health, which includes sensitive populations such as asthmatics, children and elderly. ***Secondary Standards*** set limits to protect public welfare to include the protection against decreased visibility, damage to animals, crops, vegetation and buildings.

The EPA Office of Air Quality Planning and Standards (OAQPS) has set NAAQS for principal pollutants, which are called "criteria" pollutants. These pollutants are defined below:

1. ***Carbon Monoxide (CO):*** *is a colorless, odorless, and tasteless gas and is produced from the partial combustion of carbon-containing compounds, notably in internal-combustion engines. Carbon monoxide usually forms when there is a reduced availability of oxygen present during the combustion process. Exposure to CO near the levels of the ambient air quality standards can lead to fatigue, headaches, confusion, and dizziness. CO interferes with the blood's ability to carry oxygen.*
2. ***Lead (Pb):*** *is a potent neurotoxin that accumulates in soft tissues and bone over time. The major sources of lead emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Because lead is only slowly excreted, exposures to small amounts of lead from a variety of sources can accumulate to harmful levels. Effects from inhalation of lead near the level of the ambient air quality standard include impaired blood formation and nerve conduction. Lead can adversely affect the nervous, reproductive, digestive, immune, and blood-forming systems. Symptoms can include fatigue, anxiety, short-term memory loss, depression, weakness in the extremities, and learning disabilities in children.*
3. ***Nitrogen Dioxide (NO_2):*** *is a reactive, oxidizing gas capable of damaging cells lining the respiratory tract and is one of the nitrogen oxides emitted from high-temperature combustion, such as those occurring in trucks, cars, power plants, home heaters, and gas stoves. In the presence of other air contaminants, NO_2 is usually visible as a reddish-brown air layer over urban areas. NO_2 along with other traffic-related pollutants is associated with respiratory symptoms, respiratory illness and respiratory impairment. Studies in animals have reported biochemical, structural, and cellular changes in the lung when exposed to NO_2 above the level of the current state air quality standard. Clinical studies of human subjects suggest that NO_2 exposure to levels near the current standard may worsen the effect of allergens in allergic asthmatics, especially in children.*
4. ***Particulate Matter (PM_{10} or $PM_{2.5}$):*** *is a complex mixture of tiny particles that consists of dry solid fragments, solid cores with liquid coatings, and small droplets of liquid. These particles vary in shape, size and chemical composition, and can be made up of multiple materials such as metal, soot, soil, and dust. PM_{10} particles are 10 microns (µm) or less and $PM_{2.5}$ particles are 2.5 (µm) or less. These particles can contribute significantly to regional haze and reduction of visibility in California. Exposure to PM levels exceeding current air quality standards increases the risk of allergies such as asthma and respiratory illness.*
5. ***Ozone (O_3)****: is a highly oxidative unstable gas capable of damaging the linings of the respiratory tract. This pollutant forms in the atmosphere through reactions between chemicals directly emitted from vehicles, industrial plants, and many other sources. Exposure to ozone above ambient air quality standards can lead to human health effects such as lung inflammation, tissue damage and impaired lung functioning. Ozone can also damage materials such as rubber, fabrics and plastics.*
6. ***Sulfur Dioxide (SO_2)****: is a gaseous compound of sulfur and oxygen and is formed when sulfur-containing fuel is burned by mobile sources, such as locomotives, ships, and off-road diesel equipment. SO_2 is also emitted from several industrial processes, such as petroleum*

refining and metal processing. Effects from SO_2 exposures at levels near the one-hour standard include bronchoconstriction accompanied by symptoms, which may include wheezing, shortness of breath and chest tightness, especially during exercise or physical activity. Children, the elderly, and people with asthma, cardiovascular disease or chronic lung disease (such as bronchitis or emphysema) are most susceptible to these symptoms. Continued exposure at elevated levels of SO_2 results in increased incidence of pulmonary symptoms and disease, decreased pulmonary function, and increased risk of mortality.

2.3.2 State Standards and Definitions

CARB sets the laws and regulations for air quality on the state level. The California Ambient Air Quality Standards (CAAQS) is similar to the NAAQS and also restricts four additional contaminants. Table 2.1 on the following page identifies both the NAAQS and CAAQS. The additional contaminants as regulated by the CAAQS are defined below:

1. ***Visibility Reducing Particles****: Particles in the Air that obstruct the visibility.*
2. ***Sulfates****: are salts of Sulfuric Acid. Sulfates occur as microscopic particles (aerosols) resulting from fossil fuel and biomass combustion. They increase the acidity of the atmosphere and form acid rain.*
3. ***Hydrogen Sulfide (H_2S)****: is a colorless, toxic and flammable gas with a recognizable smell of rotten eggs or flatulence. H_2S occurs naturally in crude petroleum, natural gas, volcanic gases, and hot springs. Usually, H_2S is formed from bacterial breakdown of organic matter. Exposure to low concentrations of hydrogen sulfide may cause irritation to the eyes, nose, or throat. It may also cause difficulty in breathing for some asthmatics. Brief exposures to high concentrations of hydrogen sulfide (greater than 500 Parts per Million (ppm)) can cause a loss of consciousness and possibly death.*
4. ***Vinyl Chloride****: also known as chloroethene and is a toxic, carcinogenic, colorless gas with a sweet odor. It is an industrial chemical mainly used to produce its polymer, polyvinyl chloride (PVC).*

Table 2.1: Ambient Air Quality Standards

Ambient Air Quality Standards						
Pollutant	**Average Time**	**California Standards[1]**		**Federal Standards[2]**		
		Concentration[3]	Method[4]	Primary[3,5]	Secondary[3,6]	Method[7]
Ozone (O_3)[8]	1 Hour	0.09 ppm (180 µg/m3)	Ultraviolet Photometry	-	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m3)		0.070 ppm (137 µg/m3)		
Respirable Particulate Matter (PM10)[9]	24 Hour	50 µg/m3	Gravimetric or Beta Attenuation	150 µg/m3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m3		-		
Fine Particulate Matter (PM2.5)[9]	24 Hour	No Separate State Standard		35 µg/m3	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m3	Gravimetric or Beta Attenuation	12.0 µg/m3	15 µg/m3	
Carbon Monoxide (CO)	8 hour	9.0 ppm (10mg/m3)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m3)	-	Non-Dispersive Infrared Photometry
	1 hour	20 ppm (23 mg/m3)		35 ppm (40 mg/m3)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m3)		-	-	-
Nitrogen Dioxide (NO_2)[10]	Annual Arithmetic Mean	0.030 ppm (57 µg/m3)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m3)[8]	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.18 ppm (339 µg/m3)		0.100 ppm[8] (188/ µg/m3)	-	
Sulfur Dioxide (SO_2)[11]	Annual Arithmetic Mean	-	Ultraviolet Fluorescence	0.030 ppm[10] (for Certain Areas)	-	Ultraviolet Flourescence; Spectrophotometry (Pararoosaniline Method)[9]
	24 Hour	0.04 ppm (105 µg/m3)		0.14 ppm[10] (for Certain Areas) (See Footnote 9)	-	
	3 Hour	-		-	0.5 ppm (1300 µg/m3)	
	1 Hour	0.25 ppm (655 µg/m3)		75 ppb (196 µg/m3)	-	
Lead[12,13]	30 Day Average	1.5 µg/m3	Atomic Absorption	-		-
	Calendar Quarter	-		1.5 µg/m3	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Average	-		0.15 µg/m3		
Visibility Reducing Particles	8 Hour	See footnote 14				
Sulfates	24 Hour	25 µg/m3	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m3)	Ultraviolet Fluorescence			
Vinyl Chloride[12]	24 Hour	0.01 ppm (26 µg/m3)	Gas Chromatography			

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m3 is equal to or less than one. For PM2.5, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.
8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 µg/m3 to 12.0 µg/m3. The existing national 24- hour PM2.5 standards (primary and secondary) were retained at 35 µg/m3, as was the annual secondary standard of 15 µg/m3. The existing 24-hour PM10 standards (primary and secondary) of 150 µg/m3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
11. On June 2, 2010, a new 1-hour SO2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.
12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 µg/m3 as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

Source: (California Air Resources Board, 5/4/2016)

2.3.3 Regional Standards

The State of California has 35 specific air districts, which are each responsible for ensuring that the criteria pollutants are below the NAAQS and CAAQS. Air basins that exceed either the NAAQS or the CAAQS for any criteria pollutants are designated as "non-attainment areas" for that pollutant. Currently, there are 15 non-attainment areas for the federal ozone standard and two non-attainment areas for the $PM_{2.5}$ standard and many areas are in non-attainment for PM_{10} as well. California therefore created the California State Implementation Plan (SIP), which is designed to provide control measures needed to attain ambient air quality standards.

The San Diego Air Pollution Control District (SDAPCD) is the government agency which regulates sources of air pollution within the County. Therefore, the SDAPCD developed a Regional Air Quality Strategy (RAQS) to provide control measures to try to achieve attainment status for state ozone standards with control measures focused on Volatile Organic Compounds (VOCs) and oxides of nitrogen (NO_X). Currently, San Diego is in "non-attainment" status for federal and state O_3 and state PM_{10} and $PM_{2.5.}$ An attainment plan is available for O_3. The RAQS was adopted in 1992 and has been updated as recently as 2016 which was the latest update incorporating minor changes to the prior 2009 update.

The 2016 update mostly summarizes how the 2009 update has lowered NO_X and VOCs emissions which reduces ozone and clarifies and enhances emission reductions by introducing for discussion three new VOC and four new NO_X reduction measures. NO_X and VOCs are precursors to the formation of ozone in the atmosphere. The criteria pollutant standards are generally attained when each monitor within the region has had no exceedances during the previous three calendar years. A complete listing of the current attainment status for criteria pollutants with respect to both federal and state nonattainment status by pollutants for County is shown in Table 2.2 (SDAPCD, 2019).

The RAQS is largely based on population predictions by the San Diego Association of Governments (SANDAG). Projects that produce less growth than predicted by SANDAG would generally conform to the RAQS. Projects that create more growth than projected by SANDAG may create a significant impact if the Project produces unmitigable air quality emissions or if the Project produces cumulative impacts.

Table 2.2: San Diego Air Basin Attainment Status by Pollutant

Criteria Pollutant	Federal Designation	State Designation
Ozone (8-Hour)	Nonattainment	Nonattainment
Ozone (1-Hour)	Attainment *	Nonattainment
Carbon Monoxide	Attainment	Attainment
PM10	Unclassifiable **	Nonattainment
PM2.5	Attainment	Nonattainment
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates	No Federal Standard	Attainment
Hydrogen Sulfide	No Federal Standard	Unclassified
Visibility	No Federal Standard	Unclassified

** The federal 1-hour standard of 12 pphm was in effect from 1979 through June 15, 2005. The revoked standard is referenced here because it was employed for such a long period and because this benchmark is addressed in State Implementation Plans.*
*** At the time of designation, if the available data does not support a designation of attainment or nonattainment, the area is designated as unclassifiable.*
(SDAPCD, 2019)

2.4 California Environmental Quality Act (CEQA) Significance Thresholds

The California Environmental Quality Act has provided a checklist to identify the significance of air quality impacts. These guidelines are found in Appendix G of the CEQA guidelines and are as follows:

AIR QUALITY -- Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the Project:

A: Conflict with or obstruct implementation of the applicable air quality plan?
B: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?
C: Expose sensitive receptors to substantial pollutant concentrations?
D: Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

2.5 Escondido Municipal Code (Section 33-924 Coordination of CEQA, Quality of Life Standards)

The City of Escondido has established threshold in Section 33-924 of Article 47 in Chapter 33 of the Municipal Code to address and implement CEQA guidelines and should be used for the preparation of Air Quality Impact Assessments (AQIA). The Code provides screening criteria that can be used to demonstrate that a Project's total emissions would not result in a significant impact as defined by CEQA. Should emissions be found to exceed these thresholds, additional modeling is required to demonstrate that the Project's total air quality impacts are below the state and federal ambient air quality standards. The screening thresholds for construction and daily operations are shown in Table 2.3.

Table 2.3: Screening Threshold for Criteria Pollutants

Pollutant	Total Emissions (Pounds per Day)
Air Quality Emissions Screening Levels	
Respirable Particulate Matter (PM_{10})	100
Respirable Particulate Matter ($PM_{2.5}$)	55
Nitrogen Oxide (NO_x)	250
Sulfur Oxide (SO_x)	250
Carbon Monoxide (CO)	550
Lead and Lead Compounds	3.2
Volatile Organic Compounds (VOCs) (Operations)	55
Volatile Organic Compounds (VOCs) (Construction)	75
Source: (City of Escondido Municiple Code)	

2.6 SDAPCD Rule 1200 – New Source Review

Non-Criteria pollutants such as Hazardous Air Pollutants (HAPs) or Toxic Air Contaminants (TACs) are also regulated by the SDAPCD. Rule 1200 (Toxic Air Contaminants - New Source Review) adopted on June 12, 1996, requires evaluation of potential health risks for any new, relocated, or modified emission unit which may increase emissions of one or more toxic air contaminants. The rule requires that projects that propose to increase cancer risk between 1 and 10 in one million need to implement toxics best available control technology (T-BACT) or impose the most effective emission limitation, emission control device or control technique to reduce the cancer risk. At no time shall the Project increase the cancer risk to over 10 in one million. Projects creating cancer risks less than one in one million are not required to implement T-BACT technology. This report assumes that Volatile Organic Compounds (VOC) and Reactive Organic Gases (ROG) are essentially the same due to the fact that emissions generated from the Project represent non-methane organic compounds.

2.7 Local Air Quality

Criteria pollutants are measured continuously throughout the San Diego Air Basin. This data is used to track ambient air quality patterns throughout the County. As mentioned earlier, this data is also used to determine attainment status when compared to the NAAQS and CAAQS. The SDAPCD is responsible for monitoring and reporting monitoring data. The District operates 10 monitoring sites, which collect data on criteria pollutants. The proposed development project is closest to the Carmel Mountain Ranch and Camp Pendleton monitoring stations which are located roughly 10 and 18 miles from the Project site respectively. Table 2.4 identifies the criteria pollutants monitored at the aforementioned station. Four additional sites collect meteorological data which is used by the District to assist with pollutant forecasting, data analysis and characterization of pollutant transport. SDAPCD published the five-year air quality summary for all of the monitoring stations (SDAPCD, 2021).

Table 2.4: Two-Year Ambient Air Quality Summary near the Project Site

Pollutant	Closest Recorded Ambient Monitoring Site	Averaging Time	CAAQS	NAAQS	2019	2020	Days Exceeded over 2 years
O_3 (ppm)	Camp Pendleton or Carmel Mountain Ranch	1 Hour	0.09 ppm	No Standard	0.08	0.09	0
		8 Hour	0.070 ppm	0.070 ppm	0.06	0.07	3
PM_{10} (µg/m3)		24 Hour	50 µg/m3	150 µg/m3	PM10 Data Not Available for Monitoring Sites near Project Site		
		Annual Arithmetic Mean	20 µg/m3	No Standard			
* $PM_{2.5}$ (µg/m^3)		24 Hour	No standard -	35 µg/m3	18.9	40.2	N/A
		Annual Arithmetic Mean	12 µg/m3	15 µg/m3	8.2	9.3	N/A
NO_2 (ppm)		Annual Arithmetic Mean	0.030 ppm	0.053 ppm	0.014	0.013	N/A
		1 Hour	0.18 ppm	0.100 ppm	0.086	0.056	N/A
* CO (ppm)		1 Hour	20 ppm	35 ppm	4.1	3.3	N/A
		8 Hour	9 ppm	9 ppm	2.5	1.7	N/A

Notes:
1. - Yearly maximums marked with "-" indicated data was not available for either monitoring station.
2. * Data was selected from the Carmel Mountain Ranch station which began in 2019. All other data presented was collected at the Camp Pendleton Monitoring Station.
3. SO_2 is only monitored at the El Cajon Monitoring Station. Within the entire County of San Diego, SO_2 emissions within the County are essentially Zero for all metrics including the Average, Maximum 24 hour and 1- hour standards. The Highest 1-hr measurement identified is 0.004 ppm and the most restrictive standard (CAAQS for SO_2) is 0.25 ppm.

3.0 METHODOLOGY

3.1 Construction Emissions Calculations

Air Quality impacts related to construction and daily operations were calculated using the latest CalEEMod 2020.4.0 air quality model, which was developed by BREEZE Software for South Coast Air Quality Management District (SCAQMD) in 2021. The construction module in CalEEMod is used to calculate the emissions associated with the construction of the Project and uses methodologies presented in the US EPA AP-42 document with emphasis on Chapter 11.9. The CalEEMod input/output model is shown in ***Attachment A*** to this report.

The AERSCREEN dispersion model was used to determine the concentration for air pollutants at any location near the pollutant generator. Additionally, the model will predict the maximum exposure distance and concentrations. The AERSCREEN input/output file for the proposed Project is shown in ***Attachment B***. The worst case exhaust emissions generated from the Project from construction equipment was utilized and calculated within the CalEEMod model.

Once the dispersed concentrations of diesel particulates are estimated in the surrounding air, they are used to evaluate estimated exposure to people. Exposure is evaluated by calculating the dose in milligrams per kilogram body weight per day (mg/kg/d). For residential exposure, the breathing rates are determined for specific age groups, so inhalation dose (Dose-air) is calculated for each of these age groups, 3rd trimester, 0<2, 2<9, 2<16, 16<30 and 16-70 years. The following algorithms calculate this dose for exposure through the inhalation pathways. The worst case cancer risk dose calculation is defined in Equation 1 below (OEHHA, 2015).

Equation 1 $$Dose_{air} = C_{air} * (BR/BW) * A * EF * (1x10^{-6})$$

$Dose_{air}$	=	Dose through inhalation (mg/kg/d)
C_{air}	=	Concentration in air (µg/m^3) Annual average DPM concentration in µg/m^3 - AERSCREEN predicts a 1-hr concentration and is corrected to an annual average by multiplying the 1-hr average by 0.08 (US EPA, 1992)
BR/BW	=	Daily breathing rate normalized to body weight (L/kg BW-day). See Table I.2 for the daily breathing rate for each age range.
A	=	Inhalation absorption factor (assumed to be 1)
EF	=	Exposure frequency (unitless, days/365 days)
$1x10^{-6}$	=	Milligrams to micrograms conversion (10^{-3} mg/ µg), cubic meters to liters conversion (10^{-3} m^3/l)

Cancer risk is calculated by multiplying the daily inhalation or oral dose, by a cancer potency factor, the age sensitivity factor, the frequency of time spent at home and the exposure duration divided by averaging time, to yield the excess cancer risk. As described below, the excess cancer risk is calculated separately for each age grouping and then summed to yield

cancer risk for any given location. Specific factors as modeled are shown within the Project models which is provided as ***Attachment C*** to this report. The worst-case cancer risk calculation is defined in Equation 2 below (OEHHA, 2015).

Equation 2

$$RISK_{inh\text{-}res} = DOSE_{air} \times CPF \times ASF \times ED/AT \times FAH$$

$RISK_{inh\text{-}res}$	=	Residential inhalation cancer risk
$DOSE_{air}$	=	Daily inhalation dose (mg/kg-day)
CPF	=	Inhalation cancer potency factor ($mg/kg\text{-}day^{-1}$)
ASF	=	Age sensitivity factor for a specified age group (unitless)
ED	=	Exposure duration (in years) for a specified age group
AT	=	Averaging time for lifetime cancer risk (years)
FAH	=	Fraction of time spent at home (unitless)

Office of Environmental Health Hazard Assessment (OEHHA) recommends that an exposure duration (residency time) of 30 years be used to estimate individual cancer risk for the Maximally Exposed Individual Resident (MEIR). OEHHA also recommends that the 30-year exposure duration be used as the basis for public notification and risk reduction audits and plans. Exposure durations of 9-years and 70-years are also recommended to be evaluated for the MEIR to show the range of cancer risk based on residency periods. If a facility is notifying the public regarding cancer risk, the 9-and 70-year cancer risk estimates are useful for people who have resided in their current residence for periods shorter and longer than 30 years.

Non-Cancer risks or risks defined as chronic or acute are also known with respect to DPM and are determined by the hazard index. To calculate hazard index, DPM concentration is divided by its chronic Reference Exposure Levels (REL). Where the total equals or exceeds one, a health hazard is presumed to exist. RELs are published by the Office of Environmental Health Hazard Assessment (OEHHA, 2015). Diesel Exhaust has a REL of 5 $\mu g/m^3$ and targets the respiratory system.

3.2 Construction Assumptions

Project construction dates were estimated based on a construction start date in 2023 with construction ending in early 2025. As part of the construction operations, the Project would demolish existing structures onsite which would be approximately 10,000 SF. The project also may require some blasting-related activities and materials blasted would be exported offsite and clean soils would be brought in to replace. Grading of the Project site will consist of approximately 6,812 cubic yards (CY) export and 22,112 CY of import.

CalEEMod was utilized for all construction calculations and has been manually updated to reflect SDAPCD Rule 67 VOC paint standards and to include Tier 4 construction equipment

per the Project Design Features. CalEEMod automatically includes haul trips based on the total quantities of demolition and soil inputs and is included in this analysis.

The Project applicant has indicated that construction design features identified in Section 1.3 would be fully utilized, and those would be made conditions of approval. Table 3.1 shows the expected timeframes for the construction of all project infrastructure, facilities, and improvements, as well as the expected number of pieces of equipment. Also, it should be noted that the conditions below would be conservative in the event construction began/ended at a later date as annual building codes, vehicles and construction fleets improve over time and emit fewer air quality emissions as technologies improve.

Table 3.1: Expected Construction Equipment

Equipment Identification	Proposed Start	Proposed Complete	Quantity
Demolition	06/01/2023	06/28/2023	
Concrete/Industrial Saws			1
Excavators			1
Tractors/Loaders/Backhoes			1
Site Preparation	06/01/2023	07/12/2023	
Rubber Tired Dozers			3
Tractors/Loaders/Backhoes			4
Grading	07/13/2023	08/30/2023	
Excavators			1
Graders			1
Rubber Tired Dozers			1
Bore/Drill Rigs			1
Tractors/Loaders/Backhoes			3
Paving	08/31/2023	09/27/2023	
Pavers			2
Paving Equipment			2
Rollers			2
Building Construction	09/28/2023	02/12/2025	
Cranes			1
Forklifts			3
Generator Sets			1
Tractors/Loaders/Backhoes			3
Welders			1
Architectural Coating	12/15/2024	02/12/2025	
Air Compressors			1

This equipment list is based upon equipment inventory within CalEEMod. The quantity and types are based upon assumptions provided by the Project applicant.

It should also be noted that the project design indicates that some blasting may be required during grading. During blasting operations, grading operations would temporarily stop and resume once blasting is completed. Per conversations with the project Civil Engineer, it is expected that each blast, limited to once a day, would be limited to six tons Ammonium Nitrate for any given blast operation. The area of each blast would be limited to 20,000 SF or (100-foot x 200-foot) area. Blasting operations usually require a chemical material that is capable of extremely rapid combustion resulting in an explosion or detonation. These materials are usually mixtures of several ingredients but are often oxygen deficient as combustion reactions take place which causes a formation of carbon monoxide and to a lesser extent, nitrogen oxides. For ammonium nitrate and fuel oil (ANFO) mixtures it is expected that carbon monoxide would be generated in quantities of 67 lbs per every ton of explosives and nitrogen oxides would be generated at 17 lbs per the same quantity (EPA, 1995). Particulate matter will also be generated from blasting and can be estimated using Table 11.9-1 of the aforementioned document (EPA, 1995) using the following equation:

$$PM_{10}(lb/Blast) = 0.000014 * (BlastArea(ft^2)) * 0.52$$

3.3 Operational Emissions

Once construction is completed, the proposed Project would generate emissions from daily operations which would include sources such as Area, Energy, Mobile, Waste and Water uses, which are also calculated within CalEEMod. Area Sources include consumer products, landscaping, and architectural coatings as part of regular maintenance. Energy sources would be from uses such as electrical and onsite natural gas use. Finally, mobile or transportation related emissions are calculated in CalEEMod. The Operational model is also provided in ***Attachment A*** at the end of this report.

The Traffic inputs for CalEEMod were adjusted to be consistent with a trip generation rate of 8 trips per multi-family unit or 816 trips (LOS Engineering, 2022) . Trip distances were based on EMFAC 2014 for the San Diego region. EMFAC 2014 was utilized because it is also the source model utilized by CalEEMod. Additionally, based on the traffic study, there are no project effects at any intersection near the project site because the project generated traffic would not exceed the City's "LOS D" thresholds. Given this the project would not have a potential to increase CO hot spots at any of the nearby intersections and are not further analyzed.

The CalEEMod model also estimates emission predictions for ROG, NOx, CO, SO_2, PM_{10} and $PM_{2.5}$ for area source assumptions. Additionally, it was assumed that an average of 10% of the structural surface area will be re-painted each year. Finally, since the Project would not

be installing hearth options, CalEEMod default hearth settings were modified to represent no hearth options.

Consumer product emissions are generated by a wide range of product categories, including air fresheners, automotive products, household cleaners, and personal care products. Emissions associated with these products primarily depend on the increased population associated with residential development. Default emission factors were utilized within the CalEEMod.

3.4 Odor Impacts (Onsite)

Potential onsite odor generators would include short-term construction odors from activities such as paving and possibly painting. Since the activities are "short-term" construction odors are not typically considered a significant impact. Long-term odor impacts would not be expected because the residential uses proposed under the proposed Project would not result in other emissions, including offensive odors, which would adversely affect a substantial number of people.

4.0 FINDINGS

4.1 Construction Findings

Construction emissions in pounds per day from the construction activities and equipment identified in Section 3.2 above is shown in Table 4.1. Based on these numbers, construction emissions for the proposed Project would not exceed City standards and would not require mitigation. It should be noted that, as a design feature, the proposed Project construction team will utilize Tier 4 diesel construction equipment with DPF, and architectural coatings would conform to SDAPCD Rule 67 as indicated by the applicant.

Table 4.1: Expected Construction Emissions Summary (lb/day)

Year	VOC	NO_x	CO	SO_2	PM_{10} (Dust)	PM_{10} (Exhaust)	PM_{10} (Total)	$PM_{2.5}$ (Dust)	$PM_{2.5}$ (Exhaust)	$PM_{2.5}$ (Total)
2023	0.75	13.24	32.46	0.09	20.80	0.10	20.84	10.35	0.10	10.39
2024	31.01	3.68	22.70	0.04	1.28	0.02	1.30	0.34	0.02	0.36
2025	30.99	3.64	22.51	0.04	1.28	0.02	1.30	0.34	0.02	0.36
Blasting Emissions calculations shown in text above		102	402		20.59		20.59			
Construction Total w/ Blasting (Maximum)	31.01	115.24	434.46	0.09	41.39	0.10	41.43	10.35	0.10	10.39
Significance Threshold (lb/day)	**75**	**250**	**550**	**250**	**-**	**-**	**100**	-	-	**55**
City of Escondido Impact?	**No**	**No**	**No**	**No**	-	-	**No**	-	-	**No**

During blasting operations, grading operations would stop and it is expected that each blast operation would require between 10,000 - 12,000 lbs of Ammonium Nitrate.

The proposed project would utilize approximately 6 tons of ammonium nitrate per a blast which would generate up to 402 lbs (67 lbs/ton * 6 tons) of carbon monoxide and up to 102 lbs (17 lbs/ton * 6 tons) of nitrogen oxides during a blast utilizing 6 tons of ammonium nitrate. These quantities would be additive to the mass grading operations for the entire project site and could be added to the worst-case mass grading daily CO and NO_x output. Additional particulates derived from each blast is estimated over a 20,000 SF area roughly 100-foot by

200-foot in dimension as identified in Section 3.2 above. Given this, it is estimated that each blast would generate 20.59 lb/blast as is shown in the equation below:

$$PM_{10}(lb/Blast) = 0.000014 * (20{,}000ft^2)^{1.5} * 0.52 = 20.59(lb/blast)$$

Given these findings, project emissions would not exceed the City of Escondido's air quality standards during construction. No mitigation measures will be necessary.

The proposed project is seeking a project density of 13 units per acre. The project site is proposing annexation into the City from the County of San Diego. The County's General Plan had a zoning density of 24 units per acre for this site. Since SANDAG's regional growth projections incorporate the higher density of the County, the 13 unit per acre density would be consistent with the regional growth projections under SANDAG. Given this, the proposed Project has no direct impacts and would be compatible with the area RAQS and SIP.

4.2 Health Risk

Based upon the air quality modeling and assuming Tier 4 equipment with DPF as a design feature to the proposed Project, worst-case onsite PM_{10} from onsite construction exhaust would cumulatively produce 0.00103 tons over the construction duration (445-working days) or an average of 0.000155 grams/second.

Utilizing the AERSCREEN dispersion model, we find that the peak maximum 1-hr concentration is 0.23 µg/m^3 during the worst-case construction period. Converting the peak 1-hr concentration to an annual concentration by multiplying it by 0.08 (US EPA, 1992) yields an annual concentration of 0.0184 µg/m^3. Therefore, utilizing the risk equation identified above in Section 3.1, the worst-case inhalation cancer risk is 3.96 per million exposed at 125 meters from the geometric centroid of the Project and it should be noted again that a Project design feature would be to utilize Tier 4 diesel equipment with DPF and would therefore be a condition to the proposed Project. Given this, the construction scenario analyzed would be considered less than significant under CEQA and would be in compliance with the City's thresholds. Also, since the risk is greater than 1, the project would be required to incorporate BACT equipment. Since the design feature to use Tier 4 is BACT, this requirement is met. No additional mitigation measures are necessary.

There are known acute and chronic health risks associated with diesel exhaust which are considered non-cancer risks. These risks are calculated based on methods identified in Section 3.1 of this report. From this we find that the hourly concentration of 0.23 µg/m^3 divided by the REL of 5 µg/m^3 yields a Health Hazard Index of 0.046 which is less than one. Therefore, non-cancer risks are not expected, and all health risks are considered less than significant.

Furthermore, based on discussions with the Project applicant, cumulative projects exist within the immediate area of the project site. The projects as identified (labeled 1-3) are listed below and also shown Figure 3-A on the following page:

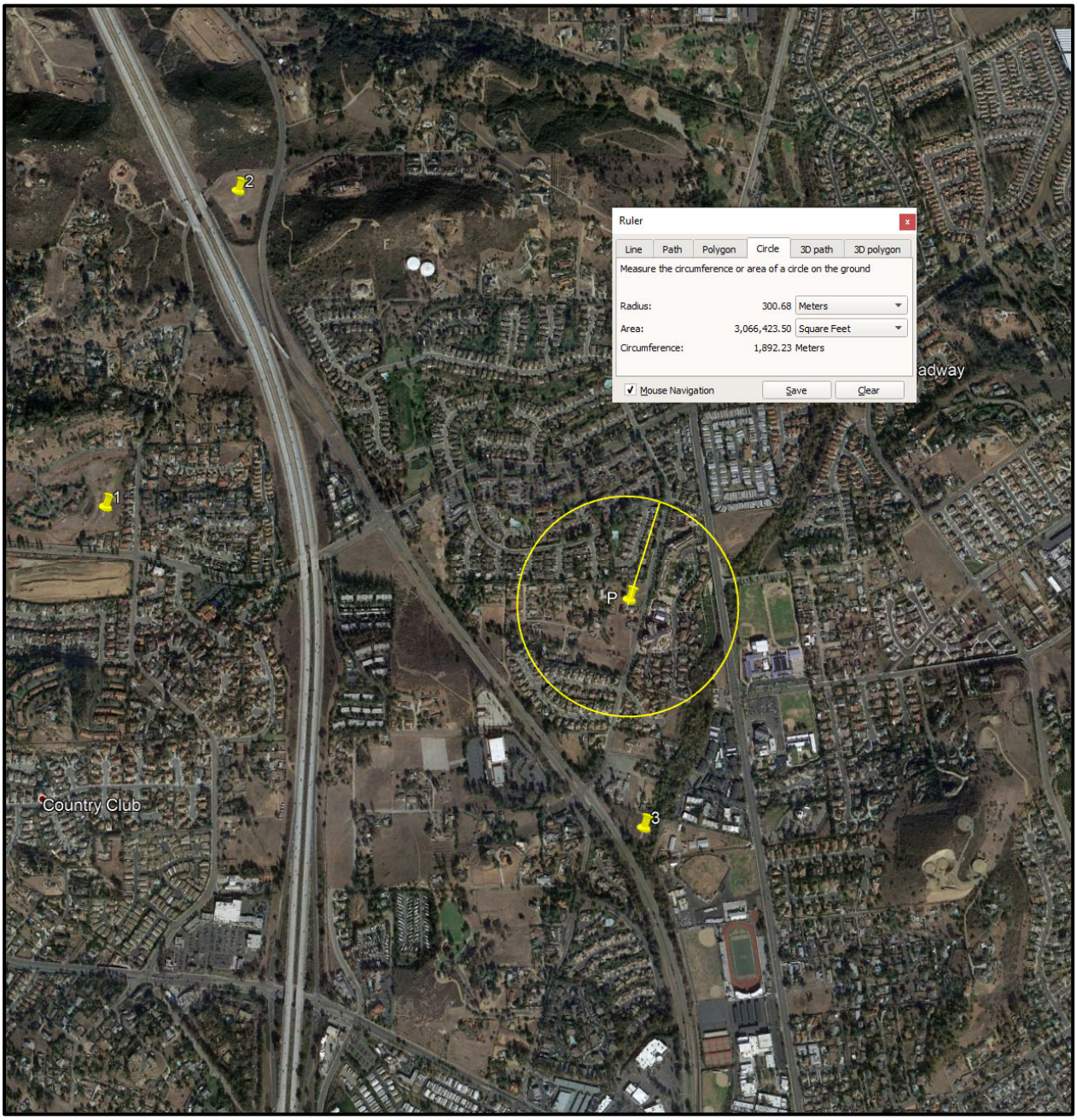
1. *Escondido Country Club – The Villages. A mixed-use project with 392 single family homes, recreational amenities, and an urban farm generally located north of El Norte Parkway, west of I-15, along on both side of Country Club Lane.*

2. *Nutmeg Residences (137 townhomes and 97 single family homes) generally located on the southwest corner of Centre City Pkwy at Nutmeg St.*

3. *Assisted Living Residences (96 bed residential care facility) generally located on the east side of Centre City Pkwy south of Iris Lane.*

Since the project health risk screening model predicted that diesel exhaust during construction would produce the highest concentrations roughly 125 meters from the Project centroid and would generate a cancer risk of 1.88 per one million exposed, cumulative contributions from any nearby cumulative projects would not likely influence air quality emissions dispersed locally. Also, a radius drawn twice the distance from the point of maximum exposure as shown in Figure 3-A would not overlap any of the nearby cumulative projects. Given this, the cumulative projects would not likely increase air quality emissions to cause air quality impacts.

Figure 3-A: Cumulative Project Location



4.3 Operational Findings

As noted above in Section 3.3 of this analysis, the operational assumptions have been incorporated into the CalEEMod file. In addition, PDFs identified in Section 1.3 of this report have also been included. Since PDFs form the baseline model and results, implementation of PDFs would be a requirement of the proposed Project.

The expected daily pollutant generation from CalEEMod is shown in Table 4.2. Based on this analysis, the proposed Project would generate a less than significant direct operational impact. Since the Project would not exceed significance thresholds and because the proposed Project would generate fewer emissions than City significance thresholds a less than significant air quality impact would be expected. Also, the project site is proposing annexation into the City of Escondido from the County of San Diego. The zoning designation for the site is 24 units per acre within the County of San Diego. The proposed project has been designed to accommodate 13.2 units per acre. Based on this and since the site was previously zoned to allow 24 units per acre, SANDAG regional growth projections would have accounted for the growth up to 24 units per acre.

Table 4.2: Expected Daily Pollutant Generation

	ROG	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Summer Scenario						
Area	3.36	0.10	8.41	0.00	0.05	0.05
Energy	0.03	0.28	0.12	0.00	0.02	0.02
Mobile	1.49	1.27	13.12	0.03	3.83	1.03
Total (Lb/Day)	**4.89**	**1.65**	**21.65**	**0.03**	**3.90**	**1.10**
City of Escondido Thresholds	55	250	550	250	100	55
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**
Winter Scenario						
Area	3.36	0.10	8.41	0.00	0.05	0.05
Energy	0.03	0.28	0.12	0.00	0.02	0.02
Mobile	1.44	1.38	13.66	0.03	3.83	1.03
Total (Lb/Day)	**4.83**	**1.76**	**22.19**	**0.03**	**3.90**	**1.10**
City of Escondido Thresholds	55	250	550	250	100	55
Exceeds Threshold?	**No**	**No**	**No**	**No**	**No**	**No**

4.4 RAQS and SIP Analysis

The proposed project is seeking a project density of 13.2 units per acre. The project site is proposing annexation into the City from the County of San Diego. The County's General Plan had a zoning density of 24 units per acre for this site. Since SANDAG's regional growth projections incorporate the higher density of the County, the 13.2 unit per acre density as the project was designed would be less and therefore consistent with the regional growth projections under SANDAG. Given this, the proposed Project has no direct impacts and would be compatible with the area RAQS and SIP.

4.5 Conclusion of Findings

During construction of the proposed Project, fugitive dust emissions will be expected during grading operations from heavy equipment usage and from construction workers commuting to and from the site. However, these would not be at a significant level. During short-term construction activities, the proposed Project will generate less than significant impacts based on thresholds established by the City of Escondido and will NOT require mitigation. Also, based on the Project size, emissions, and relative location to nearby cumulative projects, the proposed Project would generate less than significant cumulative construction impacts.

Additionally, emissions from the operation of the proposed Project. including project generated traffic, would not exceed significance thresholds established by the City of Escondido, and therefore will generate less than significant air quality impacts under CEQA. Also, the property shall be annexed into the City of Escondido from the County of San Diego.

The proposed project seeks to be annexed into the City of Escondido from the County of San Diego. The County's General plan had a zoning density of 24 DU/acre and the proposed site is seeking a zoning classification of 18 DU/acre. Since SANDAG regional growth projections are based on zoning classifications of R24 within the County, a reduction from 24 to 18 DU/acre would decrease projected growth within the region. Given this the proposed R18 zoning classification would be less intense. Since the site was previously zoned to allow 24 units per acre, SANDAG regional growth projections would have accounted for the growth of the higher density. For this reason, the project would have a less than significant cumulative operational impact and would comply with the RAQS and SIP.

A screening-level construction health risk assessment was conducted to determine the potential for the proposed Project to result in a significant impact on nearby sensitive receptors during short-term construction activities. The result of the health risk assessment indicates that the proposed Project would increase diesel particulates to a level of 1.88 per one million which would not exceed the 10 in one million cancer risk threshold. Given this, no

impacts would be expected. The project will utilize Tier 4 equipment which is considered BACT and would be required as a condition for project approval.

Project design features (PDFs) have been included in this Project. The applicant has agreed to implement all PDFs, which will be included in the Project's Conditions of Approval and are shown in Section 1.3 of this report.

5.0 REFERENCES

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6.0 CERTIFICATIONS

The contents of this report represent an accurate depiction of the air quality environment and impacts within and surrounding the proposed development. This report was prepared utilizing the latest emission rates and reduction methodologies.

DRAFT

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760-473-1253

Date July 26, 2022

ATTACHMENT A

CalEEMod 2020.4.0 Summer, Winter, Annual

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

IRIS MF (102 units)

San Diego County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	230.00	Space	2.70	92,000.00	0
Apartments Low Rise	102.00	Dwelling Unit	4.99	102,000.00	292

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2035
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	322.38	**CH4 Intensity (lb/MWhr)**	0.02	**N2O Intensity (lb/MWhr)**	0.002

1.3 User Entered Comments & Non-Default Data

Project Characteristics - RPS 2030 which is conservative... projections and RPS estimates for 2035 would be lower

Land Use - 7.69 acres

Construction Phase - Estimated Construction Schedule

Off-road Equipment - CE

Off-road Equipment - ce

Trips and VMT -

Demolition -

Grading -

Architectural Coating - Rule 67 Paint

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Vehicle Trips - SANDAG MF 8 trip/unit; EMFAC 2017 for 2035 is 6.875 miles

Woodstoves - No hearth options onsite

Area Coating - Rule 67 Paint

Energy Use -

Water And Wastewater -

Solid Waste -

Sequestration -

Construction Off-road Equipment Mitigation - Tier 4 Equipment

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	100.00
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	NumDays	20.00	35.00
tblConstructionPhase	NumDays	230.00	360.00
tblConstructionPhase	NumDays	20.00	43.00
tblFireplaces	NumberGas	56.10	0.00
tblFireplaces	NumberNoFireplace	10.20	102.00
tblFireplaces	NumberWood	35.70	0.00
tblGrading	MaterialExported	0.00	6,812.00
tblGrading	MaterialImported	0.00	17,012.00
tblGrading	MaterialImported	0.00	5,100.00
tblLandUse	LotAcreage	2.07	2.70
tblLandUse	LotAcreage	6.38	4.99
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0.02
tblProjectCharacteristics	CO2IntensityFactor	539.98	322.38
tblProjectCharacteristics	N2OIntensityFactor	0.004	0.002
tblSequestration	NumberOfNewTrees	0.00	102.00
tblVehicleTrips	HO_TL	7.50	6.88
tblVehicleTrips	HO_TTP	39.60	39.00
tblVehicleTrips	HS_TL	7.30	6.88
tblVehicleTrips	HS_TTP	18.80	19.00
tblVehicleTrips	HW_TL	10.80	6.88
tblVehicleTrips	HW_TTP	41.60	42.00
tblVehicleTrips	ST_TR	8.14	8.00
tblVehicleTrips	SU_TR	6.28	8.00
tblVehicleTrips	WD_TR	7.32	8.00
tblWoodstoves	NumberCatalytic	5.10	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblWoodstoves	NumberNoncatalytic	5.10	0.00

2.0 Emissions Summary

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	3.4576	36.3132	28.8615	0.0914	20.8041	1.5732	22.3773	10.3509	1.4585	11.8095	0.0000	9,548.3334	9,548.3334	1.5646	0.8981	9,853.7607
2024	32.3070	15.9742	21.3825	0.0445	1.2769	0.6867	1.9636	0.3427	0.6495	0.9922	0.0000	4,372.2204	4,372.2204	0.6623	0.1047	4,419.9664
2025	32.1721	14.8967	21.1063	0.0441	1.2769	0.5913	1.8682	0.3427	0.5592	0.9019	0.0000	4,338.4337	4,338.4337	0.6567	0.1017	4,385.1445
Maximum	**32.3070**	**36.3132**	**28.8615**	**0.0914**	**20.8041**	**1.5732**	**22.3773**	**10.3509**	**1.4585**	**11.8095**	**0.0000**	**9,548.3334**	**9,548.3334**	**1.5646**	**0.8981**	**9,853.7607**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	0.7540	13.2414	32.4584	0.0914	20.8041	0.1049	20.8440	10.3509	0.1007	10.3895	0.0000	9,548.3334	9,548.3334	1.5646	0.8981	9,853.7607
2024	31.0122	3.6751	22.6982	0.0445	1.2769	0.0192	1.2961	0.3427	0.0184	0.3611	0.0000	4,372.2204	4,372.2204	0.6623	0.1047	4,419.9664
2025	30.9914	3.6449	22.5051	0.0441	1.2769	0.0189	1.2958	0.3427	0.0182	0.3609	0.0000	4,338.4337	4,338.4337	0.6567	0.1017	4,385.1445
Maximum	**31.0122**	**13.2414**	**32.4584**	**0.0914**	**20.8041**	**0.1049**	**20.8440**	**10.3509**	**0.1007**	**10.3895**	**0.0000**	**9,548.3334**	**9,548.3334**	**1.5646**	**0.8981**	**9,853.7607**

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	7.62	69.40	-8.85	0.00	0.00	94.99	10.58	0.00	94.85	18.92	0.00	0.00	0.00	0.00	0.00	0.00

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.3601	0.0970	8.4089	4.5000e-004		0.0468	0.0468		0.0468	0.0468	0.0000	15.2027	15.2027	0.0146	0.0000	15.5665
Energy	0.0328	0.2806	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.1704	358.1704	6.8600e-003	6.5700e-003	360.2988
Mobile	1.4934	1.2720	13.1255	0.0284	3.8185	0.0164	3.8349	1.0170	0.0153	1.0323		3,130.8866	3,130.8866	0.2048	0.1290	3,174.4415
Total	**4.8863**	**1.6495**	**21.6538**	**0.0306**	**3.8185**	**0.0858**	**3.9043**	**1.0170**	**0.0847**	**1.1017**	**0.0000**	**3,504.2597**	**3,504.2597**	**0.2262**	**0.1356**	**3,550.3069**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.3601	0.0970	8.4089	4.5000e-004		0.0468	0.0468		0.0468	0.0468	0.0000	15.2027	15.2027	0.0146	0.0000	15.5665
Energy	0.0328	0.2806	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.1704	358.1704	6.8600e-003	6.5700e-003	360.2988
Mobile	1.4934	1.2720	13.1255	0.0284	3.8185	0.0164	3.8349	1.0170	0.0153	1.0323		3,130.8866	3,130.8866	0.2048	0.1290	3,174.4415
Total	**4.8863**	**1.6495**	**21.6538**	**0.0306**	**3.8185**	**0.0858**	**3.9043**	**1.0170**	**0.0847**	**1.1017**	**0.0000**	**3,504.2597**	**3,504.2597**	**0.2262**	**0.1356**	**3,550.3069**

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2023	6/28/2023	5	20	
2	Site Preparation	Site Preparation	6/1/2023	7/12/2023	5	30	
3	Grading	Grading	7/13/2023	8/30/2023	5	35	
4	Paving	Paving	8/31/2023	9/27/2023	5	20	
5	Building Construction	Building Construction	9/28/2023	2/12/2025	5	360	
6	Architectural Coating	Architectural Coating	12/15/2024	2/12/2025	5	43	

Acres of Grading (Site Preparation Phase): 45

Acres of Grading (Grading Phase): 35

Acres of Paving: 2.7

Residential Indoor: 206,550; Residential Outdoor: 68,850; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 5,520 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	1	8.00	158	0.38
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading	Bore/Drill Rigs	1	8.00	221	0.50
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	3	8.00	0.00	45.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	638.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	2,978.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	112.00	26.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	22.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4983	0.0000	0.4983	0.0755	0.0000	0.0755			0.0000			0.0000
Off-Road	0.6738	5.6686	9.1464	0.0145		0.2799	0.2799		0.2678	0.2678		1,394.3478	1,394.3478	0.2885		1,401.5598
Total	**0.6738**	**5.6686**	**9.1464**	**0.0145**	**0.4983**	**0.2799**	**0.7782**	**0.0755**	**0.2678**	**0.3432**		**1,394.3478**	**1,394.3478**	**0.2885**		**1,401.5598**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.1000e-003	0.2943	0.0809	1.3500e-003	0.0394	2.5000e-003	0.0419	0.0108	2.3900e-003	0.0132		148.7874	148.7874	7.5000e-003	0.0237	156.0259
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0219	0.0136	0.1925	5.8000e-004	0.0657	3.5000e-004	0.0661	0.0174	3.3000e-004	0.0178		59.4283	59.4283	1.5900e-003	1.4600e-003	59.9041
Total	**0.0270**	**0.3079**	**0.2734**	**1.9300e-003**	**0.1051**	**2.8500e-003**	**0.1079**	**0.0282**	**2.7200e-003**	**0.0309**		**208.2157**	**208.2157**	**9.0900e-003**	**0.0251**	**215.9299**

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4983	0.0000	0.4983	0.0755	0.0000	0.0755			0.0000			0.0000
Off-Road	0.1641	0.7111	10.1187	0.0145		3.2800e-003	3.2800e-003		3.2800e-003	3.2800e-003	0.0000	1,394.3478	1,394.3478	0.2885		1,401.5598
Total	**0.1641**	**0.7111**	**10.1187**	**0.0145**	**0.4983**	**3.2800e-003**	**0.5016**	**0.0755**	**3.2800e-003**	**0.0787**	**0.0000**	**1,394.3478**	**1,394.3478**	**0.2885**		**1,401.5598**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	5.1000e-003	0.2943	0.0809	1.3500e-003	0.0394	2.5000e-003	0.0419	0.0108	2.3900e-003	0.0132		148.7874	148.7874	7.5000e-003	0.0237	156.0259
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0219	0.0136	0.1925	5.8000e-004	0.0657	3.5000e-004	0.0661	0.0174	3.3000e-004	0.0178		59.4283	59.4283	1.5900e-003	1.4600e-003	59.9041
Total	**0.0270**	**0.3079**	**0.2734**	**1.9300e-003**	**0.1051**	**2.8500e-003**	**0.1079**	**0.0282**	**2.7200e-003**	**0.0309**		**208.2157**	**208.2157**	**9.0900e-003**	**0.0251**	**215.9299**

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6809	0.0000	19.6809	10.1061	0.0000	10.1061			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**19.6809**	**1.2660**	**20.9469**	**10.1061**	**1.1647**	**11.2708**		**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0482	2.7820	0.7642	0.0127	0.3720	0.0236	0.3956	0.1020	0.0226	0.1245		1,406.3165	1,406.3165	0.0709	0.2236	1,474.7332
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0492	0.0306	0.4332	1.3100e-003	0.1479	8.0000e-004	0.1487	0.0392	7.3000e-004	0.0400		133.7136	133.7136	3.5800e-003	3.2900e-003	134.7841
Total	**0.0974**	**2.8126**	**1.1974**	**0.0140**	**0.5198**	**0.0244**	**0.5442**	**0.1412**	**0.0233**	**0.1645**		**1,540.0301**	**1,540.0301**	**0.0745**	**0.2269**	**1,609.5173**

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6809	0.0000	19.6809	10.1061	0.0000	10.1061			0.0000			0.0000
Off-Road	0.4656	2.0175	20.8690	0.0381		9.3100e-003	9.3100e-003		9.3100e-003	9.3100e-003	0.0000	3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**0.4656**	**2.0175**	**20.8690**	**0.0381**	**19.6809**	**9.3100e-003**	**19.6902**	**10.1061**	**9.3100e-003**	**10.1154**	**0.0000**	**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0482	2.7820	0.7642	0.0127	0.3720	0.0236	0.3956	0.1020	0.0226	0.1245		1,406.3165	1,406.3165	0.0709	0.2236	1,474.7332
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0492	0.0306	0.4332	1.3100e-003	0.1479	8.0000e-004	0.1487	0.0392	7.3000e-004	0.0400		133.7136	133.7136	3.5800e-003	3.2900e-003	134.7841
Total	**0.0974**	**2.8126**	**1.1974**	**0.0140**	**0.5198**	**0.0244**	**0.5442**	**0.1412**	**0.0233**	**0.1645**		**1,540.0301**	**1,540.0301**	**0.0745**	**0.2269**	**1,609.5173**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1782	0.0000	7.1782	3.4392	0.0000	3.4392			0.0000			0.0000
Off-Road	1.9260	19.9754	16.7836	0.0391		0.8410	0.8410		0.7737	0.7737		3,788.0942	3,788.0942	1.2252		3,818.7229
Total	**1.9260**	**19.9754**	**16.7836**	**0.0391**	**7.1782**	**0.8410**	**8.0192**	**3.4392**	**0.7737**	**4.2129**		**3,788.0942**	**3,788.0942**	**1.2252**		**3,818.7229**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1927	11.1304	3.0575	0.0509	1.4882	0.0945	1.5826	0.4079	0.0904	0.4983		5,626.5255	5,626.5255	0.2836	0.8948	5,900.2536
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0492	0.0306	0.4332	1.3100e-003	0.1479	8.0000e-004	0.1487	0.0392	7.3000e-004	0.0400		133.7136	133.7136	3.5800e-003	3.2900e-003	134.7841
Total	**0.2419**	**11.1610**	**3.4907**	**0.0522**	**1.6360**	**0.0953**	**1.7313**	**0.4471**	**0.0911**	**0.5382**		**5,760.2391**	**5,760.2391**	**0.2871**	**0.8981**	**6,035.0378**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1782	0.0000	7.1782	3.4392	0.0000	3.4392			0.0000			0.0000
Off-Road	0.4801	2.0804	22.0403	0.0391		9.6000e-003	9.6000e-003		9.6000e-003	9.6000e-003	0.0000	3,788.0942	3,788.0942	1.2252		3,818.7229
Total	**0.4801**	**2.0804**	**22.0403**	**0.0391**	**7.1782**	**9.6000e-003**	**7.1878**	**3.4392**	**9.6000e-003**	**3.4488**	**0.0000**	**3,788.0942**	**3,788.0942**	**1.2252**		**3,818.7229**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1927	11.1304	3.0575	0.0509	1.4882	0.0945	1.5826	0.4079	0.0904	0.4983		5,626.5255	5,626.5255	0.2836	0.8948	5,900.2536
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0492	0.0306	0.4332	1.3100e-003	0.1479	8.0000e-004	0.1487	0.0392	7.3000e-004	0.0400		133.7136	133.7136	3.5800e-003	3.2900e-003	134.7841
Total	**0.2419**	**11.1610**	**3.4907**	**0.0522**	**1.6360**	**0.0953**	**1.7313**	**0.4471**	**0.0911**	**0.5382**		**5,760.2391**	**5,760.2391**	**0.2871**	**0.8981**	**6,035.0378**

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.3537					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3864**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0410	0.0255	0.3610	1.0900e-003	0.1232	6.6000e-004	0.1239	0.0327	6.1000e-004	0.0333		111.4280	111.4280	2.9800e-003	2.7400e-003	112.3201
Total	**0.0410**	**0.0255**	**0.3610**	**1.0900e-003**	**0.1232**	**6.6000e-004**	**0.1239**	**0.0327**	**6.1000e-004**	**0.0333**		**111.4280**	**111.4280**	**2.9800e-003**	**2.7400e-003**	**112.3201**

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		5.6100e-003	5.6100e-003		5.6100e-003	5.6100e-003	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.3537					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6342**	**1.2154**	**17.2957**	**0.0228**		**5.6100e-003**	**5.6100e-003**		**5.6100e-003**	**5.6100e-003**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0410	0.0255	0.3610	1.0900e-003	0.1232	6.6000e-004	0.1239	0.0327	6.1000e-004	0.0333		111.4280	111.4280	2.9800e-003	2.7400e-003	112.3201
Total	**0.0410**	**0.0255**	**0.3610**	**1.0900e-003**	**0.1232**	**6.6000e-004**	**0.1239**	**0.0327**	**6.1000e-004**	**0.0333**		**111.4280**	**111.4280**	**2.9800e-003**	**2.7400e-003**	**112.3201**

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0311	1.1146	0.4017	5.3200e-003	0.1761	6.7900e-003	0.1829	0.0507	6.5000e-003	0.0572		574.7221	574.7221	0.0174	0.0832	599.9557
Worker	0.3063	0.1902	2.6951	8.1300e-003	0.9201	4.9500e-003	0.9250	0.2440	4.5600e-003	0.2486		831.9960	831.9960	0.0223	0.0205	838.6568
Total	**0.3373**	**1.3048**	**3.0968**	**0.0135**	**1.0961**	**0.0117**	**1.1079**	**0.2947**	**0.0111**	**0.3058**		**1,406.7180**	**1,406.7180**	**0.0397**	**0.1037**	**1,438.6126**

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		6.1200e-003	6.1200e-003		6.1200e-003	6.1200e-003	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**6.1200e-003**	**6.1200e-003**		**6.1200e-003**	**6.1200e-003**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0311	1.1146	0.4017	5.3200e-003	0.1761	6.7900e-003	0.1829	0.0507	6.5000e-003	0.0572		574.7221	574.7221	0.0174	0.0832	599.9557
Worker	0.3063	0.1902	2.6951	8.1300e-003	0.9201	4.9500e-003	0.9250	0.2440	4.5600e-003	0.2486		831.9960	831.9960	0.0223	0.0205	838.6568
Total	**0.3373**	**1.3048**	**3.0968**	**0.0135**	**1.0961**	**0.0117**	**1.1079**	**0.2947**	**0.0111**	**0.3058**		**1,406.7180**	**1,406.7180**	**0.0397**	**0.1037**	**1,438.6126**

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0299	1.1070	0.3923	5.2200e-003	0.1761	6.8200e-003	0.1829	0.0507	6.5300e-003	0.0572		564.7020	564.7020	0.0178	0.0818	589.5118
Worker	0.2877	0.1711	2.5186	7.8600e-003	0.9201	4.7200e-003	0.9248	0.2440	4.3400e-003	0.2484		811.0567	811.0567	0.0203	0.0191	817.2679
Total	**0.3176**	**1.2781**	**2.9108**	**0.0131**	**1.0961**	**0.0115**	**1.1077**	**0.2947**	**0.0109**	**0.3056**		**1,375.7587**	**1,375.7587**	**0.0381**	**0.1009**	**1,406.7797**

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0270		6.1200e-003	6.1200e-003		6.1200e-003	6.1200e-003	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**0.3278**	**2.2347**	**17.4603**	**0.0270**		**6.1200e-003**	**6.1200e-003**		**6.1200e-003**	**6.1200e-003**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0299	1.1070	0.3923	5.2200e-003	0.1761	6.8200e-003	0.1829	0.0507	6.5300e-003	0.0572		564.7020	564.7020	0.0178	0.0818	589.5118
Worker	0.2877	0.1711	2.5186	7.8600e-003	0.9201	4.7200e-003	0.9248	0.2440	4.3400e-003	0.2484		811.0567	811.0567	0.0203	0.0191	817.2679
Total	**0.3176**	**1.2781**	**2.9108**	**0.0131**	**1.0961**	**0.0115**	**1.1077**	**0.2947**	**0.0109**	**0.3056**		**1,375.7587**	**1,375.7587**	**0.0381**	**0.1009**	**1,406.7797**

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0290	1.0961	0.3857	5.1200e-003	0.1761	6.8000e-003	0.1829	0.0507	6.5100e-003	0.0572		553.9295	553.9295	0.0183	0.0802	578.2738
Worker	0.2711	0.1550	2.3627	7.5900e-003	0.9201	4.5200e-003	0.9246	0.2440	4.1600e-003	0.2482		791.1728	791.1728	0.0185	0.0180	796.9893
Total	**0.3001**	**1.2510**	**2.7484**	**0.0127**	**1.0961**	**0.0113**	**1.1075**	**0.2947**	**0.0107**	**0.3054**		**1,345.1023**	**1,345.1023**	**0.0367**	**0.0981**	**1,375.2631**

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0270		6.1200e-003	6.1200e-003		6.1200e-003	6.1200e-003	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**0.3278**	**2.2347**	**17.4603**	**0.0270**		**6.1200e-003**	**6.1200e-003**		**6.1200e-003**	**6.1200e-003**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0290	1.0961	0.3857	5.1200e-003	0.1761	6.8000e-003	0.1829	0.0507	6.5100e-003	0.0572		553.9295	553.9295	0.0183	0.0802	578.2738
Worker	0.2711	0.1550	2.3627	7.5900e-003	0.9201	4.5200e-003	0.9246	0.2440	4.1600e-003	0.2482		791.1728	791.1728	0.0185	0.0180	796.9893
Total	**0.3001**	**1.2510**	**2.7484**	**0.0127**	**1.0961**	**0.0113**	**1.1075**	**0.2947**	**0.0107**	**0.3054**		**1,345.1023**	**1,345.1023**	**0.0367**	**0.0981**	**1,375.2631**

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	30.2806					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**30.4613**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0565	0.0336	0.4947	1.5400e-003	0.1807	9.3000e-004	0.1817	0.0479	8.5000e-004	0.0488		159.3147	159.3147	3.9800e-003	3.7600e-003	160.5348
Total	**0.0565**	**0.0336**	**0.4947**	**1.5400e-003**	**0.1807**	**9.3000e-004**	**0.1817**	**0.0479**	**8.5000e-004**	**0.0488**		**159.3147**	**159.3147**	**3.9800e-003**	**3.7600e-003**	**160.5348**

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	30.2806					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**30.3103**	**0.1288**	**1.8324**	**2.9700e-003**		**5.9000e-004**	**5.9000e-004**		**5.9000e-004**	**5.9000e-004**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0565	0.0336	0.4947	1.5400e-003	0.1807	9.3000e-004	0.1817	0.0479	8.5000e-004	0.0488		159.3147	159.3147	3.9800e-003	3.7600e-003	160.5348
Total	**0.0565**	**0.0336**	**0.4947**	**1.5400e-003**	**0.1807**	**9.3000e-004**	**0.1817**	**0.0479**	**8.5000e-004**	**0.0488**		**159.3147**	**159.3147**	**3.9800e-003**	**3.7600e-003**	**160.5348**

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	30.2806					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**30.4514**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0533	0.0304	0.4641	1.4900e-003	0.1807	8.9000e-004	0.1816	0.0479	8.2000e-004	0.0488		155.4089	155.4089	3.6300e-003	3.5300e-003	156.5515
Total	**0.0533**	**0.0304**	**0.4641**	**1.4900e-003**	**0.1807**	**8.9000e-004**	**0.1816**	**0.0479**	**8.2000e-004**	**0.0488**		**155.4089**	**155.4089**	**3.6300e-003**	**3.5300e-003**	**156.5515**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	30.2806					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**30.3103**	**0.1288**	**1.8324**	**2.9700e-003**		**5.9000e-004**	**5.9000e-004**		**5.9000e-004**	**5.9000e-004**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0533	0.0304	0.4641	1.4900e-003	0.1807	8.9000e-004	0.1816	0.0479	8.2000e-004	0.0488		155.4089	155.4089	3.6300e-003	3.5300e-003	156.5515
Total	**0.0533**	**0.0304**	**0.4641**	**1.4900e-003**	**0.1807**	**8.9000e-004**	**0.1816**	**0.0479**	**8.2000e-004**	**0.0488**		**155.4089**	**155.4089**	**3.6300e-003**	**3.5300e-003**	**156.5515**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.4934	1.2720	13.1255	0.0284	3.8185	0.0164	3.8349	1.0170	0.0153	1.0323		3,130.8866	3,130.8866	0.2048	0.1290	3,174.4415
Unmitigated	1.4934	1.2720	13.1255	0.0284	3.8185	0.0164	3.8349	1.0170	0.0153	1.0323		3,130.8866	3,130.8866	0.2048	0.1290	3,174.4415

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	816.00	816.00	816.00	1,814,520	1,814,520
Parking Lot	0.00	0.00	0.00		
Total	816.00	816.00	816.00	1,814,520	1,814,520

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	6.88	6.88	6.88	42.00	19.00	39.00	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.581445	0.061322	0.168269	0.110400	0.022610	0.006703	0.010268	0.006246	0.000647	0.000667	0.027159	0.000784	0.003479
Parking Lot	0.581445	0.061322	0.168269	0.110400	0.022610	0.006703	0.010268	0.006246	0.000647	0.000667	0.027159	0.000784	0.003479

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0328	0.2806	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.1704	358.1704	6.8600e-003	6.5700e-003	360.2988
NaturalGas Unmitigated	0.0328	0.2806	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.1704	358.1704	6.8600e-003	6.5700e-003	360.2988

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	3044.45	0.0328	0.2806	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.1704	358.1704	6.8600e-003	6.5700e-003	360.2988
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0328**	**0.2806**	**0.1194**	**1.7900e-003**		**0.0227**	**0.0227**		**0.0227**	**0.0227**		**358.1704**	**358.1704**	**6.8600e-003**	**6.5700e-003**	**360.2988**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	3.04445	0.0328	0.2806	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.1704	358.1704	6.8600e-003	6.5700e-003	360.2988
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0328**	**0.2806**	**0.1194**	**1.7900e-003**		**0.0227**	**0.0227**		**0.0227**	**0.0227**		**358.1704**	**358.1704**	**6.8600e-003**	**6.5700e-003**	**360.2988**

6.0 Area Detail

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.3601	0.0970	8.4089	4.5000e-004		0.0468	0.0468		0.0468	0.0468	0.0000	15.2027	15.2027	0.0146	0.0000	15.5665
Unmitigated	3.3601	0.0970	8.4089	4.5000e-004		0.0468	0.0468		0.0468	0.0468	0.0000	15.2027	15.2027	0.0146	0.0000	15.5665

IRIS MF (102 units) - San Diego County, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.8918					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.2154					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2529	0.0970	8.4089	4.5000e-004		0.0468	0.0468		0.0468	0.0468		15.2027	15.2027	0.0146		15.5665
Total	**3.3601**	**0.0970**	**8.4089**	**4.5000e-004**		**0.0468**	**0.0468**		**0.0468**	**0.0468**	**0.0000**	**15.2027**	**15.2027**	**0.0146**	**0.0000**	**15.5665**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.8918					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.2154					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2529	0.0970	8.4089	4.5000e-004		0.0468	0.0468		0.0468	0.0468		15.2027	15.2027	0.0146		15.5665
Total	**3.3601**	**0.0970**	**8.4089**	**4.5000e-004**		**0.0468**	**0.0468**		**0.0468**	**0.0468**	**0.0000**	**15.2027**	**15.2027**	**0.0146**	**0.0000**	**15.5665**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

IRIS MF (102 units)

San Diego County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	230.00	Space	2.70	92,000.00	0
Apartments Low Rise	102.00	Dwelling Unit	4.99	102,000.00	292

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2035
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	322.38	**CH4 Intensity (lb/MWhr)**	0.02	**N2O Intensity (lb/MWhr)**	0.002

1.3 User Entered Comments & Non-Default Data

Project Characteristics - RPS 2030 which is conservative... projections and RPS estimates for 2035 would be lower

Land Use - 7.69 acres

Construction Phase - Estimated Construction Schedule

Off-road Equipment - CE

Off-road Equipment - ce

Trips and VMT -

Demolition -

Grading -

Architectural Coating - Rule 67 Paint

IRIS MF (102 units) - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Vehicle Trips - SANDAG MF 8 trip/unit; EMFAC 2017 for 2035 is 6.875 miles

Woodstoves - No hearth options onsite

Area Coating - Rule 67 Paint

Energy Use -

Water And Wastewater -

Solid Waste -

Sequestration -

Construction Off-road Equipment Mitigation - Tier 4 Equipment

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	100.00
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

IRIS MF (102 units) - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

IRIS MF (102 units) - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	NumDays	20.00	35.00
tblConstructionPhase	NumDays	230.00	360.00
tblConstructionPhase	NumDays	20.00	43.00
tblFireplaces	NumberGas	56.10	0.00
tblFireplaces	NumberNoFireplace	10.20	102.00
tblFireplaces	NumberWood	35.70	0.00
tblGrading	MaterialExported	0.00	6,812.00
tblGrading	MaterialImported	0.00	17,012.00
tblGrading	MaterialImported	0.00	5,100.00
tblLandUse	LotAcreage	2.07	2.70
tblLandUse	LotAcreage	6.38	4.99
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0.02
tblProjectCharacteristics	CO2IntensityFactor	539.98	322.38
tblProjectCharacteristics	N2OIntensityFactor	0.004	0.002
tblSequestration	NumberOfNewTrees	0.00	102.00
tblVehicleTrips	HO_TL	7.50	6.88
tblVehicleTrips	HO_TTP	39.60	39.00
tblVehicleTrips	HS_TL	7.30	6.88
tblVehicleTrips	HS_TTP	18.80	19.00
tblVehicleTrips	HW_TL	10.80	6.88
tblVehicleTrips	HW_TTP	41.60	42.00
tblVehicleTrips	ST_TR	8.14	8.00
tblVehicleTrips	SU_TR	6.28	8.00
tblVehicleTrips	WD_TR	7.32	8.00
tblWoodstoves	NumberCatalytic	5.10	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblWoodstoves	NumberNoncatalytic	5.10	0.00

2.0 Emissions Summary

IRIS MF (102 units) - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	3.4604	36.4428	28.8409	0.0913	20.8041	1.5732	22.3773	10.3509	1.4586	11.8095	0.0000	9,546.4509	9,546.4509	1.5647	0.8992	9,852.2169
2024	32.3361	16.0464	21.2503	0.0440	1.2769	0.6867	1.9636	0.3427	0.6496	0.9922	0.0000	4,319.8254	4,319.8254	0.6638	0.1067	4,368.2215
2025	32.2002	14.9661	20.9870	0.0436	1.2769	0.5913	1.8682	0.3427	0.5593	0.9020	0.0000	4,287.4464	4,287.4464	0.6581	0.1036	4,334.7681
Maximum	**32.3361**	**36.4428**	**28.8409**	**0.0913**	**20.8041**	**1.5732**	**22.3773**	**10.3509**	**1.4586**	**11.8095**	**0.0000**	**9,546.4509**	**9,546.4509**	**1.5647**	**0.8992**	**9,852.2169**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2023	0.7568	13.6941	32.4378	0.0913	20.8041	0.1050	20.8440	10.3509	0.1009	10.3896	0.0000	9,546.4509	9,546.4509	1.5647	0.8992	9,852.2169
2024	31.0413	3.7473	22.5660	0.0440	1.2769	0.0192	1.2961	0.3427	0.0185	0.3611	0.0000	4,319.8254	4,319.8254	0.6638	0.1067	4,368.2215
2025	31.0195	3.7144	22.3859	0.0436	1.2769	0.0190	1.2958	0.3427	0.0182	0.3609	0.0000	4,287.4464	4,287.4464	0.6581	0.1036	4,334.7681
Maximum	**31.0413**	**13.6941**	**32.4378**	**0.0913**	**20.8041**	**0.1050**	**20.8440**	**10.3509**	**0.1009**	**10.3896**	**0.0000**	**9,546.4509**	**9,546.4509**	**1.5647**	**0.8992**	**9,852.2169**

IRIS MF (102 units) - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	7.62	68.64	-8.88	0.00	0.00	94.98	10.58	0.00	94.84	18.92	0.00	0.00	0.00	0.00	0.00	0.00

IRIS MF (102 units) - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.3601	0.0970	8.4089	4.5000e-004		0.0468	0.0468		0.0468	0.0468	0.0000	15.2027	15.2027	0.0146	0.0000	15.5665
Energy	0.0328	0.2806	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.1704	358.1704	6.8600e-003	6.5700e-003	360.2988
Mobile	1.4369	1.3804	13.6676	0.0272	3.8185	0.0164	3.8349	1.0170	0.0153	1.0323		2,995.3268	2,995.3268	0.2154	0.1356	3,041.1329
Total	**4.8298**	**1.7579**	**22.1959**	**0.0294**	**3.8185**	**0.0858**	**3.9043**	**1.0170**	**0.0847**	**1.1017**	**0.0000**	**3,368.6999**	**3,368.6999**	**0.2368**	**0.1422**	**3,416.9982**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	3.3601	0.0970	8.4089	4.5000e-004		0.0468	0.0468		0.0468	0.0468	0.0000	15.2027	15.2027	0.0146	0.0000	15.5665
Energy	0.0328	0.2806	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.1704	358.1704	6.8600e-003	6.5700e-003	360.2988
Mobile	1.4369	1.3804	13.6676	0.0272	3.8185	0.0164	3.8349	1.0170	0.0153	1.0323		2,995.3268	2,995.3268	0.2154	0.1356	3,041.1329
Total	**4.8298**	**1.7579**	**22.1959**	**0.0294**	**3.8185**	**0.0858**	**3.9043**	**1.0170**	**0.0847**	**1.1017**	**0.0000**	**3,368.6999**	**3,368.6999**	**0.2368**	**0.1422**	**3,416.9982**

IRIS MF (102 units) - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2023	6/28/2023	5	20	
2	Site Preparation	Site Preparation	6/1/2023	7/12/2023	5	30	
3	Grading	Grading	7/13/2023	8/30/2023	5	35	
4	Paving	Paving	8/31/2023	9/27/2023	5	20	
5	Building Construction	Building Construction	9/28/2023	2/12/2025	5	360	
6	Architectural Coating	Architectural Coating	12/15/2024	2/12/2025	5	43	

Acres of Grading (Site Preparation Phase): 45

Acres of Grading (Grading Phase): 35

Acres of Paving: 2.7

Residential Indoor: 206,550; Residential Outdoor: 68,850; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 5,520 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	1	8.00	158	0.38
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Grading	Bore/Drill Rigs	1	8.00	221	0.50
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	3	8.00	0.00	45.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	638.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	2,978.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	112.00	26.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	22.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4983	0.0000	0.4983	0.0755	0.0000	0.0755			0.0000			0.0000
Off-Road	0.6738	5.6686	9.1464	0.0145		0.2799	0.2799		0.2678	0.2678		1,394.3478	1,394.3478	0.2885		1,401.5598
Total	**0.6738**	**5.6686**	**9.1464**	**0.0145**	**0.4983**	**0.2799**	**0.7782**	**0.0755**	**0.2678**	**0.3432**		**1,394.3478**	**1,394.3478**	**0.2885**		**1,401.5598**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.7900e-003	0.3062	0.0819	1.3500e-003	0.0394	2.5000e-003	0.0419	0.0108	2.3900e-003	0.0132		148.9320	148.9320	7.4800e-003	0.0237	156.1771
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0237	0.0153	0.1829	5.5000e-004	0.0657	3.5000e-004	0.0661	0.0174	3.3000e-004	0.0178		56.1616	56.1616	1.6900e-003	1.5800e-003	56.6755
Total	**0.0285**	**0.3215**	**0.2648**	**1.9000e-003**	**0.1051**	**2.8500e-003**	**0.1079**	**0.0282**	**2.7200e-003**	**0.0309**		**205.0936**	**205.0936**	**9.1700e-003**	**0.0253**	**212.8527**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4983	0.0000	0.4983	0.0755	0.0000	0.0755			0.0000			0.0000
Off-Road	0.1641	0.7111	10.1187	0.0145		3.2800e-003	3.2800e-003		3.2800e-003	3.2800e-003	0.0000	1,394.3478	1,394.3478	0.2885		1,401.5598
Total	**0.1641**	**0.7111**	**10.1187**	**0.0145**	**0.4983**	**3.2800e-003**	**0.5016**	**0.0755**	**3.2800e-003**	**0.0787**	**0.0000**	**1,394.3478**	**1,394.3478**	**0.2885**		**1,401.5598**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.7900e-003	0.3062	0.0819	1.3500e-003	0.0394	2.5000e-003	0.0419	0.0108	2.3900e-003	0.0132		148.9320	148.9320	7.4800e-003	0.0237	156.1771
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0237	0.0153	0.1829	5.5000e-004	0.0657	3.5000e-004	0.0661	0.0174	3.3000e-004	0.0178		56.1616	56.1616	1.6900e-003	1.5800e-003	56.6755
Total	**0.0285**	**0.3215**	**0.2648**	**1.9000e-003**	**0.1051**	**2.8500e-003**	**0.1079**	**0.0282**	**2.7200e-003**	**0.0309**		**205.0936**	**205.0936**	**9.1700e-003**	**0.0253**	**212.8527**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6809	0.0000	19.6809	10.1061	0.0000	10.1061			0.0000			0.0000
Off-Road	2.6595	27.5242	18.2443	0.0381		1.2660	1.2660		1.1647	1.1647		3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**2.6595**	**27.5242**	**18.2443**	**0.0381**	**19.6809**	**1.2660**	**20.9469**	**10.1061**	**1.1647**	**11.2708**		**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0453	2.8942	0.7737	0.0127	0.3720	0.0237	0.3956	0.1020	0.0226	0.1246		1,407.6830	1,407.6830	0.0707	0.2239	1,476.1630
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0534	0.0344	0.4116	1.2300e-003	0.1479	8.0000e-004	0.1487	0.0392	7.3000e-004	0.0400		126.3637	126.3637	3.8100e-003	3.5600e-003	127.5200
Total	**0.0987**	**2.9286**	**1.1853**	**0.0140**	**0.5198**	**0.0245**	**0.5443**	**0.1412**	**0.0234**	**0.1645**		**1,534.0467**	**1,534.0467**	**0.0745**	**0.2274**	**1,603.6829**

IRIS MF (102 units) - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6809	0.0000	19.6809	10.1061	0.0000	10.1061			0.0000			0.0000
Off-Road	0.4656	2.0175	20.8690	0.0381		9.3100e-003	9.3100e-003		9.3100e-003	9.3100e-003	0.0000	3,687.3081	3,687.3081	1.1926		3,717.1219
Total	**0.4656**	**2.0175**	**20.8690**	**0.0381**	**19.6809**	**9.3100e-003**	**19.6902**	**10.1061**	**9.3100e-003**	**10.1154**	**0.0000**	**3,687.3081**	**3,687.3081**	**1.1926**		**3,717.1219**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0453	2.8942	0.7737	0.0127	0.3720	0.0237	0.3956	0.1020	0.0226	0.1246		1,407.6830	1,407.6830	0.0707	0.2239	1,476.1630
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0534	0.0344	0.4116	1.2300e-003	0.1479	8.0000e-004	0.1487	0.0392	7.3000e-004	0.0400		126.3637	126.3637	3.8100e-003	3.5600e-003	127.5200
Total	**0.0987**	**2.9286**	**1.1853**	**0.0140**	**0.5198**	**0.0245**	**0.5443**	**0.1412**	**0.0234**	**0.1645**		**1,534.0467**	**1,534.0467**	**0.0745**	**0.2274**	**1,603.6829**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1782	0.0000	7.1782	3.4392	0.0000	3.4392			0.0000			0.0000
Off-Road	1.9260	19.9754	16.7836	0.0391		0.8410	0.8410		0.7737	0.7737		3,788.0942	3,788.0942	1.2252		3,818.7229
Total	**1.9260**	**19.9754**	**16.7836**	**0.0391**	**7.1782**	**0.8410**	**8.0192**	**3.4392**	**0.7737**	**4.2129**		**3,788.0942**	**3,788.0942**	**1.2252**		**3,818.7229**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1812	11.5793	3.0957	0.0510	1.4882	0.0947	1.5828	0.4079	0.0906	0.4985		5,631.9930	5,631.9930	0.2829	0.8957	5,905.9740
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0534	0.0344	0.4116	1.2300e-003	0.1479	8.0000e-004	0.1487	0.0392	7.3000e-004	0.0400		126.3637	126.3637	3.8100e-003	3.5600e-003	127.5200
Total	**0.2345**	**11.6137**	**3.5072**	**0.0522**	**1.6360**	**0.0955**	**1.7315**	**0.4471**	**0.0913**	**0.5384**		**5,758.3566**	**5,758.3566**	**0.2867**	**0.8992**	**6,033.4940**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.1782	0.0000	7.1782	3.4392	0.0000	3.4392			0.0000			0.0000
Off-Road	0.4801	2.0804	22.0403	0.0391		9.6000e-003	9.6000e-003		9.6000e-003	9.6000e-003	0.0000	3,788.0942	3,788.0942	1.2252		3,818.7229
Total	**0.4801**	**2.0804**	**22.0403**	**0.0391**	**7.1782**	**9.6000e-003**	**7.1878**	**3.4392**	**9.6000e-003**	**3.4488**	**0.0000**	**3,788.0942**	**3,788.0942**	**1.2252**		**3,818.7229**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.1812	11.5793	3.0957	0.0510	1.4882	0.0947	1.5828	0.4079	0.0906	0.4985		5,631.9930	5,631.9930	0.2829	0.8957	5,905.9740
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0534	0.0344	0.4116	1.2300e-003	0.1479	8.0000e-004	0.1487	0.0392	7.3000e-004	0.0400		126.3637	126.3637	3.8100e-003	3.5600e-003	127.5200
Total	**0.2345**	**11.6137**	**3.5072**	**0.0522**	**1.6360**	**0.0955**	**1.7315**	**0.4471**	**0.0913**	**0.5384**		**5,758.3566**	**5,758.3566**	**0.2867**	**0.8992**	**6,033.4940**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694		2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.3537					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.3864**	**10.1917**	**14.5842**	**0.0228**		**0.5102**	**0.5102**		**0.4694**	**0.4694**		**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0445	0.0287	0.3430	1.0300e-003	0.1232	6.6000e-004	0.1239	0.0327	6.1000e-004	0.0333		105.3031	105.3031	3.1800e-003	2.9700e-003	106.2666
Total	**0.0445**	**0.0287**	**0.3430**	**1.0300e-003**	**0.1232**	**6.6000e-004**	**0.1239**	**0.0327**	**6.1000e-004**	**0.0333**		**105.3031**	**105.3031**	**3.1800e-003**	**2.9700e-003**	**106.2666**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.2805	1.2154	17.2957	0.0228		5.6100e-003	5.6100e-003		5.6100e-003	5.6100e-003	0.0000	2,207.5841	2,207.5841	0.7140		2,225.4336
Paving	0.3537					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.6342**	**1.2154**	**17.2957**	**0.0228**		**5.6100e-003**	**5.6100e-003**		**5.6100e-003**	**5.6100e-003**	**0.0000**	**2,207.5841**	**2,207.5841**	**0.7140**		**2,225.4336**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0445	0.0287	0.3430	1.0300e-003	0.1232	6.6000e-004	0.1239	0.0327	6.1000e-004	0.0333		105.3031	105.3031	3.1800e-003	2.9700e-003	106.2666
Total	**0.0445**	**0.0287**	**0.3430**	**1.0300e-003**	**0.1232**	**6.6000e-004**	**0.1239**	**0.0327**	**6.1000e-004**	**0.0333**		**105.3031**	**105.3031**	**3.1800e-003**	**2.9700e-003**	**106.2666**

IRIS MF (102 units) - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584		2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**1.5728**	**14.3849**	**16.2440**	**0.0269**		**0.6997**	**0.6997**		**0.6584**	**0.6584**		**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0302	1.1615	0.4138	5.3300e-003	0.1761	6.8200e-003	0.1829	0.0507	6.5300e-003	0.0572		575.5392	575.5392	0.0173	0.0834	600.8287
Worker	0.3321	0.2139	2.5610	7.6800e-003	0.9201	4.9500e-003	0.9250	0.2440	4.5600e-003	0.2486		786.2628	786.2628	0.0237	0.0222	793.4576
Total	**0.3623**	**1.3754**	**2.9748**	**0.0130**	**1.0961**	**0.0118**	**1.1079**	**0.2947**	**0.0111**	**0.3058**		**1,361.8019**	**1,361.8019**	**0.0411**	**0.1056**	**1,394.2863**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0269		6.1200e-003	6.1200e-003		6.1200e-003	6.1200e-003	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	**0.3278**	**2.2347**	**17.4603**	**0.0269**		**6.1200e-003**	**6.1200e-003**		**6.1200e-003**	**6.1200e-003**	**0.0000**	**2,555.2099**	**2,555.2099**	**0.6079**		**2,570.4061**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0302	1.1615	0.4138	5.3300e-003	0.1761	6.8200e-003	0.1829	0.0507	6.5300e-003	0.0572		575.5392	575.5392	0.0173	0.0834	600.8287
Worker	0.3321	0.2139	2.5610	7.6800e-003	0.9201	4.9500e-003	0.9250	0.2440	4.5600e-003	0.2486		786.2628	786.2628	0.0237	0.0222	793.4576
Total	**0.3623**	**1.3754**	**2.9748**	**0.0130**	**1.0961**	**0.0118**	**1.1079**	**0.2947**	**0.0111**	**0.3058**		**1,361.8019**	**1,361.8019**	**0.0411**	**0.1056**	**1,394.2863**

IRIS MF (102 units) - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.4716	13.4438	16.1668	0.0270		0.6133	0.6133		0.5769	0.5769		2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**1.4716**	**13.4438**	**16.1668**	**0.0270**		**0.6133**	**0.6133**		**0.5769**	**0.5769**		**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0290	1.1536	0.4043	5.2300e-003	0.1761	6.8500e-003	0.1830	0.0507	6.5600e-003	0.0573		565.5278	565.5278	0.0177	0.0820	590.3920
Worker	0.3127	0.1924	2.3979	7.4300e-003	0.9201	4.7200e-003	0.9248	0.2440	4.3400e-003	0.2484		766.5737	766.5737	0.0216	0.0207	773.2828
Total	**0.3417**	**1.3461**	**2.8023**	**0.0127**	**1.0961**	**0.0116**	**1.1077**	**0.2947**	**0.0109**	**0.3056**		**1,332.1015**	**1,332.1015**	**0.0394**	**0.1027**	**1,363.6747**

IRIS MF (102 units) - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0270		6.1200e-003	6.1200e-003		6.1200e-003	6.1200e-003	0.0000	2,555.6989	2,555.6989	0.6044		2,570.8077
Total	**0.3278**	**2.2347**	**17.4603**	**0.0270**		**6.1200e-003**	**6.1200e-003**		**6.1200e-003**	**6.1200e-003**	**0.0000**	**2,555.6989**	**2,555.6989**	**0.6044**		**2,570.8077**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0290	1.1536	0.4043	5.2300e-003	0.1761	6.8500e-003	0.1830	0.0507	6.5600e-003	0.0573		565.5278	565.5278	0.0177	0.0820	590.3920
Worker	0.3127	0.1924	2.3979	7.4300e-003	0.9201	4.7200e-003	0.9248	0.2440	4.3400e-003	0.2484		766.5737	766.5737	0.0216	0.0207	773.2828
Total	**0.3417**	**1.3461**	**2.8023**	**0.0127**	**1.0961**	**0.0116**	**1.1077**	**0.2947**	**0.0109**	**0.3056**		**1,332.1015**	**1,332.1015**	**0.0394**	**0.1027**	**1,363.6747**

IRIS MF (102 units) - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.3674	12.4697	16.0847	0.0270		0.5276	0.5276		0.4963	0.4963		2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**1.3674**	**12.4697**	**16.0847**	**0.0270**		**0.5276**	**0.5276**		**0.4963**	**0.4963**		**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0280	1.1424	0.3977	5.1200e-003	0.1761	6.8300e-003	0.1829	0.0507	6.5300e-003	0.0572		554.7589	554.7589	0.0182	0.0803	579.1562
Worker	0.2953	0.1743	2.2530	7.1800e-003	0.9201	4.5200e-003	0.9246	0.2440	4.1600e-003	0.2482		747.8633	747.8633	0.0197	0.0194	754.1461
Total	**0.3234**	**1.3167**	**2.6506**	**0.0123**	**1.0961**	**0.0114**	**1.1075**	**0.2947**	**0.0107**	**0.3054**		**1,302.6222**	**1,302.6222**	**0.0379**	**0.0998**	**1,333.3023**

IRIS MF (102 units) - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.3278	2.2347	17.4603	0.0270		6.1200e-003	6.1200e-003		6.1200e-003	6.1200e-003	0.0000	2,556.4744	2,556.4744	0.6010		2,571.4981
Total	**0.3278**	**2.2347**	**17.4603**	**0.0270**		**6.1200e-003**	**6.1200e-003**		**6.1200e-003**	**6.1200e-003**	**0.0000**	**2,556.4744**	**2,556.4744**	**0.6010**		**2,571.4981**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0280	1.1424	0.3977	5.1200e-003	0.1761	6.8300e-003	0.1829	0.0507	6.5300e-003	0.0572		554.7589	554.7589	0.0182	0.0803	579.1562
Worker	0.2953	0.1743	2.2530	7.1800e-003	0.9201	4.5200e-003	0.9246	0.2440	4.1600e-003	0.2482		747.8633	747.8633	0.0197	0.0194	754.1461
Total	**0.3234**	**1.3167**	**2.6506**	**0.0123**	**1.0961**	**0.0114**	**1.1075**	**0.2947**	**0.0107**	**0.3054**		**1,302.6222**	**1,302.6222**	**0.0379**	**0.0998**	**1,333.3023**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	30.2806					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1808	1.2188	1.8101	2.9700e-003		0.0609	0.0609		0.0609	0.0609		281.4481	281.4481	0.0159		281.8443
Total	**30.4613**	**1.2188**	**1.8101**	**2.9700e-003**		**0.0609**	**0.0609**		**0.0609**	**0.0609**		**281.4481**	**281.4481**	**0.0159**		**281.8443**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0614	0.0378	0.4710	1.4600e-003	0.1807	9.3000e-004	0.1817	0.0479	8.5000e-004	0.0488		150.5770	150.5770	4.2500e-003	4.0700e-003	151.8948
Total	**0.0614**	**0.0378**	**0.4710**	**1.4600e-003**	**0.1807**	**9.3000e-004**	**0.1817**	**0.0479**	**8.5000e-004**	**0.0488**		**150.5770**	**150.5770**	**4.2500e-003**	**4.0700e-003**	**151.8948**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2024

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	30.2806					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	281.4481	281.4481	0.0159		281.8443
Total	**30.3103**	**0.1288**	**1.8324**	**2.9700e-003**		**5.9000e-004**	**5.9000e-004**		**5.9000e-004**	**5.9000e-004**	**0.0000**	**281.4481**	**281.4481**	**0.0159**		**281.8443**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0614	0.0378	0.4710	1.4600e-003	0.1807	9.3000e-004	0.1817	0.0479	8.5000e-004	0.0488		150.5770	150.5770	4.2500e-003	4.0700e-003	151.8948
Total	**0.0614**	**0.0378**	**0.4710**	**1.4600e-003**	**0.1807**	**9.3000e-004**	**0.1817**	**0.0479**	**8.5000e-004**	**0.0488**		**150.5770**	**150.5770**	**4.2500e-003**	**4.0700e-003**	**151.8948**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	30.2806					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1709	1.1455	1.8091	2.9700e-003		0.0515	0.0515		0.0515	0.0515		281.4481	281.4481	0.0154		281.8319
Total	**30.4514**	**1.1455**	**1.8091**	**2.9700e-003**		**0.0515**	**0.0515**		**0.0515**	**0.0515**		**281.4481**	**281.4481**	**0.0154**		**281.8319**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0580	0.0342	0.4426	1.4100e-003	0.1807	8.9000e-004	0.1816	0.0479	8.2000e-004	0.0488		146.9017	146.9017	3.8800e-003	3.8200e-003	148.1358
Total	**0.0580**	**0.0342**	**0.4426**	**1.4100e-003**	**0.1807**	**8.9000e-004**	**0.1816**	**0.0479**	**8.2000e-004**	**0.0488**		**146.9017**	**146.9017**	**3.8800e-003**	**3.8200e-003**	**148.1358**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2025

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	30.2806					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.0297	0.1288	1.8324	2.9700e-003		5.9000e-004	5.9000e-004		5.9000e-004	5.9000e-004	0.0000	281.4481	281.4481	0.0154		281.8319
Total	**30.3103**	**0.1288**	**1.8324**	**2.9700e-003**		**5.9000e-004**	**5.9000e-004**		**5.9000e-004**	**5.9000e-004**	**0.0000**	**281.4481**	**281.4481**	**0.0154**		**281.8319**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0580	0.0342	0.4426	1.4100e-003	0.1807	8.9000e-004	0.1816	0.0479	8.2000e-004	0.0488		146.9017	146.9017	3.8800e-003	3.8200e-003	148.1358
Total	**0.0580**	**0.0342**	**0.4426**	**1.4100e-003**	**0.1807**	**8.9000e-004**	**0.1816**	**0.0479**	**8.2000e-004**	**0.0488**		**146.9017**	**146.9017**	**3.8800e-003**	**3.8200e-003**	**148.1358**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.4369	1.3804	13.6676	0.0272	3.8185	0.0164	3.8349	1.0170	0.0153	1.0323		2,995.3268	2,995.3268	0.2154	0.1356	3,041.1329
Unmitigated	1.4369	1.3804	13.6676	0.0272	3.8185	0.0164	3.8349	1.0170	0.0153	1.0323		2,995.3268	2,995.3268	0.2154	0.1356	3,041.1329

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	816.00	816.00	816.00	1,814,520	1,814,520
Parking Lot	0.00	0.00	0.00		
Total	816.00	816.00	816.00	1,814,520	1,814,520

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	6.88	6.88	6.88	42.00	19.00	39.00	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

IRIS MF (102 units) - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.581445	0.061322	0.168269	0.110400	0.022610	0.006703	0.010268	0.006246	0.000647	0.000667	0.027159	0.000784	0.003479
Parking Lot	0.581445	0.061322	0.168269	0.110400	0.022610	0.006703	0.010268	0.006246	0.000647	0.000667	0.027159	0.000784	0.003479

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0328	0.2806	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.1704	358.1704	6.8600e-003	6.5700e-003	360.2988
NaturalGas Unmitigated	0.0328	0.2806	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.1704	358.1704	6.8600e-003	6.5700e-003	360.2988

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	3044.45	0.0328	0.2806	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.1704	358.1704	6.8600e-003	6.5700e-003	360.2988
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0328**	**0.2806**	**0.1194**	**1.7900e-003**		**0.0227**	**0.0227**		**0.0227**	**0.0227**		**358.1704**	**358.1704**	**6.8600e-003**	**6.5700e-003**	**360.2988**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Low Rise	3.04445	0.0328	0.2806	0.1194	1.7900e-003		0.0227	0.0227		0.0227	0.0227		358.1704	358.1704	6.8600e-003	6.5700e-003	360.2988
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0328**	**0.2806**	**0.1194**	**1.7900e-003**		**0.0227**	**0.0227**		**0.0227**	**0.0227**		**358.1704**	**358.1704**	**6.8600e-003**	**6.5700e-003**	**360.2988**

6.0 Area Detail

IRIS MF (102 units) - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.3601	0.0970	8.4089	4.5000e-004		0.0468	0.0468		0.0468	0.0468	0.0000	15.2027	15.2027	0.0146	0.0000	15.5665
Unmitigated	3.3601	0.0970	8.4089	4.5000e-004		0.0468	0.0468		0.0468	0.0468	0.0000	15.2027	15.2027	0.0146	0.0000	15.5665

IRIS MF (102 units) - San Diego County, Winter

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.8918					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.2154					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2529	0.0970	8.4089	4.5000e-004		0.0468	0.0468		0.0468	0.0468		15.2027	15.2027	0.0146		15.5665
Total	**3.3601**	**0.0970**	**8.4089**	**4.5000e-004**		**0.0468**	**0.0468**		**0.0468**	**0.0468**	**0.0000**	**15.2027**	**15.2027**	**0.0146**	**0.0000**	**15.5665**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.8918					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	2.2154					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.2529	0.0970	8.4089	4.5000e-004		0.0468	0.0468		0.0468	0.0468		15.2027	15.2027	0.0146		15.5665
Total	**3.3601**	**0.0970**	**8.4089**	**4.5000e-004**		**0.0468**	**0.0468**		**0.0468**	**0.0468**	**0.0000**	**15.2027**	**15.2027**	**0.0146**	**0.0000**	**15.5665**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

IRIS MF (102 units)

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	230.00	Space	2.70	92,000.00	0
Apartments Low Rise	102.00	Dwelling Unit	4.99	102,000.00	292

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2035
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	322.38	**CH4 Intensity (lb/MWhr)**	0.02	**N2O Intensity (lb/MWhr)**	0.002

1.3 User Entered Comments & Non-Default Data

Project Characteristics - RPS 2030 which is conservative... projections and RPS estimates for 2035 would be lower

Land Use - 7.69 acres

Construction Phase - Estimated Construction Schedule

Off-road Equipment - CE

Off-road Equipment - ce

Trips and VMT -

Demolition -

Grading -

Architectural Coating - Rule 67 Paint

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Vehicle Trips - SANDAG MF 8 trip/unit; EMFAC 2017 for 2035 is 6.875 miles

Woodstoves - No hearth options onsite

Area Coating - Rule 67 Paint

Energy Use -

Water And Wastewater -

Solid Waste -

Sequestration -

Construction Off-road Equipment Mitigation - Tier 4 Equipment

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	100.00
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	NumDays	20.00	35.00
tblConstructionPhase	NumDays	230.00	360.00
tblConstructionPhase	NumDays	20.00	43.00
tblFireplaces	NumberGas	56.10	0.00
tblFireplaces	NumberNoFireplace	10.20	102.00
tblFireplaces	NumberWood	35.70	0.00
tblGrading	MaterialExported	0.00	6,812.00
tblGrading	MaterialImported	0.00	17,012.00
tblGrading	MaterialImported	0.00	5,100.00
tblLandUse	LotAcreage	2.07	2.70
tblLandUse	LotAcreage	6.38	4.99
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0.02
tblProjectCharacteristics	CO2IntensityFactor	539.98	322.38
tblProjectCharacteristics	N2OIntensityFactor	0.004	0.002
tblSequestration	NumberOfNewTrees	0.00	102.00
tblVehicleTrips	HO_TL	7.50	6.88
tblVehicleTrips	HO_TTP	39.60	39.00
tblVehicleTrips	HS_TL	7.30	6.88
tblVehicleTrips	HS_TTP	18.80	19.00
tblVehicleTrips	HW_TL	10.80	6.88
tblVehicleTrips	HW_TTP	41.60	42.00
tblVehicleTrips	ST_TR	8.14	8.00
tblVehicleTrips	SU_TR	6.28	8.00
tblVehicleTrips	WD_TR	7.32	8.00
tblWoodstoves	NumberCatalytic	5.10	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblWoodstoves	NumberNoncatalytic	5.10	0.00

2.0 Emissions Summary

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.1643	1.6986	1.5329	4.1200e-003	0.4996	0.0675	0.5671	0.2326	0.0628	0.2953	0.0000	377.3220	377.3220	0.0702	0.0208	385.2779
2024	0.4170	1.9436	2.4974	5.2200e-003	0.1413	0.0822	0.2236	0.0381	0.0774	0.1155	0.0000	465.1382	465.1382	0.0766	0.0122	470.6811
2025	0.4986	0.2318	0.3251	6.8000e-004	0.0193	9.1600e-003	0.0285	5.2000e-003	8.6700e-003	0.0139	0.0000	60.3916	60.3916	9.2500e-003	1.4500e-003	61.0552
Maximum	**0.4986**	**1.9436**	**2.4974**	**5.2200e-003**	**0.4996**	**0.0822**	**0.5671**	**0.2326**	**0.0774**	**0.2953**	**0.0000**	**465.1382**	**465.1382**	**0.0766**	**0.0208**	**470.6811**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0518	0.4565	1.7419	4.1200e-003	0.4996	3.0700e-003	0.5026	0.2326	2.9500e-003	0.2355	0.0000	377.3218	377.3218	0.0702	0.0208	385.2777
2024	0.2663	0.4686	2.6670	5.2200e-003	0.1413	2.3200e-003	0.1437	0.0381	2.2400e-003	0.0403	0.0000	465.1378	465.1378	0.0766	0.0122	470.6808
2025	0.4803	0.0574	0.3468	6.8000e-004	0.0193	2.9000e-004	0.0196	5.2000e-003	2.8000e-004	5.4800e-003	0.0000	60.3916	60.3916	9.2500e-003	1.4500e-003	61.0551
Maximum	**0.4803**	**0.4686**	**2.6670**	**5.2200e-003**	**0.4996**	**3.0700e-003**	**0.5026**	**0.2326**	**2.9500e-003**	**0.2355**	**0.0000**	**465.1378**	**465.1378**	**0.0766**	**0.0208**	**470.6808**

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**26.07**	**74.64**	**-9.19**	**0.00**	**0.00**	**96.43**	**18.70**	**0.00**	**96.32**	**33.76**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
6	**4-1-2023**	**6-30-2023**	0.4213	0.0699
7	**7-1-2023**	**9-30-2023**	0.8600	0.2911
8	**10-1-2023**	**12-31-2023**	0.5814	0.1413
9	**1-1-2024**	**3-31-2024**	0.5396	0.1381
10	**4-1-2024**	**6-30-2024**	0.5366	0.1351
11	**7-1-2024**	**9-30-2024**	0.5425	0.1366
12	**10-1-2024**	**12-31-2024**	0.7385	0.3251
13	**1-1-2025**	**3-31-2025**	0.7243	0.5334
		Highest	0.8600	0.5334

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5898	8.7300e-003	0.7568	4.0000e-005		4.2100e-003	4.2100e-003		4.2100e-003	4.2100e-003	0.0000	1.2413	1.2413	1.1900e-003	0.0000	1.2710
Energy	5.9900e-003	0.0512	0.0218	3.3000e-004		4.1400e-003	4.1400e-003		4.1400e-003	4.1400e-003	0.0000	124.2461	124.2461	5.1700e-003	1.4900e-003	124.8193
Mobile	0.2575	0.2479	2.4302	4.9700e-003	0.6785	2.9800e-003	0.6815	0.1811	2.7800e-003	0.1838	0.0000	497.3008	497.3008	0.0350	0.0222	504.7792
Waste						0.0000	0.0000		0.0000	0.0000	9.5243	0.0000	9.5243	0.5629	0.0000	23.5961
Water						0.0000	0.0000		0.0000	0.0000	2.1084	19.4604	21.5687	0.2178	5.2300e-003	28.5724
Total	**0.8533**	**0.3078**	**3.2088**	**5.3400e-003**	**0.6785**	**0.0113**	**0.6899**	**0.1811**	**0.0111**	**0.1922**	**11.6327**	**642.2485**	**653.8812**	**0.8220**	**0.0289**	**683.0380**

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5898	8.7300e-003	0.7568	4.0000e-005		4.2100e-003	4.2100e-003		4.2100e-003	4.2100e-003	0.0000	1.2413	1.2413	1.1900e-003	0.0000	1.2710
Energy	5.9900e-003	0.0512	0.0218	3.3000e-004		4.1400e-003	4.1400e-003		4.1400e-003	4.1400e-003	0.0000	111.7012	111.7012	4.3900e-003	1.4100e-003	112.2318
Mobile	0.2575	0.2479	2.4302	4.9700e-003	0.6785	2.9800e-003	0.6815	0.1811	2.7800e-003	0.1838	0.0000	497.3008	497.3008	0.0350	0.0222	504.7792
Waste						0.0000	0.0000		0.0000	0.0000	7.1433	0.0000	7.1433	0.4222	0.0000	17.6971
Water						0.0000	0.0000		0.0000	0.0000	2.1084	18.0990	20.2074	0.2177	5.2300e-003	27.2065
Total	**0.8533**	**0.3078**	**3.2088**	**5.3400e-003**	**0.6785**	**0.0113**	**0.6899**	**0.1811**	**0.0111**	**0.1922**	**9.2516**	**628.3423**	**637.5940**	**0.6804**	**0.0288**	**663.1855**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**20.47**	**2.17**	**2.49**	**17.23**	**0.28**	**2.91**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	72.2160
Total	**72.2160**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2023	6/28/2023	5	20	
2	Site Preparation	Site Preparation	6/1/2023	7/12/2023	5	30	
3	Grading	Grading	7/13/2023	8/30/2023	5	35	
4	Paving	Paving	8/31/2023	9/27/2023	5	20	
5	Building Construction	Building Construction	9/28/2023	2/12/2025	5	360	
6	Architectural Coating	Architectural Coating	12/15/2024	2/12/2025	5	43	

Acres of Grading (Site Preparation Phase): 45

Acres of Grading (Grading Phase): 35

Acres of Paving: 2.7

Residential Indoor: 206,550; Residential Outdoor: 68,850; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 5,520 (Architectural Coating – sqft)

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	1	8.00	158	0.38
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Bore/Drill Rigs	1	8.00	221	0.50
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	3	8.00	0.00	45.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	638.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	2,978.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	112.00	26.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	22.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.9800e-003	0.0000	4.9800e-003	7.5000e-004	0.0000	7.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.7400e-003	0.0567	0.0915	1.5000e-004		2.8000e-003	2.8000e-003		2.6800e-003	2.6800e-003	0.0000	12.6493	12.6493	2.6200e-003	0.0000	12.7147
Total	**6.7400e-003**	**0.0567**	**0.0915**	**1.5000e-004**	**4.9800e-003**	**2.8000e-003**	**7.7800e-003**	**7.5000e-004**	**2.6800e-003**	**3.4300e-003**	**0.0000**	**12.6493**	**12.6493**	**2.6200e-003**	**0.0000**	**12.7147**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	3.0500e-003	8.1000e-004	1.0000e-005	3.9000e-004	3.0000e-005	4.1000e-004	1.1000e-004	2.0000e-005	1.3000e-004	0.0000	1.3503	1.3503	7.0000e-005	2.1000e-004	1.4160
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.5000e-004	1.8300e-003	1.0000e-005	6.4000e-004	0.0000	6.5000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5140	0.5140	2.0000e-005	1.0000e-005	0.5186
Total	**2.7000e-004**	**3.2000e-003**	**2.6400e-003**	**2.0000e-005**	**1.0300e-003**	**3.0000e-005**	**1.0600e-003**	**2.8000e-004**	**2.0000e-005**	**3.0000e-004**	**0.0000**	**1.8643**	**1.8643**	**9.0000e-005**	**2.2000e-004**	**1.9346**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.9800e-003	0.0000	4.9800e-003	7.5000e-004	0.0000	7.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6400e-003	7.1100e-003	0.1012	1.5000e-004		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	12.6493	12.6493	2.6200e-003	0.0000	12.7147
Total	**1.6400e-003**	**7.1100e-003**	**0.1012**	**1.5000e-004**	**4.9800e-003**	**3.0000e-005**	**5.0100e-003**	**7.5000e-004**	**3.0000e-005**	**7.8000e-004**	**0.0000**	**12.6493**	**12.6493**	**2.6200e-003**	**0.0000**	**12.7147**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	3.0500e-003	8.1000e-004	1.0000e-005	3.9000e-004	3.0000e-005	4.1000e-004	1.1000e-004	2.0000e-005	1.3000e-004	0.0000	1.3503	1.3503	7.0000e-005	2.1000e-004	1.4160
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.5000e-004	1.8300e-003	1.0000e-005	6.4000e-004	0.0000	6.5000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5140	0.5140	2.0000e-005	1.0000e-005	0.5186
Total	**2.7000e-004**	**3.2000e-003**	**2.6400e-003**	**2.0000e-005**	**1.0300e-003**	**3.0000e-005**	**1.0600e-003**	**2.8000e-004**	**2.0000e-005**	**3.0000e-004**	**0.0000**	**1.8643**	**1.8643**	**9.0000e-005**	**2.2000e-004**	**1.9346**

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2952	0.0000	0.2952	0.1516	0.0000	0.1516	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0399	0.4129	0.2737	5.7000e-004		0.0190	0.0190		0.0175	0.0175	0.0000	50.1760	50.1760	0.0162	0.0000	50.5817
Total	**0.0399**	**0.4129**	**0.2737**	**5.7000e-004**	**0.2952**	**0.0190**	**0.3142**	**0.1516**	**0.0175**	**0.1691**	**0.0000**	**50.1760**	**50.1760**	**0.0162**	**0.0000**	**50.5817**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-004	0.0433	0.0115	1.9000e-004	5.4600e-003	3.5000e-004	5.8200e-003	1.5000e-003	3.4000e-004	1.8400e-003	0.0000	19.1446	19.1446	9.6000e-004	3.0400e-003	20.0760
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	5.1000e-004	6.1700e-003	2.0000e-005	2.1700e-003	1.0000e-005	2.1800e-003	5.8000e-004	1.0000e-005	5.9000e-004	0.0000	1.7348	1.7348	5.0000e-005	5.0000e-005	1.7503
Total	**1.4300e-003**	**0.0438**	**0.0177**	**2.1000e-004**	**7.6300e-003**	**3.6000e-004**	**8.0000e-003**	**2.0800e-003**	**3.5000e-004**	**2.4300e-003**	**0.0000**	**20.8794**	**20.8794**	**1.0100e-003**	**3.0900e-003**	**21.8263**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2952	0.0000	0.2952	0.1516	0.0000	0.1516	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.9800e-003	0.0303	0.3130	5.7000e-004		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	50.1760	50.1760	0.0162	0.0000	50.5817
Total	**6.9800e-003**	**0.0303**	**0.3130**	**5.7000e-004**	**0.2952**	**1.4000e-004**	**0.2954**	**0.1516**	**1.4000e-004**	**0.1517**	**0.0000**	**50.1760**	**50.1760**	**0.0162**	**0.0000**	**50.5817**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-004	0.0433	0.0115	1.9000e-004	5.4600e-003	3.5000e-004	5.8200e-003	1.5000e-003	3.4000e-004	1.8400e-003	0.0000	19.1446	19.1446	9.6000e-004	3.0400e-003	20.0760
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	5.1000e-004	6.1700e-003	2.0000e-005	2.1700e-003	1.0000e-005	2.1800e-003	5.8000e-004	1.0000e-005	5.9000e-004	0.0000	1.7348	1.7348	5.0000e-005	5.0000e-005	1.7503
Total	**1.4300e-003**	**0.0438**	**0.0177**	**2.1000e-004**	**7.6300e-003**	**3.6000e-004**	**8.0000e-003**	**2.0800e-003**	**3.5000e-004**	**2.4300e-003**	**0.0000**	**20.8794**	**20.8794**	**1.0100e-003**	**3.0900e-003**	**21.8263**

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1256	0.0000	0.1256	0.0602	0.0000	0.0602	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0337	0.3496	0.2937	6.8000e-004		0.0147	0.0147		0.0135	0.0135	0.0000	60.1388	60.1388	0.0195	0.0000	60.6250
Total	**0.0337**	**0.3496**	**0.2937**	**6.8000e-004**	**0.1256**	**0.0147**	**0.1403**	**0.0602**	**0.0135**	**0.0737**	**0.0000**	**60.1388**	**60.1388**	**0.0195**	**0.0000**	**60.6250**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.2900e-003	0.2021	0.0538	8.9000e-004	0.0255	1.6500e-003	0.0272	7.0100e-003	1.5800e-003	8.5900e-003	0.0000	89.3616	89.3616	4.5000e-003	0.0142	93.7091
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.5000e-004	5.9000e-004	7.2000e-003	2.0000e-005	2.5300e-003	1.0000e-005	2.5400e-003	6.7000e-004	1.0000e-005	6.8000e-004	0.0000	2.0239	2.0239	6.0000e-005	6.0000e-005	2.0420
Total	**4.1400e-003**	**0.2027**	**0.0610**	**9.1000e-004**	**0.0280**	**1.6600e-003**	**0.0297**	**7.6800e-003**	**1.5900e-003**	**9.2700e-003**	**0.0000**	**91.3855**	**91.3855**	**4.5600e-003**	**0.0143**	**95.7510**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1256	0.0000	0.1256	0.0602	0.0000	0.0602	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.4000e-003	0.0364	0.3857	6.8000e-004		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	60.1387	60.1387	0.0195	0.0000	60.6250
Total	**8.4000e-003**	**0.0364**	**0.3857**	**6.8000e-004**	**0.1256**	**1.7000e-004**	**0.1258**	**0.0602**	**1.7000e-004**	**0.0604**	**0.0000**	**60.1387**	**60.1387**	**0.0195**	**0.0000**	**60.6250**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.2900e-003	0.2021	0.0538	8.9000e-004	0.0255	1.6500e-003	0.0272	7.0100e-003	1.5800e-003	8.5900e-003	0.0000	89.3616	89.3616	4.5000e-003	0.0142	93.7091
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.5000e-004	5.9000e-004	7.2000e-003	2.0000e-005	2.5300e-003	1.0000e-005	2.5400e-003	6.7000e-004	1.0000e-005	6.8000e-004	0.0000	2.0239	2.0239	6.0000e-005	6.0000e-005	2.0420
Total	**4.1400e-003**	**0.2027**	**0.0610**	**9.1000e-004**	**0.0280**	**1.6600e-003**	**0.0297**	**7.6800e-003**	**1.5900e-003**	**9.2700e-003**	**0.0000**	**91.3855**	**91.3855**	**4.5600e-003**	**0.0143**	**95.7510**

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0269	20.0269	6.4800e-003	0.0000	20.1888
Paving	3.5400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0139**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0269**	**20.0269**	**6.4800e-003**	**0.0000**	**20.1888**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	2.8000e-004	3.4300e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9638	0.9638	3.0000e-005	3.0000e-005	0.9724
Total	**4.1000e-004**	**2.8000e-004**	**3.4300e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9638**	**0.9638**	**3.0000e-005**	**3.0000e-005**	**0.9724**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8000e-003	0.0122	0.1730	2.3000e-004		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	20.0268	20.0268	6.4800e-003	0.0000	20.1888
Paving	3.5400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.3400e-003**	**0.0122**	**0.1730**	**2.3000e-004**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**20.0268**	**20.0268**	**6.4800e-003**	**0.0000**	**20.1888**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	2.8000e-004	3.4300e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9638	0.9638	3.0000e-005	3.0000e-005	0.9724
Total	**4.1000e-004**	**2.8000e-004**	**3.4300e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9638**	**0.9638**	**3.0000e-005**	**3.0000e-005**	**0.9724**

3.6 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0527	0.4819	0.5442	9.0000e-004		0.0234	0.0234		0.0221	0.0221	0.0000	77.6546	77.6546	0.0185	0.0000	78.1164
Total	**0.0527**	**0.4819**	**0.5442**	**9.0000e-004**		**0.0234**	**0.0234**		**0.0221**	**0.0221**	**0.0000**	**77.6546**	**77.6546**	**0.0185**	**0.0000**	**78.1164**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0200e-003	0.0387	0.0136	1.8000e-004	5.7800e-003	2.3000e-004	6.0100e-003	1.6700e-003	2.2000e-004	1.8900e-003	0.0000	17.4767	17.4767	5.3000e-004	2.5300e-003	18.2445
Worker	0.0102	7.0300e-003	0.0857	2.6000e-004	0.0301	1.7000e-004	0.0303	8.0000e-003	1.5000e-004	8.1500e-003	0.0000	24.1068	24.1068	7.1000e-004	6.6000e-004	24.3224
Total	**0.0112**	**0.0457**	**0.0994**	**4.4000e-004**	**0.0359**	**4.0000e-004**	**0.0363**	**9.6700e-003**	**3.7000e-004**	**0.0100**	**0.0000**	**41.5834**	**41.5834**	**1.2400e-003**	**3.1900e-003**	**42.5669**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0110	0.0749	0.5849	9.0000e-004		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	77.6545	77.6545	0.0185	0.0000	78.1163
Total	**0.0110**	**0.0749**	**0.5849**	**9.0000e-004**		**2.0000e-004**	**2.0000e-004**		**2.0000e-004**	**2.0000e-004**	**0.0000**	**77.6545**	**77.6545**	**0.0185**	**0.0000**	**78.1163**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0200e-003	0.0387	0.0136	1.8000e-004	5.7800e-003	2.3000e-004	6.0100e-003	1.6700e-003	2.2000e-004	1.8900e-003	0.0000	17.4767	17.4767	5.3000e-004	2.5300e-003	18.2445
Worker	0.0102	7.0300e-003	0.0857	2.6000e-004	0.0301	1.7000e-004	0.0303	8.0000e-003	1.5000e-004	8.1500e-003	0.0000	24.1068	24.1068	7.1000e-004	6.6000e-004	24.3224
Total	**0.0112**	**0.0457**	**0.0994**	**4.4000e-004**	**0.0359**	**4.0000e-004**	**0.0363**	**9.6700e-003**	**3.7000e-004**	**0.0100**	**0.0000**	**41.5834**	**41.5834**	**1.2400e-003**	**3.1900e-003**	**42.5669**

3.6 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1928	1.7611	2.1179	3.5300e-003		0.0803	0.0803		0.0756	0.0756	0.0000	303.7223	303.7223	0.0718	0.0000	305.5179
Total	**0.1928**	**1.7611**	**2.1179**	**3.5300e-003**		**0.0803**	**0.0803**		**0.0756**	**0.0756**	**0.0000**	**303.7223**	**303.7223**	**0.0718**	**0.0000**	**305.5179**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.8500e-003	0.1502	0.0521	6.8000e-004	0.0226	9.0000e-004	0.0235	6.5300e-003	8.6000e-004	7.3900e-003	0.0000	67.1512	67.1512	2.1100e-003	9.7300e-003	70.1032
Worker	0.0373	0.0247	0.3138	9.8000e-004	0.1177	6.2000e-004	0.1183	0.0313	5.7000e-004	0.0318	0.0000	91.9059	91.9059	2.5200e-003	2.4300e-003	92.6920
Total	**0.0412**	**0.1749**	**0.3659**	**1.6600e-003**	**0.1403**	**1.5200e-003**	**0.1418**	**0.0378**	**1.4300e-003**	**0.0392**	**0.0000**	**159.0570**	**159.0570**	**4.6300e-003**	**0.0122**	**162.7952**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0429	0.2928	2.2873	3.5300e-003		8.0000e-004	8.0000e-004		8.0000e-004	8.0000e-004	0.0000	303.7220	303.7220	0.0718	0.0000	305.5175
Total	**0.0429**	**0.2928**	**2.2873**	**3.5300e-003**		**8.0000e-004**	**8.0000e-004**		**8.0000e-004**	**8.0000e-004**	**0.0000**	**303.7220**	**303.7220**	**0.0718**	**0.0000**	**305.5175**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.8500e-003	0.1502	0.0521	6.8000e-004	0.0226	9.0000e-004	0.0235	6.5300e-003	8.6000e-004	7.3900e-003	0.0000	67.1512	67.1512	2.1100e-003	9.7300e-003	70.1032
Worker	0.0373	0.0247	0.3138	9.8000e-004	0.1177	6.2000e-004	0.1183	0.0313	5.7000e-004	0.0318	0.0000	91.9059	91.9059	2.5200e-003	2.4300e-003	92.6920
Total	**0.0412**	**0.1749**	**0.3659**	**1.6600e-003**	**0.1403**	**1.5200e-003**	**0.1418**	**0.0378**	**1.4300e-003**	**0.0392**	**0.0000**	**159.0570**	**159.0570**	**4.6300e-003**	**0.0122**	**162.7952**

3.6 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0212	0.1933	0.2493	4.2000e-004		8.1800e-003	8.1800e-003		7.6900e-003	7.6900e-003	0.0000	35.9475	35.9475	8.4500e-003	0.0000	36.1588
Total	**0.0212**	**0.1933**	**0.2493**	**4.2000e-004**		**8.1800e-003**	**8.1800e-003**		**7.6900e-003**	**7.6900e-003**	**0.0000**	**35.9475**	**35.9475**	**8.4500e-003**	**0.0000**	**36.1588**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.4000e-004	0.0176	6.0600e-003	8.0000e-005	2.6800e-003	1.1000e-004	2.7800e-003	7.7000e-004	1.0000e-004	8.7000e-004	0.0000	7.7939	7.7939	2.6000e-004	1.1300e-003	8.1366
Worker	4.1600e-003	2.6500e-003	0.0349	1.1000e-004	0.0139	7.0000e-005	0.0140	3.7000e-003	6.0000e-005	3.7600e-003	0.0000	10.6088	10.6088	2.7000e-004	2.7000e-004	10.6959
Total	**4.6000e-003**	**0.0202**	**0.0409**	**1.9000e-004**	**0.0166**	**1.8000e-004**	**0.0168**	**4.4700e-003**	**1.6000e-004**	**4.6300e-003**	**0.0000**	**18.4027**	**18.4027**	**5.3000e-004**	**1.4000e-003**	**18.8325**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.0800e-003	0.0346	0.2706	4.2000e-004		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	35.9475	35.9475	8.4500e-003	0.0000	36.1587
Total	**5.0800e-003**	**0.0346**	**0.2706**	**4.2000e-004**		**9.0000e-005**	**9.0000e-005**		**9.0000e-005**	**9.0000e-005**	**0.0000**	**35.9475**	**35.9475**	**8.4500e-003**	**0.0000**	**36.1587**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.4000e-004	0.0176	6.0600e-003	8.0000e-005	2.6800e-003	1.1000e-004	2.7800e-003	7.7000e-004	1.0000e-004	8.7000e-004	0.0000	7.7939	7.7939	2.6000e-004	1.1300e-003	8.1366
Worker	4.1600e-003	2.6500e-003	0.0349	1.1000e-004	0.0139	7.0000e-005	0.0140	3.7000e-003	6.0000e-005	3.7600e-003	0.0000	10.6088	10.6088	2.7000e-004	2.7000e-004	10.6959
Total	**4.6000e-003**	**0.0202**	**0.0409**	**1.9000e-004**	**0.0166**	**1.8000e-004**	**0.0168**	**4.4700e-003**	**1.6000e-004**	**4.6300e-003**	**0.0000**	**18.4027**	**18.4027**	**5.3000e-004**	**1.4000e-003**	**18.8325**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1817					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0800e-003	7.3100e-003	0.0109	2.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	1.5320	1.5320	9.0000e-005	0.0000	1.5341
Total	**0.1828**	**7.3100e-003**	**0.0109**	**2.0000e-005**		**3.7000e-004**	**3.7000e-004**		**3.7000e-004**	**3.7000e-004**	**0.0000**	**1.5320**	**1.5320**	**9.0000e-005**	**0.0000**	**1.5341**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	2.2000e-004	2.8200e-003	1.0000e-005	1.0600e-003	1.0000e-005	1.0600e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.8269	0.8269	2.0000e-005	2.0000e-005	0.8339
Total	**3.4000e-004**	**2.2000e-004**	**2.8200e-003**	**1.0000e-005**	**1.0600e-003**	**1.0000e-005**	**1.0600e-003**	**2.8000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.8269**	**0.8269**	**2.0000e-005**	**2.0000e-005**	**0.8339**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1817					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8000e-004	7.7000e-004	0.0110	2.0000e-005		0.0000	0.0000		0.0000	0.0000	0.0000	1.5320	1.5320	9.0000e-005	0.0000	1.5341
Total	**0.1819**	**7.7000e-004**	**0.0110**	**2.0000e-005**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.5320**	**1.5320**	**9.0000e-005**	**0.0000**	**1.5341**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	2.2000e-004	2.8200e-003	1.0000e-005	1.0600e-003	1.0000e-005	1.0600e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.8269	0.8269	2.0000e-005	2.0000e-005	0.8339
Total	**3.4000e-004**	**2.2000e-004**	**2.8200e-003**	**1.0000e-005**	**1.0600e-003**	**1.0000e-005**	**1.0600e-003**	**2.8000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.8269**	**0.8269**	**2.0000e-005**	**2.0000e-005**	**0.8339**

3.7 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4694					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6500e-003	0.0178	0.0280	5.0000e-005		8.0000e-004	8.0000e-004		8.0000e-004	8.0000e-004	0.0000	3.9575	3.9575	2.2000e-004	0.0000	3.9629
Total	**0.4720**	**0.0178**	**0.0280**	**5.0000e-005**		**8.0000e-004**	**8.0000e-004**		**8.0000e-004**	**8.0000e-004**	**0.0000**	**3.9575**	**3.9575**	**2.2000e-004**	**0.0000**	**3.9629**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2000e-004	5.2000e-004	6.8500e-003	2.0000e-005	2.7300e-003	1.0000e-005	2.7500e-003	7.3000e-004	1.0000e-005	7.4000e-004	0.0000	2.0839	2.0839	5.0000e-005	5.0000e-005	2.1010
Total	**8.2000e-004**	**5.2000e-004**	**6.8500e-003**	**2.0000e-005**	**2.7300e-003**	**1.0000e-005**	**2.7500e-003**	**7.3000e-004**	**1.0000e-005**	**7.4000e-004**	**0.0000**	**2.0839**	**2.0839**	**5.0000e-005**	**5.0000e-005**	**2.1010**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4694					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.6000e-004	2.0000e-003	0.0284	5.0000e-005		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.9575	3.9575	2.2000e-004	0.0000	3.9629
Total	**0.4698**	**2.0000e-003**	**0.0284**	**5.0000e-005**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.9575**	**3.9575**	**2.2000e-004**	**0.0000**	**3.9629**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2000e-004	5.2000e-004	6.8500e-003	2.0000e-005	2.7300e-003	1.0000e-005	2.7500e-003	7.3000e-004	1.0000e-005	7.4000e-004	0.0000	2.0839	2.0839	5.0000e-005	5.0000e-005	2.1010
Total	**8.2000e-004**	**5.2000e-004**	**6.8500e-003**	**2.0000e-005**	**2.7300e-003**	**1.0000e-005**	**2.7500e-003**	**7.3000e-004**	**1.0000e-005**	**7.4000e-004**	**0.0000**	**2.0839**	**2.0839**	**5.0000e-005**	**5.0000e-005**	**2.1010**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2575	0.2479	2.4302	4.9700e-003	0.6785	2.9800e-003	0.6815	0.1811	2.7800e-003	0.1838	0.0000	497.3008	497.3008	0.0350	0.0222	504.7792
Unmitigated	0.2575	0.2479	2.4302	4.9700e-003	0.6785	2.9800e-003	0.6815	0.1811	2.7800e-003	0.1838	0.0000	497.3008	497.3008	0.0350	0.0222	504.7792

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	816.00	816.00	816.00	1,814,520	1,814,520
Parking Lot	0.00	0.00	0.00		
Total	816.00	816.00	816.00	1,814,520	1,814,520

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	6.88	6.88	6.88	42.00	19.00	39.00	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.581445	0.061322	0.168269	0.110400	0.022610	0.006703	0.010268	0.006246	0.000647	0.000667	0.027159	0.000784	0.003479
Parking Lot	0.581445	0.061322	0.168269	0.110400	0.022610	0.006703	0.010268	0.006246	0.000647	0.000667	0.027159	0.000784	0.003479

5.0 Energy Detail

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	52.4021	52.4021	3.2500e-003	3.3000e-004	52.5803
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	64.9470	64.9470	4.0300e-003	4.0000e-004	65.1678
NaturalGas Mitigated	5.9900e-003	0.0512	0.0218	3.3000e-004		4.1400e-003	4.1400e-003		4.1400e-003	4.1400e-003	0.0000	59.2991	59.2991	1.1400e-003	1.0900e-003	59.6515
NaturalGas Unmitigated	5.9900e-003	0.0512	0.0218	3.3000e-004		4.1400e-003	4.1400e-003		4.1400e-003	4.1400e-003	0.0000	59.2991	59.2991	1.1400e-003	1.0900e-003	59.6515

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.11122e+006	5.9900e-003	0.0512	0.0218	3.3000e-004		4.1400e-003	4.1400e-003		4.1400e-003	4.1400e-003	0.0000	59.2991	59.2991	1.1400e-003	1.0900e-003	59.6515
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**5.9900e-003**	**0.0512**	**0.0218**	**3.3000e-004**		**4.1400e-003**	**4.1400e-003**		**4.1400e-003**	**4.1400e-003**	**0.0000**	**59.2991**	**59.2991**	**1.1400e-003**	**1.0900e-003**	**59.6515**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.11122e+006	5.9900e-003	0.0512	0.0218	3.3000e-004		4.1400e-003	4.1400e-003		4.1400e-003	4.1400e-003	0.0000	59.2991	59.2991	1.1400e-003	1.0900e-003	59.6515
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**5.9900e-003**	**0.0512**	**0.0218**	**3.3000e-004**		**4.1400e-003**	**4.1400e-003**		**4.1400e-003**	**4.1400e-003**	**0.0000**	**59.2991**	**59.2991**	**1.1400e-003**	**1.0900e-003**	**59.6515**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	411945	60.2384	3.7400e-003	3.7000e-004	60.4432
Parking Lot	32200	4.7086	2.9000e-004	3.0000e-005	4.7246
Total		**64.9470**	**4.0300e-003**	**4.0000e-004**	**65.1678**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	347086	50.7541	3.1500e-003	3.1000e-004	50.9267
Parking Lot	11270	1.6480	1.0000e-004	1.0000e-005	1.6536
Total		**52.4021**	**3.2500e-003**	**3.2000e-004**	**52.5803**

6.0 Area Detail

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5898	8.7300e-003	0.7568	4.0000e-005		4.2100e-003	4.2100e-003		4.2100e-003	4.2100e-003	0.0000	1.2413	1.2413	1.1900e-003	0.0000	1.2710
Unmitigated	0.5898	8.7300e-003	0.7568	4.0000e-005		4.2100e-003	4.2100e-003		4.2100e-003	4.2100e-003	0.0000	1.2413	1.2413	1.1900e-003	0.0000	1.2710

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1628					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4043					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0228	8.7300e-003	0.7568	4.0000e-005		4.2100e-003	4.2100e-003		4.2100e-003	4.2100e-003	0.0000	1.2413	1.2413	1.1900e-003	0.0000	1.2710
Total	**0.5898**	**8.7300e-003**	**0.7568**	**4.0000e-005**		**4.2100e-003**	**4.2100e-003**		**4.2100e-003**	**4.2100e-003**	**0.0000**	**1.2413**	**1.2413**	**1.1900e-003**	**0.0000**	**1.2710**

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1628					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4043					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0228	8.7300e-003	0.7568	4.0000e-005		4.2100e-003	4.2100e-003		4.2100e-003	4.2100e-003	0.0000	1.2413	1.2413	1.1900e-003	0.0000	1.2710
Total	**0.5898**	**8.7300e-003**	**0.7568**	**4.0000e-005**		**4.2100e-003**	**4.2100e-003**		**4.2100e-003**	**4.2100e-003**	**0.0000**	**1.2413**	**1.2413**	**1.1900e-003**	**0.0000**	**1.2710**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	20.2074	0.2177	5.2300e-003	27.2065
Unmitigated	21.5687	0.2178	5.2300e-003	28.5724

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	6.64571 / 4.18969	21.5687	0.2178	5.2300e-003	28.5724
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**21.5687**	**0.2178**	**5.2300e-003**	**28.5724**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	6.64571 / 3.35175	20.2074	0.2177	5.2300e-003	27.2065
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**20.2074**	**0.2177**	**5.2300e-003**	**27.2065**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	7.1433	0.4222	0.0000	17.6971
Unmitigated	9.5243	0.5629	0.0000	23.5961

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	46.92	9.5243	0.5629	0.0000	23.5961
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**9.5243**	**0.5629**	**0.0000**	**23.5961**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	35.19	7.1433	0.4222	0.0000	17.6971
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**7.1433**	**0.4222**	**0.0000**	**17.6971**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	72.2160	0.0000	0.0000	72.2160

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	102	72.2160	0.0000	0.0000	72.2160
Total		**72.2160**	**0.0000**	**0.0000**	**72.2160**

ATTACHMENT B

AERSCREEN Dispersion Modeling Results

AERSCREEN 11126 / AERMOD 1206
07/07/22

12:32:20

TITLE: IRIS LANE ANNEX

********** AREA PARAMETERS
****

SOURCE EMISSION RATE:	0.155E-03	g/s	0.123E-02	lb/hr
AREA EMISSION RATE:	0.498E-08	g/(s-m2)	0.395E-07	lb/(hr-m2)
AREA HEIGHT:	3.00	meters	9.84	feet
AREA SOURCE LONG SIDE:	176.40	meters	578.74	feet
AREA SOURCE SHORT SIDE:	176.40	meters	578.74	feet
INITIAL VERTICAL DIMENSION:	1.00	meters	3.28	feet
RURAL OR URBAN:	URBAN			
POPULATION:	145000			
FLAGPOLE RECEPTOR HEIGHT:	1.50	meters	4.92	feet
INITIAL PROBE DISTANCE =	5000.	meters	16404.	feet

********** BUILDING DOWNWASH PARAMETERS
****

BUILDING DOWNWASH NOT USED FOR NON-POINT SOURCES

-
 ************************ FLOW SECTOR ANALYSIS
****
                  25 meter receptor spacing: 1. meters - 5000. meters

---
-

    MAXIMUM IMPACT RECEPTOR

    Zo   SURFACE   1-HR CONC RADIAL DIST   TEMPORAL
    SECTOR   ROUGHNESS (ug/m3)   (deg)   (m)   PERIOD

       1*   0.010   0.2252   45   125.0   WIN
 * = worst case diagonal

-
 ********************* MAKEMET METEOROLOGY PARAMETERS
****

-

 MIN/MAX TEMPERATURE: 250.0 / 310.0 (K)

 MINIMUM WIND SPEED: 0.5 m/s

 ANEMOMETER HEIGHT: 10.000 meters

 SURFACE CHARACTERISTICS INPUT: AERMET SEASONAL TABLES

 DOMINANT SURFACE PROFILE: Cultivated Land
 DOMINANT CLIMATE TYPE: Average Moisture
 DOMINANT SEASON: Winter

 ALBEDO: 0.60
 BOWEN RATIO: 1.50

ROUGHNESS LENGTH: 0.010 (meters)

METEOROLOGY CONDITIONS USED TO PREDICT OVERALL MAXIMUM IMPACT

YR	MO	DY	JDY	HR
10	01	16	16	01

H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS
-0.08	0.014	-9.000	0.020	-999.	4.	3.7	0.010	1.50	0.60	0.50

HT	REF TA	HT
10.0	310.0	2.0

METEOROLOGY CONDITIONS USED TO PREDICT AMBIENT BOUNDARY IMPACT

YR	MO	DY	JDY	HR
10	01	16	16	01

H0	U*	W*	DT/DZ	ZICNV	ZIMCH	M-O LEN	Z0	BOWEN	ALBEDO	REF WS
-0.08	0.014	-9.000	0.020	-999.	4.	3.7	0.010	1.50	0.60	0.50

HT	REF TA	HT
10.0	310.0	2.0

********** AERSCREEN AUTOMATED DISTANCES

****

OVERALL MAXIMUM CONCENTRATIONS BY DISTANCE

DIST (m)	MAXIMUM 1-HR CONC (ug/m3)	DIST (m)	MAXIMUM 1-HR CONC (ug/m3)
1.00	0.1521	2524.99	0.1233E-01
25.00	0.1690	2550.00	0.1219E-01
50.01	0.1849	2575.00	0.1205E-01
75.00	0.1998	2600.00	0.1191E-01
100.00	0.2130	2625.01	0.1178E-01
125.00	0.2252	2650.00	0.1165E-01
150.01	0.1846	2675.00	0.1151E-01
174.99	0.1557	2700.00	0.1139E-01
200.00	0.1360	2725.00	0.1126E-01
225.00	0.1219	2750.00	0.1114E-01
250.00	0.1111	2775.00	0.1102E-01
274.99	0.1025	2800.00	0.1090E-01
300.00	0.9518E-01	2825.00	0.1079E-01
325.00	0.8902E-01	2850.00	0.1067E-01
350.00	0.8366E-01	2875.00	0.1056E-01
375.01	0.7897E-01	2900.00	0.1045E-01
400.00	0.7482E-01	2925.00	0.1035E-01
425.00	0.7112E-01	2950.01	0.1024E-01
450.00	0.6778E-01	2975.00	0.1014E-01
475.01	0.6476E-01	3000.00	0.1135E-01
500.00	0.6201E-01	3025.00	0.1123E-01
525.00	0.5948E-01	3050.00	0.1110E-01
550.00	0.5716E-01	3075.00	0.1098E-01
575.01	0.5503E-01	3100.00	0.1086E-01
599.99	0.5303E-01	3125.00	0.1074E-01
625.00	0.5110E-01	3150.00	0.1062E-01
650.00	0.4930E-01	3175.00	0.1051E-01
675.00	0.4763E-01	3200.00	0.1040E-01
699.99	0.4607E-01	3225.00	0.1029E-01
725.00	0.4462E-01	3250.00	0.1018E-01
750.00	0.4324E-01	3275.00	0.1007E-01
775.00	0.4196E-01	3300.00	0.9967E-02
800.01	0.4074E-01	3325.00	0.9865E-02
825.00	0.3960E-01	3350.00	0.9765E-02
850.00	0.3852E-01	3375.00	0.9666E-02

875.00	0.3749E-01	3400.00	0.9569E-02
900.01	0.3651E-01	3425.00	0.9474E-02
924.99	0.3558E-01	3450.00	0.9380E-02
950.00	0.3469E-01	3475.00	0.9288E-02
975.00	0.3385E-01	3500.00	0.9197E-02
1000.00	0.3304E-01	3525.00	0.9108E-02
1024.99	0.3227E-01	3550.00	0.9021E-02
1050.00	0.3153E-01	3575.00	0.8935E-02
1075.00	0.3082E-01	3600.00	0.8850E-02
1100.00	0.3014E-01	3625.00	0.8767E-02
1125.01	0.2948E-01	3650.00	0.8685E-02
1150.00	0.2885E-01	3675.00	0.8605E-02
1175.00	0.2825E-01	3700.00	0.8525E-02
1200.00	0.2766E-01	3725.00	0.8447E-02
1225.01	0.2710E-01	3750.00	0.8370E-02
1250.00	0.2656E-01	3775.00	0.8295E-02
1275.00	0.2603E-01	3800.00	0.8220E-02
1300.00	0.2553E-01	3825.00	0.8147E-02
1325.01	0.2504E-01	3849.99	0.8075E-02
1349.99	0.2456E-01	3875.00	0.8004E-02
1375.00	0.2411E-01	3900.00	0.7934E-02
1400.00	0.2366E-01	3925.00	0.7865E-02
1425.00	0.2323E-01	3950.00	0.7798E-02
1449.99	0.2282E-01	3975.00	0.7731E-02
1475.00	0.2241E-01	4000.00	0.7665E-02
1500.00	0.2202E-01	4025.00	0.7600E-02
1525.00	0.2165E-01	4050.00	0.7537E-02
1550.01	0.2128E-01	4075.00	0.7474E-02
1575.00	0.2092E-01	4100.00	0.7412E-02
1600.00	0.2057E-01	4125.00	0.7351E-02
1625.00	0.2023E-01	4149.99	0.7290E-02
1650.01	0.1991E-01	4175.00	0.7231E-02
1674.99	0.1959E-01	4200.00	0.7173E-02
1700.00	0.1928E-01	4225.00	0.7115E-02
1725.00	0.1897E-01	4250.00	0.7058E-02
1750.00	0.1868E-01	4275.00	0.7002E-02
1774.99	0.1839E-01	4300.00	0.6947E-02
1800.00	0.1811E-01	4325.00	0.6892E-02
1825.00	0.1784E-01	4349.99	0.6839E-02
1850.00	0.1758E-01	4375.00	0.6786E-02
1875.01	0.1732E-01	4400.00	0.6733E-02
1900.00	0.1706E-01	4425.00	0.6682E-02
1925.00	0.1681E-01	4450.00	0.6631E-02
1950.00	0.1657E-01	4475.00	0.6581E-02
1975.01	0.1634E-01	4500.00	0.6531E-02
1999.99	0.1611E-01	4525.00	0.6483E-02

2025.00	0.1589E-01	4550.00	0.6434E-02
2050.00	0.1567E-01	4575.00	0.6387E-02
2075.00	0.1546E-01	4599.99	0.6340E-02
2099.99	0.1525E-01	4625.00	0.6294E-02
2125.00	0.1505E-01	4650.00	0.6248E-02
2150.00	0.1485E-01	4674.99	0.6203E-02
2175.00	0.1465E-01	4700.00	0.6159E-02
2199.99	0.1446E-01	4725.00	0.6115E-02
2225.00	0.1428E-01	4750.00	0.6072E-02
2250.00	0.1409E-01	4775.00	0.6029E-02
2275.00	0.1392E-01	4800.00	0.5987E-02
2300.01	0.1374E-01	4825.00	0.5945E-02
2325.00	0.1357E-01	4850.00	0.5904E-02
2350.00	0.1341E-01	4875.00	0.5863E-02
2375.00	0.1324E-01	4900.00	0.5823E-02
2400.00	0.1308E-01	4924.99	0.5783E-02
2425.00	0.1292E-01	4950.00	0.5744E-02
2450.00	0.1277E-01	4975.00	0.5706E-02
2475.00	0.1262E-01	5000.00	0.5668E-02
2500.00	0.1247E-01		

 ********** AERSCREEN MAXIMUM IMPACT SUMMARY
****

 3-hour, 8-hour, and 24-hour scaled
 concentrations are equal to the 1-hour concentration as referenced in
 SCREENING PROCEDURES FOR ESTIMATING THE AIR QUALITY
 IMPACT OF STATIONARY SOURCES, REVISED (Section 4.5.4)
 Report number EPA-454/R-92-019
 http://www.epa.gov/scram001/guidance_permit.htm
 under Screening Guidance

CALCULATION PROCEDURE	MAXIMUM 1-HOUR CONC (ug/m3)	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC

(ug/m3)

FLAT TERRAIN	0.2252	0.2252	0.2252	0.2252	N/A
DISTANCE FROM SOURCE	125.00 meters				
IMPACT AT THE AMBIENT BOUNDARY	0.1521	0.1521	0.1521	0.1521	N/A
DISTANCE FROM SOURCE	1.00 meters				

ATTACHMENT C

Cancer Risk Calculations

Air Quality Health Risk Calculations

Iris Lane 102 Unit Multi-Family (Tier 4 with DPF)

From CalEE Annual Output	Emission per day (Ton/Total Construction Duration)	**0.0022**
	Number of Workdays	**445**
	Emission per day (lb/day)	**0.00988764**
	Construction day (Hours)	**8**
	Emission Rate (Grams/Second)	**0.000155524**
	Project Site Size (Acres)	**7.69**
	Project Site Size (meters	**31120.32589**
	Length of Smalles Side (meters)	**176.4095402**
	Concentration Annual	**0.0184**

New Method based on Risk Assessment Guidelines - Guidance Manual for Preparation of Health Risk Assessments - February 2015

Page 5-1 Calculate Point of Maximum Impact and Maximally Exposed Individual Resident

1st find Dose (Equation 5.4.1.1) Page 5-24

5.4 Estimation of Dose

	Construction Days	Construction Days converted to years				
Duration	445	1.219178082				
Age (Years)	3rd Trimester (0.25)	0-2	2-9	2-16	16-30	16-70
Cair (annual) - From F15	0.0184	0.0184	0.0184	0.0184	0.0184	0.0184
Breathing Rate per agegroup BR/BW (Page 5-25)	361	1090	861	745	335	290
A (Default is 1)	1	1	1	1	1	1
Exposure Frequency = EF (days/365days)	0.96	0.96	0.96	0.96	0.96	0.96
10^-6 Microgram to Milligram / liters to m3	0.000001	0.000001	0.000001	0.000001	0.000001	0.000001
Dose-inh	0.00000638	0.00001925	0.00001521	0.00001316	0.00000592	0.00000512

8.2.4 Calculating Residential and Offsite Worker Inhalation Cancer Risk

Equation 8.2.4 A Page 8-7

Construction Days	445	1.219178082				
potency factor for Diesel	1.1	1.1	1.1	1.1	1.1	1.1
Age Sensitivity Factor	10	10	3	3	1	1
ED	0.25	1.219178082	1.219178082	1.219178082	1.219178082	1.219178082
AT	70	70	70	70	70	70
FAH (USE 1 if School for 3rd and 2-9) Page 8-5	0.85	0.85	0.72	0.72	0.73	0.73
Risk for Each Age Group	2.12936E-07	3.13542E-06	6.29372E-07	5.44579E-07	8.27596E-08	7.16427E-08
	0.212936366	3.13542395	0.629372482	0.544578977	0.082759625	0.071642661

Cancer Risk Per Million 9-years	3.98
Cancer Risk Per Million 30-years	3.98
Cancer Risk Per Million 70-years	3.96

Appendix D
Biological Resources Report

2085 North Iris Project

Biological Technical Report

April 2022 | 00323.00017.001

Prepared for:

City of Escondido
201 North Broadway
Escondido, CA 92025

Prepared by:

HELIX Environmental Planning, Inc.
7578 El Cajon Boulevard
La Mesa, CA 91942

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ACRONYMS AND ABBREVIATIONS

BCLA	biological core and linkage area
CDFW	California Department of Fish and Wildlife
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFG Code	California Fish and Game Code
City	City of Escondido
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
County	County of San Diego
CWA	Clean Water Act
DBH	diameter at breast height
Draft Escondido SAP	Draft Escondido Subarea Plan
FESA	Federal Endangered Species Act
FPA	Focused Planning Area
G	Global
GPS	Global Positioning System
Hallmark	Hallmark Development Corporation
HELIX	HELIX Environmental Planning, Inc.
ITP	Incidental Take Permit
MBTA	Migratory Bird Treaty Act
MHCP	Multiple Habitat Conservation Program
NCCP	Natural Communities Conservation Planning
NRCS	Natural Resources Conservation Service
OHWM	Ordinary High Water Mark
PAMA	Pre-Approved Mitigation Area
project	2085 North Iris Project
RWQCB	Regional Water Quality Control Board

ACRONYMS AND ABBREVIATIONS (cont.)

S	State
SAA	Streambed Alteration Agreement
SAP	Subarea Plan
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WELO	Water Efficient Landscape Ordinance

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EXECUTIVE SUMMARY

This biological technical report was prepared to evaluate the proposed 2085 North Iris Project. The project site is located within unincorporated County of San Diego (County), California; however, the project will be annexed to the City of Escondido (City) once completed. The purpose of this report is to document the existing biological conditions within the project site and to analyze potential project impacts to sensitive biological resources with respect to local, state, and federal policy. This report provides the biological resources technical documentation necessary for review under the California Environmental Quality Act (CEQA) by the City.

The project consists of the development of 102 multi-family residential units and associated open space. HELIX Environmental Planning, Inc. (HELIX) conducted biological surveys for the project site and immediate surrounding areas in August 2020 to record biological resources on-site, to map extents of current vegetation communities, assess habitat for species to occur, and preliminarily delineate the extents of potential jurisdictional aquatic resources. A total of five vegetation communities and land cover types occur within the project site: disturbed wetland, non-native grassland, non-native vegetation, disturbed habitat, and developed lands.

A follow up survey was conducted by HELIX on November 3, 2021, to address a comment related to the project's effect on mature and protected oak trees located on- and off-site. Eleven protected oak trees and twelve mature oak trees will be impacted by the project.

No special status plant or animal species were observed within the project site during biological surveys, which include focused rare plant surveys. Due to a lack of suitable habitat, there are no special status plant or animal species with a moderate or high potential to occur within the project site. The project site supports nesting habitat for bird species protected under the federal Migratory Bird Treaty Act (MBTA) and California Fish and Game Code.

The central portion of the project site includes potential non-wetland waters of the United States under the regulatory jurisdiction of the U.S. Army Corps of Engineers (USACE) pursuant to Section 404 of the CWA, potential non-wetland waters of the State under the regulatory jurisdiction of the Regional Water Quality Control Board (RWQCB) pursuant to CWA Section 401, and potential streambed and disturbed wetland under the regulatory jurisdiction of California Department of Fish and Wildlife (CDFW) pursuant to Sections 1600-1603 of the California Fish and Game Code (CFG Code).

The project occurs within the boundaries of the Multiple Habitat Conservation Program (MHCP). Within the MHCP, the project is located in the Escondido Draft Subarea Plan. The Escondido Draft Subarea Plan has not been finalized or adopted. In the context of the MHCP, the project is located outside of areas targeted for conservation. The project site is not located within U.S. Fish and Wildlife Service (USFWS) designated or proposed critical habitat.

Potential significant impacts were identified for sensitive natural communities/habitats, potentially jurisdictional resources, and mature and protected trees. The mitigation measures proposed would mitigate potential significant impacts to sensitive natural communities/habitats, potential jurisdictional resources, and mature and protected trees. Implementation of these mitigation measures would mitigate the potential impacts to below a level of significance.

As currently planned, the project would require the submittal of regulatory permit applications to the USACE, RWQCB, and CDFW for potential impacts to jurisdictional aquatic resources. Potential impacts to sensitive communities/habitats present within the planned impact area would be mitigated at a minimum 1:1 ratio (i.e., no net loss obligation). Project impacts to USACE, RWQCB, and CDFW jurisdictional aquatic resources shall be mitigated at a minimum 1:1 ratio provided through off-site establishment/re-establishment, rehabilitation, enhancement, and/or preservation mitigation. Project impacts to mature and protected trees shall be mitigated at a 1:1 replacement or 2:1 replacement, respectively, through preparation and implementation of a tree survey and tree replacement and/or protection plan. Per CDFW recommendation, an infectious tree disease management plan should be prepared for the project.

1.0 INTRODUCTION

This report describes the results of a biological resources study conducted by HELIX Environmental Planning, Inc. (HELIX) for the proposed 2085 North Iris Project (project), which includes the development of 102 multi-family residential units and associated open space. Hallmark Development Corporation (Hallmark) intends to annex the project site into the City of Escondido (City).

The purpose of this report is to document the existing biological conditions within the proposed project site and provide an analysis of potential impacts on sensitive biological resources with respect to local, state, and federal policy. This report provides the biological resources technical documentation necessary for review under California Environmental Quality Act (CEQA) by the City of Escondido Planning Division.

The study area for this biological technical report includes the project site. The information and discussions in this report primarily describe the project site, which is defined by the proposed project development areas; additional areas within the 150-foot surrounding buffer (i.e., study area) were reviewed for adjacency context only and are not discussed in detail herein.

1.1 PROJECT LOCATION

The proposed project site is currently located within unincorporated San Diego County, California (Figure 1, *Regional Location*). The project site occurs within Section 4, Township 12 South, Range 2 West, on the U.S. Geological Survey (USGS) 7.5-minute Valley Center quadrangle (Figure 2, *USGS Topography*). The project site is located immediately west of North Iris Lane, north of Cheyenne Lane, and south of Robin Hill Lane. (Figure 3, *Project Vicinity*). The project site includes various privately owned parcels and an approximately 0.02-acre area along North Iris Lane that is outside of parcel boundaries. The project site is not located in the Coastal Zone.

If annexed, the project site would occur within City boundaries. As such, it is subject to the North County Multiple Habitat Conservation Program (MHCP; AMEC 2003). The North County MHCP is divided into sub-regional plans, with the project site located within the Escondido subarea. The Public Review Draft Escondido Subarea Plan (Draft Escondido SAP 2001) has not yet been approved or adopted and remains in draft form as of the date of this document (Ogden and Conservation Biology Institute 2001). This report evaluates the project site under the Draft Escondido SAP, which will ultimately regulate the project site.

The project site is not located within a Pre-Approved Mitigation Area (PAMA) targeted for conservation by the North County MHCP (Figure 4, *Regional Context MHCP*). Within the Draft Escondido SAP, the project site is not mapped as a Focused Planning Area (FPA) or designated as Constrained Lands outside the FPA. Additionally, the project site is not located within the biological core and linkage area (BCLA).

The project site does not include any areas designated as critical habitat for listed species, and it is not included in the Quino checkerspot butterfly (*Euphydryas editha quino*) survey area.

1.2 PROJECT DESCRIPTION

1.2.1 Project Components

The project proposes 102 multi-family residential units. The private and gated residential land uses comprise approximately 2.4 acres of the 7.50-acre project site. Multi-family residential dwelling units are comprised of one, two, and three-story townhomes with seven dwelling unit types interspersed throughout the project.

- **Open Space Land Use.** Open space will total approximately 2.2 acres of the 7.50-acre project site. Open space within the plan is categorized as common open space, which includes open space with grades less than ten percent, a water quality basin, a 10-foot setback along the southern boundary, and recreational areas. The other type of open space is private open space, which is associated with private patio and deck areas on the residential units.

    - **Common Open Space.** Common open space is divided into two areas: a common open space area with grades less than 10 percent; and the basin area. The common open space area with grades less than 10 percent includes usable open space areas, which encourage relaxation activities such as observing nature, bird watching, painting, photography, and picnicking as well as recreational open space areas such as open turf area, playgrounds, open turf areas, and firepits. The basin areas are passive open space areas that are used to direct water during rain events to control for flooding and to treat water before it is discharged from the project site.

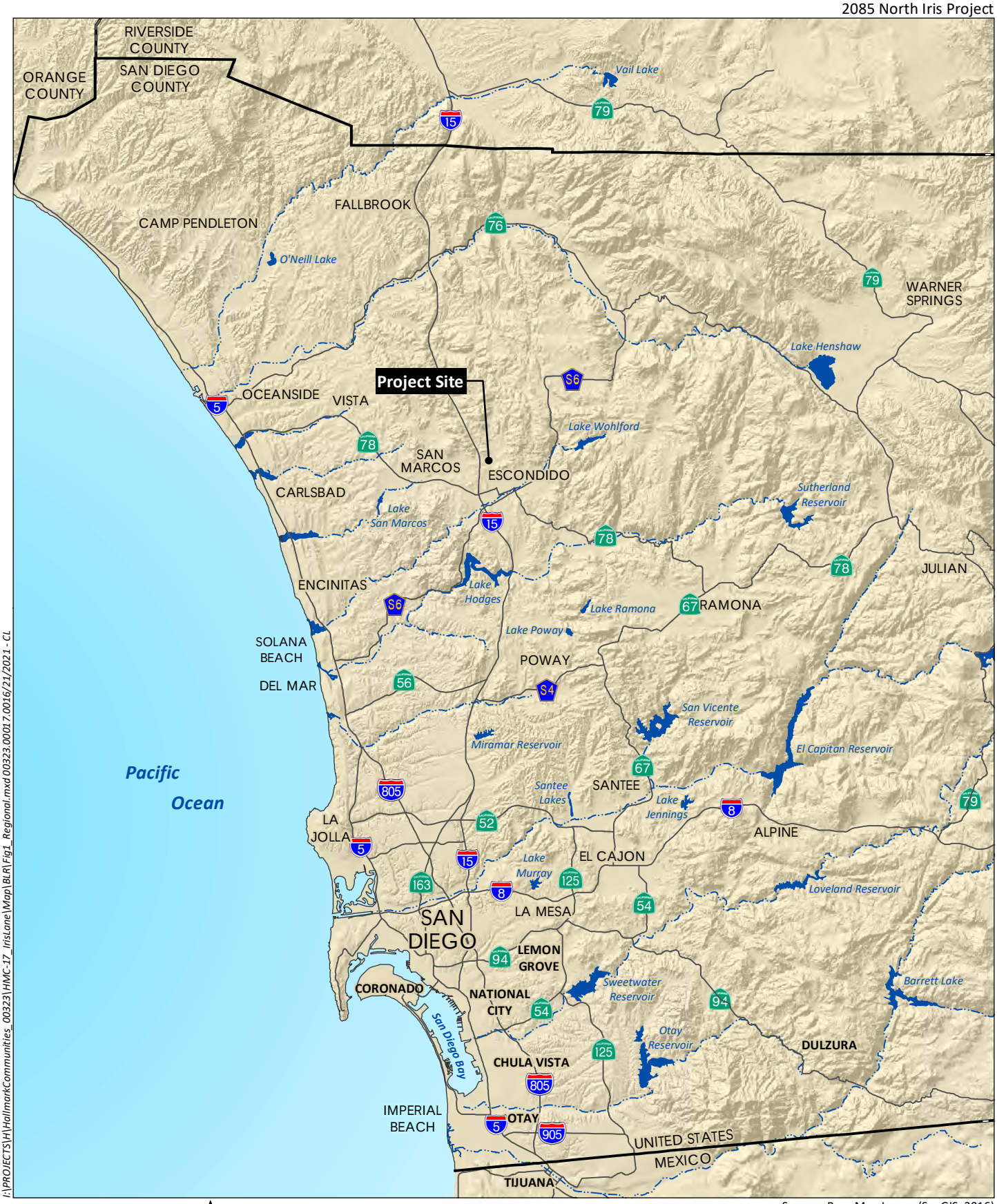
      The Project includes six common-area recreation spaces totaling 10,543 square feet, inclusive of multi-age play areas, tot lots, seating, barbeque stations, open turf areas, and patio areas. The Homeowners Association will ultimately maintain these areas.

    - **Private Open Space.** Private open space within the Project area consists of private patio space and private balcony/deck space. The project provides a total of 21,434 square feet of outdoor private space.

- **Access and Circulation**. Access to the project site will be via two driveways on Robin Hill Lane which will provide a private gated circular bulb turnaround entry with access to ingress and egress which will connect to the project site and provide access to alleys. A secondary exit-only access is provided through the eastern boundary of the project site to connect with North Iris Lane. This access point is intended for exit only and will also have a gate in place. Driveways and alleys within the project site will be private. In addition, the project provides an accessible path of travel through the project site and to each residence via pedestrian pathways.

- **Parking**. The project proposes a total of 230 parking spaces. This includes 204 garage spaces associated with the units, which will be pre-wired for electric vehicle charging stations. An additional 27 guest spaces (22 open spaces, two ADA spaces, and three EV spaces) will also be included.

- **Landscape Plan**. The proposed landscape plan includes a mix of trees, shrubs, grasses and groundcover, and the plant selection emphasizes, and moderates water use species. The project will also comply with the City's Model Water Efficient Landscape Ordinance (WELO).



I:\PROJECTS\HI\HallmarkCommunities_00323\HMC-17_IrisLane\Map\BLR\Fig1_Regional.mxd 00323.00017.0016/21/2021 - CL

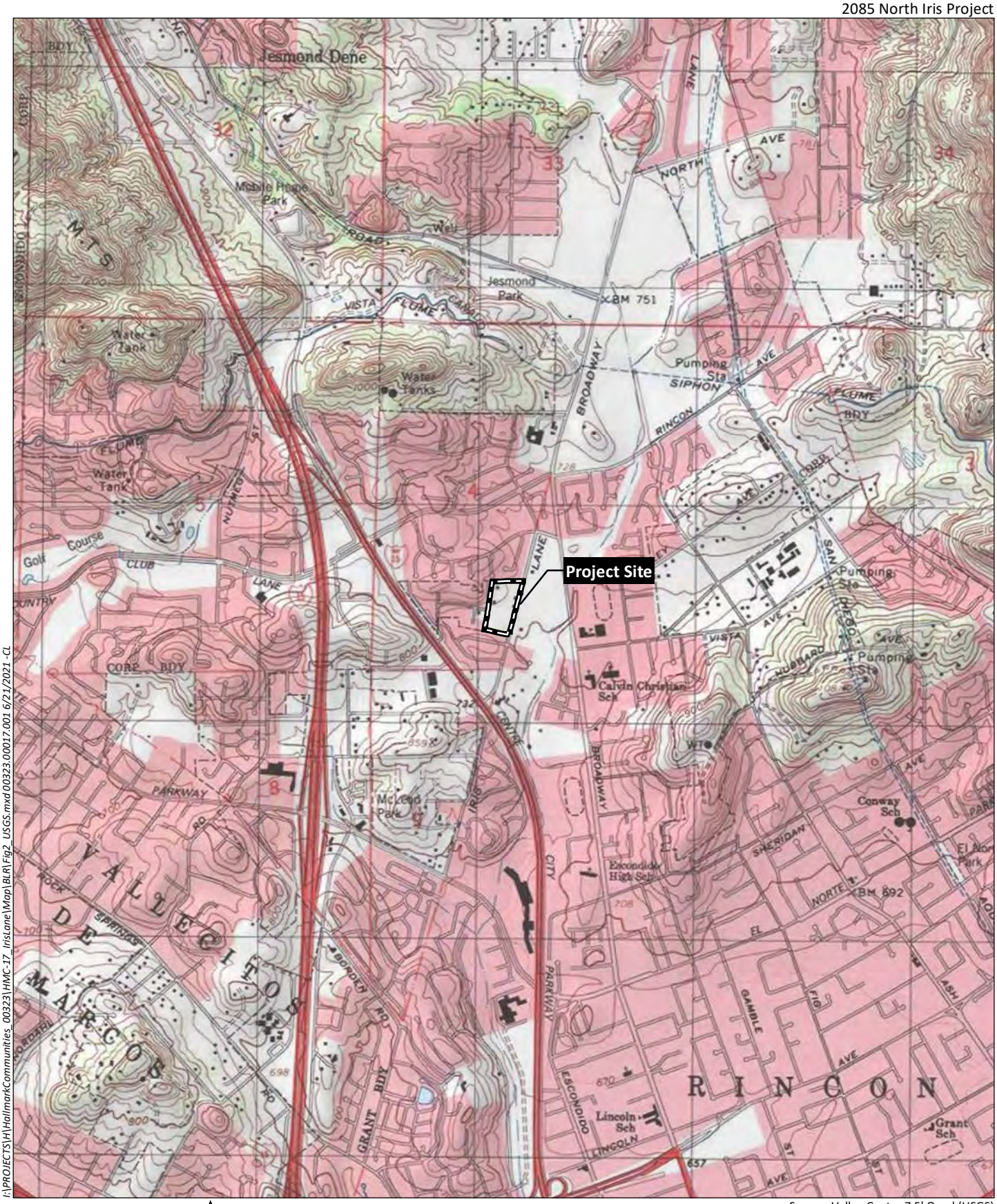
0 8 Miles

Source: Base Map Layers (SanGIS, 2016)

HELIX Environmental Planning

Regional Location

Figure 1



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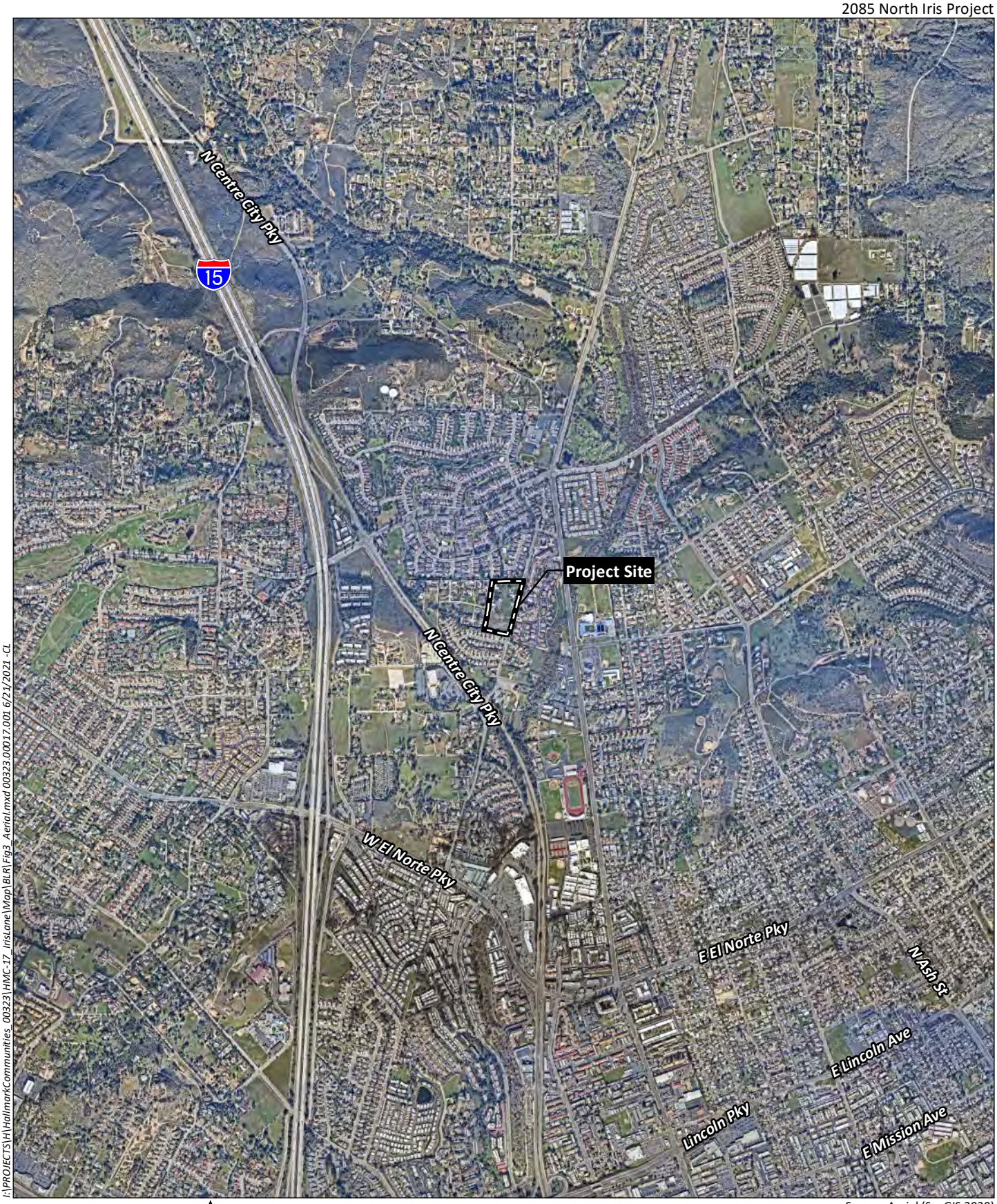
Source: Valley Center 7.5' Quad (USGS)

HELIX Environmental Planning

USGS Topography

Figure 2



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0 2,000 Feet

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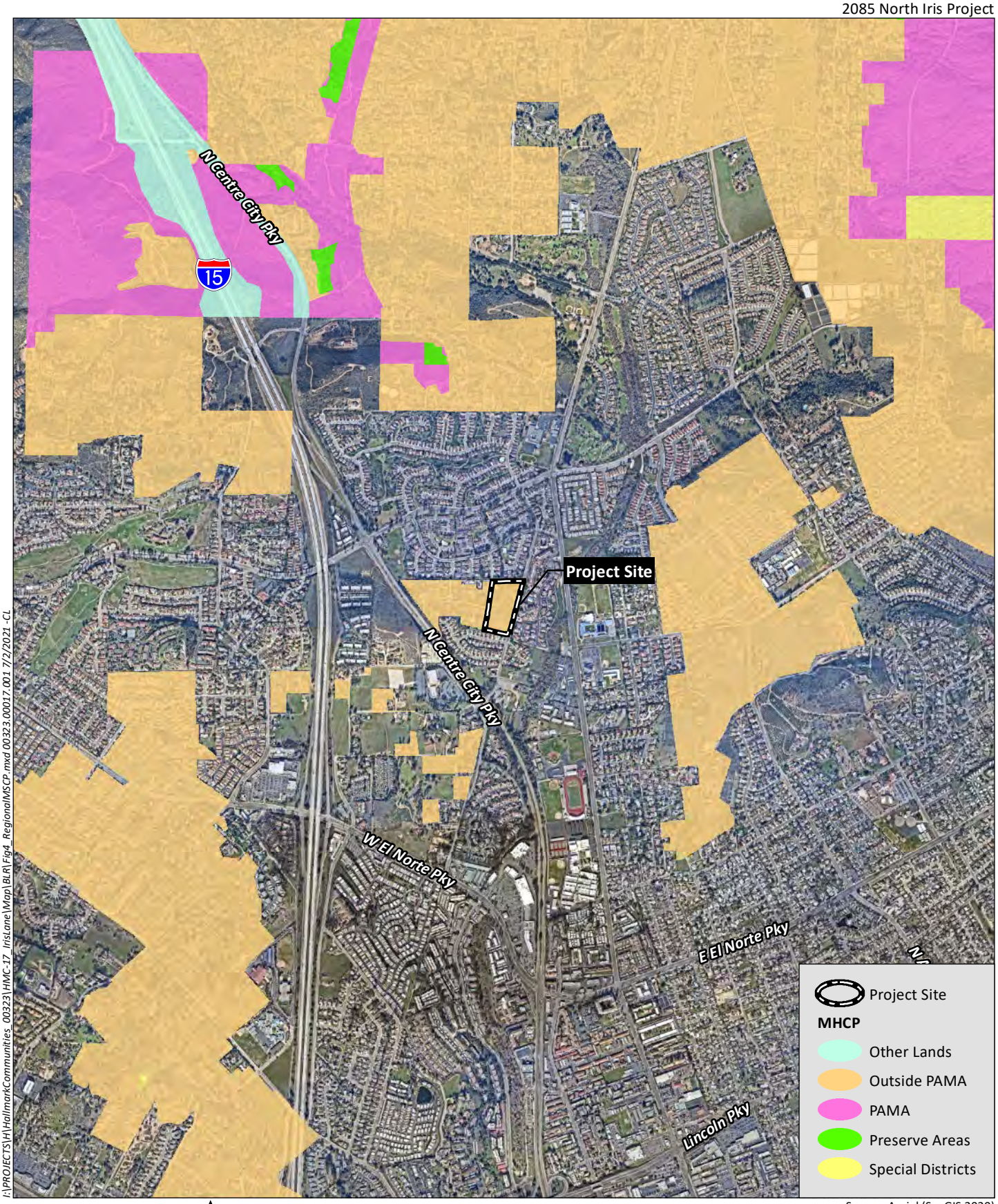
Source: Aerial (SanGIS 2020)

HELIX Environmental Planning

Project Vicinity

Figure 3



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0 2,000 Feet

Source: Aerial (SanGIS 2020)

HELIX Environmental Planning

Regional Context MHCP

Figure 4

1.2.2 Construction Activities

Construction activities would occur over an approximately two-year period and are anticipated to begin as early as 2022 and end in 2023. Construction timing would be arranged to avoid the bird nesting season. Construction activities would involve existing structure demolition, site preparation, grading and debris removal, paving, new building construction, and architectural coating that would occur consecutively. Demolition equipment would consist of concrete/industrial saws, excavators, and tractors, loaders, and/or backhoes; site preparation equipment would include rubber-tire loaders and tractors, loaders, and/or backhoes; grading equipment would consist of excavators, graders, rubber-tire dozers, and tractors, loaders, and/or backhoes; paving equipment would include pavers, paving equipment, and rollers; building construction equipment would include cranes, forklifts, generator sets, tractors, loaders, and/or backhoes, and welders; and architectural coating equipment would include air compressors.

Temporary erosion control measures, such as sandbag barriers, fiber rolls, wood mulching, soil binders, geotextiles, plastic covers, erosion control blankets/mats, silt fencing, native habitat revegetation, and construction personnel training are among the best management practices that would be implemented during, and immediately following, construction to minimize impacts to biological resources and water quality. Further, a biologist would be present on-site throughout the project to monitor construction for environmental compliance.

2.0 METHODS

2.1 LITERATURE REVIEW

Prior to conducting biological field surveys, HELIX conducted a thorough review of relevant maps, databases, and literature pertaining to biological resources known to occur within the project site. HELIX also reviewed a previous biological due diligence completed for the project area by others in 2020 (HELIX 2020). Recent and historical aerial imagery, USGS topographic maps, soils maps (Natural Resource Conservation Service [NRCS] 2021), and other maps of the project site and vicinity were acquired and reviewed to obtain updated information on the natural environmental setting.

In addition, a query of special status species and habitats databases was conducted, including the USFWS species records (USFWS 2021a), California Department of Fish and Wildlife (CDFW), California Natural Diversity Database (CNDDB; CDFW 2021a), Calflora database (Calflora 2021), SanBIOS and California Native Plant Society (CNPS) Inventory of Rare and Endangered Plants (CNPS 2021). The USFWS' National Wetlands Inventory was also reviewed (USFWS 2021b). Any recorded locations of species, habitat types, wetlands, and other resources were mapped and overlain onto aerial imagery using Geographic Information Systems. Data pertaining to the MHCP was also reviewed.

2.2 BIOLOGICAL SURVEYS

2.2.1 General Biological Survey

HELIX biologist Amy Mattson conducted a general biological survey of the project study area (i.e., project site and surrounding areas within 150 feet) on August 12, 2020, to map existing vegetation communities, evaluate habitats for the potential to support sensitive species, and note other potentially

sensitive biological resources that occur or may occur on-site and in the immediate vicinity. Rare plant surveys were conducted on April 21, 2021 and June 15, 2021 by Ms. Mattson; oak trees were also mapped during the June 2021 site visit. A follow up survey was conducted by HELIX on November 3, 2021, to address a comment related to the project's effect on mature and protected oak trees located on- and off-site. Coast live oaks along the southern boundary of the study area were assessed to determine if they constitute a coast live oak woodland. During this survey it was noted that several trees adjacent to the southern edge of the study area had been cut down since the previous survey. These trees occur within a Vallecitos Water District easement. This report reflects trees present as of November 3, 2021. The project site was surveyed on foot with the aid of a Global Positioning System (GPS) unit and a color aerial photograph. Incidental wildlife observations and inaccessible areas of the project site and in the immediate vicinity were visually inspected using binoculars. Representative photographs of the project site were taken and are provided as Attachment A (*Representative Photos*) hereto. Vegetation communities were classified and mapped in accordance with Holland (1986) and Oberbauer (1996).

Vegetation was mapped by HELIX on a 150-foot (1 inch = 150 feet) aerial photograph of the project site with an overlay of the study area boundary and were mapped to one-tenth of an acre (0.1 acre) for uplands and one-hundredth of an acre (0.01 acre) for wetlands. A list of all plant and animal species observed or detected within the project site was prepared. Plant species were identified in the field or later in the laboratory with the aid of voucher specimens. Animals were identified in the field by direct visual observation with the aid of binoculars or indirectly by detection of calls, tracks, burrows, or scat.

A formal jurisdictional delineation was conducted by HELIX biologists Jason Kurnow and Stacy Nigro on August 24, 2020, to map potential jurisdictional resources. Areas on-site considered to be potentially jurisdictional to the U.S. Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), and/or CDFW were preliminarily delineated based on the presence of bed and bank features, ordinary high water mark, drainage patterns, and riparian and wetland habitat types. Table 1, *Biological Surveys for the 2085 North Iris Project*, provides a summary of biological surveys conducted for the project.

Table 1
BIOLOGICAL SURVEYS FOR THE 2085 NORTH IRIS PROJECT

Survey Date	Personnel	Survey Type
August 12, 2020	Amy Mattson	General Biological
August 24, 2020	Jason Kurnow Stacy Nigro	Jurisdictional Delineation
April 21, 2021	Amy Mattson	Rare Plant
June 15, 2021	Amy Mattson	Rare Plant and Oak Tree Mapping
November 3, 2021	Amy Mattson	Oak Tree Mapping and Coast Live Oak Woodland Assessment

2.2.2 Jurisdictional Delineation

HELIX biologists Jason Kurnow and Stacy Nigro preliminarily identified and mapped jurisdictional aquatic resources potentially subject to U.S. Army Corps of Engineers (USACE) jurisdiction pursuant to Section 404 of the Clean Water Act (CWA), Regional Water Quality Control Board (RWQCB) jurisdiction pursuant to Section 401 of the Clean Water Act and State Porter-Cologne Water Quality Control Act, and streambed and riparian habitat potentially subject to CDFW jurisdiction pursuant to Sections 1600 et

seq. of the California Fish and Game (CFG) Code on August 24, 2020. Jurisdictional aquatic resources were identified and mapped based on vegetation communities and hydrologic characteristics, in accordance with current guidelines. The extents of potentially jurisdictional resources were recorded on-site using a GPS. Prior to the delineation, recent aerial photographs (1"=80'), topographic maps (1"=80'), soil mapping, National Wetlands Inventory mapping, and USGS topographical maps were reviewed to determine the location of potential jurisdictional areas. The delineation was conducted on foot with the aid of 1”=80’ scale aerials and topographic maps. Potential aquatic resources evaluated within the project site included drainage features, depressions, and/or wetland vegetation that crossed or were adjacent to the proposed project.

Waters of the United States

Potential USACE-jurisdictional waters of the United States were generally determined based on the presence of ponded water, a discernible ordinary high-water mark (OHWM), and/or wetland conditions expressed by three parameters (vegetation, hydrology, and soils) established for wetland delineations, as described within the Wetlands Delineation Manual (Environmental Laboratory 1987) and Arid West Regional Supplement (USACE 2008). The OHWM was identified according to “A Field Guide to the Identification of the Ordinary High-Water Mark in the Arid West Region of the Western United States” (Lichvar and McColley 2010). Mapping of drainage features was performed in the field based on the OHWM and surface indications of hydrology. No soil pits were dug as hydrology and aquatic vegetation extents were evident. Areas were determined to be potential wetland waters of the United States if there was a dominance of hydrophytic vegetation, hydric soils, and wetland hydrology indicators. Areas were determined to be non-wetland waters of the United States if there was evidence of regular surface flow within an OHWM, but the vegetation criterion was not met. Hydric soils were presumed present aquatic vegetation was mapped.

Waters of the State

Potential RWQCB-jurisdictional areas were delineated in the same manner as potential waters of the United States. All waters of the United States were considered waters of the State subject to RWQCB jurisdiction pursuant to CWA Section 401. Ephemeral features, while not considered waters of the United States, were determined to be waters of the State under regulatory jurisdiction of the RWQCB pursuant to the State Porter-Cologne Water Quality Control Act.

Streambed and CDFW Jurisdictional Habitat

Potential CDFW-jurisdictional streambed and CDFW-jurisdictional habitat were determined based on the presence of wetland vegetation or regular surface flow within a measurable bed and bank. Streambeds within CDFW jurisdiction were delineated based on the definition of streambed as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supporting fish or other aquatic life. This includes watercourses having a surface or subsurface flow that support riparian vegetation” (Title 14, Section 1.72). Potential CDFW-jurisdictional unvegetated streambed encompasses the top-of-bank to top-of-bank width for the features within the project site. Jurisdictional habitat is not defined in Title 14, but the section refers to vegetation and habitat associated with a stream. The CDFW jurisdictional habitat includes all disturbed wetland habitat located within, and extending beyond the banks of a stream. Definitions of CDFW jurisdictional areas are presented in Appendix G of this report.

2.3 SURVEY LIMITATIONS

Noted animal species were identified by direct observation, vocalizations, or the observance of scat, tracks, or other signs. However, the lists of species identified are not necessarily comprehensive accounts of all species that use the project site, as species that are nocturnal, secretive, or seasonally restricted may not have been observed. Those species that are of special status and have potential to occur in the project site; however, are still addressed in this report.

2.4 NOMENCLATURE

Nomenclature for this report is taken from Holland (1986) and Oberbauer (2008) for vegetation communities; Jepson eFlora (2021) and Baldwin et al. (2012) for plants; North American Butterfly Association (2021) for butterflies; Society for the Study of Amphibians and Reptiles (2021) for reptiles and amphibians; American Ornithological Society (2021) for birds; and Bradley et al. (2014) for mammals. Plant species status is from the CNPS Rare Plant Inventory (2021) and CDFW (2021a). Animal species status is from CDFW (2021b).

3.0 EXISTING CONDITIONS

3.1 GENERAL LAND USES

The project site is bounded on all sides by residential development. Land uses further south and west of the project site include commercial development.

3.2 TOPOGRAPHY AND SOILS

Elevations within the project site range between approximately 705 and 775 feet above mean sea level. Three soil types are mapped on the project site, belonging to two soil series: Escondido very fine sandy loam, 5 to 9 percent slopes; Escondido very fine sandy loam, 9 to 15 percent slopes, eroded; and Placentia sandy loam, thick surface, 2 to 9 percent slopes (Figure 5, *Soils*). Of these soil mapping unit types, no series is known to support sensitive plant species in the region.

3.3 VEGETATION COMMUNITIES

A total of five vegetation communities or land use types occur within the project site: disturbed wetland, non-native grassland, non-native vegetation, disturbed habitat, and urban/developed land (Table 2, *Existing Vegetation Communities and Land Covers within the Project Site*; Figure 6, *Existing Vegetation Communities and Land Cover Types*).

Table 2
EXISTING VEGETATION COMMUNITIES AND LAND COVERS WITHIN THE PROJECT SITE[1]

Vegetation Community or Land Cover Type[1]	Acres[2]
Sensitive	
Disturbed Wetland (11200)	0.10
Non-native Grassland (42200)	2.5
Subtotal Sensitive Communities	*2.60*

Vegetation Community or Land Cover Type[1]	Acres[2]
Non-Sensitive	
Non-native Vegetation (11000)	0.1
Disturbed Habitat (11300)	0.9
Urban/Developed (12000)	3.9
Subtotal Non-Sensitive Communities	*4.9*
TOTAL	**7.50**

[1] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008) and are listed by Habitats and Tiers within the MHCP.

[2] Upland habitats are rounded to the nearest 0.1 acre, while wetland habitats are rounded to the nearest 0.01; thus, total reflects rounding.

3.3.1 Disturbed Wetland (11200)

This vegetation community is dominated by exotic wetland species that invade areas that have been previously disturbed or undergone periodic disturbances. These non-natives become established more readily following natural or human-induced habitat disturbance than the native wetland flora. Characteristic species of disturbed wetlands include giant reed (*Arundo donax*), ox tongue (*Helminthotheca echioides*), cocklebur (*Xanthium strumarium* var. *canadense*), and tamarisk (*Tamarix* sp.). Dominant species in this vegetation community within the project site include curly dock (*Rumex crispus*), dallisgrass (*Paspalum dilatatum*), tall flatsedge (*Cyperus eragrostis*), annual beard grass (*Polypogon monspeliensis*), and fat-hen (*Atriplex prostrata*). Disturbed wetland on-site is associated with a channelized drainage traversing the southern portion of the project site from west to east.

Disturbed Wetland occupies approximately 0.10 acre of the project site.

3.3.2 Non-native Grassland (42200)

Non-native grassland is a dense to sparse cover of annual grasses, often associated with numerous species of showy-flowered native annual forbs. This association occurs on gradual slopes with deep, fine-textured, usually clay soils. Characteristic species include oats (*Avena* sp.), red brome (*Bromus rubens*), ripgut (*B. diandrus*), ryegrass (*Lolium* sp.), and mustard (*Brassica* sp.). Dominant species in this vegetation community within the project site include Bermuda grass and English plantain.

Non-native grassland occupies approximately 2.5 acres of the project site.

3.3.3 Non-native Vegetation (11000)

Non-native vegetation is a category describing stands of naturalized trees and shrubs (e.g., acacia [*Acacia* sp.], pepper tree [*Schinus* sp.]), many of which are also used in landscaping. Dominant species in this vegetation community within the project site include Peruvian pepper tree (*Schinus molle*) with an understory of oats.

Non-native Vegetation occupies approximately 0.1 acre of the project site.

3.3.4 Disturbed Habitat (11300)

Disturbed habitat includes land cleared of vegetation, land containing a preponderance of non-native plant species such as ornamentals or ruderal exotic species that take advantage of disturbance (previously cleared or abandoned landscaping), or land showing signs of past or present animal usage

that removes any capability of providing viable habitat. Disturbed habitat resembles the non-native grassland on-site but contains less non-native grass, has a higher predominance of bare ground, and/or disturbance-related plant species. Dominant species in this plant community within the project site include Bermuda grass (*Cynodon dactylon*), tarplant (*Deinandra fasciculata*), dove weed (*Croton setigerus*), and horseweed (*Erigeron canadensis*).

Disturbed Habitat occupies approximately 0.9 acre of the project site.

3.3.5 Urban/Developed Lands (12000)

Developed land is where permanent structures and/or pavement have been placed, which prevents the growth of vegetation, where landscaping is clearly tended and maintained, and land experiencing heavy usage. Within the project site, urban/developed land consists of roads, residential housing, landscaping, ornamental plantings, and a horse corral. Landscaping associated with developed land also includes areas planted with coast live oak trees. Within the project site, coast live oak trees occur as a cluster of oak trees at/adjacent to 2039 North Iris Lane and scattered individuals. This cluster of oak trees occurs on historic aerial imagery only after construction of the residence in 1959 (NETROnline 2021; Zillow 2021). This area does not include typical understory species associated with coast live oak woodland habitat. Because the oak trees appear to have been installed as landscaping and do not function as coast live oak woodland, these areas have been categorized as developed land. The row of coast live oak trees along Robin Hill Lane, which overhang the western side of the property at 2039 North Iris Lane, also occurs on historic imagery after residential construction and does not include understory species associated with coast live oak woodland habitat. There are coast live oak trees on a narrow strip of land associated with a Vallecitos Water District easement to the south of the project site, between the project site and a wooden fence bordering houses built along Cheyenne Lane. These oak trees overhang the southern edge of the project site. These trees appear on historic aerial imagery after 1985 when grading occurred for residential development (Google Earth 2021) and do not include understory species associated with coast live oak woodland habitat. Because oak trees overhanging the project site (on both the southern and western edges) appear to be associated with residential development and these areas do not function as coast live oak woodland, these areas have been categorized as developed land.

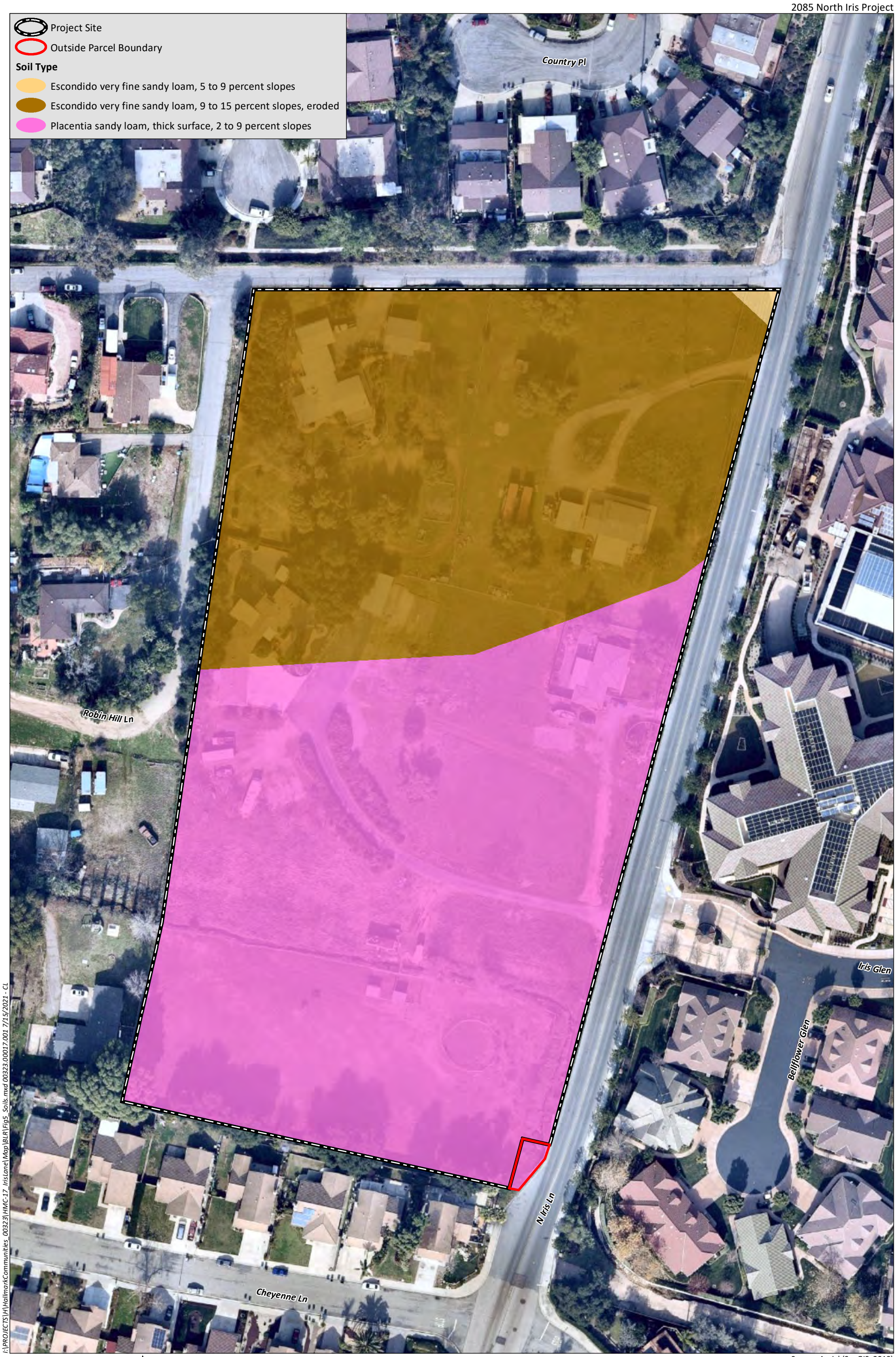
Urban/Developed land occupies approximately 3.9 acres of the project site.

3.4 PLANTS

A total of 86 plant species were observed within, or adjacent to, the project study area during the biological surveys for the project, of which 58 (67 percent) are non-native species (Appendix A, *Plant Species Observed*).

3.5 ANIMALS

A total of 14 animal species were observed/detected within, or adjacent to, the project study area during the biological surveys for the project, including three invertebrates, one amphibian, one mammal, and nine bird species (Appendix B, *Animal Species Observed or Detected*).

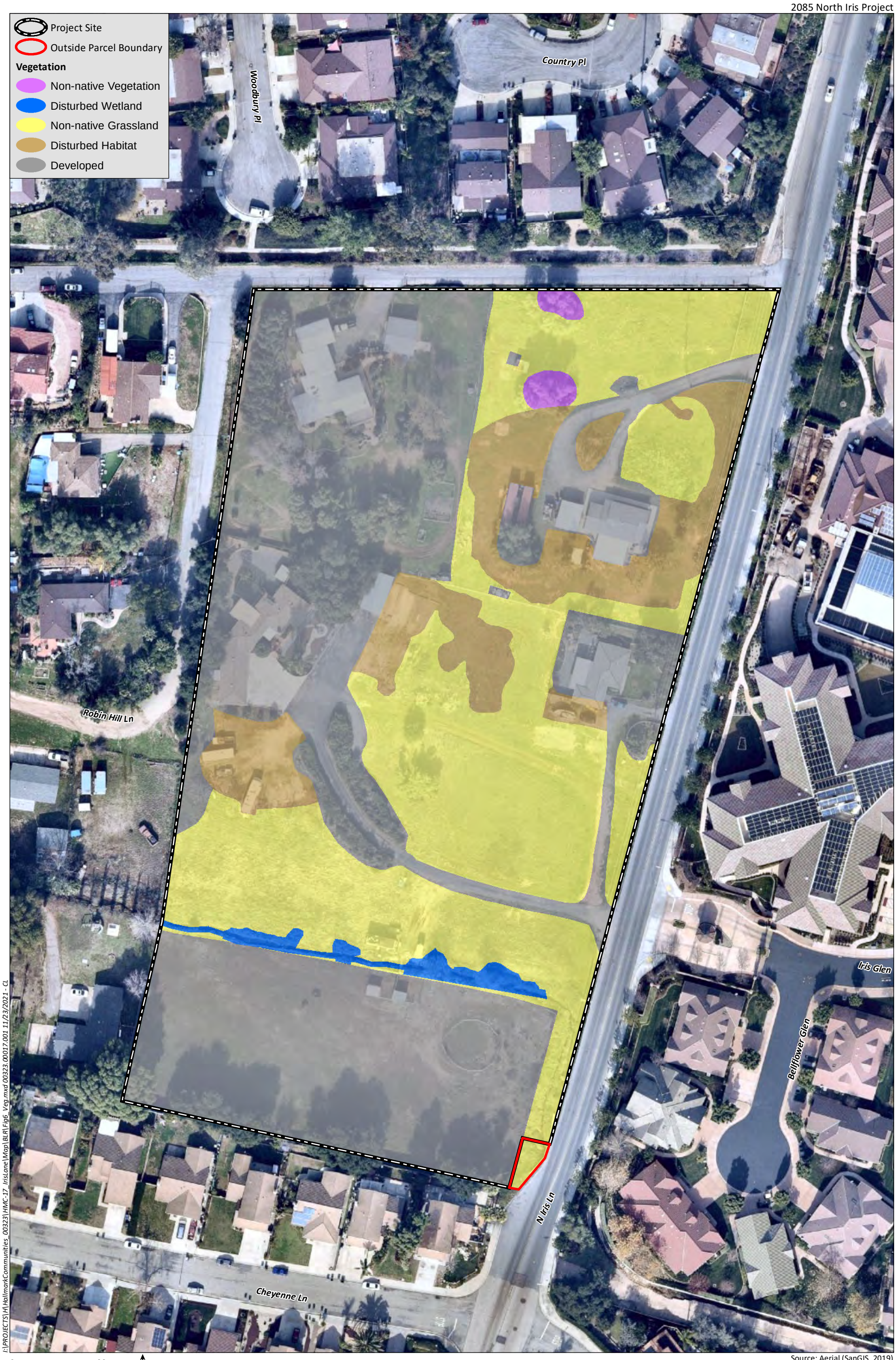


Source: Aerial (SanGIS, 2019)

HELIX Environmental Planning

Soils

Figure 5



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Source: Aerial (SanGIS, 2019)

HELIX Environmental Planning

Existing Vegetation Communities and Land Cover Types

Figure 6

3.6 SENSITIVE RESOURCES

3.6.1 Sensitive Vegetation Communities/Habitats

Sensitive vegetation communities/habitat types are defined as land areas that support unique vegetation communities or the habitats of rare or endangered species or subspecies of animals or plants as defined by Section 15380 of the State CEQA Guidelines.

The rarity of natural communities is evaluated by CDFW using the NatureServe's Heritage Methodology (Faber-Langendoen et al 2012), in which communities are given a G (global) and S (State) rank based on their degree of imperilment (as measured by rarity, trends, and threats). Communities are assigned an overall rank of 1 through 5, with 1 being considered very rare and threatened and 5 being considered demonstrably secure. Communities with a Rarity Ranking of S1 (critically imperiled), S2 (imperiled), or S3 (vulnerable) are considered sensitive by the CDFW.

Sensitive vegetation communities/habitat types are defined as land that supports unique vegetation communities or the habitats of rare or endangered species or subspecies of animals or plants as defined by Section 15380 of the State CEQA Guidelines. Two sensitive vegetation communities/habitat types were mapped within the project site: disturbed wetland and non-native grassland. Non-native vegetation, disturbed habitat, and developed lands do not meet the definition of sensitive habitat under CEQA.

3.6.2 Special Status Plant Species

Special status plant species have been afforded special status and/or recognition by the USFWS and/or CDFW. They may also be included in the CNPS' Inventory of Rare and Endangered Plants. Their status is often based on one or more of three distributional attributes: geographic range, habitat specificity, and/or population size. Sensitive species are those considered unusual or limited in that they are: (1) only found in the region; (2) a local representative of a species or association of species not otherwise found in the region; or (3) severely depleted within their ranges or within the region. No sensitive plant species have been recorded on-site or were observed within the project site during the general biological surveys for the project.

Special Status Plant Species with Potential to Occur

A search of CNPS and CNDDB records (one-mile radius from the project site) was used to develop a matrix of sensitive plant species that may have potential to occur on-site due to the presence of suitable habitat (e.g., vegetation communities, soils, elevation, and geographic range, life form/blooming period, etc.). The matrix is presented in Appendix C, *Special Status Plant Species Observed or with Potential to Occur*, and includes 24 special status plant species, their favorable habitat conditions, and their potential to occur on-site.

No special status plant species were observed within the project site during general biological surveys occurring in 2020 and rare plant surveys occurring in 2021. No special status plant species were determined to have a high or moderate potential to occur due to the lack of suitable habitat within the project site. None of the 24 special status plant species are expected to occur at the project site.

3.6.3 Special Status Animal Species

Special status animal species include those that have been afforded special status and/or recognition by the USFWS and/or CDFW. In general, the principal reason an individual taxon (species or subspecies) is given such recognition is the documented or perceived decline or limitations of its population size or geographical extent and/or distribution, resulting in most cases from habitat loss. No special status animal species were observed within the project site during the 2020 biological surveys.

Special Status Animal Species with Potential to Occur

A search of CNDDB and USFWS records (one-mile radius from the project site) was used to develop a matrix of sensitive animal species that may have potential to occur on-site due to the presence of suitable habitat (e.g., vegetation communities, soils, elevation, geographic range, etc.). The matrix is presented in Appendix D, *Special Status Animal Species Observed or with Potential to Occur*, and includes eight special status animal species, their favorable habitat conditions, and their potential to occur on-site.

No special status animal species were observed within or adjacent to the project. No special status animal species were determined to have a high or moderate potential to occur due to the lack of suitable habitat within the project site. All eight special status animal species have low potential to occur, or are presumed to be absent, are not expected, or have no to occur at the project site.

3.6.4 Nesting Birds

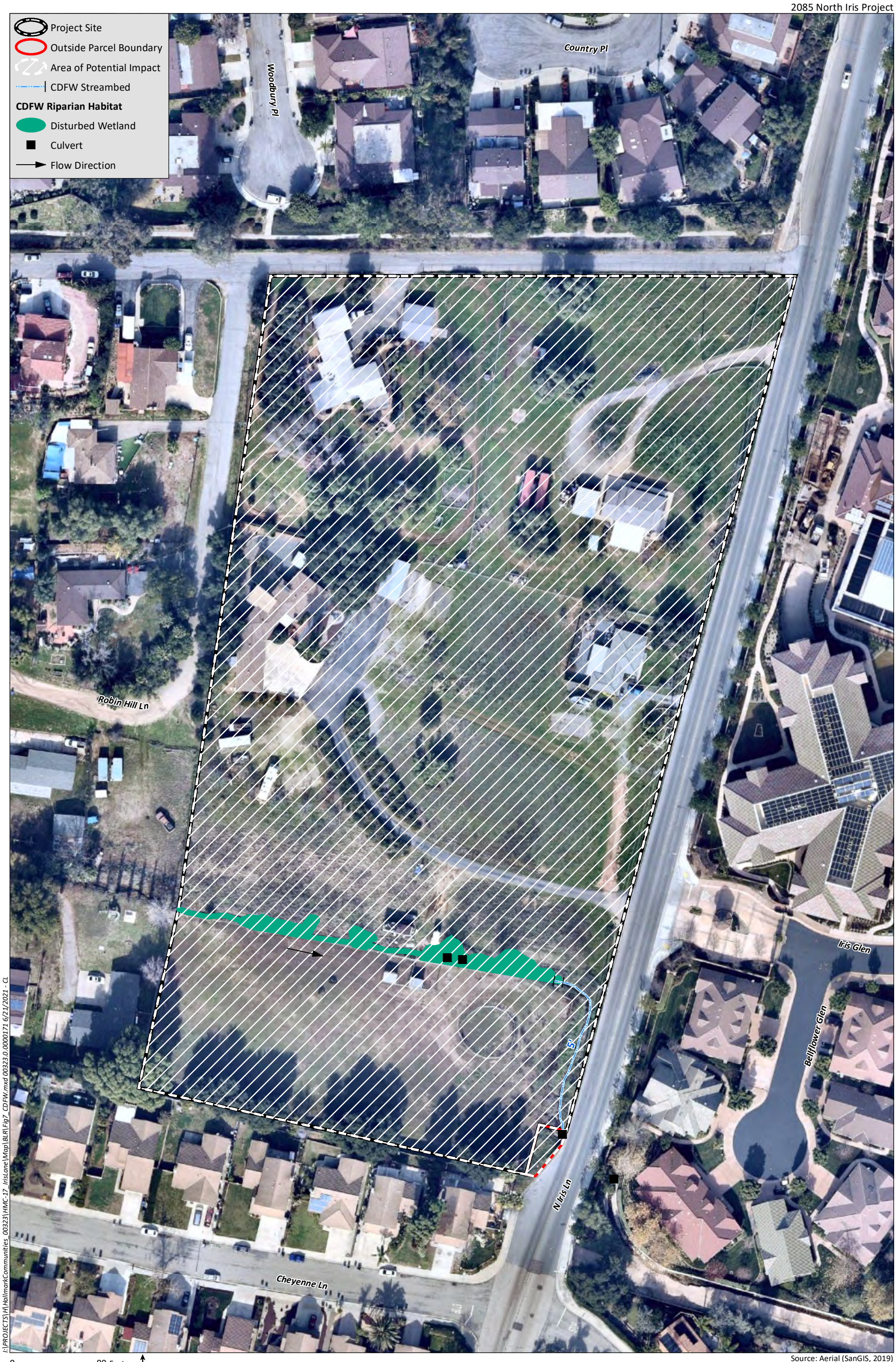
Trees and shrubs both within and adjacent to the project site could provide suitable nesting habitat for bird species, including raptors, known to occur in the region.

3.7 JURISDICTIONAL AQUATIC RESOURCES

Results of the delineation concluded there are potentially jurisdictional resource types on-site, described in Sections 3.7.1 and 3.7.2. A summary of the acreages is provided below in Table 3, *Waters of the United States within the Project Site* and Table 4, *CDFW Jurisdiction within the Project Site,* and presented on Figure 7, *Potential CDFW Jurisdictional Resources,* Figure 8, *Potential USACE Jurisdictional Resources,* and Figure 9, *Potential RWQCB Jurisdictional Resources*.

3.7.1 USACE and RWQCB Jurisdiction

USACE and RWQCB jurisdictional areas identified within the project site are associated with the unnamed drainage located adjacent to the horse stables, including 0.05 acre and 494 linear feet of non-wetland waters of the United States (Figure 8; Table 3, *Waters of the United States Within the Project Site*). The project site does not contain wetland waters of the United States/State.



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Source: Aerial (SanGIS, 2019)

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Potential CDFW Jurisdictional Resources

Figure 7



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Source: Aerial (SanGIS, 2019)

HELIX Environmental Planning

Potential USACE Jurisdictional Resources

Figure 8



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Source: Aerial (SanGIS, 2017)

HELIX Environmental Planning

Potential RWQCB Jurisdictional Resources

Figure 9

Table 3
WATERS OF THE UNITED STATES WITHIN THE PROJECT SITE

Habitat	Acreage[1]	Linear Feet
Non-wetland Waters of the United States		
Streambed	0.05	494
Total	**0.05**	**494**

[1] Habitat rounded to the nearest 0.01 acre; total reflects rounding.

3.7.2 CDFW Jurisdiction

CDFW jurisdictional areas within the project site area are also associated with the unnamed drainage located adjacent to the horse stables (Figure 7) and includes 0.10 acre of jurisdictional habitat (disturbed wetland) and 0.02 acre of streambed (Figure 7; Table 4, *CDFW Jurisdictional Impacts Within the Project Site*). The portion of the unnamed drainage occurring within jurisdictional habitat is classified as jurisdictional habitat and not streambed since the species composition within the drainage is the same as the adjacent disturbed wetland areas.

Table 4
CDFW JURISDICTION WITHIN THE PROJECT SITE

Habitat	Acreage[1]
Disturbed Wetland	0.10
Streambed	0.02
Total	**0.12**

[1] Habitat rounded to the nearest 0.01 acre; total reflects rounding.

3.8 WILDLIFE CORRIDOR/CORE WILDLIFE AREAS

Wildlife corridors connect otherwise isolated pieces of habitat and allow movement or dispersal of plants and animals. Local wildlife corridors allow access to resources such as food, water, and shelter within the framework of their daily routine. Regional corridors provide these functions over a larger scale and link two or more large habitat areas, allowing the dispersal of organisms and the consequent mixing of genes between populations. A corridor is a specific route that is used for the movement and migration of species and may be different from a linkage in that it represents a smaller or narrower avenue for movement. A linkage is an area of land that supports or contributes to the long-term movement of animals and genetic exchange by providing live-in habitat that connects to other habitat areas. Many linkages occur as stepping-stone linkages that are made up of a fragmented archipelago arrangement of habitat over a linear distance.

The project site is not located within the BCLA, the regional area identified as important to the conservation of species within the Draft Escondido SAP. Furthermore, the project site's location within residential development, the highly disturbed nature of the vegetation communities within the project site, and the limited size of resources or sensitive vegetation communities on-site would provide only marginal-quality foraging or breeding habitat for native species. Small terrestrial wildlife species (i.e., birds, mammals, reptiles, etc.) would use the project site. Given the project site location is immediately surrounded by residential development, the project site itself does not serve as a wildlife corridor or habitat linkage for the region.

4.0 REGULATORY FRAMEWORK

Biological resources in the project site are subject to regulatory review by federal, State, and local agencies. Under CEQA, impacts associated with a proposed project are assessed with regard to significance criteria determined by the CEQA Lead Agency (in this case, the City of Escondido, pursuant to CEQA Guidelines. Biological resources-related laws and regulations that apply to the project include the Federal Endangered Species Act (FESA), Migratory Bird Treaty Act (MBTA), CWA, CEQA, California Endangered Species Act (CESA), and CFG Code.

4.1 FEDERAL

4.1.1 Federal Endangered Species Act

Administered by the USFWS, the federal ESA provides the legal framework for the listing and protection of species (and their habitats) that are identified as being endangered or threatened with extinction. Actions that jeopardize endangered or threatened species and the habitats upon which they rely are considered take under the ESA. Section 9(a) of the ESA defines take as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct." "Harm" and "harass" are further defined in federal regulations and case law to include actions that adversely impair or disrupt a listed species' behavioral patterns.

Sections 7 and 4(d) of the Federal ESA regulate actions that could jeopardize endangered or threatened species. Section 7, administered by the USFWS, describes a process of Federal interagency consultation for use when Federal actions may adversely affect listed species. A Section 7 Consultation (formal or informal) is required when there is a nexus between a listed species' use of a site and if the project is funded (wholly or in part) by the State Revolving Fund. A biological assessment is required for any major construction activity if it may affect listed species. Take can be authorized via a letter of Biological Opinion, issued by the USFWS, for non-marine related listed species issues. The project would be funded in part by the State Revolving Fund. A Section 7 Consultation would be required if impacts to a federally listed species would occur.

Identified by the USFWS, critical habitat is defined as areas of land that are considered necessary for endangered or threatened species to recover. The ultimate goal is to restore healthy populations of listed species within their native habitat, so they can be removed from the list of threatened or endangered species. Once an area is designated as critical habitat pursuant to the federal ESA, all federal agencies must consult with the USFWS to ensure that any action they authorize, fund, or carry out is not likely to result in the destruction or adverse modification of the critical habitat.

4.1.2 Migratory Bird Treaty Act

All migratory bird species that are native to the United States or its territories are protected under the federal MBTA, as amended under the Migratory Bird Treaty Reform Act of 2004 (FR Doc. 05-5127). The MBTA is generally protective of migratory birds but does not actually stipulate the type of protection required. In common practice, the MBTA is used to place restrictions on the disturbance of active bird nests during the nesting season (generally February 15 to August 31, but as early as January 1 for some raptors). In addition, the USFWS commonly places restrictions on disturbances allowed near active raptor nests.

4.1.3 Clean Water Act and Rivers and Harbors Act

Federal wetland regulation (non-marine issues) is guided by the Rivers and Harbors Act of 1899 and the CWA. The Rivers and Harbors Act deals primarily with discharges into navigable waters, while the purpose of the CWA is to restore and maintain the chemical, physical, and biological integrity of all waters of the United States. Permitting for projects filling waters of the United States is overseen by the USACE under Section 404 of the CWA. Most development projects are permitted using Individual Permit or Nationwide Permit instruments.

4.2 STATE

4.2.1 California Environmental Quality Act

Primary environmental legislation in California is found in CEQA and its implementing guidelines (State CEQA Guidelines), which require that projects with potential adverse effects (i.e., impacts) on the environment undergo environmental review. Adverse environmental impacts are typically mitigated as a result of the environmental review process in accordance with existing laws and regulations.

As part of the CEQA process, a variety of agencies and the public are invited to comment on the project. Upon receipt of the Notice of Preparation of the project's Draft Environmental Impact Report (DEIR), the CDFW provided some recommendations for tree removal. CDFW recommendations are presented in this report, which informs the DEIR. First, the CDFW recommends replacing all mature trees removed as a result of the proposed work activities (including non-native trees) with native trees at a minimum 1:1 ratio. This recommendation is intended to prevent habitat loss for native fauna and any resulting loss of biodiversity. To address the loss of trees, the project will comply with the City of Escondido's tree regulations.

Secondly, the project's removal of trees has the potential to result in the spread of tree insect pests and disease into areas not currently exposed to these stressors. This could result in expediting the loss of oaks, alders, sycamore, and other trees in California which support a high biological diversity including special status species. The CDFW recommends an infectious tree disease management plan be prepared for the project. This plan should include description of how the infectious tree disease management plan will be implemented. All trees that would be removed by the project should be inspected for contagious tree diseases including, but not limited to thousand canker fungus (*Geosmithia morbida*), polyphagous shot hole borer (*Euwallacea* spp.), and goldspotted oak borer (*Agrilus auroguttatus*). To avoid the spread of infectious tree diseases, diseased trees should not be transported from the project site without first being treated using best available management practices relevant for each tree disease observed. This recommendation is incorporated into Mitigation Measure BIO-5, below.

4.2.2 California Endangered Species Act

The CESA established that it is state policy to conserve, protect, restore, and enhance state endangered species and their habitats. Under state law, plant and animal species may be formally designated rare, threatened, or endangered by official listing by the California Fish and Game Commission. The CESA authorizes that private entities may "take" plant or wildlife species listed as endangered or threatened under the FESA and CESA, pursuant to a federal Incidental Take Permit (ITP) if the CDFW certifies that the incidental take is consistent with CESA (CFG Code Section 2080.1[a]). For state-only listed species, Section 2081 of CFG Code authorizes the CDFW to issue an Incidental Take Permit for state listed

threatened and endangered species if specific criteria are met. The MHCP is a regional Natural Communities Conservation Plan that was granted take coverage under Section 2081 of the CESA.

4.2.3 California Fish and Game Code

The CFG Code provides specific protection and listing for several types of biological resources. Section 1600 of CFG Code requires a Streambed Alteration Agreement (SAA) for any activity that would alter the flow, change, or use any material from the bed, channel, or bank of any perennial, intermittent, or ephemeral river, stream, and/or lake. Typical activities that require an SAA include excavation or fill placed within a channel, vegetation clearing, structures for diversion of water, installation of culverts and bridge supports, cofferdams for construction dewatering, and bank reinforcement. Notification is required prior to any such activities.

If the project could result in adverse impacts to a state-listed species that is not also federally listed, Section 2081(b) of the California Fish and Game Code provides a mechanism for CDFW to permit, on a project-specific basis, incidental take of species listed under CESA. Preparation and submittal of an ITP application with CDFW by the project proponent is required. The application must include project details, potential project impacts, an analysis of "jeopardy" for the continued existence of the impacted species, and species-specific mitigation and avoidance measures that would fully mitigate for the project impacts.

Pursuant to CFG Code Section 3503, it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird, except as otherwise provided by this code or any regulation made pursuant thereto. Raptors and owls and their active nests are protected by CFG Code Section 3503.5, which states that it is unlawful to take, possess, or destroy any birds of prey or to take, possess, or destroy the nest or eggs of any such bird unless authorized by the CDFW. Section 3513 states that it is unlawful to take or possess any migratory non-game bird as designated in the MBTA. These regulations could require that construction activities (particularly vegetation removal or construction near nests) be reduced or eliminated during critical phases of the nesting cycle unless surveys by a qualified biologist demonstrate that nests, eggs, or nesting birds will not be disturbed, subject to approval by CDFW and/or USFWS.

4.2.4 Natural Communities Conservation Planning Act

The Natural Communities Conservation Planning (NCCP) program is a cooperative effort to protect habitats and species. It began under the state's NCCP Act of 1991, legislation broader in its orientation and objectives than the CESA or FESA. These laws are designed to identify and protect individual species that have already declined significantly in number. The NCCP Act of 1991 and the associated Southern California Coastal Sage Scrub NCCP Process Guidelines (1993), Southern California Coastal Sage Scrub NCCP Conservation Guidelines (1993), and NCCP General Process Guidelines (1998) have been superseded by the NCCP Act of 2003.

The primary objective of the NCCP program is to conserve natural communities at the ecosystem level while accommodating compatible land use. The program seeks to anticipate and prevent the controversies and gridlock caused by species' listings by focusing on the long-term stability of wildlife and plant communities and including key interests in the process.

This voluntary program allows the state to enter into planning agreements with landowners, local governments, and other stakeholders to prepare plans that identify the most important areas for a

threatened or endangered species, and the areas that may be less important. These NCCP plans may become the basis for a state permit to take threatened and endangered species in exchange for conserving their habitat. The CDFW and USFWS worked to combine the NCCP program with the federal habitat conservation plan process to provide take permits for state and federal listed species. Under the NCCP, local governments, such as the County, can take the lead in developing these NCCP plans and become the recipients of state and federal take permits.

4.3 LOCAL

North County Multiple Habitat Conservation Program

The North County MHCP is a comprehensive, multiple jurisdictional planning program designed to develop an ecosystem preserve in northwestern San Diego County. This report acknowledges the MHCP; however, as stated previously, the MHCP is not fully adopted. Thus, the MHCP is not discussed further herein.

Escondido Draft Subarea Plan

This report acknowledges the City's Draft SAP; however, as stated previously, the SAP is a draft and is not formally adopted. Thus, the MHCP is not discussed further herein.

Escondido Municipal Code–Vegetation and Tree Removal

The City establishes regulations and standards for the preservation, protection, and selected removal of vegetation, including mature and protected trees, which are defined below. A City-issued vegetation removal permit or a grading permit is required prior to clearing, pruning, or destroying vegetation and prior to any encroachments by construction activities that disturb the root system within the dripline (e.g., the outer extent margin of a tree's canopy) of any mature and protected trees. Issuance of a vegetation removal permit requires the submittal of a tree survey and, as applicable, a tree protection and/or replacement mitigation plan. Issuance of a grading permit would also require location and identification of any existing sensitive biological habitat, mature trees, and protected trees. The grading permit would state any required mitigation for loss of these resources. Tree protection, removal, and replacement standards are outlined in the City's General Plan and in Chapter 33 (Zoning), Article 55 (Grading and Erosion Control) of the City's Municipal Code (Ordinance 2001-21). The City's General Plan recognizes any oak tree species and other mature trees, as defined below, as significant aesthetic and ecological resources deserving protection within the boundaries of the City. Section 33-1052 and 33-1068 of the City's Municipal Code sets forth rules and standards related to mature tree removal, protection, and replacement.

Section 33-1502 (Definitions)

A mature tree is any self-supporting woody perennial plant, native or ornamental, with a single well-defined stem or multiple stems supporting a crown of branches. The single stem, or one of multiple stems of any mature oak tree (genus *Quercus*), shall have a diameter four inches or greater when measured at 4.5 feet diameter at breast height (DBH) above the tree's natural grade. All other mature trees shall have a DBH of eight inches, or greater, for a single stem or one of the multiple stems.

A protected tree is any oak that has a 10 inch or greater DBH, or any other tree species or individual specimen listed on the historic register, or determined to substantially contribute to the historic

character of a property or structure listed on the local historic register, pursuant to Article 40 of the Escondido Zoning Code.

Section 33-1068 (Vegetation Clearing and Protection)

Pursuant to this section regulations and standards are established to safeguard life and property and the public welfare concerning the preservation, protection, and selected removal of mature trees, protected trees, and historically significant trees which are located within the boundaries of the City.

A vegetation removal permit (or grading permit, as discussed above) and appropriate standards for the replacement of vegetation approved for removal is required prior to clearing, pruning, or destroying City regulated vegetation, and prior to any encroachments by construction activities that destroy or disturb the root system within the dripline of regulated trees. Issuance of a vegetation removal permit requires the submittal of a tree survey and if possible, a tree replacement and/or protection plan.

Section 33-1069 (Vegetation Protection and Replacement)

Pursuant to this section, every feasible effort shall be made to preserve sensitive habitat, sensitive species, mature trees, and protected trees in-place. Removal of sensitive biological habitat and sensitive species shall be mitigated either on-site or off-site by the planting of the same habitat species at a minimum 1:1 ratio. Higher replacement ratios, or different plant species, may be required by the director for conformance with other federal, state, or local codes and agreements in effect at the time of the review of the application. If replacement of sensitive biological species and/or habitat is not feasible on-site or off-site, other equivalent mitigation measures may be considered by the director.

If mature trees cannot be preserved on-site, they shall be replaced at a minimum ratio of one to one (1:1). If protected trees cannot be preserved on-site, they shall be replaced at a minimum ratio of two to one (2:1). However, the number, size, and species of replacement trees can be determined on a case-by-case basis by the City's Director of Planning and Building.

5.0 SIGNIFICANCE OF PROJECT IMPACTS AND PROPOSED MITIGATION

This section describes potential direct and indirect impacts on biological resources associated with the proposed project. Direct impacts immediately alter the affected biological resources such that those resources are eliminated temporarily or permanently. Indirect impacts can be short-term or long-term and incorporate areas adjacent to the project (i.e., edge effects). Examples of short-term indirect impacts include construction-related noises, dust, increased human presence, and hydrology modifications. Long-term indirect impacts primarily result from anthropogenic disturbances by humans such as noise, lighting, domesticated animals, spread of non-native ornamental and weedy plant species, and urban run-off (including potentially toxic or hazardous contaminants). The magnitude of an indirect impact can be the same as a direct impact; however, the effect usually takes a longer time to become apparent.

5.1 CRITERIA FOR DETERMINING IMPACT SIGNIFICANCE

The significance of impacts to biological resources present or those with potential to occur was determined based upon the sensitivity of the resource and the extent of the anticipated impacts. For certain highly sensitive resources (e.g., a federally listed species), any impact would be significant. Conversely, other resources that are of low sensitivity (e.g., species with a large, locally stable population in the County but declining elsewhere) could sustain some impact with a less than significant effect.

According to Appendix G of the CEQA Guidelines, project impacts to biological resources would be considered significant if they would:

(a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.

(b) Have a substantial adverse effect on any riparian habitat or sensitive natural community identified by local or regional plans, policies, regulations, or by CDFW or USFWS.

(c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling hydrological interruption, or other means.

(d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with an established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites.

(e) Conflict with local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.

(f) Conflict with provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

5.2 ISSUE 1: SPECIAL-STATUS SPECIES

Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the CDFW or USFWS?

5.2.1 Impact Analysis

5.2.1.1 Special Status Plant Species

Less than Significant. The project would have no impact on federal or State listed plant species (Figure 10, *Proposed Project Impacts*). No sensitive plant species have been recorded on-site, and none were observed within the project site during general biological surveys occurring in 2020 and rare plant surveys occurring in 2021. Additionally, no sensitive plant species have a high or moderate potential to occur on-site. Therefore, project impacts would not be considered significant.

5.2.1.2 Special Status Animal Species

Less than Significant with Mitigation. The project would result in no direct and/or indirect impacts on special status animal species during construction. No sensitive animal species have been recorded on-site, and none were observed within the project site during any of the biological surveys. Additionally, no sensitive animal species have a high or moderate potential to occur on-site. However, there is potential for general bird species or raptor species to nest within suitable habitat on the project site. Impacts to general nesting birds or raptors would be considered significant.

5.2.2 Mitigation Measures

BIO-1 **Nesting Bird and Raptor Avoidance**: Trimming, grubbing, and clearing of vegetation shall be avoided during the avian breeding season, which generally runs from February 15 to August 31 (as early as January 1 for some raptors) to the extent feasible. If trimming, grubbing, or clearing of vegetation is proposed to occur during the general avian breeding season, a qualified biologist shall conduct a pre-construction survey no more than seven days prior to vegetation clearing to determine if active bird nests are present in the affected areas. If there are no nesting birds (including nest building or other breeding/nesting behavior) within this area, trimming, grubbing, and clearing of vegetation shall be allowed to proceed. If active bird nests are confirmed to be present during the pre-construction survey, the biologist will establish a buffer zone. Construction activities shall avoid any active nests until a qualified biologist has verified that the young have fledged, or the nest has otherwise become inactive.

5.2.3 Conclusion

Project implementation would potentially result in significant impacts to general nesting birds and raptors, within or adjacent to the project site. However, implementation of mitigation measures **BIO-1** would ensure that potential impacts are avoided by the project or are reduced to below significant.

5.3 ISSUE 2: RIPARIAN HABITAT AND SENSITIVE NATURAL COMMUNITIES

Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the CDFW or USFWS?

5.3.1 Impact Analysis

Less than Significant with Mitigation. The proposed project would result in impacts to disturbed wetland and non-native grassland, which are considered sensitive natural communities and require mitigation. The project would also result in impacts to non-native vegetation, disturbed habitat, and developed land, which are not considered sensitive natural communities. Impacts to non-sensitive vegetation communities are not considered significant and, therefore, do not require mitigation.

Project impacts are depicted on Figure 10, and are summarized below within Table 5, *Proposed Project Impacts to Vegetation Communities/Land Cover Types*.

Project Site
Outside Parcel Boundary

Vegetation

Non-native Vegetation
Disturbed Wetland
Non-native Grassland
Disturbed Habitat
Developed

Country Pl
Woodbury Pl
Robin Hill Ln
Iris Glen
Bellflower Glen
N Iris Ln
Cheyenne Ln

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0 80 Feet

Source: Aerial (SanGIS, 2019)

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Proposed Project Impacts

Figure 10

Table 5
PROPOSED PROJECT IMPACTS TO VEGETATION COMMUNITIES/LAND COVER TYPES[1]

Vegetation Community or Land Cover Type	Project Impacts[2]	
	Permanent (Acres)	Temporary (Acres)
Sensitive		
Disturbed Wetland (11200)	0.10	--
Non-native Grassland (42200)	2.5	--
Subtotal Sensitive Communities	*2.60*	--
Non-Sensitive		
Non-native Vegetation (11000)	0.1	--
Disturbed Habitat (11300)	0.9	--
Developed Land (12000)	3.9	--
Subtotal Non-Sensitive Communities	*4.9*	--
TOTAL	**7.50**	**--**

[1] Vegetation categories and numerical codes are from Holland (1986) and Oberbauer (2008).
[2] Upland habitats are rounded to the nearest 0.1 acre, while wetland habitats are rounded to the nearest 0.01.

5.3.2 Mitigation Measures

BIO-2 **Sensitive Habitat Mitigation**: To mitigate potential impacts to sensitive habitat types (disturbed wetland and non-native grassland), the applicant shall purchase off-site mitigation credits at a mitigation bank approved by the City. Mitigation ratios shall be consistent with regional standards (i.e., the Escondido Draft Subarea Plan): non-native grassland minimum 0.5:1 and disturbed wetland minimum 1:1. The disturbed wetland mitigation shall consist of establishment/re-establishment mitigation to achieve regional no-net-loss standards for potential wetlands.

5.3.3 Conclusion

The project would result in permanent impacts to 2.60 acres of sensitive natural communities (i.e., disturbed wetland and non-native grassland) that occur within the project site. Purchase of applicable credits in a City-approved mitigation bank would fully compensate for the loss of habitat and reduce impacts to below a level of significance. With the implementation of mitigation measure **BIO-2**, impacts on sensitive natural communities would be reduced to less than significant.

5.4 ISSUE 3: JURISDICTIONAL WETLANDS AND WATERWAYS

Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the federal CWA (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

5.4.1 Impact Analysis

Less than Significant with Mitigation. The project would impact potential non-wetland waters of the United States subject to the regulatory jurisdiction of the USACE pursuant to Section 404 of the CWA. The project would also impact potential non-wetland waters of the State subject to the regulatory

jurisdiction of the RWQCB pursuant to Section 401 of the CWA, and potential streambed and CDFW jurisdictional habitat subject to the regulatory jurisdiction of CDFW per Section 1602 of the CDFW Game Code. Project impacts to jurisdictional features are summarized below within Table 6, *Impacts to USACE/RWQCB Jurisdiction within the Project Site*, and Table 7, *Impacts to CDFW Jurisdiction within the Project Site*.

Table 6
IMPACTS TO USACE/RWQCB JURISDICTION WITHIN THE PROJECT SITE

Habitat	Project Impacts	
	Permanent (Acres) [1]	Linear Feet
Non-wetland Waters of the United States/State		
Streambed	0.05	494
Total	**0.05**	**494**

[1] Habitat rounded to the nearest 0.01 acre; total reflects rounding.

Table 7
IMPACTS TO CDFW JURISDICTION WITHIN THE PROJECT SITE

Habitat	Project Impacts
	Permanent (Acres) [1]
Disturbed Wetland	0.10
Streambed	0.02
Total	**0.12**

[1] Habitat rounded to the nearest 0.01 acre; total reflects rounding

As presented in Table 6 above, the project would result in impacts to a total of 0.05 acre (494 linear feet) of USACE/RWQCB jurisdiction consisting of non-wetland waters of the United States/waters of the State. As presented in Table 7, the project would impact 0.12 acre of CDFW jurisdiction consisting of 0.10 acre of jurisdictional habitat (disturbed wetland) and 0.02 acre of streambed. The USACE/RWQCB impacts occur within the CDFW jurisdictional limits. Impacts to 0.12 acre of jurisdictional areas would be considered significant, and mitigation would be required. Impacts to jurisdictional resources (i.e., non-wetland waters of the United States/State, CDFW jurisdictional habitat and streambed), would be mitigated as described in **BIO-3** below.

5.4.2 Mitigation Measures

BIO-3 **Jurisdictional Resource Permitting:** Prior to any project impacts to potentially jurisdictional resources, demonstration that regulatory permits from USACE, RWQCB, and CDFW have been issued or that no such permits are required shall be provided to the City. Permanent impacts to 0.05 acre of USACE/RWQCB jurisdictional non-wetland waters of the United States/State, 0.10 acre of CDFW jurisdictional habitat, and 0.02 acre of CDFW jurisdictional streambed shall be mitigated at a minimum 1:1 ratio through one or a combination of the following off-site options, unless otherwise required by the USACE, RWQCB, and/or CDFW during the regulatory permitting process:

- Purchase of establishment/re-establishment, rehabilitation, enhancement, and/or preservation credits from an off-site mitigation bank with a service area that overlaps the project and that is approved by the USACE, RWQCB, and CDFW, such as the San Luis Rey Mitigation Bank, and Brook Forest Conservation/Mitigation Bank; and/or

- Acquisition or use of other off-site mitigation lands in the region to include establishment/re-establishment, rehabilitation, enhancement, and/or preservation of USACE, RWQCB, and CDFW jurisdictional resources.

Mitigation for RWQCB-jurisdictional waters shall include a minimum 1:1 establishment/re-establishment to ensure no-net-loss. Final mitigation requirements shall be determined during the permitting process in coordination with the USACE, RWQCB, and CDFW, as appropriate.

5.4.3 Conclusion

The project would result in potentially significant impacts to USACE, RWQCB, and CDFW jurisdictional resources. Mitigation is proposed at minimum standard ratios consistent with those typically required by the Resource Agencies; thus, would fully compensate the loss and reduce impacts to below a level of significance. With the implementation of mitigation measure BIO-3, impacts on potentially jurisdictional resources would be less than significant. Notification for securing necessary regulatory permits prior to impacts would be required for the project per BIO-3. If the potential wetlands or waters of the United States are ruled jurisdictional by the Resource Agencies, the anticipated permits would be a 404 permit from the USACE, 401 Certification from the RWQCB, and a 1602 agreement from CDFW. Final permit requirements would be determined through consultation with the Resource Agencies.

5.5 ISSUE 4: WILDLIFE MOVEMENT AND NURSERY SITES

Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory corridors, or impede the use of native wildlife nursery sites?

5.5.1 Impact Analysis

Less than Significant. The project site does not occur within a BCLA and is located within a fully developed residential area. The project site may be used by smaller urban-adapted mammal species and bird species, but is not considered refuge as a wildlife corridor or habitat linkage. Although native habitat occurs on-site, the area is small and isolated from other areas with native habitat that may be used for urban wildlife movements, foraging, or breeding. Additionally, as evidenced by biological surveys discussed herein, the project site does not support critical populations of animal species. Based on the analysis above, project impacts to wildlife movement and nursery sites would be less than significant, no mitigation is required or proposed, and as such is not discussed further.

5.5.2 Mitigation Measures

No mitigation is required.

5.5.3 Conclusion

Project impacts would be less than significant and no additional mitigation measures are required.

5.6 ISSUE 5: LOCAL POLICIES AND ORDINANCES

Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

5.6.1 Impact Analysis

Less than Significant Impact with Mitigation. The City establishes regulations and standards for the preservation, protection, and selected removal of vegetation, including mature and protected trees. Specifically, Sections 33-1066, -1068, and -1069 of Article 55 (Grading and Erosion Control) of the City of Escondido Zoning Code regulate impacts to historically significant and/or mature trees, with a focus on oak tree protection. A total of seven mature coast live oak trees and six protected coast live oak trees occur within the project site and would be subject to removal during the proposed development (Figure 11, *Oak Tree Impacts*). An additional ten mature and eleven protected coast live oak trees occur just outside of the project site and are being counted as impacts, with exception of the subset occurring within a Vallecitos Water District easement (Figure 11; Table 8, *Protected and Mature Oak Trees Located within and Adjacent to the Project Site*). The subset located within the Vallecitos Water District easement will be protected by a 10-foot grading setback along the southern project boundary. The arborist report (Lightfoot Planning Group dated, March 15, 2022) suggests a 10-foot buffer is a sufficient distance to protect these oaks and recommends establishing root protection zones and fencing during construction. For all other adjacent oaks, the intent is to avoid impacts; however, their root zones may encroach onto the project site and could be damaged. If unmitigated, impacts to mature and/or protected trees would be considered significant. Project impacts to mature and protected trees would be mitigated with the implementation of mitigation measure **BIO-4**, which requires that a vegetation removal permit or grading permit and appropriate standards for the replacement of vegetation approved for removal be followed, and mature and protected tree preservation or replacement would occur. With the implementation of measure **BIO-4**, impacts to mature and protected trees would be less than significant.

Table 8
PROTECTED AND MATURE OAK TREES LOCATED WITHIN AND ADJACENT TO THE PROJECT SITE

Oak Trees	On-Site	Off-Site	
		Outside Easement	Within Easement[1]
Protected	6	5	6
Mature	7	5	5
Total	**13**	**10**	**11**

[1]Not associated with project impacts. Mitigation not required.

In addition to City regulations, the CDFW has recommended preparation of an infectious tree disease management plan. Project impacts related to the spread of tree insect pests and disease into areas not currently exposed to these stressors (and the resulting loss of native trees that support a high biological diversity) would be mitigated with the implementation of mitigation measure **BIO-5**. With implementation of mitigation measure **BIO-5**, impacts related to infectious disease would be less than significant.

Project Site
Outside Parcel Boundary
Impact Area*
Vallecitos Water District Easement

*There will be a 10-foot grading setback along the southern property line.

Oak Tree

Mature Off-site
Protected Off-site
Mature On-site
Protected On-site

Robin Hill Ln
Iris Glen
Bellflower Glen
N Iris Ln

0 70 Feet

Source: Aerial (SanGIS, 2019)

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Oak Tree Impacts

Figure 11

5.6.2 Mitigation Measures

BIO-4 **Mature and Protected Tree Replacement:** The project applicant shall replace impacted mature trees at a minimum 1:1 ratio, unless otherwise determined by the City. The project applicant shall replace protected trees at a minimum 2:1 ratio, unless otherwise determined by the City. The number, size, and species of replacement trees shall be determined on a case-by-case basis by the City's Director of Community Development**.** This condition can be satisfied on-site if the project's landscape plans include the appropriate number of oak trees and other tree species.

BIO-5 **Infectious Tree Disease Management Plan:** The project applicant shall prepare an infectious tree disease management plan for the project. This plan should include a description of how the infectious tree disease management plan will be implemented. All trees that would be removed by the project should be inspected for contagious tree diseases including, but not limited to, thousand canker fungus (*Geosmithia morbida*), polyphagous shot hole borer (*Euwallacea* spp.), and goldspotted oak borer (*Agrilus auroguttatus*). To avoid the spread of infectious tree diseases, diseased trees should not be transported from the project site without first being treated using best available management practices relevant for each tree disease observed.

5.6.3 Conclusion

The project would result in permanent impacts to mature and protected trees that occur within the project site. With the implementation of mitigation measure **BIO-4**, impacts to mature and protected trees would be reduced to less than significant. By removing trees, the project could result in the spread of tree insect pests and disease into areas not currently exposed to these stressors (and potentially result in a loss of native trees that support a high biological diversity). With the implementation of mitigation measure **BIO-5**, project impacts related to the spread of tree insect pests and disease would be reduced to less than significant.

5.7 ISSUE 6: ADOPTED CONSERVATION PLANS

Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

5.7.1 Issue 6 Impact Analysis

No Impact. The project would occur within the boundaries of the County MHCP, particularly within the Draft Escondido Subarea. However, the Draft Escondido Subarea Plan was not approved or adopted and remains in draft form as of the date of this report. Therefore, the draft policies and guidelines of these plans are not applicable to the proposed project. The project, however, considered the context of such draft plans, and implementation of the proposed project would not preclude or prevent finalizing and adoption of the plan. The proposed project impacts would be less than significant; no mitigation is required or proposed. No conflict would occur.

5.7.2 Mitigation Measures

Compliance with existing regulations and implementation of Mitigation Measures **BIO-1** through **BIO-5** would ensure project consistency with the MHCP.

5.7.3 Conclusion

The project could result in potential significant impacts to sensitive biological resources addressed under the MHCP; however, compliance with existing regulations and implementation of measures **BIO-1** through **BIO-5** would help ensure that impacts are avoided and the project activities are not in conflict with the MHCP.

6.0 CERTIFICATION/QUALIFICATION

The following individuals contributed to the fieldwork and/or preparation of this report.

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Appendix A

Plant Species Observed

Appendix A
Plant Species Observed

Family	Scientific Name*,†	Common Name	Habitat[1]
Dicots			
Anacardiaceae	*Schinus molle**	Peruvian pepper tree	NNG, NNV
Apiaceae	*Apiastrum angustifolium*	mock parsley	NNG
	*Apium graveolens**	celery	DW
Araliaceae	*Hedera canariensis**	Algerian ivy	CLOW
Asteraceae	*Ambrosia psilostachya*	western ragweed	CLOW, NNG, DH
	Baccharis pilularis	coyote brush	DW, NNG
	*Carduus pycnocephalus**	Italian thistle	DW, NNG, NNV
	*Centaurea melitensis**	tocalote	DH
	Corethrogyne filaginifolia	sand aster	NNG, DH
	*Cotula coronopifolia**	common brassbuttons	DW
	*Dittrichia graveolens**	stinkwort	DW, DH
	Erigeron canadensis	horseweed	DW, DH
	*Hedypnois cretica**	Crete hedypnois	NNG, DH
	*Helminthotheca echioides**	bristly ox-tongue	DW, NNG, DH
	Heterotheca grandiflora	telegraph weed	DH
	Isocoma menziesii	goldenbush	NNG, DH
	*Lactuca serriola**	wild lettuce	DW, NNG
	*Logfia gallica**	narrow-leaf filago	DH
	*Matricaria matricarioides**	common pineapple-weed	DH
	Pseudognaphalium californicum	California everlasting	DH
	Pseudognaphalium sp.	everlasting	DW, DH
	*Silybum marianum**	milk thistle	NNG, NNV
	*Sonchus asper**	prickly sow thistle	DW, NNG, DH
	*Sonchus oleraceus**	common sow thistle	NNG, DH
	Xanthium strumarium	cocklebur	DW
Boraginaceae	*Amsinckia intermedia*	rancher's fiddleneck	NNG
	Heliotropium curassavicum var. *oculatum*	salt heliotrope	NNG, DH
	Pectocarya sp.	pectocarya	DH
Brassicaceae	*Brassica nigra**	black mustard	DW, CLOW, NNG
	*Capsella bursa-pastoris**	shepherd's purse	NNG, DH
	*Hirschfeldia incana**	short-pod mustard	DH, NNG
	*Lepidium didymium**	wart cress, spine cress	CLOW, DH
	Nasturtium officinale	water cress	DW
	*Raphanus sativus**	wild radish	DW, NNG
	*Sisymbrium orientale**	hare ear's cabbage	CLOW, DH, NNG
Cactaceae	*Opuntia ficus-indica**	Indian-fig	DW, DH
	Opuntia littoralis	coastal prickly pear	DH
Caryophyllaceae	*Polycarpon tetraphyllum**	four-leaved allseed	DH
	Spergularia sp.*	sand-spurrey	NNG, DH
	*Stellaria media**	common chickweed	CLOW, NNG
Chenopodiaceae	*Amaranthus albus**	white tumbleweed	DH
	*Atriplex semibaccata**	Australian saltbush	NNG
	Atriplex sp.	atriplex	DW
	*Chenopodium album**	pigweed	DH
	*Chenopodium murale**	nettle-leaf goosefoot	NNG, NNV, DH
	*Salsola tragus**	Russian thistle	NNG, DH

Appendix A (cont.)
Plant Species Observed

Family	Scientific Name*,†	Common Name	Habitat[1]
Euphorbiaceae	*Chamaesyce maculate**	spotted spurge	NNG
	Croton setigerus	dove weed	NNG, DH
	*Euphorbia lathyris**	caper spurge	DW, NNG
	*Euphorbia peplus**	petty spurge	CLOW, DH
Fabaceae	*Acmispon micranthus*	grab lotus	DH
	Lotus corniculatus	birdfoot trefoil	DW, NNG
	*Medicago polymorpha**	burclover	CLOW, NNG
	*Melilotus indicus**	Indian sweet clover	DW, NNG
Fagaceae	*Quercus agrifolia* var. *agrifolia*	coast live oak	CLOW, NNG
Geraniaceae	*Erodium botrys**	long-beak filaree	NNG
	*Erodium moschatum**	green-stem filaree	NNG, NNV, DH
	*Geranium dissectum**	cutleaf geranium	DW
Juglandaceae	*Juglans hindsii*	Northern California black walnut	DW, NNG, DH
Lamiaceae	*Lamium amplexicaule*	henbit*	NNG
	Salvia apiana	white sage	NNG
Lythraceae	*Lythrum hyssopifolia**	grass poly	CLOW
Malvaceae	*Malva parviflora**	cheeseweed	NNG
Myrsinaceae	*Anagallis arvensis**	scarlet pimpernel	DW, DH
Myrtaceae	*Eucalyptus* sp.*	gum	NNG, DH
Onagraceae	*Camissoniopsis* sp.	sun cup	DH
	Oenothera elata	great marsh evening-primrose	DW
Oxalidaceae	*Oxalis pes-caprae**	Bermuda buttercup	DW
Pinaceae	*Pinus* sp.*	pine	NNG
Plantaginaceae	*Plantago lanceolatea**	English plantain	DW, NNG
Polygonaceae	*Rumex crispus**	curly dock	DW, CLOW, NNG
Portulacaceae	*Calandrinia ciliata*	red maids	NNG, DH
Salicaceae	*Salix lasiolepis*	arroyo willow	DW
Solanaceae	*Solanum* sp.	nightshade	NNG, NNV, DH
Urticaceae	*Urtica urens**	dwarf nettle	NNG, DH
Monocots			
Arecaceae	*Washingtonia robusta**	Mexican fan palm	DW, DH
Asparagaceae	*Asparagus asparagoides**	bridal creeper	NNG
Cyperaceae	*Cyperus eragrostis*	tall flatsedge	DW
	Cyperus sp.*	flatsedge	DW, NNG
	Eleocharis macrostachya	pale spike-rush	DW
Iridaceae	*Iris* sp.*	iris	DW
Juncaceae	*Juncus bufonius*	toad rush	NNG
Poaceae	*Avena* sp.*	oats	DW, NNG, NNV, DH
	*Bromus diandrus**	common ripgut grass	DW, NNG, DH
	*Bromus hordeaceus**	soft brome	DW, NNG
	*Bromus madritensis**	foxtail chess	NNG, DH
	*Cynodon dactylon**	Bermuda grass	DW, NNG, DH
	*Festuca myuros**	fescue	DW, NNG
	*Festuca perennis**	Italian ryegrass	DW, NNG
	Hordeum sp.*	barley	NNG, NNV, DH
	*Lamarckia aurea**	goldentop	NNG

Appendix A (cont.)
Plant Species Observed

Family	Scientific Name*,†	Common Name	Habitat[1]
Poaceae (cont.)	*Paspalum dilatum**	Dallis grass	DW, NNG
	Phalaris sp.*	canary grass	NNG
	*Poa annua**	annual bluegrass	DW, CLOW
	*Polypogon monspeliensis**	annual beardgrass	DW, NNG
	*Schismus barbatus**	Mediterranean grass	DW
	Unknown*	unidentified grass	DW, NNG
Unidentified	Unknown*	unidentified tree	DH

***** Non-native

† Sensitive

[1] CLOW=Coast live oak woodland; DH=Disturbed habitat; DW=Disturbed wetland; NNG=Non-native grassland; NNV=Non-native vegetation

Appendix B

Animal Species Observed or Detected

Appendix B
Animal Species Observed or Detected

Taxon		Scientific Name†	Common Name
Order	**Family**		
INVERTEBRATES			
Coleoptera	Coccinellidae	Unknown	lady beetle
Hymenoptera	Apidae	*Bombus* sp.	bumblebee
	Formicaceae	Unknown	red ant
VERTEBRATES			
Amphibians			
Anura	Hylidae	*Pseudacris cadaverine*	California treefrog
Birds			
Accipitriformes	Accipitridae	*Buteo jamaicensis*	red-tailed hawk
Apodiformes	Trochilidae	*Calypte anna*	Anna's hummingbird
Columbiformes	Columbidae	*Zenaida macroura*	mourning dove
Passeriformes	Corvidae	*Aphelocoma californica*	California scrub-jay
		Corvus corax	common raven
	Fringillidae	*Haemorhous mexicanus*	house finch
	Sylviidae	*Chamaea fasciata*	wrentit
	Tyrannidae	*Tyrannus vociferans*	Cassin's kingbird
Piciformes	Picidae	Unknown	woodpecker
Mammals			
Rodentia	Sciuridae	*Otospermophilus beecheyi*	California ground squirrel

† Sensitive

Appendix C

Special Status Plant Species Observed or with Potential to Occur

Appendix C
Special Status Plant Species Observed or with Potential to Occur

Species Name	Common Name	Status[1,2]	Habit, Ecology and Life History	Potential to Occur
Ambrosia pumila	San Diego ambrosia	FE/-- CRPR 1B.1	Perennial herb. Occurs on sandy loam or clay, sometimes alkaline, soils. Found in native grassland, valley bottoms, dry drainages, stream floodplain terraces, and vernal pool margins. Also occurs on slopes, disturbed places, and in coastal sage scrub or chaparral. Flowering period: April to July. Elevation: 164 to 1,969 feet (50 to 600 meters).	**Not Likely to Occur**. The study area lacks suitable habitat to support this species. Furthermore, this perennial herb would have been observed during biologicals surveys if present. Finally, this species has not been reported within the project vicinity.
Arctostaphylos otayensis	Otay manzanita	--/-- CRPR 1B.2	Perennial shrub. Found in chaparral and cismontane woodland on metavolcanics soils. Flowering period: January to April. Elevation: 900 to 5,580 feet (275 to 1,700 meters).	**Not Likely to Occur**. The study area lacks suitable habitat and metavolcanics soils to support this species. Furthermore, this conspicuous perennial shrub would have been observed during biologicals surveys if present. Finally, this species has not been reported within the project vicinity.
Baccharis vanessae	Encinitas baccharis	FT/SE CRPR 1B.1	Perennial shrub. Relatively low-growing mature chaparral is the primary habitat. Also found in southern maritime and southern mixed chaparrals. Flowering period: August to December. Elevation: 197 to 984 feet (60 to 300 meters).	**Not Likely to Occur.** The study area lacks suitable habitat to support this species. This perennial shrub would have been observed during biological surveys is present. Finally, this species has not been reported within the project vicinity.
Bloomeria clevelandii	San Diego goldenstar	--/-- CRPR 1B.1	Perennial bulbiferous herb. Occurs on clay soils in valley grasslands and coastal scrub, particularly near mima mound topography or in the vicinity of vernal pools. Flowering period: April to May. Elevation: 164 to 1,526 (50 to 465 meters).	**Not Likely to Occur**. The study area lacks suitable valley grasslands or coastal scrub habitat to support this species. Furthermore, this species has not been reported within the project vicinity.

Appendix C (cont.)
Special Status Plant Species Observed or with Potential to Occur

Species Name	Common Name	Status[1,2]	Habit, Ecology and Life History	Potential to Occur
Brodiaea orcuttii	Orcutt's brodiaea	--/-- CRPR 1B.1	Perennial bulbiferous herb. Occurs within closed-cone coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grassland, and vernal pools. Prefers mesic or clay soils. Flowering period: May to July. Elevation: 98 to 5,550 feet (30 to 1,692 meters).	**Not Expected to Occur**. The study area lacks clay soils and suitable coniferous forest, chaparral, cismontane woodland, meadows and seeps, valley and foothill grasslands, and vernal pools that would support this species. Furthermore, this species has not been reported within the project vicinity.
Calochortus dunnii	Dunn's mariposa lily	--/SR CRPR 1B.2	Perennial bulbiferous herb. Found in closed-cone coniferous forest, chaparral, and valley and foothill grassland, typically on gabbroic, metavolcanics, or rocky soils. Blooms February to June. Elevation: 600 to 6,000 feet (185 to 1,830 meters).	**Not Likely to Occur**. The study area lacks suitable habitat and soils to support this species. Furthermore, this species has not been reported within the project vicinity.
Ceanothus cyaneus	Lakeside ceanothus	--/-- CRPR 1B.2	Perennial shrub. Occurs on slopes and ridgelines in closed cone coniferous forest and chaparral. Flowers April to June. Elevation: 770 to 2,540 feet (235 to 755 meters).	**Not Likely to Occur**. The study area lacks suitable coniferous or chaparral habitat to support this species. Furthermore, this perennial shrub would have been observed during biological surveys if present. Finally, this species has not been reported within the project vicinity.

Appendix C (cont.)
Special Status Plant Species Observed or with Potential to Occur

Species Name	Common Name	Status[1,2]	Habit, Ecology and Life History	Potential to Occur
Ceanothus verrucosus	Wart-stemmed ceanothus	--/-- CRPR 2B.2 County List B	Perennial shrub. Occurs on rocky slopes within chaparral. Flowering Period: December to May. Elevation: below 416 feet (below 380 meters).	**Not Likely to Occur.** The study area lacks suitable chaparral habitat to support this species. Furthermore, this perennial shrub would have been observed during biological surveys is present. Finally, this species has not been reported within the project vicinity.
(*Clinopodium chandleri*)	San Miguel savory	--/-- CRPR 1B.2	Perennial shrub. Occurs within chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grassland on rocky, gabbroic, or metavolcanic soils. Flowering period: March to July. Elevation: 390 to 3,530 feet (120 to 1,075 meters).	**Not Likely to Occur.** The study area lacks suitable gabbroic or metavolcanic soils to support this species. Furthermore, this species has not been reported within the project vicinity.
Corethrogyne filaginifolia var. *incana*	San Diego sand aster	--/-- CRPR 1B.1	Perennial herb. Occurs within grasslands, coastal bluff scrub, coastal scrub, and chaparral. Flowering period: June to September. Elevation: 15 to 2,362 feet (5 to 720 meters).	**Not Likely to Occur.** The study area lacks suitable grassland, coastal bluff scrub, coastal scrub, or chaparral to support this species. Furthermore, this species has not been reported within the project vicinity.
Cylindropuntia californica var. *californica*	Snake cholla	--/-- CRPR 1B.1	Perennial herb (stem succulent). Occurs within coastal sage scrub and coastal chaparral communities. Flowering period: April to July. Elevation: below 820 feet (250 meters).	**Not Likely to Occur.** The study area lacks suitable coastal sage scrub or coastal chaparral communities to support this species. Furthermore, this species has not been reported within the project vicinity.

Appendix C (cont.)
Special Status Plant Species Observed or with Potential to Occur

Species Name	Common Name	Status[1,2]	Habit, Ecology and Life History	Potential to Occur
Deinandra conjugens	Otay tarplant	FT/SE CRPR 1B.1	Annual herb. Grows in clay soils within coastal scrub openings and grasslands. Flowering period: May to June. Elevation: 65 to 980 feet (20 to 300 meters).	**Not Likely to Occur.** Although the study area partially consists of suitable clay soils, the study area lacks coastal scrub or grassland habitat to support this species. Furthermore, this species has not been reported within the project vicinity.
Dicranostegia orcuttiana	Orcutt's bird's-beak	--/-- CRPR 2B.1	Annual herb. Found coastally within coastal sage scrub. Flowering period: March to August. Elevation: below 1,148 feet (350 meters).	**Not Likely to Occur.** The study area lacks suitable coastal sage scrub habitat to support this species. Furthermore, this species has not been reported within the project vicinity.
Dudleya variegata	Variegated dudleya	--/-- CRPR 1B.2	Perennial herb succulent. Occurs on clay soils of dry hillsides and mesas within chaparral, valley grassland, foothill woodland and coastal sage scrub communities. Flowering period: April to June. Elevation: below 984 feet (300 meters).	**Not Likely to Occur.** Although portion of the study area consist of clay soils, the study area lacks suitable chaparral, valley grassland, foothill woodland, or coastal sage scrub habitat to support this species. Furthermore, this species has not been reported within the project vicinity.
Ericameria palmeri var. *palmeri*	Palmer's goldenbush	--/-- CRPR 1B.1	Perennial Shrub. Found in mesic areas within coastal sage scrub and chaparral. Occasionally occurs as a hillside element (usually at higher elevations inland on north-facing slopes). Flowering period: September to November. Elevation: below 1,968 feet (600 meters).	**Not Likely to Occur.** The study area lacks suitable coastal sage scrub or chaparral habitat to support this species. Furthermore, this perennial shrub would have been observed during biological surveys if present.

Appendix C (cont.)
Special Status Plant Species Observed or with Potential to Occur

Species Name	Common Name	Status[1,2]	Habit, Ecology and Life History	Potential to Occur
Eryngium aristulatum var. *parishii*	San Diego button-celery	FE/SE CRPR 1B.1	Annual or perennial herb. Grows in vernal pools and other mesic areas, such as marshes. Flowering period: May to June. Elevation: below 2,313 feet (705 meters).	**Not Likely to Occur.** Suitable vernal pools are absent from the study area and this species has not been reported within the project vicinity.
Ferocactus viridescens	San Diego barrel cactus	--/-- CRPR 2B.1	Perennial (stem succulent) shrub. Grows in sandy to rocky areas within chaparral, valley grassland and coastal sage scrub communities. Flowering period: May to June. Elevation: 33 to 492 feet (10 to 150 meters).	**Not Likely to Occur.** Although portion of the study area consist of sandy soils, the study area lacks suitable chaparral, valley grassland, or coastal sage scrub habitat to support this species. Furthermore, this species has not been reported within the project vicinity.
Hesperocyparis forbesii	Tecate cypress	--/-- CRPR 1B.1	Perennial tree. Found within closed-cone coniferous forest and chaparral on clay, gabbroic, or metavolcanics soils. Elevation: 262 to 4,900 feet (80 to 1500 meters).	**Not Likely to Occur**. The study area lacks coniferous forests or chaparral habitat and soils to support this species. Furthermore, this species has not been reported within the project vicinity.
Horkelia truncata	Ramona horkelia	--/-- CRPR 1B.3	Perennial herb. Occurs within gabbroic and dry, red clay soils of chaparral and woodland communities. Flowering period: March to June. Elevation: 1,312 to 4,300 (400 to 1,300 meters).	**Not Likely to Occur.** Although the study area partially consists of clay soils, the study area lacks suitable chaparral or woodland communities within gabbroic soils to support this species. Furthermore, this species has not been reported within the project vicinity.

Appendix C (cont.)
Special Status Plant Species Observed or with Potential to Occur

Species Name	Common Name	Status[1,2]	Habit, Ecology and Life History	Potential to Occur
Lepechinia ganderi	Gander's pitcher sage	--/-- CRPR 1B.3	Perennial shrub. Occurs on gabbroic and metavolcanic soils within coastal sage scrub, chaparral, coniferous forests, and grasslands. Flowering time: June to July. Elevation: 980 to 3600 feet (300 to 1,100 meters).	**Not Likely to Occur.** The study area lacks suitable gabbroic or metavolcanics soils and lacks suitable habitat for this species. Furthermore, this species has not been reported within the project vicinity.
Monardella hypoleuca ssp. *lanata*	Felt-leaved monardella	--/-- CRPR 1B.2	Perennial (rhizomatous) herb. Found within chaparral understory, typically beneath mature stands of chamise in xeric, rocky, granitic slopes. Flowering period: May to October. Elevation: 985 and 5,000 feet (300 to 1500 meters).	**Not Likely to Occur.** The study area lacks suitable chaparral habitat and xeric, rocky, granitic slopes to support this species. Furthermore, this species has not been reported within the project vicinity.
Monardella viminea	Willowy monardella	FE/SE CRPR 1B.1	Perennial herb. Associated with riparian scrub, usually at sandy locales in seasonally dry washes is habitat of this small subshrub. Generally, there is no canopy cover, and river cobbles may lie in close proximity. Flowering period: June to August. Elevation: below 1,300 feet (below 400 meters).	**Not Likely to Occur.** The study area lacks suitable riparian scrub habitat to support this species. Furthermore, this species has not been reported within the project vicinity.
Nolina interrata	Dehesa beargrass	--/SE CRPR 1B.1	Perennial herb. Always associated with gabbro or peridotite soils, open southern mixed chaparral and chamise chaparral. Flowering period: June to July Elevation: 656 to 2,300 feet (200 to 700 meters).	**Not Likely to Occur.** The study area lacks suitable gabbro or peridotite soils and chaparral habitat to support this species. Furthermore, this species has not been reported within the project vicinity.

Appendix C (cont.)
Special Status Plant Species Observed or with Potential to Occur

Species Name	Common Name	Status[1,2]	Habit, Ecology and Life History	Potential to Occur
Tetracoccus dioicus	Parry's tetracoccus	--/-- CRPR 1B.2	Perennial shrub. Occurs on dry slopes within coastal sage scrub and chaparral. Usually, conditions are quite xeric with only limited annual growth. Flowering period: April to May. Elevation: below 3,281 feet (1,000 meters).	**Not Likely to Occur.** The study are lacks dry slopes within coastal sage scrub or chaparral habitat to support this species. Furthermore, this species has not been reported within the project vicinity.

[1] Listing is as follows: F = Federal; S = State of California; E = Endangered; T = Threatened; R = Rare

[2] CNPS = California Native Plant Society Rare Plant Rank: 1A–presumed extirpated in California and either rare or extinct elsewhere; 1B–rare, threatened, or endangered in California and elsewhere; 2A–presumed extirpated in California, but more common elsewhere; 2B–rare, threatened, or endangered in California, but more common elsewhere; 3–more information needed; 4–watch list for species of limited distribution. Extension codes: .1–seriously endangered; .2–moderately endangered; .3–not very endangered.

Not Likely to Occur–There are no present or historical records of the species occurring on or in the immediate vicinity, (within one mile) of the Project Site and the diagnostic habitats strongly associated with the species do not occur on or in the immediate vicinity of the Site.

Low Potential to Occur–There is a historical record of the species in the vicinity of the Project Site and potentially suitable habitat on Site, but existing conditions, such as density of cover, prevalence of non-native species, evidence of disturbance, limited habitat area, isolation, substantially reduce the possibility that the species may occur. The Site is above or below the recognized elevation limits for this species.

Moderate Potential to Occur–The diagnostic habitats associated with the species occur on or in the immediate vicinity of the Project Site, but there is not a recorded occurrence of the species within the immediate vicinity (within one mile). Some species that contain extremely limited distributions may be considered moderate, even if there is a recorded occurrence in the immediate vicinity.

High Potential to Occur–There is both suitable habitat associated with the species and a historical record of the species on or in the immediate vicinity of the Project Site (within one mile).

Species Present–The species was observed on the Project Site at the time of the survey or during a previous biological survey.

Appendix D

Special Status Animal Species Observed or with Potential to Occur

Appendix D
Special Status Animal Species Observed or with Potential to Occur

Species Name	Common Name	Status[2]	Habit, Ecology, and Life History	Potential to Occur[3]
ANIMALS				
Amphibians and Reptiles				
Crotalus ruber	red diamond rattlesnake	--/-- SSC	Occurs in chaparral, coastal sage scrub, along creek banks, particularly among rock outcrops or piles of debris with a supply of burrowing rodents for prey.	**Not Expected.** Suitable habitat does not occur on the site.
Birds				
Accipiter cooperii	Cooper's hawk	--/-- WL (nesting) MHCP Covered Proposed Subarea Plan Covered	Occurs in oak groves, mature riparian woodlands, and eucalyptus stands or other mature forests.	**Low.** Suitable habitat is present on the project site but of low quality and no sign of the species was observed. Oak trees on site are in close proximity to houses and generally occur singly or in rows. No sign of the species was observed.
Agelaius tricolor	tricolored blackbird	--/ST BCC SSC MHCP Covered	Generally found in large freshwater marshes with dense stands of cattails or bulrushes. Forages in open habitats such as farm fields, pastures, and large lawns.	**Low.** Suitable foraging habitat is present on the project site, but breeding habitat does not occur. No sign of the species was observed.
Aimophila ruficeps canescens	southern California rufous-crowned sparrow	--/-- WL MHCP Covered Proposed Subarea Plan Covered	Occurs in coastal sage scrub and sparse mixed chaparral on rocky hillsides and in canyons; also found in open sage scrub/grassy areas of successional growth.	**Not Expected.** Suitable habitat does not occur on the site. Non-native grassland on site is regularly managed and is not shrubby.
Ammodramus savannarum parpallidus	grasshopper sparrow	--/-- SSC MHCP Covered	Occurs in grasslands. Favors native grasslands with a mix of grasses and forbs and few or no shrubs.	**Low.** Suitable habitat is present on the project site but of low quality. Grasslands on site are non-native and regularly maintained. No sign of the species was observed.
Polioptila californica californica	coastal California gnatcatcher	FT/-- SSC MHCP Covered Proposed Subarea Plan Covered[4]	Occurs in coastal sage scrub.	**Not Expected.** Suitable habitat does not occur on the site.

Appendix D (cont.)
Special Status Animal Species Observed or with Potential to Occur

Species Name	Common Name	Status[2]	Habit, Ecology, and Life History	Potential to Occur[3]
Vireo bellii pusillus	least Bell's vireo	FE/SE MHCP Covered Proposed Subarea Plan Covered[5] (nesting)	Occurs in riparian thickets, usually willow and cottonwood.	**Not Expected.** Suitable habitat does not occur on the site.
Mammals				
Chaetodipus fallax	San Diego pocket mouse	--/-- SSC MHCP Covered	Occurs in open areas of coastal sage scrub and weedy growth, often on sandy substrates.	**Not Expected.** Suitable habitat does not occur on the site.

[1] Sensitive species reported within 1 mile of the project site.

[2] Listing is as follows: F = Federal; S = State of California; E = Endangered; T = Threatened; R = Rare; BCC = Federal Birds of Conservation Concern; FP = State Fully Protected; SSC = State Species of Special Concern; WL = Watch List.

[3] Potential to Occur is assessed as follows. **None**: Species is either sessile (i.e., plants) or so limited to a particular habitat that it cannot disperse on its own, and habitat suitable for its establishment and survival does not occur on the project site; **Not Expected**: Species moves freely and might disperse through or across the project site, but suitable habitat for residence or breeding does not occur on the project site; **Low**: Suitable habitat is present on the project site but of low quality and no sign of the species was observed during surveys, however the species cannot be excluded with certainty; **Presumed Absent:** Habitat suitable for residence and breeding occurs on the project site, however protocol-level focused surveys conducted for the current project were negative; **High**: Suitable habitat occurs on the project site and the species has been recorded recently on or near the project site, but was not observed during surveys for the current project; **Presumed Present**: The species was observed during biological surveys for the current project and is assumed to occupy the project site.

[4] Coverage in the Escondido Subarea Plan contingent upon approved subarea plan in Carlsbad and Oceanside.

[5] Coverage in the Escondido Subarea Plan contingent upon approved subarea plan in Oceanside.

Appendix E

Explanation of Codes

Appendix E
Explanation of Codes

California Rare Plant Rank (CRPR)

CRPR

1A = Presumed extinct.

1B = Rare, threatened, or endangered in California and elsewhere. Eligible for state listing.

2 = Rare, threatened, or endangered in California but more common elsewhere. Eligible for state listing.

3 = Distribution, endangerment, ecology, and/or taxonomic information needed. Some eligible for state listing.

4 = A watch list for species of limited distribution. Needs monitoring for changes in population status. Few (if any) eligible for state listing.

Threat Code Extension

.1 = Seriously endangered in California (over 80 percent of occurrences threatened/high degree and immediacy of threat)

.2 = Fairly endangered in California (20 to 80 percent occurrences threatened)

.3 = Not very endangered in California (less than 20 percent of occurrences threatened, or no current threats known)

A CA Endemic entry corresponds to those taxa that only occur in California.

All List 1A (presumed extinct in California) and some List 3 (need more information; a review list) plants lacking threat information receive no threat code extension. Threat Code guidelines represent only a starting point in threat level assessment. Other factors, such as habitat vulnerability and specificity, distribution, and condition of occurrences, are considered in setting the Threat Code.

Appendix E
Arborist Letter

THE
LIGHTFOOT
PLANNING
GROUP

March 15, 2022

Mr. Sean Santa Cruz
Hallmark Communities, Inc.
740 Lomas Santa Fe Drive
Suite 204
Solana Beach, CA 92075

RE: 2085 N. Iris Lane – Off-Site Coast Live Oaks Along the Southern Property Line

Dear Sean:

Per your request, I have reviewed the existing conditions and project-proposed ten-foot (10') setback for the protection and preservation of existing mature and protected off-site Oaks along the southern property line and project boundary for Proposed Development Permit Project PHG20-0032, for 2085 N. Iris Lane. It is my professional opinion that the proposed ten-foot setback from the southern boundary is adequate to provide protection for the existing off-site trees and will allow them to recover and survive subject to several recommendations. These recommendations for tree preservation include establishment of a Root Protection Zone (RPZ) and protective fencing to establish the limits of disturbance, in conjunction with timely evaluation of each individual subject tree with follow-up root and canopy pruning if required. Because the existing trees along the southern boundary have relied on existing drainage and soil water conditions, it is important to maintain and preserve the existing drainage conditions there. All drainage preservation, fencing, and pruning for that area are recommended to occur prior to demolition, grading and construction activities. The best time for pruning is in early spring any time before construction begins.

I have also included general background information about the existing off-site mature and protected Oak trees, as well as information about the root system characteristics of the *Quercus agrifolia* (Coast Live Oak) species, in support of my opinion.

Tree Preservation

Preservation must focus on preventing injury to trees. First and foremost, the goal is to protect trees rather than repair injury. To be successful, tree preservation needs to be included as a component of the project planning, design, and construction drawings. It will be most effective if tree preservation processing and work does not wait until construction begins.

Existing Off-Site Coast Live Oaks on the Southern Boundary

The subject existing mature and protected Oaks are identified as a part of the Biology Report and Plans for the Tentative Subdivision Map and Planned Development Permit

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lightfootpg.com

Plans for 2085 N. Iris Lane, Project PHG20-0032 prepared by Helix Environmental. The location of the subject Oaks along the southern boundary is illustrated graphically on Figure 11 entitled Oak Tree Impacts. Most importantly, these Oaks are not native to the site, but were planted as slope erosion control for the existing adjacent subdivision. The trees are planted on a north-facing slope outside of the rear yard fencing of the existing subdivision, are non-irrigated and have been undisturbed. The tree canopies have full sun conditions while their root zones are mostly shaded which reduces soil moisture loss to create a favorable condition for these trees.

Fortunately, north-facing slopes with adjacency to natural drainage areas are a preferred condition for habitat of the Coast Live Oak and the trees appear to have done well regardless of years of drought conditions. In addition, the trees have been allowed to develop their root systems naturally and have not been influenced by supplemental slope surface irrigation. In terms of supplemental water, the trees do have access to supplemental water from the back yard landscape areas of the existing subdivision as well as relatively undisturbed soil water reservoir in the drainage low-point area on the proposed development site. This soil water reservoir area occurs in the setback area and the recommendation is to keep the soil water reservoir in that area as undisturbed as possible.

Root System Characteristics of *Quercus agrifolia* (Coast Live Oak) Species

Our native oaks have developed survival adaptations to the long, dry summers in Escondido. Primary to this survival is the development and characteristics of its root system. In young trees there is initial rapid development of the root system before growth above ground. The initial root is a tap root extending deep underground for dependable moisture. After which, the first few years are focused on establishing a deep sustaining root system. As the oak grows, the tap root is outgrown by an extensive lateral root system that spreads horizontally out from the trunk to and well beyond the dripline which becomes the primary supporter of the tree for its lifetime. It includes the important fine roots which absorb moisture and nutrients in the top three feet of soil. As the oak matures in dry climates, deep-growing vertical (sinker) roots form off the lateral roots usually within ten feet of the trunk. Theses sinker roots exploit deeper soil moisture and add structural stability to balance the increasingly large canopy. Understanding of the tree's natural root growth patterns is the basis of the recommendations for tree preservation that are proposed in this letter.

Existing Site and Drainage Conditions

Because tree preservation requires space, the more soil that can be left undisturbed the better the survival rate for any existing trees which are to remain protected-in-place because the opportunity for compaction is minimized. The project proposes a ten-foot (10') setback area for this purpose along the southern boundary. It is important to

maintain the same level of soil moisture in this setback that currently exists due to natural site drainage. From a hydrological standpoint, to eliminate site drainage to this area would likely do more harm than good for the existing trees since they have come to depend on the soil reservoir for water, that exists because of current drainage conditions. Any proposed grading work to maintain the current level of moisture provided by the existing drainage patterns should exclude excavation for swales in the setback. Rather, filling of soil to create a shallow swale at the setback edge is preferred because it is less invasive to the root system in an area termed the Root Protection Zone (RPZ). Any soil-berm activities to maintain current drainage in the RPZ and provide positive drainage away from structures should be done in conjunction with canopy and root pruning activities. The pruning and fencing activities should be scheduled to occur first to minimize the amount of overall disturbance to the tree root zones in the setback.

Timing and Installation of Fence to Create the Root Protection Zone (RPZ)

The Root Protection Zone (RPZ) defines the "limit of disturbance." The area should be fenced off prior to any demolition or construction activity with a temporary chain link construction fence at ten (10) feet from the property line to protect areas beneath the canopies of existing off-site oak trees.

The temporary fencing around the RPZ should be sturdy enough to stand throughout the construction period, and difficult to move (to discourage construction entry). A restricted passageway should be left in the fence, only to allow access to the trees for monitoring and maintenance until construction is complete and the fence can be removed.

The main reason to establish a Root Protection Zone (RPZ) with fencing along the southern project boundary early is to help avoid the impacts of soil compaction within the RPZ, as mentioned. Since trees with root zones in that area are to remain protected-in-place the addition of the protective fencing prior to construction activities, the fencing should be included as part of the grading/demolition plans and included for discussion at pre-construction meetings prior to commencement of demolition work.

No Trenching, Filling, and Paving Should Be Allowed In Within the Limits of this Area

Since heavy equipment will compact the soil, none should be allowed in that setback before or after the installation of the RPZ fencing. No structures, fuel, chemicals, building materials or product storage shall be allowed within that RPZ area. No vehicular access or parking, or even regular foot traffic for site access should be allowed inside the RPZ fencing zone. It is recommended that three inches (3") of bark mulch be placed in any areas likely to receive limited amounts of foot traffic to reduce the incidence of soil compaction and preserve moisture in the tree root zone area. No wood chips from diseased or pest-infested on-site oaks should be permitted as a

"mulch." "Keep out" signage should be posted on the fencing to restrict access to the RPZ area.

The only excavation in the RPZ should be careful hand-digging to locate any structural roots, for root pruning purposes. Any trenches for root pruning, itself, should be on the outside of the RPZ fence. An International Society of Arboriculture (ISA) certified tree worker should isolate and handle the cutting of the roots before permitting the use of heavy equipment in the area near the RPZ fence. If the tree roots are not pruned in advance of grading, then heavy equipment may accidentally pull, break, tear, and damage structural, lateral, sinker or feeder root laterals that are inside the Root Protection Zone.

Pre-Construction Root Pruning Treatment

As mentioned, root pruning should be scheduled in advance of demolition and construction. The optimum time to prune is in the later winter or early spring and can be done at any time in advance of the tree preservation work. Each existing off-site Oak tree should be individually evaluated for root pruning.

A narrow three-foot (3') deep, hand-dug trench on the outside of the RPZ fence is recommended to isolate any roots that need to be pruned. Root pruning shall be performed for any Oak that is discovered to have roots extending beyond the ten-foot setback and roots shall be pruned back to that set back as noted below. Likewise, each existing off-site Oak tree shall be individually evaluated for canopy pruning. Canopies that extend beyond the ten-foot set back limit shall be selectively pruned back to the set back as noted below. Canopy pruning should be scheduled to occur before root pruning, rather than after. This will help to reduce moisture loss in the canopy and mitigate the effect of removed structural and feeder roots on canopy balance and health.

As noted, each individual off-site Oak tree along the southern boundary shall be independently evaluated for root pruning where roots are found to extend beyond the ten-foot setback and roots shall be pruned back to the setback line. If required, the root pruning work should be performed by an ISA Certified Tree Worker who understands the importance of proper timing and technique. Roots that need to be cut or removed should be severed using a sharp tool (e.g., pruning shears or a handsaw, not a chainsaw). Proper pruning requires a clean cut that leaves as small a wound as possible. The trench should be backfilled with an inert granular material and topsoil mix as soon as possible and then lightly compacted with care around the retained roots. All exposed roots should be kept moist with wet burlap until the trenches can be covered.

Pre-Construction Tree Canopy Pruning

Each off-site Oak tree shall be individually evaluated for canopy pruning. Again, the optimum time to prune the canopy is in the late winter or early spring and can be done any time in advance of other preservation work. Canopy pruning is required for any tree where the canopy extends beyond the ten-foot setback and the tree should be selectively pruned back to the setback line. Canopy pruning of the adjacent off-site trees, if required, may be performed at any time prior to the demolition phase and root pruning to counteract the potential effects of moisture loss and structural imbalance of the trees. Pruning should be a certified tree worker. Topping the trees is not an acceptable option for canopy pruning. Crown reduction with selective pruning in the canopy that extends over the RPZ will provide the most aesthetic and horticulturally correct means of reshaping the tree canopies. Proper pruning will allow for the best canopy regrowth and the recovery of the trees.

Tree Pruning Qualifications for Contractors Due to the Sensitivity of Mature Oaks

There are limits to tree work that a contractor with a (C-27) Landscape Contractor License may perform in California that exclude them from this tree work. At a minimum, a C-61/D-49 License is required for this type of tree work, however the best work is likely to be provided by International Society of Arboriculture Certified tree workers who are also knowledgeable about proper canopy and root pruning techniques and work with the guidance of Certified Arborists on their team. All canopy work should be performed in conformance to the current Appendix D of the International Society of Arboriculture (ISA) Tree Pruning Specifications.

Retaining Wall Construction Adjacent to The Root Protection Zone (RPZ)

Retaining wall construction is proposed in southern portions of the site outside the RPZ. The subgrade of the footings and retaining walls will require trenching and soil compaction for structural reasons which is not allowed in the RPZ. As such, wall footing design should respect the boundaries of the RPZ, so that trenching or spread footings do not encroach into the RPZ side of the protective fencing. All wall construction activities, then, should also be performed on the outside of the RPZ fencing. If while trenching for the wall, any roots are discovered it is recommended that they be cleanly severed with a sharp blade, shears, or hand saw.

Summary

In conclusion, each off-site adjacent oak tree along the southern boundary that is subject to preservation shall be individually evaluated to determine if root and/or canopy pruning is required. If pruning is required, the recommendations for pruning will apply. In general, the addition of natural bark mulch in areas of foot traffic and the provision of a temporary chain link fence along the setback limits should keep the ten-foot setback area from the southern boundary undisturbed. If required, pre-demolition

canopy and root pruning as proposed in the recommendations, should be ample to assist with continued growth and development of the existing off-site Oak trees.

No permanent irrigation or fertilization is required for these off-site trees along the southern boundary as part of the tree preservation measures since there is a continuous ten-foot setback of undisturbed area where the conditions will be equal to that which the trees have known during their years of establishment. However, maintenance of the existing grades, drainage, and equivalent-to-existing soil moisture conditions in the Root Protection Zone (RPZ) of the setback is paramount to the continued success of the trees. In the event that the drought continues, it is recommended that the landscape plans include a temporary on-grade spray irrigation system to provide "deep watering" of one to two inches (1-2") of supplemental water two (2) times a month, including the natural rainfall months of November to January in the ten-foot setback. This will assist the trees re-establish roots and foliage. Temporary irrigation should be removed after the conclusion of construction, after the trees have established and are ready to return to their existing, non-irrigated conditions.

Surface water flow should not be eliminated to this area but maintained at its current level of natural saturation to provide a continuing source of hydration for the adjacent off-site trees along the southern perimeter. Demolition/Grading plans should reflect the ten-foot setback, RPZ fencing and provide notes and appropriate grading measures to protect the existing off-site Oak trees. No pruning activities of the off-site trees is proposed beyond the initial pruning recommendations herein.

Please let me know if you have any questions or comments regarding this matter.

Sincerely,

Kathleen Copley

Kathleen Copley, WCISA
ISA Certified Arborist, WE-7337A

Appendix F
Cultural Resources Report

CULTURAL RESOURCE SURVEY REPORT
FOR THE
NORTH IRIS LANE TM PROJECT,
CITY OF ESCONDIDO, CALIFORNIA
(APN 224-310-05-00, 224-310-06-00, 224-310-07-00, 224-310-08-00, 224-310-20-00)

Prepared for:

Ms. Mariana McGrain
Senior Project Manager
Hallmark Communities
740 Lomas Santa Fe Drive, Suite 204
Solana Beach, CA 92075

Prepared by:

Laguna Mountain Environmental, Inc.
3421 Voltaire Street
San Diego, CA 92106

Andrew R. Pigniolo, MA, RPA
Carol Serr, BA

December 2021

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December 2021

National Archaeological Data Base Information
Type of Study: Cultural Resource Survey
Sites (Resources): P-37-039446, 2039 North Iris Lane (P-37-039507), 2047 North Iris Lane (P-37-039508), 2085 North Iris Lane (P-37-039509), and 2089 North Iris Lane (P-37-039510)
USGS Quadrangle: Valley Center Quad 7.5'
Area: 7.7 Acres
Key Words: City of Escondido, North Iris Lane, 2039 North Iris Lane, 2047 North Iris Lane, 2085 North Iris Lane, 2089 North Iris Lane, Cultural Resource Survey, Positive Survey, Isolate Biface Preform (P-37-039446), Non-local Collection

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ABSTRACT

Laguna Mountain Environmental, Inc. (Laguna Mountain) conducted an intensive archaeological survey for the North Iris Lane TM Project in the City of Escondido, California. This investigation included a review of archaeological and historical information in addition to performing an archaeological survey of the project area.

Cultural resource work was conducted in accordance with the California Environmental Quality Act (CEQA), the California Code of Regulations (CCR), and related implementing regulations and guidelines. The City of Escondido, will serve as lead agency for the project and CEQA compliance.

A records search covering the project area and a one-mile radius was conducted at the South Coastal Information Center. At least 56 cultural resource studies have been undertaken within one mile of the project. Most of these studies deal with residential and commercial development projects, historic structure assessments, and infrastructure development. The project area was not previously subject to field survey based on any of these investigations.

Twenty cultural resources have been recorded outside of the project area, within a one mile radius. Thirteen are prehistoric, six are historic, and one is a prehistoric milling site with historic refuse associated. The prehistoric sites consist of bedrock milling locales, lithic scatters, temporary camps, habitation sites associated with bedrock milling, and an isolate grinding tool (mano). The historic resources include two residences, a house foundation, a water reservoir tank, a flume, and a highway

Additionally, a records search of the Sacred Lands Files of the Native American Heritage Commission (NAHC) was requested by Laguna Mountain. This search indicated that no Native American sacred sites are located within the current project area.

The archaeological survey was conducted by Mr. Andrew R. Pigniolo, RPA on March 26, 2021. Mr. P.J. Stoneburner, of Saving Sacred Sites, served as Native American monitor for the project. Fieldwork included an intensive 10 to 15-m interval transect survey throughout the project area. Small portions of the property had been previously cut/leveled during construction of the four existing houses on the property, but the project area was otherwise undisturbed. Surface visibility was highly variable depending upon non-native weed cover and native vegetation, averaging approximately 40 percent. Although dense grasses and non-native weeds were present, other areas included openings and areas of bare soil. Rodent backdirt was carefully examined in areas of lower surface visibility. The cultural resources survey of the project adequately served to identify cultural resources.

The survey identified four standing structures of historic age (2039 North Iris Lane, 2047 North Iris Lane, 2085 North Iris Lane, and 2089 North Iris Lane) within the project area. In addition, a single prehistoric isolated artifact (P-37-039446) was also present in the project. The project area was revisited on October 15, 2021. At that time the isolated artifact (P-37-039446) was found to have been relocated to a picnic table and additional artifacts were present on the table. Conversation with the homeowner indicated that the prehistoric isolated artifact (P-37-039446), along with most of the

other artifacts present, had been purchased in Arizona near Lake Powell and none of the artifacts present had originated on the project site. This was consistent with the appearance of some of the other artifacts. Based on this evidence, the results of the survey of the project area are negative for the presence of Native American cultural resources.

The four standing structures of historic age (2039 North Iris Lane, 2047 North Iris Lane, 2085 North Iris Lane, 2089 North Iris Lane) have not been previously evaluated for eligibility to the California Register of Historical Resources (California Register). Due to modifications through time, none of the four structures retain integrity or other qualities that would make them eligible for the California Register. These structures are not associated with events that have made a significant contribution to the broad patterns of San Diego County's history and cultural heritage. The residential properties at 2039 North Iris Lane (P-37-039507), 2047 North Iris Lane (P-37-039508), 2085 North Iris Lane (P-37-039509), and 2089 North Iris Lane (P-37-039510) are not associated with events significant in local history. They are also not associated with the lives of persons important to the history of San Diego County or its communities. The architects and builders are unknown, but the structures do not embody the distinctive characteristics of a type, period, San Diego County region, or method of construction, or represent the work of an important creative individual, or possesses high artistic values. The integrity of the structures has been compromised by additions and window replacements. The structures cannot yield information important in local history. As a privately purchased isolated resource, P-37-039446 also does not qualify as eligible for California Register listing.

All four of the of the historic-age structures within the project area are proposed to be directly impacted by the current project. It is likely that the artifact (P-37-039446), along with the other artifacts observed on the patio, will be removed by the owners prior to development and will not be impacted by the project.

Cultural resource monitoring by archaeological and Native American monitors during construction excavation and grading of native soils is recommended to ensure that potentially buried or obscured features are not impacted.

I. INTRODUCTION

A. Project Description

The 7.7-acre North Iris Lane TM project area is located in the west-central portion of San Diego County in the northern portion of the City of Escondido (Figure 1). The project is east of both Interstate 15 and North Centre City Parkway on the west side of North Iris Lane, comprised of five parcels (APNs 224-310-05, 224-310-06, 224-310-07, 224-310-08, 224-310-20). The project is located in the southern portion of Section 4 bordering on the section edge where is it bisected by the Rincon del Diablo Grant boundary line, in Township 12 South and Range 2 West, as shown on the Valley Center 7.5' USGS quadrangle (Figure 2).

The proposed project includes the demolition of four existing residential structures and construction of a 102 unit condominium complex with off-street parking (Figure 3). The project will include grading and excavation for utilities.

Cultural resource work was conducted in accordance with the California Environmental Quality Act (CEQA) and their implementing guidelines and regulations. The City of Escondido will serve as lead agency for the project and CEQA compliance. The archaeological survey was conducted to determine if any cultural resources eligible for inclusion in the California Register of Historic Resources (California Register) would be affected by this project.

B. Project Personnel

The cultural resource survey was conducted by Laguna Mountain Environmental, Inc. (Laguna Mountain), whose cultural resources staff meet state and local requirements. Mr. Andrew R. Pigniolo served as Principal Investigator for the project and conducted the field survey. Mr. Pigniolo is a member of the Register of Professional Archaeologists (RPA) and meets the Secretary of the Interior's standards for qualified archaeologists. Mr. Pigniolo has an MA degree in Anthropology from San Diego State University and has more than 42 years experience in the San Diego region. His resume is included in Appendix A.

Ms. Carol Serr coordinated the records search, prepared the report graphics, and edited and formatted the report. She has a B.A. in Anthropology from San Diego State University and more than 42 years of experience doing San Diego County archaeology.

Mr. “P. J.” Stoneburner, of Saving Sacred Sites, served as the Native American monitor for the project. He has more than three years experience conducting Native American monitoring in San Diego County.

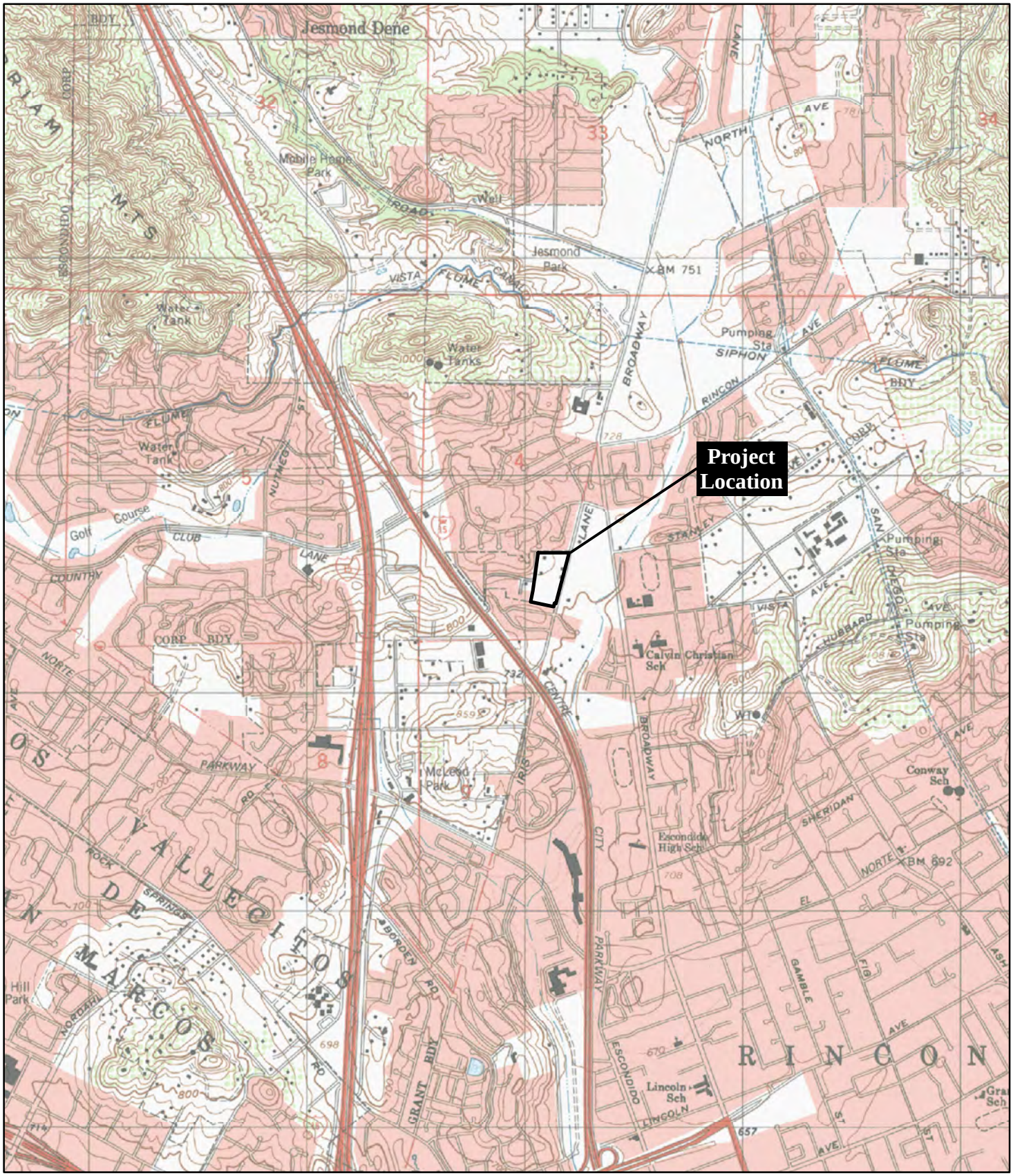
C. Structure of the Report

This report follows the State Historic Preservation Office’s guidelines for Archaeological Resource Management Reports (ARMR). The report introduction provides a description of the project and associated personnel. Section II provides background on the project area and previous research. Section III describes the research design and survey methods, while Section IV describes the survey results. Section V provides a summary and recommendations.



Figure 1
Regional Location Map

Laguna Mountain Environmental, Inc.

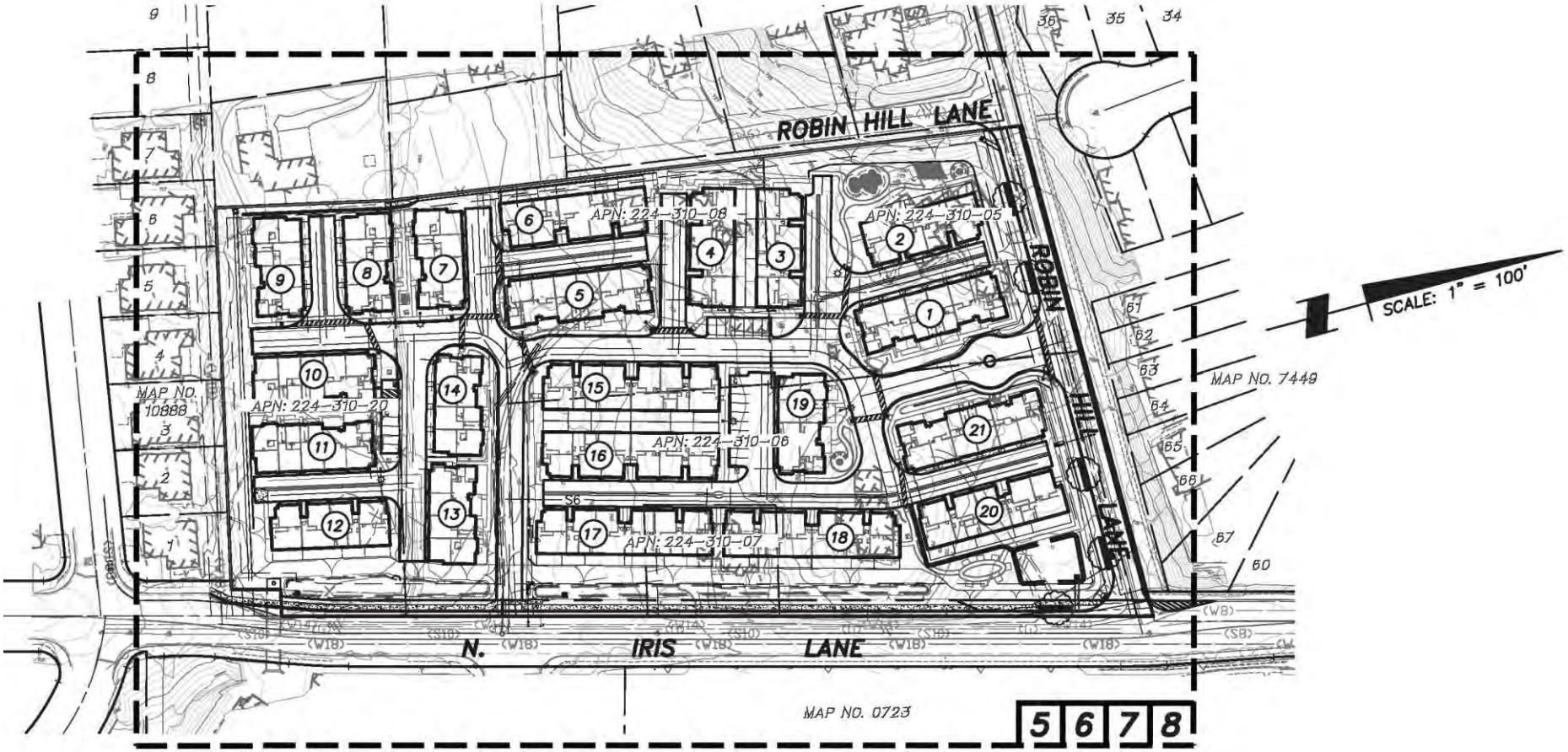


Source: USGS 7.5' Valley Center Quadrangle

0 1,000 2,000 Feet

Figure 2
Project Location

Laguna Mountain Environmental, Inc.



Source: SB&O Planning Engineering Surveying (3/8/21)

Figure 3
Proposed Project Plan

II. NATURAL AND CULTURAL SETTING

The following environmental and cultural background provides a context for the cultural resource inventory.

A. Natural Setting

The project area is located in the north-central portion of San Diego County approximately 14 miles inland from the Pacific Ocean. Elevation ranges from between 710 and 740 feet above mean sea level. The project area is made up of large lots with four residential structures and associated areas of landscaping. Intervening areas are largely open with the southern portion of the project occupied by horses and a corral. The immediate vicinity is made up of low to high density residential development.

The geomorphology of the project area is a product of the region's geologic history. During the Jurassic and late Cretaceous Periods (>100 million years ago) a series of volcanic islands paralleled the current coastline in the San Diego region. The remnants of these islands stand as Mount Helix, Black Mountain, and the Jamul Mountains among others. This island arc of volcanos spewed out vast layers of tuff (volcanic ash) and breccia that have since been metamorphosed into hard rock of the Santiago Peak Volcanic formation. These fine-grained rocks provided a regionally important resource for Native American flaked stone tools.

At about the same time, a granitic and gabbroic batholith was being formed east of these volcanoes. This batholith was uplifted and forms the granitic rocks and outcrops of the Peninsular Range and the foothills to the west. In San Diego County the large and varied crystals of these granitic rocks provided particularly good abrasive surfaces for Native American seed processing. These outcrops were frequently used for bedrock milling of seeds. The batholith contains numerous pegmatite dikes. This was a good source of quartz, a material used by Native Americans for flaked stone tools and ceremonial purposes.

As the Peninsular Batholith rose, it warped and metamorphosed the overlying sediments, forming the Julian Schist (Remeika and Lindsay 1992). This formation contains quartzite, a material also used for Native American flaked stone tools. Its relatively poor flaking qualities made this quartzite less popular for tool making than the quartz and Santiago Peak materials.

The project area is underlain by Quaternary alluvium (Kennedy and Tan 2005). Based on the road cut exposure, some unmapped granitic rocks may underlay portions of the project.

The project area is mapped as underlain by Escondido and Placenta series soils (Bowman 1973). The Escondido series, in the southern portion of the parcel, consists of moderately deep to deep, well-drained very fine sandy loams that formed in material weathered in place from metamorphosed sandstone. These soils are on uplands. They are gently rolling to hilly and have slopes of 5 to 30 percent. In a representative profile the surface layer is dark-brown, slightly acid very fine sandy loam about 6 inches thick. The subsoil is brown, neutral very fine sandy loam about 23 inches thick. The substratum is hard, fine-grained metasedimentary rock. The southern portion of the project area is underlain by Escondido very fine sandy loam (Bowman 1973).

Placentia sandy loam is present in the northern portion of the project area (Bowman 1973). Placentia series soils consist of moderately well drained sandy loams tat have a sand clay subsoil. These soils formed in granitic alluvium. They are on old alluvial fans and have slopes of 9 to 9 percent. The surface layer is generally brown, sandy loam about 13 inches thick. The subsoil is brown, sandy clay and sandy clay loam about 40 inches thick. This layer is calcareous in the lowermost part. It is underlain by yellowish-brown, moderately alkaline sandy clay loam (Bowman 1973).

The closest fresh water sources in the area is a seasonal drainage called Reidy Creek, located less than 100 m east of the project area.

The climate of the region can generally be described as Mediterranean, with cool, wet winters and hot, dry summers. Rainfall limits vegetation growth, but the drought deciduous coastal sage scrub vegetation of the region was probably present throughout the area in the past. Components of this community provided important resources to Native Americans in the region. Sage seed, yucca, buckwheat, acorns, and native grasses formed important food resources to Late Prehistoric Native Americans.

Animal resources in the region probably included deer, fox, raccoon, skunk, bobcats, coyotes, rabbits, and various rodent, reptile, and bird species prior to development of the area. Small game, dominated by rabbits, was relatively abundant.

B. Cultural Setting

Paleoindian Period

The earliest well documented prehistoric sites in southern California are identified as belonging to the Paleoindian period, which has locally been termed the San Dieguito complex/tradition. The Paleoindian period is thought to have occurred between 9,000 years ago, or earlier, and 8,000 years ago in this region. Although varying from the well-defined fluted point complexes such as Clovis, the San Dieguito complex is still seen as a hunting focused economy with limited use of seed grinding technology. The economy is generally seen to focus on highly ranked resources such as large mammals and relatively high mobility which may be related to following large game. Archaeological evidence associated with this period has been found around inland dry lakes, on old terrace deposits of the California desert, and also near the coast where it was first documented at the Harris Site.

Early Archaic Period

Native Americans during the Archaic period had a generalized economy that focused on hunting and gathering. In many parts of North America, Native Americans chose to replace this economy with types based on horticulture and agriculture. Coastal southern California economies remained largely based on wild resource use until European contact (Willey and Phillips 1958). Changes in hunting technology and other important elements of material culture have created two distinct subdivisions within the Archaic period in southern California.

The Early Archaic period is differentiated from the earlier Paleoindian period by a shift to a more generalized economy and an increased focus on the use of grinding and seed processing technology. At sites dated between approximately 8,000 and 1,500 years before present (BP), the increased use of groundstone artifacts and atlatl dart points, along with a mixed core-based tool assemblage, identify a range of adaptations to a more diversified set of plant and animal resources. Variations of the Pinto and Elko series projectile points, large bifaces, manos and portable metates, core tools, and heavy use of marine invertebrates in coastal areas are characteristic of this period, but many coastal sites show limited use of diagnostic atlatl points. Major changes in technology within this relatively long chronological unit appear limited. Several scientists have considered changes in projectile point styles and artifact frequencies within the Early Archaic period to be indicative of population movements or units of cultural change (Moratto 1984), but these units are poorly defined locally due to poor site preservation.

Late Archaic or Late Prehistoric Period

Around 2,000 BP, dramatic cultural changes occurred. An intrusion of Shoshonean-speakers into the northern portion of the county took place around 1,500 BP. Uto-Aztecan-speaking people from the Great Basin region began migrating into southern California around this same time. The Late Prehistoric Period in San Diego County is recognized archaeologically by smaller projectile points, the replacement of flexed inhumations with cremation, the introduction of ceramics, and an emphasis on inland plant food collection and processing, especially acorns (True 1966). Inland semi-sedentary villages were established along major water courses, and montane areas were seasonally occupied to exploit acorns and piñon nuts, resulting in permanent milling features on bedrock outcrops. Mortars for acorn processing increased in frequency relative to seed grinding basins. This period is known archaeologically as the San Luis Rey Complex in northern San Diego County (Meighan 1954; True et. al. 1974).

The Luiseño, at this time, shared boundaries with the Gabrieliño and Serrano to the west and northwest, the Cahuilla from the deserts to the east, the Cupeño to the southeast, and the Kumeyaay (Ipai) to the south. All but the Ipai are linguistically similar to the Luiseño (Bean and Shipek 1978). The Yuman-speaking Ipai have a different language and cultural background but shared certain similarities in social structure, and some Ipai incorporated some Luiseño religious practices.

The Luiseño were divided into several autonomous lineages or kin groups. The lineage represented the basic political unit among most southern California Indians. According to Bean and Shipek (1978) each Luiseño lineage possessed a permanent base camp, or village, in the San Luis Rey river valley and another in the mountain region for the exploitation of acorns, although this mobility pattern may only apply to the ethnohistoric present. Nearly all resources of the environment were exploited by the Luiseño in a highly developed seasonal mobility system. Each lineage had exclusive hunting and gathering rights in their procurement ranges and violation of trespass was seriously punished (Bean and Shipek 1978).

Acorns were the most important single food source used by the Luiseño. Their villages were usually located near water, which was necessary for the leaching of acorn meal. Seeds from grasses, manzanita, sage, sunflowers, lemonade berry, chia, and other plants were also used along with various wild greens and fruits. Deer, small game, and birds were hunted and fish and marine foods were eaten. Generally women collected the plant resources and the men hunted, but there was no rigid sexual division of labor (Bean and Shipek 1978).

Houses were arranged in the village without apparent pattern. The houses in primary villages were conical structures covered with tule bundles, having excavated floors and central hearths. Houses constructed at the mountain camps generally lacked any excavation, probably due to the summer occupation. Other structures included sweathouses, ceremonial enclosures, ramadas and acorn granaries. Domestic implements included wooden utensils, baskets, and ceramic cooking and storage vessels.

Hunting implements consisted of the bow and arrow, curved throwing sticks, nets and snares. Shell and bone hooks as well as nets were used for fishing. Lithic resources of quartz and volcanics, and some cherts were available locally in some areas. Exotic materials, such as obsidian and steatite, were acquired through trade.

The traditional Luiseño religion is a complex and deeply philosophical belief system with powerful religious leaders, elaborate ceremonies, and a veil of secrecy (White 1963). Each ritual and ceremonial specialist maintained the knowledge of the full meaning of a ceremony in secrecy and passed on the knowledge to only one heir. The decimation of the population after European contact undoubtedly caused the loss of some religious specialists and brought about abbreviated versions of ceremonies (Winterrowd and Shipek 1986), many of which are still practiced today. Surviving ceremonies include initiation for cult candidates, installation of religious chiefs, funerals, and clothes burning (Bean and Shipek 1978).

Ethnohistoric Period

The Ethnohistoric period refers to a brief period when Native American culture was initially being affected by Euroamerican culture. Historical records on Native American activities are limited. The missions recruited the Luiseño to use as laborers and convert them to Catholicism. The inland Luiseño were not heavily affected by Spanish influence until 1816, when an outpost of the mission was established 20 miles farther inland, at Pala (Sparkman 1908).

At the time of contact, Luiseño population estimates ranged from 5,000 to as many as 10,000 individuals. Missionization, along with the introduction of European diseases, greatly reduced the Luiseño population. Most villagers, however, continued to maintain many of their aboriginal customs and simply adopted the agricultural and animal husbandry practices learned from Spaniards.

These people were hunter-gatherers with highly developed social systems. European contact introduced diseases that dramatically reduced the Native American population and helped to break down cultural institutions. The transition to a largely Euroamerican lifestyle occurred relatively rapidly in the nineteenth century.

Historic Period

Cultural activities within San Diego County between the late 1700s and the present provide a record of Native American, Spanish, Mexican, and American control, occupation, and land use. An abbreviated history of San Diego County is presented for the purpose of providing a background on the presence, chronological significance, and historical relationship of cultural resources within the county.

Native American control of the southern California region ended in the political views of western nations with Spanish colonization of the area beginning in 1769. De facto Native American control of the majority of the population of California did not end until several decades later. In southern California, Euroamerican control was firmly established by the end of the Garra uprising in the early 1850s (Phillips 1975).

The Spanish Period (1769-1821) represents a period of Euroamerican exploration and settlement. Dual military and religious contingents established the San Diego Presidio and the San Diego and San Luis Rey Missions. The Mission system used Native Americans to build a footing for greater European settlement. The Mission system also introduced horses, cattle, other agricultural goods and implements; and provided construction methods and new architectural styles. The cultural and institutional systems established by the Spanish continued beyond the year 1821, when California came under Mexican rule.

The Mexican Period (1821-1848) includes the retention of many Spanish institutions and laws. The mission system was secularized in 1834, which dispossessed many Native Americans and increased Mexican settlement. After secularization, large tracts of land were granted to individuals and families and the rancho system was established. Cattle ranching dominated other agricultural activities and the development of the hide and tallow trade with the United States increased during the early part of this period. The Pueblo of San Diego was established during this period and Native American influence and control greatly declined. The Mexican Period ended when Mexico was forced to cede California to the United States after the Mexican-American War of 1846-48.

Soon after American control was established (1848-present), gold was discovered in California. The tremendous influx of American and Europeans that resulted quickly drowned out much of the Spanish and Mexican cultural influences and eliminated the last vestiges of de facto Native American control. Few Mexican ranchos remained intact because of land claim disputes and the homestead system increased American settlement beyond the coastal plain.

C. Prior Research

This archaeological investigation includes archival and other background studies performed prior to Laguna Mountain's field survey of the project area. The archival research consisted of literature and record searches at local archaeological repositories, in addition to an examination of historic maps, and historic site inventories. This information was used to identify previously recorded resources and determine the types of resources that might occur in the survey area.

The records and literature search for the project was conducted at the South Coastal Information Center at San Diego State University. The records search included a one-mile radius of the project area to provide background on the types of sites that would be expected in the region (Appendix B). Copies of historic maps were provided by the South Coastal Information Center.

At least 56 cultural resource studies have been undertaken within one mile of the project since 1976 (Table 1). Most of these studies deal with residential and commercial development projects, historic structure assessments, and infrastructure development. The project area was not subject to field inspection based on any of these investigations.

Table 1. Cultural Resource Investigations within One Mile of the Project Area

Author(s)	Report Title	Year
Anderson	Archaeological Survey for Escondido Master Plan Correction of Discrepancy for Parcel P11, Site EPS-30H/CA-SDI-12547H	1993
APEC	An Archaeological Test Excavation at Oak Creek	1980
Archaeological Associates	Archaeological Survey Report for the EIR of the Proposed Escondido Regional Shopping Center North West of Rts. 78 and 395, Escondido	1978
Breece	Archaeological Survey for Escondido Woods, Escondido	1978
Brunzell	Cultural Resources Assessment of the Crown Castle/ Verizon Fiber PUC Project, San Diego	2015
Brunzell	San Diego 129 Project, San Diego County	2017
Cardenas and Robbins-Wade	Cultural Resources Inventory and Significance Assessment, Eagles Bluff, Oceanside	1985
Castells and Stringer-Bowsher	Inventory and Evaluation of Cultural Resources for the Lindley Tank Replacement Project In Escondido	2012
Castells et al.	Cultural Resource Survey Report for the San Diego Gas & Electric Company and Southern California Gas Company Pipeline Safety & Reliability Project, San Diego County	2016
Chace	An Archaeological Survey of the Fig & Sheridan Tract, Escondido	1977
Chace	An Archaeological Survey, Sheridan Manor	1977
Chace	An Archaeological Assessment of the McKellar Development, City of Escondido	1980
Chace	An Archaeological Survey of Meadowview Estates, Escondido	1982
Chace	An Archaeological Survey for the North Reidy Creek Channel lmprovement	1988
City of Escondido	Draft Environmental Impact Report for Expansion of Wastewater Treatment Facility	1980
Clifford and Smith	An Archaeological Survey for the Glenbrook Village Project, Escondido	2003
Corum	Negative Archaeological Survey Report 11-SD-15 P.M. R32.9	1987
Corum	Negative Archaeological Survey Report: Park and Ride Lot 11-SD-15 P.M. R32.9 11823-90-8067	1987
Davis	Indirect Visual Impact Assessment Survey for the Proposed Pipeline Safety and Reliability Project, San Diego County	2016
Duke	Cultural Resource Assessment Fro Pacific Bell Wireless Facility, SD 108-03, County of San Diego	2001
Eckhardt	Archaeological Investigations of the Von Seegern Annexation Project Escondido	1977
Hector	Cultural Resources Sensitivity Analysis for the Carryover Storage and San Vicente Dam Raise Project (CSP) Alternatives Analysis	2006
Hector and Wolf	Escondido Storage Project Negative Cultural Resources Survey Report	2007
Jones	A Cultural Resources Study for the SDCWA Microwave Communications Project San Diego County	2013
Jones	Hubbard Hill, 1220 Hubbard Place, Escondido	2013
Jones & Stokes	Final Cultural Resources Inventory Report for the Williams Communications, Inc. Fiber Optic Cable System Installation Project, Riverside to San Diego	2000
Keller Environmental Assoc.	Appendices - Reclaimed Water Distribution System Project: Draft Environmental Impact Report	1992
Kwiatkowski	Negative Cultural Resources Survey Report for TPM 20879: Knox Lot Split, APN 224-272-51	2009

Table 1. Cultural Resources Investigations within One Mile of the Project Area
(Continued)

Author(s)	Report Title	Year
Kyle	Cultural Resource Survey for a Parcel Located on Lehner Avenue, City of Escondido	2004
Kyle	Cultural Resource Survey for Approximately 13 Acres Located in the City of Escondido	2006
Laylander	An Archaeological Survey of the Theberge Properties, City of Escondido	1980
Manchen and Williams	Supplemental Archaeological Survey for the Minor Project Refinements: Certificate of Public Convenience and Necessity for the Rainbow-San Diego (Line 3602) 36-inch Natural Gas Pipeline Project, San Diego County	2017
McLean	Letter Report: Results of Archaeological Monitoring at the Sunset Heights (EI Norte) Project in the City of Escondido, San Diego County	2000
Nearn	Cultural Resources Survey Report for Tran (Phap Vuong) Monastery, PDS201-MUP-14-010, APN# 227-010-57, Negative Findings	2017
Olmo	Oak Creek (Escondido Tract 391) Archaeological Mitigation Report, City of Escondido	1981
Padon	Prehistoric Survey of the El Norte Property, 32.6 Acres in San Diego County	1999
Pigniolo and Serr	Cultural Resource Survey Report for the Nutmeg Homes Project, City of Escondido	2018
RECON	Draft Environmental Impact Report for San Marcos Assembly Hall	1976
Robbins-Wade	Archaeological Records Search and Literature Review, Vallecitos Water District Master Plan Update, San Diego County	2003
Robbins-Wade	Archaeological Resources Survey, Booker Escondido Property, Escondido	2006
Robbins-Wade, et al.	Historic and Archaeological Resources Survey, Vista Flume Study, Vista, San Marcos, and Escondido, San Diego County	2009
Rosenberg	ETS #8021; TL 688 and TL 6932 Relocation and Underground Conversion Project	2009
Smith and Lorenzen	An Archaeological Assessment of the Nutmeg Parcel, City of Escondido (APNs 224-260-23, 46, and 47) 2006-03-VRP	2006
Smith and Stropes	Cultural Resources Study for the Escondido Country Club Project, City of Escondido	2017
Stropes and Smith	A Section 106 (NHPA) Historic Resources Study for the Escondido Country Club Project, SPL-2018-00135-CJA, City of Escondido	2018
Sutton	The Archaeology of Escondido Woods SDi-4942 and SDi-4943	1978
Walker and Bule	A Cultural Resource Study of Proposed Access Roads Between the Escondido Substation and the Proposed Substation Site at Rainbow	1979
White	Archaeological Assessment of the 32.86 Acre Springtime Growers Nursery Located at 2747 North Broadway in Escondido	1991
Williams and Bonner	Cultural Resource Records Search and Site Visit Results for T-Mobile USA Candidate SD07212-D (North Centre City Summit), 25005 North Centre City Parkway, Escondido, San Diego County	2011
Wills and Williams	Cultural Resource Records Search and Site Visit Results for Verizon Wireless Candidate “Jesmond Dene,” 2401 North Broadway, Escondido	2014
Wright	Negative Cultural Resources Survey Report for TPM 20761, Log No. 03-08-043, Eaton/Groenenberg, APN 227-010-56	2003
Wright	Cultural Resources Survey Report for TPM 20960, Log No. 05-08-025 - Hooper Project APN 224-290-73-00-00, Negative Findings	2005

Twenty cultural resources have been recorded outside of the project area, within a one mile radius (Table 2). Thirteen are prehistoric, six are historic, and one is a prehistoric milling site with historic refuse associated. The prehistoric sites consist of bedrock milling locales, lithic scatters, temporary camps, habitation sites associated with bedrock milling, and an isolate mano. The historic resources include two residences, a house foundation, a water reservoir tank, a flume, and a highway.

Historic maps and aerial photographs of the area were reviewed during the current project. They indicate that the project was on the margin of the community of Escondido and largely agricultural in the past. 1938 and 1947 aerial photographs show the area as plowed agricultural land (NETR 1938 and 1947). Historical USGS quadrangle maps do not show any structures within the project area until the 1970 edition map.

Table 2. Recorded Cultural Resources within One Mile of the Project Area

P No.	Trinomial	Resource Type	Recorder (Year)
P-37-001049	CA-SDI-1049	Prehistoric Habitation and Bedrock Milling	True (1962); Robbins-Wade (1985)
P-37-001050	CA-SDI-1050	Prehistoric Temporary Camp	True (1962)
P-37-001057	CA-SDI-1057	Prehistoric Village	True (1962)
P-37-001058	CA-SDI-1058	Prehistoric Temporary Camp	True (1962)
P-37-004561	CA-SDI-4561	Prehistoric Habitation and Bedrock Milling	Kearns (1971); Piek & DeCarlo (2015)
P-37-004943	CA-SDI-4943	Prehistoric Bedrock Milling	Eckhardt (1977)
P-37-004944	CA-SDI-4944	Prehistoric Lithic Scatter	Eckhardt (1977)
P-37-006727	CA-SDI-6727	Prehistoric Bedrock Milling and Lithic Scatter	Bickford (1978)
P-37-006728	CA-SDI-6728	Prehistoric Bedrock Milling	Bickford (1978)
P-37-012543	CA-SDI-12543	Historic House Foundation and Refuse	Glenn et al. (1991)
P-37-012545	CA-SDI-12545	Prehistoric Habitation and Bedrock Milling	True (1962); Bronson (1978); Glenn et al. (1991)
P-37-012546	CA-SDI-12546	Prehistoric Bedrock Milling and Historic Refuse	Glenn et al. (1991)
P-37-018745	-	Historic Residence	Leary (1983)
P-37-019574	-	Historic Residence	Leary (1983)
P-37-030889	-	Historic Flume	Van Wormer (2009)
P-37-032874	-	Historic Reservoir Tank	Castells (2012)
P-37-033557	-	Historic Road	Stringer-Bowsher (2018)
P-37-037735	CA-SDI-22478	Prehistoric Bedrock Milling	Calvani & Manchen (2015)
P-37-038782	-	Prehistoric Isolate Mano	Berdeja (2019)
P-37-038783	CA-SDI-22824	Prehistoric Bedrock Milling	Roy (2018)

D. Native American Consultation

A sacred sites search was conducted with the California Native American Heritage Commission (NAHC). The sacred sites search did not indicate the presence of recorded resources within the project area, but identified the region as generally sensitive (Appendix C). Mr. "P. J." Stoneburner, of Saving Sacred Sites, served as the Native American monitor for the project during the survey.

Tribal consultation per Assembly Bill 52 for the current project has also been conducted (see Appendix C). It included outreach and information requests to local Native American groups. The San Pasqual Band of Mission Indians indicated that the project was within their Traditional Use Area and requested additional information and consultation. The Viejas Band of Kumeyaay Indians determined that the project site has cultural significance or ties to Viejas and requested a Kumayaay cultural monitor be on site during ground disturbing activities.

III. RESEARCH DESIGN AND SURVEY METHODS

A. Research Design

The goals of the current project were to identify any cultural resources within the project impact area through archaeological survey. To accomplish these goals, background information was examined and assessed. Based on a review of background information, it was determined that there was potential for the presence of both prehistoric and historic resources. The current field survey was conducted to update previous survey efforts, identify any unrecorded resources within the project area, and assess the current condition of the previously identified resources within the project area.

B. Methods

The archaeological survey was conducted by Mr. Andrew R. Pigniolo, RPA on and March 26, 2021. Mr. P.J. Stoneburner, of Saving Sacred Sites, served as Native American monitor for the project. Fieldwork included an intensive 10 to 15-m interval transect survey throughout the project area. Small portions of the property had been previously cut/leveled during construction of the four existing houses on the property, but the project area was otherwise undisturbed. Surface visibility was highly variable depending upon non-native weed cover and native vegetation. Survey visibility averaged approximately 40 percent. Although dense grasses and non-native weeds were present, other areas included shrub openings and areas of bare soil. Rodent backdirt was carefully examined in areas of lower surface visibility. The cultural resources survey of the project adequately served to identify cultural resources.

A field walkover of the project area was conducted on October 15, 2021 with Ms. Mariana McGrain, Project Planner, Ms. Cheryl Madrigal, Rincon Band of Luiseño Indians, and Mr. Andrew Pigniolo. The goal of the visit was to review the survey results with the Rincon Band of Luiseño Indians representative.

IV. SURVEY RESULTS

The survey identified four standing structures of historic age (2039 North Iris Lane, 2047 North Iris Lane, 2085 North Iris Lane, 2089 North Iris Lane) within the project area. In addition a single prehistoric isolated artifact (P-37-039446) was also present in the project (Figure 4). A revisit to the project area determined that the prehistoric artifact (P-37-039446) was a purchased item and had not originated in the project area. Based on this evidence, the results of the survey of the project area are negative for the presence of Native American cultural resources. Each of these resources will be described in greater detail below. Resource forms were submitted to the SCIC (Appendix D).

A. 2039 North Iris Lane (P-37-039507)

This residential structure and garage is a ranch style house (Figure 5). It is located in the west-central portion of the project area. The house was built about 1961 for Jason and Frances Swanson (Debra Lindblad, personal communication 2021). Debra Lindblad, the daughter of James and Frances Swanson is the current owner. The house is three bedroom, 1 ½ bathroom with a total of 1,672 square feet (Realtor.com 2021).

The house is wood frame with stucco siding. The lower portions of the exterior walls have decorative vinyl siding. The roof is a very low angle composite shingle hipped roof with relatively wide eave overhangs and added gutters. The house has a concrete block fireplace. The structure was originally smaller and did not include the present large garage addition. The original garage appears to have been located on the southern side of the current house. Aerial photographs show that between 1967 and 1978 significant changes were made to the original structure (NETR 1967, 1978). The large garage was added at the southern side of the original structure. The original garage appears to have been converted into rooms and a rear room extension was added. Windows may have been replaced with vinyl at that time and the entryway also appears to have been significantly modified. The original character of the structure appears to have been significantly altered.

The structure appears to have been completed in 1961. The Swanson family does not appear in the 1959 City Directory (Escondido City Directory 1959). Jason G. and France E. Swanson first appear in the 1961 City Directory (Escondido City Directory 1961). Jason G. Swanson's occupation is listed as a civil servant (Escondido City Directory 1961). The structure first appears on the 1964 aerial photograph of the area (NETR 1964). The house appears to have been occupied by Jason and Frances Swanson, and then inherited and occupied by Debra Lindblad and her husband to the present time.

B. 2047 North Iris Lane (P-37-039508)

This is another single family house built about 1961 (Redfin 2021). It has two bedrooms and one bathroom and is 1,160 square feet (Redfin 2021). The house was built for Mrs. Frances Zickefoose (Debra Lindblad, personal communication 2021).

The house is a single story Minimal Traditional style structure with attached garage (Figure 6). The structure is wood frame with stucco siding while the lower portion of the siding is vinyl clapboard. The vinyl siding may be a later addition. The roof is low angled hipped with composite shingles. Windows are largely vinyl, but a large sliding glass door north of the garage door has aluminum framing.

Figure 4
Project Location and Associated Cultural Resources

Confidential Figure
Bound Separately in Appendix E



a. House Overview, Looking West (PR-07609-108)



b. House Front, Looking West (PR-07609-020)

Figure 5
Views of 2039 North Iris Lane



a. Front Overview, Looking West (PR-07609-113)



b. Rear Overview, Looking Southwest (PR-07609-036)

Figure 6
Views of 2047 North Iris Lane

The structure appears to have been completed in 1961. The Mrs. Frances Zickefoose does not appear in the 1959 City Directory (Escondido City Directory 1959). Mrs. Frances Zickefoose first appears in the 1961 City Directory (Escondido City Directory 1961) and continues after that date. The structure first appears on the 1964 aerial photograph of the area (NETR 1964). The structure was apparently remodeled between 1967 and 1978 which appears to have included the rear addition to the original structure (NETR 1967, 1978).

C. 2085 North Iris Lane (P-37-039509)

This house is the earliest structure built within the project area. The house was built in 1951 for Bob and Jenny Beals (Debra Lindblad, personal communication 2021). They appear to have been the original owners of the entire project area, who later sold other lots for development (Debra Lindblad, personal communication 2021). The house is two bedroom, one bathroom with a total of 868 square feet (Redfin 2021). This house is the only structure that appears within the project area on the 1953 aerial photograph of the project area (NETR 1953). The 1956 Escondido City Directory lists Leroy B and Jennie Beals with a mail address of Route 2, Box 207 (Escondido City Directory 1956). They continue to appear in City Directories after that date (Escondido City Directory 1959, 1961).

The structure is a Minimal Traditional single story residence located at the highest point within the project area. The structure is wood frame with stucco finish (Figure 7). The roof is composite shingle low gable with three separate levels. Windows are largely vinyl sash replacements along with a set of French doors bounded by paned windows on the western front side. Most windows are divided vertically, but at least one is horizontal. The treatment surrounding the windows is a wide plan board. In addition to the window and door replacements, a carport and large rear patio addition have been made after 2014 (NETR 2014, 2016).

D. 2089 North Iris Lane (P-37-039510)

This structure is a somewhat ranch style house that was also probably completed in 1961 (Figure 8). The structure first appears on the 1964 aerial photograph of the area (NETR 1964). It was originally an oddly angled roughly “L-shaped” structure in outline (NETR 1964). Aerial photographs show that between 1967 and 1978 significant changes were made to the original structure (NETR 1967, 1978). Large additions transforming the structure into a roughly “T-shape” outline were made (NETR 1978). Between 1995 and 1996, a separate garage building was constructed to the northeast of the house (NETR 1996).

The structure is wood frame with both stucco and board and batten siding. This structure has a low angle gable roof with tar and gravel finish. Several added skylights are present. Windows are vinyl sash with both vertical and horizontal panes. The structure has been significantly modified from its original character through additions.



a. Front Overview, Looking South-southwest (PR-07609-054)



b. Rear Overview, Looking West (PR-07609-047)

Figure 7
Views of 2085 North Iris Lane



a. Front Overview, Looking Southwest (PR-07609-121)



b. Rear Overview, Looking Northwest (PR-07609-068)

Figure 8
Views of 2089 North Iris Lane

E. P-37-039446 (IL-I-1)

The isolate is a Santiago Peak Volcanic biface preform (Figure 9). It was located in the northwestern portion of the project area, less than 3 meters from the backyard patio of the residence addressed as 2089 North Iris Lane. The area has a row of olive trees that appear to be a remnant of earlier agriculture. To the west and upslope, a graded cut is present and bedrock is exposed in several areas. The artifact was found loose on top of the soil. In this context, so close to the house, it cannot be determined whether the artifact was a relic collected (and discarded) by inhabitants of the house at some time or was originally present at this location.

The artifact is a large (15 cm long), early stage biface preform. The surface is weathered and patinated. Preforms of this size and type have typically been associated with the San Dieguito or Paleoindian Period. Surface visibility in the immediate vicinity was very good and no other artifacts were present.

The project area was revisited on October 15, 2021. At that time the isolated artifact (P-37-039446) was found to have been relocated to a picnic table and additional decorative rocks and artifacts were present on the table (Figure 10). Conversation with the homeowner indicated that the prehistoric biface, along with a red sandstone slab metate, had been purchased in Arizona near Lake Powell. A granitic bifacial mano that had been painted by one of her children was thought to have been collected by a relative. We were told that none of the artifacts and decorative rocks present had originated on the project site. This was consistent with the appearance of the sandstone metate. The brown rhyolite used for the biface preform, was also more consistent with an Arizona source than a local one where brown is a rare color form.



a. Top View (PR-07609-086)



b. Side View (PR-07609-092)



c. Bottom View (PR-07609-087)

Figure 9
P-37-039446 Biface Preform



a. Biface (left), Metate (center), and Decorated Rocks on Backyard Picnic Table (PR-08002-012)



b. Biface and Bifacial Mano (PR-8002-002)

Figure 10
Privately Owned Artifacts and Decorative Rocks

V. EVALUATION CRITERIA AND RECOMMENDATIONS

A. Evaluation Criteria

The evaluation criteria used to determine site significance are provided below.

Cultural resource investigations must comply with a variety of laws, regulations, and ordinances. Many of these laws are complementary and provide similar protection for cultural resources at various jurisdictional levels.

The importance of cultural resources under State law as defined in CEQA has been refined to coincide with those of the California Register. Section 15064.5 of the CEQA guidelines provides for closer consistency with the National Register criteria. "Historical resources" as defined by Section 15064.5 of CEQA include:

(1) A resource listed in, or determined to be eligible by the State Historical Resources Commission, for listing in the California Register of Historical Resources (Pub. Res. Code SS5024.1, Title 14 CCR, Section 4850 et seq.).

(2) A resource included in a local register of historical resources, as defined in section 5020.1(k) of the Public Resources Code or identified as significant in an historical resource survey meeting the requirements section 5024.1(g) of the Public Resources Code, shall be presumed to be historically or culturally significant. Public agencies must treat any such resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant.

(3) Any object, building, structure, site, area, place, record or manuscript which a lead agency determines to be historically significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California may be considered to be an historical resource, provided the lead agency's determination is supported by substantial evidence in light of the whole record. Generally, a resource shall be considered by the lead agency to be "historically" significant" if the resource meets the criteria for listing on the California Register of Historical Resources (Pub. Res. Code SS5024.1, Title 14 CCR, Section 4852) including the following:

> (A) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage;
>
> (B) Is associated with the lives of persons important in our past;
>
> (C) Embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
>
> (D) Has yielded, or may be likely to yield, information important in prehistory or history.

(4) The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in section 5024.1(g) of the Public Resource Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resource Code sections 5020.1(j) or 5024.1.

California Register Criteria (a), (b), and (c) are unlikely to be met by prehistoric sites within the project because they most often apply to standing structures or resources with good historical documentation. Criterion (d) is the most applicable to prehistoric archaeological resources and historical resources with no architectural integrity and limited historical association.

The problem of establishing the research value of archaeological data at the State, and local level has been addressed by numerous archaeologists and cultural resource managers. A consensus had developed that emphasizes the development of a problem-oriented research design that ties explicit research questions to larger order research issues in anthropology, history, and other social sciences. The research design provided in Section III establishes specific criteria for evaluating the importance of site information. These research criteria can provide information that will provide public benefit by expanding our understanding of history and prehistory.

B. Significance

The goal of the survey program was to ensure that potentially significant cultural resources would not be impacted by the project. The survey identified four standing structures of historic age (2039 North Iris Lane, 2047 North Iris Lane, 2085 North Iris Lane, 2089 North Iris Lane) within the project area. In addition, a prehistoric isolated artifact (P-37-039446) was observed in the project.

The four standing structures of historic age (2039 North Iris Lane, 2047 North Iris Lane, 2085 North Iris Lane, 2089 North Iris Lane) have not been previously evaluated for eligibility to the California Register of Historical Resources (California Register). Due to modifications through time, none of the four structures retain integrity or other qualities that would make them eligible for the California Register. These structures are not associated with events that have made a significant contribution to the broad patterns of San Diego County's history and cultural heritage. The residential properties at 2039 North Iris Lane (P-37-039507), 2047 North Iris Lane (P-37-039508), 2085 North Iris Lane (P-37-039509), and 2089 North Iris Lane (P-37-039510) are not associated with events significant in local history. They are also not associated with the lives of persons important to the history of San Diego County or its communities. The architects and builders are unknown, but the structures do not embody the distinctive characteristics of a type, period, San Diego County region, or method of construction, or represent the work of an important creative individual, or possesses high artistic values. The integrity of the structures has been compromised by additions and window replacements. The structures cannot yield information important in local history. As a privately purchased out of state artifact, P-37-039446 also does not qualify as eligible for California Register listing.

C. Impacts

All four of the of the historic-age structures (P-37-039507, P-37-039508, P-37-039509, and P-37-039510) within the project area are proposed to be directly impacted by the current project. It is likely that the artifact (P-37-039446), along with the other artifacts observed on the patio, will be removed by the owners prior to development and will not be impacted by the project.

D. Recommendations

Cultural resource monitoring by archaeological and Native American monitors during construction excavation and grading of native soils is recommended to ensure that potentially buried or obscured sites or features are not impacted.

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APPENDICES

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APPENDIX A

RESUME OF PRINCIPAL INVESTIGATOR

ANDREW R. PIGNIOLO, M.A., RPA
Principal Archaeologist
Laguna Mountain Environmental, Inc.

Education

San Diego State University, Master of Arts, Anthropology, 1992
San Diego State University, Bachelor of Arts, Anthropology, 1985

Professional Experience

2002-Present	Principal Archaeologist/President, Laguna Mountain Environmental, Inc., San Diego
1997-2002	Senior Archaeologist, Tierra Environmental Services, San Diego
1994-1997	Senior Archaeologist, KEA Environmental, Inc., San Diego
1985-1994	Project Archaeologist/Senior Archaeologist, Ogden Environmental and Energy Services, San Diego
1982-1985	Reports Archivist, Cultural Resource Management Center (now the South Coastal Information Center), San Diego State University
1980-1985	Archaeological Consultant, San Diego, California

Professional Affiliations

Register of Professional Archaeologists (RPA), 1992-present
Qualified Archaeology Consultant, San Diego County
Qualified Archaeology Consultant, City of San Diego
Qualified Archaeology Consultant, City of Chula Vista
Qualified Archaeology Consultant, Riverside County
Society for American Archaeology
Society for California Archaeology
Pacific Coast Archaeological Society
San Diego County Archaeological Society

Qualifications

Mr. Andrew Pigniolo is a certified archaeology consultant for the County and City of San Diego. Mr. Pigniolo has more than 38 years of experience as an archaeologist, and has conducted more than 800 projects throughout southern California and western Arizona. His archaeological investigations have been conducted for a wide variety of development and resource management projects including water resource facilities, energy utilities, commercial and residential developments, military installations, transportation projects, and projects involving Indian Reservation lands. Mr. Pigniolo has conducted the complete range of technical studies including archaeological overviews and management plans, ethnographic studies, archaeological surveys, test excavations, historical research, evaluations of significance under CEQA and Section 106, data recovery programs, and monitoring projects. He has received 40 hour HAZWOPPER training and holds an active card for hazardous material work.

REPRESENTATIVE PROJECTS

Proposed SDG&E Sunrise Powerlink Project, San Diego to Imperial Valley, California *(San Diego Gas and Electric).* Mr. Pigniolo served as the Principal Investigator and archaeological monitor for this project whose purpose is the installation of a new transmission line corridor running from San Diego to Imperial Valley. This phase of the project included the preliminary reporting of any cultural resources observed during field visits to the proposed impact areas. Mr. Pigniolo recorded sites encountered during monitoring, and collected GPS points and photographs of the sites for future review. Mr. Pigniolo also conducted the cultural resources portion of the environmental training for this project.

Princess Street Monitoring and Data Recovery Project at the Spindrift Site *(City of San Diego)*. Mr. Pigniolo served as a Principal Investigator of an archaeological monitoring and data recovery program at the Spindrift Site in the community of La Jolla. The effort was initially to provide archaeological monitoring of a utility undergrounding project. The presence of the major prehistoric village site within the project alignment quickly became evident prior to construction monitoring and a data recovery plan was prepared prior to the start of work. Data recovery included the excavation of 25 controlled units and the water screening of 100 percent of the archaeological site material impacted during trenching. More than 40 fragmented human burials were encountered. Working with Native American monitors and representatives, the remains were repatriated.

Cultural Resource Survey, Geotechnical Monitoring, and Testing for the La Jolla View Reservoir Project, La Jolla, City of San Diego, California (*IEC*). Mr. Pigniolo served as Principal Investigator and conducted an archaeological survey on an approximately 15-acre study area, in the La Jolla Natural Park area on Mount Soledad above La. In addition to the field survey, geotechnical work was monitored by an archaeologist and Native American monitor. One small prehistoric cobble procurement site (CA-SDI-20843) was tested to determine site significance. Due to surface visibility constraints from dense vegetation, monitoring by an archaeological and a Native American monitor during construction excavation and grading was recommended to ensure sensitive features not identified during the survey are not present or impacted by the project.

City of San Diego Sever Group 783 Project, San Diego, California *(Orion Construction Company.)* Mr. Pigniolo was the Principal Investigator for an archaeological monitoring project for a sewer line replacement in the eastern portion of the City of San Diego. The project included archaeological construction monitoring in an urban environment.

Cultural Resource Monitoring and Treatment of CA-SDI-20861 for the 1941-1945 Columbia Street Project, City of San Diego, California (*Jeff Svitak Inc.*) Mr. Pigniolo served as Principal Investigator of an archival research and an archaeological and Native American monitoring program of building demolition and construction excavation for a multi-family dwelling in the Little Italy community of the City of San Diego. The project consisted of archaeological and historical research prior to fieldwork, archaeological monitoring of foundation removal and construction excavation, and the recovery and analysis of historic artifacts discovered during monitoring. Site CA-SDI-20861 was treated as a significant cultural resource and the recovery and analysis of the cultural material served as mitigation for the project impacts to the site.

Cultural Resource Salvage and Monitoring within a Portion of CA-SDI-39/17372 at 1891 Viking Way, La Jolla, City of San Diego, California (*Ayers General Contracting, Inc.*) Mr. Pigniolo served as Principal Investigator of an archaeological salvage and documentation program in addition to construction monitoring for the residence located at 1891 Viking Way, in the La Jolla. The project included the demolition and replacement of an existing retaining wall, and the replacement of additional yard hardscape. The City of San Diego archaeologist determined that construction work was occurring within site CA-SDI-39 and required work to stop and a treatment plan to partially mitigate impacts to the site be prepared. The project included a salvage effort to partially mitigate impacts to this portion of the site, through documentation and artifact recovery and to recover any impacted human remains as part of mitigation. Three phases of treatment were conducted including a 100 percent recovery program for human remains and associated grave goods and monitoring of final construction disturbance and backfilling.

Muller Residence Archaeological Survey, Testing, and Evaluation, Carmel Valley, City of San Diego, California (*Mr. Rolf Muller*) Mr. Pigniolo served as Principal Investigator and Project Manager of a cultural resource survey and testing and evaluation program of a residential parcel proposed for development. The survey indicated the presence of a portion of a prehistoric shell midden within the project area. The testing program indicated a deeply buried archaeological deposit with a high level of integrity. Impact avoidance through redesign was recommended under City of San Diego Historical Resources Guidelines.

Cultural Resource Monitoring for The San Diego County Administration Center Waterfront Park Project, San Diego, California (*McCarthy Building Companies, Inc.*) Mr. Pigniolo served as Principal Investigator of a cultural resource monitoring program for the Water Front Park Project at the San Diego County Administration Building in the City of San Diego. The monitoring program included excavation near the dredge fill/native ground contact. Historic maps indicated that the entire project area was located on man-made land created from bay dredge spoils. The monitoring program identified a small historic-age boat that probably sank in the bayfront prior to filling of the area. Based on the current County guidelines, this resource qualifies as significant for its information potential and has been treated as such. The boat was documented and avoided, and left in place.

13th and C Streets Evaluation Project, City of San Diego, California (*WM Builders*) Mr. Pigniolo served as Principal Investigator of a archaeological/historical resource assessment for a commercial development project in the City of San Diego. The project area is in the downtown portion of San Diego. A records search, literature review, examination of historic maps, records, and city directories was used to assess the potential for buried historic resources within the project area. Potential buried historic resource locations were identified and a testing plan was developed.

U. S. Army Yuma Proving Ground (YPG) Native American Consultation Plan, Yuma, Arizona (*Yuma Proving Ground*). Mr. Pigniolo served as principal author of a Native American consultation plan for YPG to provide guidance and information to U.S. Army commanders and Army resource managers at YPG for consultation with Native American groups. Consultation was conducted in a manner that is consistent with federal laws and regulations that mandate consultation and the consultation plan was designed to ensure the participation of Native American groups early in the planning process.

All American 105 Race Project, West Mesa, Imperial County, California (*Legacy 106, Inc.*). Mr. Pigniolo served as Principal Investigator, report author, and crew chief for an archaeological survey for a proposed off-road vehicle race course in the West Mesa area of Imperial County. The survey covered Bureau of Land Management (BLM) lands and included close coordination with BLM staff. The survey included a proposed 7.5 mile course with a very short time-frame. The goal was project alignment adjustment and realignment to avoid resource impacts where possible. A variety of prehistoric cultural resources including 10 sites and seven isolates were encountered. Human remains were identified and avoided. The race route was realigned to avoid significant resource impacts allowing the race to proceed on schedule.

Alpine Fire Safe Council Brush Management Monitoring Project, Alpine Region, San Diego County, California (*Alpine Fire Safe Council*) Mr. Pigniolo served as Principal Investigator for a cultural resources monitoring and protection program on four project areas surrounding Alpine. Cultural resources identified during previous surveys within the vegetation treatment areas were flagged for avoidance. The project included hand clearing and chaparral mastication near residential structures to create a fire buffer zone. Vegetation removal was monitored to ensure cultural resources obscured by heavy vegetation were not impacted by the project and that all recorded cultural resources were avoided. The Bureau of Land Management served as Lead Agency for the project.

APPENDIX B

RECORD SEARCH CONFIRMATION

South Coastal Information Center
San Diego State University
5500 Campanile Drive
San Diego, CA 92182-5320
Office: (619) 594-5682
www.scic.org
scic@mail.sdsu.edu

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM
CLIENT IN-HOUSE RECORDS SEARCH

Company: Laguna Mountain Environmental

Company Representative: Carol Serr

Date: 3/22/2021

Project Identification: N. Iris Lane Survey Project, Escondido (Job #2114)

Search Radius: 1 mile

Historical Resources: SELF

Trinomial and Primary site maps have been reviewed. All sites within the project boundaries and the specified radius of the project area have been plotted. Copies of the site record forms have been included for all recorded sites.

Previous Survey Report Boundaries: SELF

Project boundary maps have been reviewed. National Archaeological Database (NADB) citations for reports within the project boundaries and within the specified radius of the project area have been included.

Historic Addresses: SELF

A map and database of historic properties (formerly Geofinder) has been included.

Historic Maps: N/A

The historic maps on file at the South Coastal Information Center have been reviewed, and copies have been included.

Copies: 122

Hours: 1.5 - JL + 2 database lines

This is not an invoice. Please pay from the monthly billing statement

APPENDIX C

NATIVE AMERICAN CORRESPONDENCE

(*Confidential - Bound Separately*)

APPENDIX D

RESOURCE FORMS

(*Confidential - Bound Separately*)

APPENDIX E

CONFIDENTIAL FIGURE
(*Bound Separately*)

Appendix G1
Geotechnical Investigation

GEOTECHNICAL INVESTIGATION

NORTH IRIS LANE
ESCONDIDO, CALIFORNIA

GEOCON
INCORPORATED

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

PREPARED FOR

HALLMARK DEVELOPMENT CORP
SOLANA BEACH, CALIFORNIA

MARCH 4, 2021
PROJECT NO. G2670-32-01

Project No. G2670-32-01
March 4, 2021

Hallmark Development Corp
740 Lomas Santa Fe Drive, Suite 204
Solana Beach, California 92075

Attention: Ms. Mariana McGrain

Subject: GEOTECHNICAL INVESTIGATION
NORTH IRIS LANE
ESCONDIDO, CALIFORNIA

Dear Ms. McGrain:

In accordance with your authorization of our Proposal No. LG-21053, dated January 27, 2021, we have performed a geotechnical investigation on the subject property. The accompanying report presents the findings of our study and our recommendations relative to the geotechnical aspects of developing the property as presently proposed.

The results of our study indicate that the site can be developed as planned, provided the recommendations of this report are followed. Remedial grading of potentially compressible surficial soils and the potential presence of shallow rock in areas of planned excavation will be important geotechnical considerations during project development.

Should you have questions regarding this report, or if we may be of further service, please contact the undersigned at your convenience.

Very truly yours,

GEOCON INCORPORATED

Don Githens
Staff Engineer

Trevor E. Myers
RCE 63773

David B. Evans
CEG 1860

DEG:TEM:DBE:dmc

(e-mail) Addressee

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GEOTECHNICAL INVESTIGATION

1. PURPOSE AND SCOPE

The purpose of this study was to evaluate the proposed grading for a 21-lot residential subdivision located at 2039-2089 North Iris Lane in Escondido, California (see *Vicinity Map,* Figure 1). This report provides recommendations relative to the geotechnical engineering aspects of developing the property as proposed. This report is intended to address the project plans titled *Preliminary Grading Plan, North Iris Lane, Escondido, California*, prepared by SB&O, Inc., undated.

The scope of our study consisted of the following:

- Reviewing aerial photographs and readily available published and unpublished geologic literature.
- Reviewing the referenced plans prepared by SB&O, Inc.
- Excavating twelve (12) exploratory trenches using a rubber tire backhoe to evaluate the general extent and condition of surficial deposits (see Appendix A for trench logs).
- Performing laboratory tests on selected soil samples to evaluate the physical characteristics for engineering analysis (see Appendix B).
- Performing four infiltration tests in the proposed basin locations and providing storm water management guidelines in accordance with the City of Escondido Storm Water Standards (See Appendix C).
- Preparing this report, geologic map, and our conclusions and recommendations regarding the geotechnical aspects of developing the property as presently proposed.

The approximate locations of the exploratory trenches and infiltration tests are shown on the *Geologic Map*, Figure 2.

2. SITE AND PROJECT DESCRIPTION

The approximate 6-acre property consists of 5 parcels of land currently occupied by 4 single family residences with relatively open fields. The property is bounded by Robin Hill Lane to the north and northwest, North Iris Lane to the east, and existing residences to the west and south. An equestrian area occupies the southern portion of the property. Vegetation appears relatively sparse with the exception of low-lying grasses, shrubs, and several trees generally surrounding the residences.

Elevations range from approximately 705 feet above Mean Sea Level (MSL) in the southeast portion of the site to 735 feet MSL in the northwest corner. Topographically, the property gently slopes to the

south. A natural drainage with shallow perched groundwater crosses the southern portion of the property and discharges into a culvert beneath North Iris Lane.

It is our understanding that the project will be developed to create 21 multi-family residential building pads and associated underground and surface improvements. Each building pad will support between 4 to 6 residential units. Three bioretention basins are shown on the eastern property boundary. Retaining walls up to approximately 5-feet-high are planned along the west perimeter of the property behind proposed Building Pad 6, on the southern property boundary behind Building Pads 10 through 12, and north of Building Pads 13 and 14.

Based on our review of the referenced plans, maximum cuts and fills, when compared with existing grades, are on the order of 15 feet and 8 feet, respectively. Fill slopes are designed at 2:1 (horizontal:vertical) or flatter, with a maximum height of approximately 8 feet. Cut slopes are designed at 2:1 or flatter, with a maximum height of approximately 10 feet. If development plans differ significantly from those described herein, Geocon Incorporated should be contacted for review and possible revisions to this report.

3. SOIL AND GEOLOGIC CONDITIONS

Three surficial soil types and one geologic formation were encountered during our field investigation. The surficial soil consists of undocumented fill, alluvium, and colluvium. The formational unit is the Cretaceous-age granitic rock. The approximate extent of the deposits are presented on the *Geologic Map* (Figure 2). Each of the surficial soil types and geologic unit encountered are described below in order of increasing age.

3.1 Undocumented Fill (Qudf)

Although not encountered during the field investigation, undocumented fill is expected beneath the existing residences. This deposit is estimated to be approximately 5-foot-thick or less. Any undocumented fill encountered is considered unsuitable in its present condition and will require removal and compaction for support of structural fill and settlement-sensitive structures.

3.2 Alluvium (Qal)

Alluvial soils were encountered in exploratory Trenches T-8 through T-12 along the southern portion of the property. These deposits vary in thickness from approximately 3 to 12-feet-thick and generally consisted of loose to medium dense, damp to saturated, silty fine- to coarse-grained sand. The upper portions of the alluvial deposits are poorly consolidated and potentially compressible, and will require removal and compaction during grading. Based on our laboratory testing, the lower portion of the alluvial deposits are generally suitable in their present condition for support of structural fill and

settlement-sensitive structures. The anticipated thickness of surficial soil requiring remedial grading is shown on Figure 2.

3.3 Colluvium (Qcol)

Colluvial soils were encountered in Trenches T-1 through T-7. These deposits are present across the northern portion of the proposed development, and vary in thickness from approximately 2 to 9 feet. The colluvium generally consisted of loose to dense, damp to wet, silty fine- to coarse-grained sand. The upper portions of the colluvial deposits are poorly consolidated and potentially compressible, and will require removal and compaction during grading. Based on our laboratory testing, the lower portion of these deposits are generally suitable in their present condition for support of structural fill and settlement-sensitive structures. The anticipated thickness of colluvium requiring remedial grading is shown on Figure 2.

3.4 Granitic Rock (Kgr)

Cretaceous-age granitic rock underlies the surficial soils throughout the property. The soils derived from excavations within the decomposed portion of this unit typically consist of low-expansive, silty, fine- to coarse-grained sands and provide suitable foundation support in either a natural or properly compacted condition. Deeper excavations than what we encountered in the trenches may generate boulders and oversize material (rocks greater than 12 inches in dimension) that will require special handling and placement.

The rippability characteristics of the granitic rock has been evaluated by Atlas Geophysics. The results of the seismic refraction surveys performed on February 23, 2021 will be presented in a forthcoming addendum document. Granitic units generally exhibit adequate bearing and slope stability characteristics and cut slopes should be stable to the proposed heights if free of adversely oriented joints or fractures.

4. GROUNDWATER

Groundwater was observed near the southern portion of the site where a natural drainage crosses the property and discharges into a culvert beneath North Iris Lane. Dewatering may be necessary in this area to perform the recommended remedial grading.

It is not uncommon for groundwater or seepage conditions to develop where none previously existed. Groundwater elevations are dependent on seasonal precipitation, irrigation; land use, among other factors, and vary as a result. Proper surface drainage will be important to future performance of the project.

5. GEOLOGIC HAZARDS

5.1 Ground Rupture

United States Geological Survey maps (2016) indicates that there are no mapped Quaternary faults crossing or trending toward the property. In addition, the site is not located within a currently established Alquist-Priolo Earthquake Fault Zone.

The nearest known active-fault zones are the Rose Canyon and Newport Inglewood Faults, located approximately 18 miles west of the subject site. The risk associated with ground rupture hazard is low.

5.2 Seismicity

The San Diego County and Southern California region is seismically active. Considerations important in seismic design include the frequency and duration of motion and the soil conditions underlying the site. Seismic design of structures should be performed in accordance with the California Building Code (CBC) guidelines currently adopted by the local agency. The risk associated with strong ground shaking due to earthquake at the site is no greater than that for the region.

5.3 Liquefaction and Seismically Induced Settlement

The risk associated with liquefaction and seismically induced settlement hazard is low due to the dense nature of the materials that will left in-place.

5.4 Landslides

The risk associated with landslide hazards at the site is low.

5.5 Compression

The potentially compressible portions of the alluvium/colluvium (Qal/Qcol) deposits will be removed and compacted during grading. The Qal/Qcol deposits encountered at the site generally consisted of loose to medium dense, damp to saturated, silty fine to coarse sands. We performed laboratory testing on the lower portion of the Qal/Qcol to evaluate its compression potential. Based on the laboratory test results, the lower portion of the Qal/Qcol is suitable for support of compacted fill and structural loading. Laboratory test results are presented in Appendix B.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1 General

6.1.1 No soil or geologic conditions were encountered that, in the opinion of Geocon Incorporated, would preclude the development of the property as proposed, provided the recommendations of this report are followed.

6.1.2 The site is underlain by surficial units that include undocumented fill, alluvium and colluvium. Undocumented fill and upper portions of the alluvium/colluvium are unsuitable in their present condition for support of fill and/or structural loads and will require remedial grading in the form of removal and compaction where improvements are planned. The anticipated thickness of surficial soil deposits requiring remedial grading is shown on Figure 2.

6.1.3 Laboratory test results indicate that the lower portions of alluvium/colluvium has adequate consolidation characteristics to receive fill soils and/or structural loads. An engineering geologist should be present during grading to identify the colluvial areas that will not require remedial grading. Additional field testing may be necessary.

6.1.4 The potential presence of hard rock within proposed cut areas will be addressed in a forthcoming report.

6.1.5 Cut slopes should be observed during grading by an engineering geologist to verify that the geologic conditions do not differ significantly from those anticipated. Scaling of loose rock fragments from proposed cut slopes may also be necessary.

6.1.6 With the exception of possible strong seismic shaking, no geologic hazards were observed or are known to exist on the site that would adversely affect the proposed project. No special seismic design considerations, other than those recommended herein, are required.

6.2 Soil and Excavation Characteristics

6.2.1 The soil conditions encountered during our study consist of “low” expansive silty, fine to coarse sand.

6.2.2 Excavation of the surficial deposits (undocumented fill, alluvium and colluvium) should generally require light to moderate effort using conventional heavy-duty grading equipment.

6.2.3 Excavating within the granitic rock materials will be addressed in a forthcoming report and is anticipated to vary in difficulty with depth depending on the degree of weathering.

Oversize rock should be placed in accordance with *Recommended Grading Specifications* (Appendix D), and the requirements of the City of Escondido. Oversize rock, if encountered, may require breakage/crushing to acceptable sizes for incorporation into fills, or exportation from the property. Placement of oversize rock within the areas of proposed underground utilities should not be permitted.

6.2.4 Surficial deposits (undocumented fill, alluvium/colluvium) may be very moist to saturated during the winter or early spring depending on preceding precipitation. Overly wet soils will require drying or mixing with drier material prior to their use as compacted fill.

6.2.5 The soils encountered are considered to be both non-expansive and expansive (expansion index [EI] greater than 20 as defined by 2019 California Building Code [CBC] Section 1803.5.3). The predominant material encountered was silty sand, with some clayey sands, and exhibit a *low* expansion potential. Table 6.2 presents soil classifications based on the expansion index. Table B-II, Appendix B, presents a summary of the laboratory expansion index tests performed.

TABLE 6.2
SOIL CLASSIFICATION BASED ON EXPANSION INDEX

Expansion Index (EI)	ASTM D 4829 Expansion Classification	2019 CBC Expansion Classification
0 – 20	Very Low	Non-Expansive
21 – 50	Low	Expansive
51 – 90	Medium	
91 – 130	High	
Greater Than 130	Very High	

6.3 Corrosion

6.3.1 We performed laboratory tests on a sample of the site materials to evaluate the percentage of water-soluble sulfate content. Results from the laboratory water-soluble sulfate content tests are presented in Appendix B and indicate that the on-site materials at the locations tested possess a “Not Applicable” and “S0” sulfate exposure to concrete structures as defined by 2019 CBC Section 1904 and ACI 318-14 Chapter 19. The presence of water-soluble sulfates is not a visually discernible characteristic; therefore, other soil samples from the site could yield different concentrations. Additionally, over time landscaping activities (i.e., addition of fertilizers and other soil nutrients) may affect the concentration. Table 6.3 presents a summary of concrete requirements set forth by 2019 CBC Section 1904 and ACI 318.

TABLE 6.3
REQUIREMENTS FOR CONCRETE EXPOSED TO SULFATE-CONTAINING SOLUTIONS

Sulfate Severity	Exposure Class	Water-Soluble Sulfate (SO_4) Percent by Weight	Cement Type (ASTM C 150)	Maximum Water to Cement Ratio by Weight[1]	Minimum Compressive Strength (psi)
Not Applicable	S0	$SO_4<0.10$	No Type Restriction	n/a	2,500
Moderate	S1	$0.10\leq SO_4<0.20$	II	0.50	4,000
Severe	S2	$0.20\leq SO_4\leq 2.00$	V	0.45	4,500
Very Severe	S3	$SO_4>2.00$	V+Pozzolan or Slag	0.45	4,500

[1] Maximum water to cement ratio limits do not apply to lightweight concrete.

6.3.2 Geocon Incorporated does not practice in the field of corrosion engineering. Therefore, if improvements that could be susceptible to corrosion are planned, it is recommended that further evaluation by a corrosion engineer be performed.

6.4 Grading

6.4.1 All grading should be performed in accordance with the attached *Recommended Grading Specifications* (Appendix D). Where the recommendations of this section conflict with Appendix D, the recommendations of this section take precedence. All earthwork should be observed and all fills tested for proper compaction by Geocon Incorporated.

6.4.2 Prior to commencing grading, a preconstruction conference should be held at the site with the owner or developer, grading contractor, civil engineer, and geotechnical engineer in attendance. Special soil handling and/or the grading plans can be discussed at that time.

6.4.3 Site preparation should begin with the removal of all deleterious material and vegetation. The depth of removal should be such that material exposed in cut areas or soils to be used as fill are relatively free of organic matter. Material generated during stripping and/or site demolition should be exported from the site.

6.4.4 All compressible soil deposits, including undocumented fill, and upper portions of alluvium/colluvium within areas where structural improvements are planned, should be removed to firm natural ground and properly compacted prior to placing additional fill and/or structural loads. Deeper than normal benching and/or stripping operations for sloping ground surfaces will be required where the thickness of potentially compressible surficial

deposits exceeds 3 feet. The actual extent of unsuitable soil removals will be determined in the field during grading by the geotechnical engineer and/or engineering geologist.

6.4.5 After removal of unsuitable materials is performed, the site should then be brought to final subgrade elevations with structural fill compacted in layers. In general, soils native to the site are suitable for re-use as fill if free from vegetation, debris and other deleterious material. Layers of fill should be no thicker than will allow for adequate bonding and compaction. All fill, including backfill and scarified ground surfaces, should be compacted to at least 90 percent of maximum dry density at or above optimum moisture content, as determined in accordance with ASTM Test Procedure D1557. Fill materials below optimum moisture content will require additional moisture conditioning prior to placing additional fill.

6.4.6 Groundwater and saturated soil was encountered in the southern portion of the property where a natural drainage crosses the site and outlets into a culvert beneath North Iris Lane. Dewatering may be necessary during remedial grading. Wet soil may require aeration or mixing with drier soil in order to be used as compacted fill.

6.4.7 To reduce the potential for differential settlement, it is recommended that the cut portion of cut/fill transition building pads be undercut at least 3 feet and replaced with properly compacted “very low” to “low” expansive fill soils. Where the thickness of the fill below the building pad exceeds 15 feet, the depth of the undercut should be increased to one-fifth of the maximum fill thickness. The base of the undercuts should be sloped towards the front of the lots.

6.4.8 Oversize material (defined as material greater than 12 inches in nominal dimension) may be generated during ripping of formational materials. Placement of oversize material within fills should be conducted in accordance with the recommendations in Appendix D. Grading operations on the site should be scheduled such that oversize materials are placed in designated rock disposal areas and/or deeper fills.

6.4.9 Rock greater than 6 inches in maximum dimension should not be placed within 3 feet of finish grade in building pad areas or street subgrade. Rock greater than 12 inches in maximum dimension should not be placed within 10 feet of finish pad grade or within 2 feet of the deepest utility. The gradation of capping materials should conform to the project grading specifications.

6.4.10 Where practical, the upper 3 feet of all building pads (cut or fill) should be comprised of soil with a “very low” to “low” expansion potential. The more highly expansive fill soils should

be placed in the deeper fill areas and properly compacted. “Very low” to “low” expansive soils are defined by the 2019 California Building Code (CBC) Section 1803.5.3 as those soils that have an Expansion Index of 50 or less.

6.4.11 Cut pads exposing granitic rock should be undercut at least 3 feet and replaced with properly compacted “very low” to “low” expansive soil. The base of the undercuts should be sloped towards the front of the lots.

6.4.12 Undercutting of street areas should be considered to facilitate the excavation of underground utilities. If subsurface improvements or landscape zones are planned outside these areas, consideration should be given to undercutting these areas as well. This can be evaluated during grading operations by the owner’s field representative.

6.4.13 It is the responsibility of the contractor and their competent person to ensure that all excavations, temporary slopes and trenches are properly constructed and maintained in accordance with applicable OSHA regulations in order to maintain safety and the stability of adjacent existing improvements.

6.4.14 Import materials (if required), should consist of “very low” to “low” expansive (Expansion Index of 50 or less) soils. Prior to importing the material, samples from proposed borrow areas should be obtained and subjected to laboratory testing to determine whether the material conforms to the recommended criteria. At least 3 working days should be allowed for laboratory testing of the soil prior to its importation. Import materials should be free of oversize rock and construction debris.

6.5 Slope Stability

6.5.1 Slope stability analysis utilizing average drained direct shear strength parameters based on laboratory tests and experience with similar soil types indicates that the proposed fill slopes, constructed of on-site materials, should have calculated factors of safety of at least 1.5 under static conditions for both deep-seated failure and shallow sloughing conditions. The proposed cut slopes were also found to possess a calculated factor of safety in excess of 1.5 for a deep-seated failure condition. Surficial and deep-seated slope stability calculations are presented on Figures 3 through 5.

6.5.2 It is recommended that all cut slope excavations be observed during grading by an engineering geologist to verify that soil and geologic conditions do not differ significantly from those anticipated.

6.5.3 The outer 15 feet (or a distance equal to the height of the slope, whichever is less) of fill slopes should be composed of properly compacted granular "soil" fill to reduce the potential for surficial sloughing. In general, soils with an Expansion Index of less than 90 or at least 35 percent sand size particles should be acceptable as "granular" fill. Soils of questionable strength to satisfy surficial stability should be tested in the laboratory for acceptable drained shear strength.

6.5.4 Fill slopes should be compacted by backrolling with a loaded sheepsfoot roller at vertical intervals not to exceed 4 feet and should be track-walked at the completion of each slope such that the fill soils are uniformly compacted to at least 90 percent relative compaction to the face of the finished sloped. Alternatively, the fill slope may be over-built at least 3 feet and cut back to yield a properly compacted slope face.

6.5.5 Where fill slopes and fill-over-cut slopes are planned, following removal of the surficial soils, a 15-foot-wide, 2-foot-deep, undrained keyway should be constructed prior to placing compacted fill. The keyway should be constructed with a minimum 5 percent inclination away from the toe of slope.

6.5.6 All slopes should be landscaped with drought-tolerant vegetation, having variable root depths and requiring minimal landscape irrigation. In addition, all slopes should be drained and properly maintained to reduce erosion.

6.6 Seismic Design Criteria – 2019 California Building Code

6.6.1 Table 6.6.1 summarizes site-specific design criteria obtained from the 2019 California Building Code (CBC; Based on the 2018 International Building Code [IBC] and ASCE 7-16), Chapter 16 Structural Design, Section 1613 Earthquake Loads. We used the computer program *U.S. Seismic Design Maps*, provided by the Structural Engineers Association (SEA) to calculate the seismic design parameters. The short spectral response uses a period of 0.2 second. We evaluated the Site Class based on the discussion in Section 1613.2.2 of the 2019 CBC and Table 20.3-1 of ASCE 7-16. The values presented herein are for the risk-targeted maximum considered earthquake (MCE_R). Sites designated as Site Class D, E and F may require additional analyses if requested by the project structural engineer and client.

TABLE 6.6.1
2019 CBC SEISMIC DESIGN PARAMETERS

Parameter	Value	2019 CBC Reference
Site Class	C	Section 1613.2.2
MCE_R Ground Motion Spectral Response Acceleration – Class B (short), S_S	0.926g	Figure 1613.2.1(1)
MCE_R Ground Motion Spectral Response Acceleration – Class B (1 sec), S_1	0.338g	Figure 1613.2.1(2)
Site Coefficient, F_A	1.2	Table 1613.2.3(1)
Site Coefficient, F_V	1.5*	Table 1613.2.3(2)
Site Class Modified MCE_R Spectral Response Acceleration (short), S_{MS}	1.111g	Section 1613.2.3 (Eqn 16-36)
Site Class Modified MCE_R Spectral Response Acceleration – (1 sec), S_{M1}	0.506g*	Section 1613.2.3 (Eqn 16-37)
5% Damped Design Spectral Response Acceleration (short), S_{DS}	0.741g	Section 1613.2.4 (Eqn 16-38)
5% Damped Design Spectral Response Acceleration (1 sec), S_{D1}	0.338g*	Section 1613.2.4 (Eqn 16-39)

***** Using the code-based values presented in this table, in lieu of a performing a ground motion hazard analysis, requires the exceptions outlined in ASCE 7-16 Section 11.4.8 be followed by the project structural engineer. Per Section 11.4.8 of ASCE/SEI 7-16, a ground motion hazard analysis should be performed for projects for Site Class "E" sites with Ss greater than or equal to 1.0g and for Site Class "D" and "E" sites with S1 greater than 0.2g. Section 11.4.8 also provides exceptions which indicates that the ground motion hazard analysis may be waived provided the exceptions are followed.

6.6.2 Table 6.6.2 presents the mapped maximum considered geometric mean (MCE_G) seismic design parameters for projects located in Seismic Design Categories of D through F in accordance with ASCE 7-16.

TABLE 6.6.2
ASCE 7-16 PEAK GROUND ACCELERATION

Parameter	Value	ASCE 7-16 Reference
Mapped MCE_G Peak Ground Acceleration, PGA	0.401g	Figure 22-7
Site Coefficient, F_{PGA}	1.2	Table 11.8-1
Site Class Modified MCE_G Peak Ground Acceleration, PGA_M	0.481g	Section 11.8.3 (Eqn 11.8-1)

6.6.3 Conformance to the criteria in Tables 6.6.1 and 6.6.2 for seismic design does not constitute any kind of guarantee or assurance that significant structural damage or ground failure will

not occur in the event of a large earthquake. The primary goal of seismic design is to protect life, not to avoid all damage, since such design may be economically prohibitive.

6.6.4 The project structural engineer and architect should evaluate the appropriate Risk Category and Seismic Design Category for the planned structures. The values presented herein assume a Risk Category of II and resulting in a Seismic Design Category D. Table 6.6.3 presents a summary of the risk categories in accordance with ASCE 7-16.

TABLE 6.6.3
ASCE 7-16 RISK CATEGORIES

Risk Category	Building Use	Examples
I	Low risk to Human Life at Failure	Barn, Storage Shelter
II	Nominal Risk to Human Life at Failure (Buildings Not Designated as I, III or IV)	Residential, Commercial and Industrial Buildings
III	Substantial Risk to Human Life at Failure	Theaters, Lecture Halls, Dining Halls, Schools, Prisons, Small Healthcare Facilities, Infrastructure Plants, Storage for Explosives/Toxins
IV	Essential Facilities	Hazardous Material Facilities, Hospitals, Fire and Rescue, Emergency Shelters, Police Stations, Power Stations, Aviation Control Facilities, National Defense, Water Storage

6.7 Foundation and Concrete Slab-On-Grade Recommendations

6.7.1 The following foundation recommendations are for proposed one- to three-story residential structures. The foundation recommendations have been separated into three categories based on either the maximum and differential fill thickness or Expansion Index. The foundation category criteria are presented in Table 6.7.1.

TABLE 6.7.1
FOUNDATION CATEGORY CRITERIA

Foundation Category	Maximum Fill Thickness, T (feet)	Differential Fill Thickness, D (feet)	Expansion Index (EI)
I	$T<20$	--	$EI \leq 50$
II	$20 \leq T<50$	$10 \leq D<20$	$50<EI \leq 90$
III	$T \geq 50$	$D \geq 20$	$90<EI \leq 130$

6.7.2 We will provide final foundation categories for each building or lot after finish pad grades have been achieved and laboratory testing of the finish grade soil has been completed.

6.7.3 Table 6.7.2 presents minimum foundation and interior concrete slab design criteria for conventional foundation systems.

TABLE 6.7.2
CONVENTIONAL FOUNDATION RECOMMENDATIONS BY CATEGORY

Foundation Category	Minimum Footing Embedment Depth (inches)	Continuous Footing Reinforcement	Interior Slab Reinforcement
I	12	Two No. 4 bars, one top and one bottom	6 x 6 - 10/10 welded wire mesh at slab mid-point
II	18	Four No. 4 bars, two top and two bottom	No. 3 bars at 24 inches on center, both directions
III	24	Four No. 5 bars, two top and two bottom	No. 3 bars at 18 inches on center, both directions

6.7.4 The embedment depths presented in Table 6.7.2 should be measured from the lowest adjacent pad grade for both interior and exterior footings. The conventional foundations should have a minimum width of 12 inches and 24 inches for continuous and isolated footings, respectively. A typical wall/column footing detail is presented on Figure 6.

6.7.5 The concrete slabs-on-grade should be a minimum of 4 inches thick for Foundation Categories I and II and 5 inches thick for Foundation Category III. The concrete slabs-on-grade should be underlain by 4 inches and 3 inches of clean sand for 4-inch thick and 5-inch-thick slabs, respectively. Slabs expected to receive moisture sensitive floor coverings or used to store moisture sensitive materials should be underlain by a vapor inhibitor covered with at least 2 inches of clean sand or crushed rock. If crushed rock will be used, the thickness of the vapor inhibitor should be at least 10 mil to prevent possible puncturing.

6.7.6 As a substitute, the layer of clean sand (or crushed rock) beneath the vapor inhibitor recommended in the previous section can be omitted if a vapor inhibitor that meets or exceeds the requirements of ASTM E 1745-97 (Class A), and that exhibits permeance not greater than 0.012 perm (measured in accordance with ASTM E 96-95) is used. This vapor inhibitor may be placed directly on properly compacted fill or formational materials. The vapor inhibitor should be installed in general conformance with ASTM E 1643-98 and the manufacturer's recommendations. Two inches of clean sand should then be placed on top of the vapor

inhibitor to reduce the potential for differential curing, slab curl, and cracking. Floor coverings should be installed in accordance with the manufacturer's recommendations.

6.7.7 As an alternative to the conventional foundation recommendations, consideration should be given to the use of post-tensioned concrete slab and foundation systems for the support of the proposed structures. The post-tensioned systems should be designed by a structural engineer experienced in post-tensioned slab design and design criteria of the Post-Tensioning Institute (PTI) DC 10.5-12 *Standard Requirements for Design and Analysis of Shallow Post-Tensioned Concrete Foundations on Expansive Soils* or *WRI/CRSI Design of Slab-on-Ground Foundations*, as required by the 2019 California Building Code (CBC Section 1808.6.2). Although this procedure was developed for expansive soil conditions, it can also be used to reduce the potential for foundation distress due to differential fill settlement. The post-tensioned design should incorporate the geotechnical parameters presented in Table 6.7.3 for the particular Foundation Category designated. The parameters presented in Table 6.7.3 are based on the guidelines presented in the PTI DC 10.5 design manual.

TABLE 6.7.3
POST-TENSIONED FOUNDATION SYSTEM DESIGN PARAMETERS

Post-Tensioning Institute (PTI) DC10.5 Design Parameters	Foundation Category		
	I	II	III
Thornthwaite Index	-20	-20	-20
Equilibrium Suction	3.9	3.9	3.9
Edge Lift Moisture Variation Distance, e_M (feet)	5.3	5.1	4.9
Edge Lift, y_M (inches)	0.61	1.10	1.58
Center Lift Moisture Variation Distance, e_M (feet)	9.0	9.0	9.0
Center Lift, y_M (inches)	0.30	0.47	0.66

6.7.8 Foundation systems for the lots that possess a foundation Category I and a "very low" expansion potential (expansion index of 20 or less) can be designed using the method described in Section 1808 of the 2016 CBC. If post-tensioned foundations are planned, an alternative, commonly accepted design method (other than PTI DC 10.5) can be used. However, the post-tensioned foundation system should be designed with a total and differential deflection of 1 inch. Geocon Incorporated should be contacted to review the plans and provide additional information, if necessary.

6.7.9 If an alternate design method is contemplated, Geocon Incorporated should be contacted to evaluate if additional expansion index testing should be performed to identify the lots that possess a "very low" expansion potential (expansion index of 20 or less).

6.7.10 The foundations for the post-tensioned slabs should be embedded in accordance with the recommendations of the structural engineer. If a post-tensioned mat foundation system is planned, the slab should possess a thickened edge with a minimum width of 12 inches and extend below the clean sand or crushed rock layer.

6.7.11 If the structural engineer proposes a post-tensioned foundation design method other than PTI DC 10.5:

- The deflection criteria presented in Table 6.7.3 are still applicable.
- Interior stiffener beams should be used for Foundation Categories II and III.
- The width of the perimeter foundations should be at least 12 inches.
- The perimeter footing embedment depths should be at least 12 inches, 18 inches and 24 inches for foundation categories I, II, and III, respectively. The embedment depths should be measured from the lowest adjacent pad grade.

6.7.12 Our experience indicates post-tensioned slabs may be susceptible to excessive edge lift, regardless of the underlying soil conditions. Placing reinforcing steel at the bottom of the perimeter footings and the interior stiffener beams may mitigate this potential. The structural engineer should design the foundation system to reduce the potential of edge lift occurring for the proposed structures.

6.7.13 During the construction of the post-tension foundation system, the concrete should be placed monolithically. Under no circumstances should cold joints be allowed to form between the footings/grade beams and the slab during the construction of the post-tension foundation system unless designed by the structural engineer.

6.7.14 Category I, II, or III foundations may be designed for an allowable soil bearing pressure of 2,000 pounds per square foot (psf) (dead plus live load). This bearing pressure may be increased by one-third for transient loads due to wind or seismic forces.

6.7.15 Isolated footings, if present, should have the minimum embedment depth and width recommended for conventional foundations for a particular Foundation Category. The use of isolated footings, which are located beyond the perimeter of the building and support structural elements connected to the building, are not recommended for Category III. Where

this condition cannot be avoided, the isolated footings should be connected to the building foundation system with grade beams.

6.7.16 For Foundation Category III, consideration should be given to using interior stiffening beams and connecting isolated footings and/or increasing the slab thickness. In addition, consideration should be given to connecting patio slabs, which exceed 5 feet in width, to the building foundation to reduce the potential for future separation to occur.

6.7.17 Special subgrade presaturation is not deemed necessary prior to placing concrete; however, the exposed foundation and slab subgrade soil should be moisture conditioned, as necessary, to maintain a moist condition as would be expected in any such concrete placement.

6.7.18 Where buildings or other improvements are planned near the top of a slope 3:1 (horizontal:vertical) or steeper, special foundation and/or design considerations are recommended due to the tendency for lateral soil movement to occur.

- For fill slopes less than 20 feet high, building footings should be deepened such that the bottom outside edge of the footing is at least 7 feet horizontally from the face of the slope.

- When located next to a descending 3:1 (horizontal:vertical) fill slope or steeper, the foundations should be extended to a depth where the minimum horizontal distance is equal to H/3 (where H equals the vertical distance from the top of the fill slope to the base of the fill soil) with a minimum of 7 feet but need not exceed 40 feet. The horizontal distance is measured from the outer, deepest edge of the footing to the face of the slope. A post-tensioned slab and foundation system or mat foundation system can be used to reduce the potential for distress in the structures associated with strain softening and lateral fill extension. Specific design parameters or recommendations for either of these alternatives can be provided once the building location and fill slope geometry have been determined.

- If swimming pools are planned, Geocon Incorporated should be contacted for a review of specific site conditions.

- Swimming pools located within 7 feet of the top of cut or fill slopes are not recommended. Where such a condition cannot be avoided, the portion of the swimming pool wall within 7 feet of the slope face be designed assuming that the adjacent soil provides no lateral support. This recommendation applies to fill slopes up to 30 feet in height, and cut slopes regardless of height. For swimming pools located near the top of fill slopes greater than 30 feet in height, additional recommendations may be required and Geocon Incorporated should be contacted for a review of specific site conditions.

- Although other improvements, which are relatively rigid or brittle, such as concrete flatwork or masonry walls, may experience some distress if located near the top of a slope, it is generally not economical to mitigate this potential. It may be possible, however, to incorporate design measures, which would permit some lateral soil movement without causing extensive distress. Geocon Incorporated should be consulted for specific recommendations.

6.7.19 The recommendations of this report are intended to reduce the potential for cracking of slabs and foundations due to expansive soil (if present), differential settlement of fill soil or soil with varying thicknesses. However, even with the incorporation of the recommendations presented herein, foundations, stucco walls, and slabs-on-grade placed on such conditions may still exhibit some cracking due to soil movement and/or shrinkage. The occurrence of concrete shrinkage cracks is independent of the supporting soil characteristics. Their occurrence may be reduced by limiting the slump of the concrete, proper concrete placement and curing, and by the placement of crack control joints at periodic intervals, in particular, where re-entrant slab corners occur.

6.7.20 Concrete slabs should be provided with adequate crack-control joints, construction joints and/or expansion joints to reduce unsightly shrinkage cracking. The design of joints should consider criteria of the American Concrete Institute (ACI) when establishing crack-control spacing. Additional steel reinforcing, concrete admixtures and/or closer crack control joint spacing should be considered where concrete-exposed finished floors are planned.

6.7.21 Geocon Incorporated should be consulted to provide additional design parameters as required by the structural engineer.

6.8 Retaining Walls and Lateral Loads Recommendations

6.8.1 Retaining walls not restrained at the top and having a level backfill surface should be designed for an active soil pressure equivalent to the pressure exerted by a fluid with a density of 35 pounds per cubic foot (pcf). Where the backfill will be inclined at 2:1 (horizontal:vertical), an active soil pressure of 50 pcf is recommended. These soil pressures assume that the backfill materials within an area bounded by the wall and a 1:1 plane extending upward from the base of the wall possess an Expansion Index $\leq$50. Geocon Incorporated should be consulted for additional recommendations if backfill materials have an EI >50.

6.8.2 Retaining walls shall be designed to ensure stability against overturning sliding, excessive foundation pressure and water uplift. Where a keyway is extended below the wall base with the intent to engage passive pressure and enhance sliding stability, it is not necessary to consider active pressure on the keyway.

6.8.3 Where walls are restrained from movement at the top, an additional uniform pressure of 8H psf (where H equals the height of the retaining wall portion of the wall in feet) should be added to the active soil pressure where the wall possesses a height of 8 feet or less and 12H where the wall is greater than 8 feet. For retaining walls subject to vehicular loads within a horizontal distance equal to two-thirds the wall height, a surcharge equivalent to two feet of fill soil should be added (total unit weight of soil should be taken as 130 pcf).

6.8.4 Soil contemplated for use as retaining wall backfill, including import materials, should be identified in the field prior to backfill. At that time Geocon Incorporated should obtain samples for laboratory testing to evaluate its suitability. Modified lateral earth pressures may be necessary if the backfill soil does not meet the required expansion index or shear strength. City or regional standard wall designs, if used, are based on a specific active lateral earth pressure and/or soil friction angle. In this regard, on-site soil to be used as backfill may or may not meet the values for standard wall designs. Geocon Incorporated should be consulted to assess the suitability of the on-site soil for use as wall backfill if standard wall designs will be used.

6.8.5 Unrestrained walls will move laterally when backfilled and loading is applied. The amount of lateral deflection is dependent on the wall height, the type of soil used for backfill, and loads acting on the wall. The wall designer should provide appropriate lateral deflection quantities for planned retaining walls structures, if applicable. These lateral values should be considered when planning types of improvements above retaining wall structures.

6.8.6 Retaining walls should be provided with a drainage system adequate to prevent the buildup of hydrostatic forces and should be waterproofed as required by the project architect. The use of drainage openings through the base of the wall (weep holes) is not recommended where the seepage could be a nuisance or otherwise adversely affect the property adjacent to the base of the wall. The above recommendations assume a properly compacted granular (EI $\leq$50) free-draining backfill material with no hydrostatic forces or imposed surcharge load. A typical retaining wall drainage detail is presented on Figure 7. If conditions different than those described are expected, or if specific drainage details are desired, Geocon Incorporated should be contacted for additional recommendations.

6.8.7 In general, wall foundations having a minimum depth and width of one foot may be designed for an allowable soil bearing pressure of 2,000 psf, provided the soil within three feet below the base of the wall has an Expansion Index $\leq$ 90. The recommended allowable soil bearing pressure may be increased by 300 psf and 500 psf for each additional foot of foundation width and depth, respectively, up to a maximum allowable soil bearing pressure of 4,000 psf.

6.8.8 The proximity of the foundation to the top of a slope steeper than 3:1 could impact the allowable soil bearing pressure. Therefore, Geocon Incorporated should be consulted where such a condition is anticipated. As a minimum, wall footings should be deepened such that the bottom outside edge of the footing is at least seven feet from the face of slope when located adjacent and/or at the top of descending slopes.

6.8.9 The structural engineer should determine the Seismic Design Category for the project in accordance with Section 1613.3.5 of the 2016 CBC or Section 11.6 of ASCE 7-10. For structures assigned to Seismic Design Category of D, E, or F, retaining walls that support more than 6 feet of backfill should be designed with seismic lateral pressure in accordance with Section 1803.5.12 of the 2016 CBC. The seismic load is dependent on the retained height where H is the height of the wall, in feet, and the calculated loads result in pounds per square foot (psf) exerted at the base of the wall and zero at the top of the wall. A seismic load of 18H should be used for design. We used the peak ground acceleration adjusted for Site Class effects, PGA_M, of 0.481g calculated from ASCE 7-10 Section 11.8.3 and applied a pseudo-static coefficient of 0.33.

6.8.10 For resistance to lateral loads, a passive earth pressure equivalent to a fluid density of 300 pcf is recommended for footings or shear keys poured neat against properly compacted granular fill soils or undisturbed formational materials. The passive pressure assumes a horizontal surface extending away from the base of the wall at least five feet or three times the surface generating the passive pressure, whichever is greater. The upper 12 inches of material not protected by floor slabs or pavement should not be included in the design for lateral resistance.

6.8.11 An ultimate friction coefficient of 0.35 may be used for resistance to sliding between soil and concrete. This friction coefficient may be combined with the passive earth pressure when determining resistance to lateral loads.

6.8.12 The recommendations presented above are generally applicable to the design of rigid concrete or masonry retaining walls having a maximum height of 12 feet. In the event that walls higher than 12 feet are planned, Geocon Incorporated should be consulted for additional recommendations.

6.9 Slope Maintenance

6.9.1 Slopes steeper than 3:1 (horizontal: vertical) may, under conditions that are both difficult to prevent and predict, be susceptible to near-surface (surficial) slope instability. The instability is typically limited to the outer three feet of the slope and usually does not

directly impact the improvements on pad areas above or below the slope. The occurrence of surficial instability is more prevalent on fill slopes and is generally preceded by a period of heavy rainfall, excessive irrigation or the migration of subsurface seepage. Disturbance and/or loosening of the surficial soils, as might result from root growth, soil expansion or excavation for irrigation lines and slope planting, may also be a significant contributing factor to surficial instability. We recommend that, to the maximum extent practical, (a) disturbed/loosened surficial soils be either removed or properly compacted, (b) irrigation systems be periodically inspected and maintained to eliminate leaks and excessive irrigation, and (c) surface drains on and adjacent to slopes be periodically maintained to preclude ponding or erosion. Although the incorporation of the above recommendations should reduce the potential for surficial slope instability, it will not eliminate the possibility, and it may be necessary to rebuild or repair a portion of the project's slopes in the future.

6.10 Site Drainage and Maintenance

6.10.1 Adequate site drainage is critical to reduce the potential for differential soil movement, erosion and subsurface seepage. Under no circumstances should water be allowed to pond adjacent to footings. The site should be graded and maintained such that surface drainage is directed away from structures in accordance with 2019 CBC 1803.3 or other applicable standards. In addition, surface drainage should be directed away from the top of slopes into swales or other controlled drainage devices. Roof and pavement drainage should be directed into storm drains and conduits that carry runoff away from the proposed structure.

6.10.2 Underground utilities should be leak free. Utility and irrigation lines should be checked periodically for leaks, and detected leaks should be repaired promptly. Detrimental soil movement could occur if water is allowed to infiltrate the soil for prolonged periods of time.

6.10.3 Landscaping planters adjacent to paved areas are not recommended due to the potential for surface or irrigation water to infiltrate the pavement’s subgrade and base course. We recommend that area drains to collect excess irrigation water and transmit it to drainage structures or impervious above-grade planter boxes be used. In addition, where landscaping is planned adjacent to the pavement, we recommend construction of a cutoff wall along the edge of the pavement that extends at least 6 inches below the bottom of the base material.

6.11 Grading and Foundation Plan Review

6.11.1 Geocon Incorporated should review the grading and foundation plans prior to finalization to verify their compliance with the recommendations of this report and determine the need for additional comments, recommendations, and/or analysis.

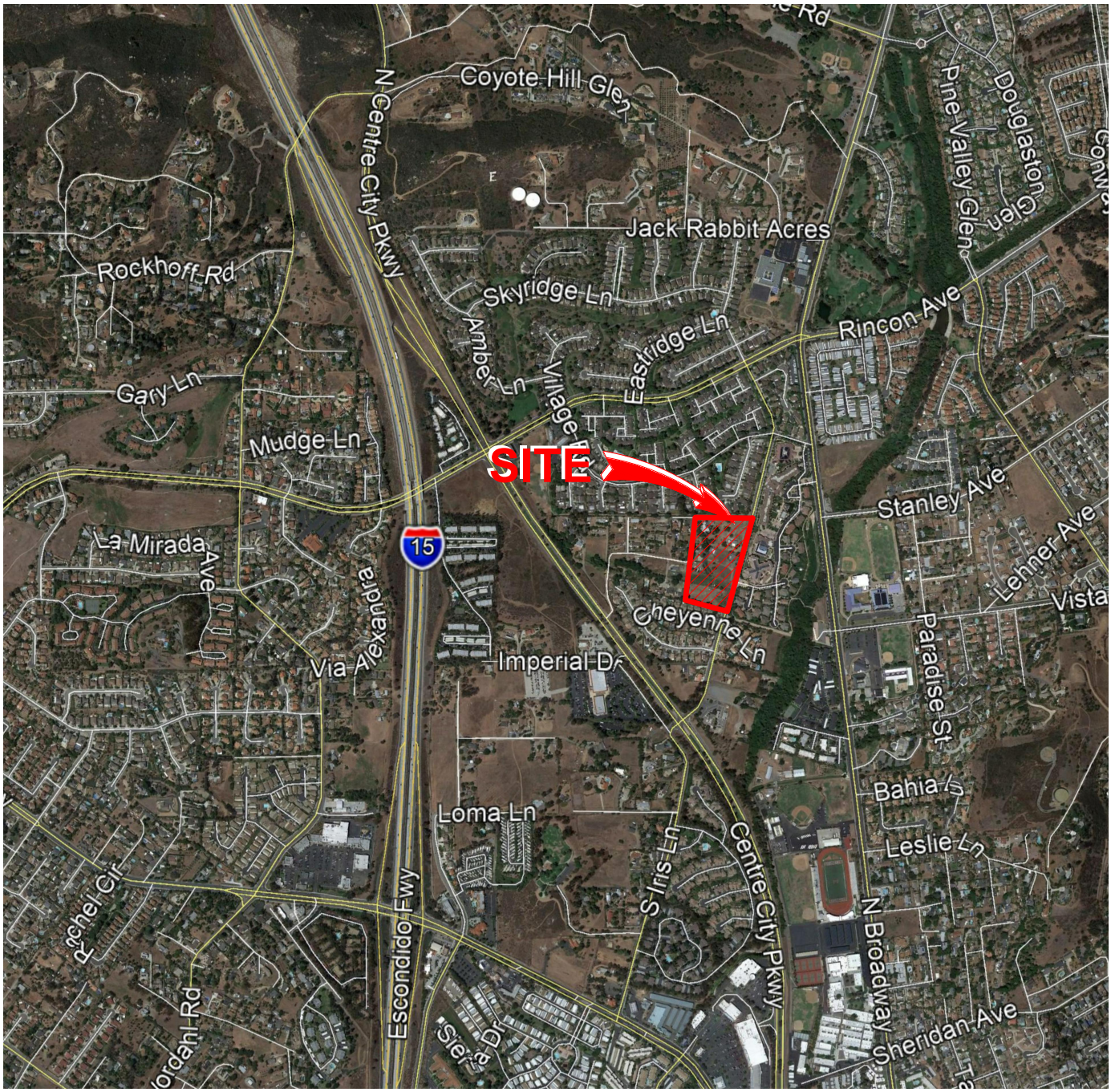
LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. The firm that performed the geotechnical investigation for the project should be retained to provide testing and observation services during construction to provide continuity of geotechnical interpretation and to check that the recommendations presented for geotechnical aspects of site development are incorporated during site grading, construction of improvements, and excavation of foundations. If another geotechnical firm is selected to perform the testing and observation services during construction operations, that firm should prepare a letter indicating their intent to assume the responsibilities of project geotechnical engineer of record. A copy of the letter should be provided to the regulatory agency for their records. In addition, that firm should provide revised recommendations concerning the geotechnical aspects of the proposed development, or a written acknowledgement of their concurrence with the recommendations presented in our report. They should also perform additional analyses deemed necessary to assume the role of Geotechnical Engineer of Record.

2. The recommendations of this report pertain only to the site investigated and are based upon the assumption that the soil conditions do not deviate from those disclosed in the investigation. If any variations or undesirable conditions are encountered during construction, or if the proposed construction will differ from that anticipated herein, Geocon Incorporated should be notified so that supplemental recommendations can be given. The evaluation or identification of the potential presence of hazardous or corrosive materials was not part of the scope of services provided by Geocon Incorporated.

3. This report is issued with the understanding that it is the responsibility of the owner or his representative to ensure that the information and recommendations contained herein are brought to the attention of the architect and engineer for the project and incorporated into the plans, and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations in the field.

4. The findings of this report are valid as of the present date. However, changes in the conditions of a property can occur with the passage of time, whether they be due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and should not be relied upon after a period of three years.



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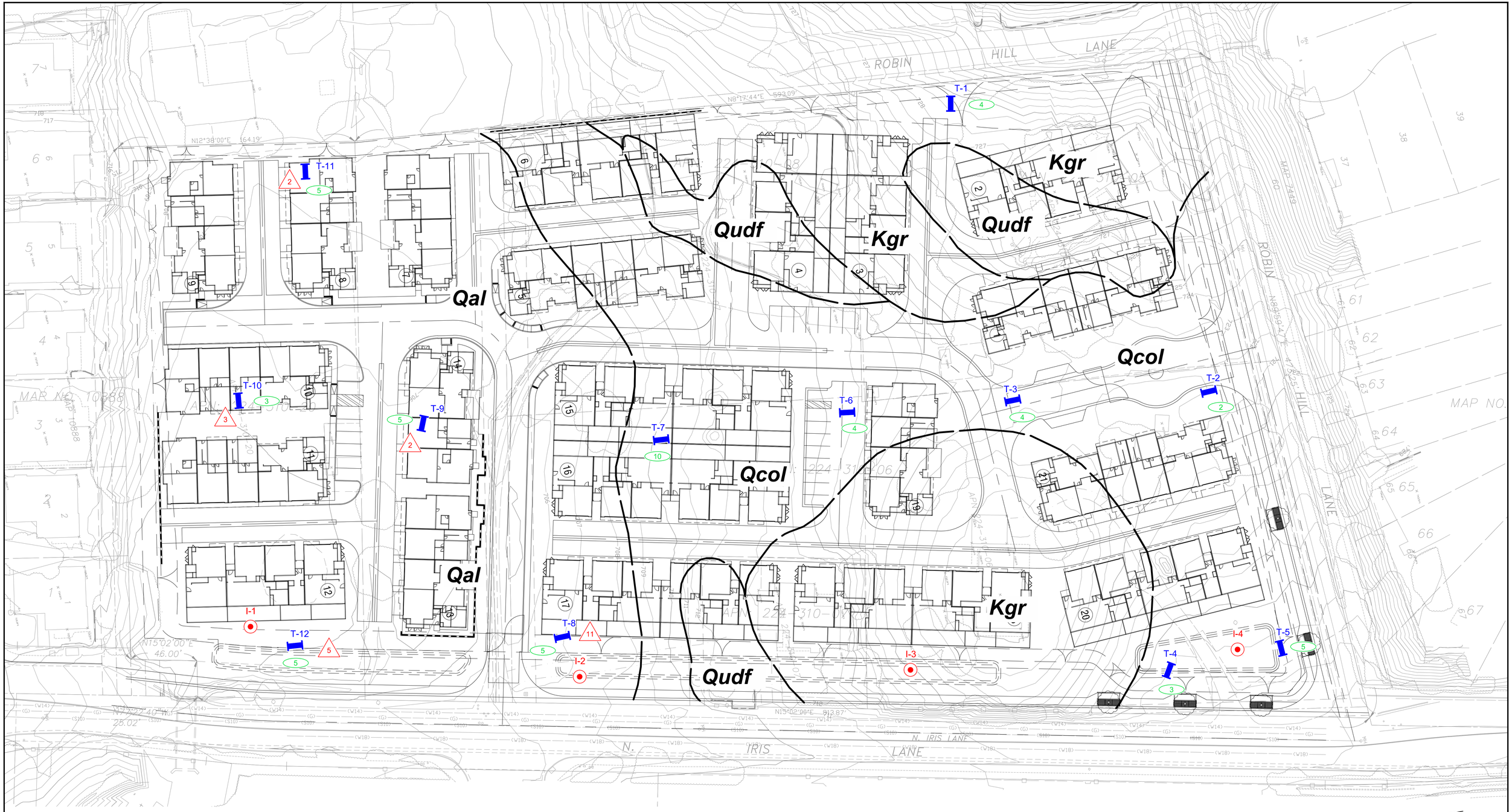
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121 - 2974
PHONE 858 558-6900 - FAX 858 558-6159

TM / CW		DSK/GTYPD

NORTH IRIS LANE
ESCONDIDO, CALIFORNIA

DATE 03 - 04 - 2021	PROJECT NO. G2670 - 32 - 01	FIG. 1

Plotted:03/03/2021 1:51PM | By:JONATHAN WILKINS | File Location:Y:\PROJECTS\G2670-32-01 North Iris Ave\DETAILS\G2670-32-01_Vicinity Map.dwg



GEOCON LEGEND

- ***Qudf*** ..... UNDOCUMENTED FILL
- ***Qal*** ..... ALLUVIUM
- ***Qcol*** ..... COLLUVIUM
- ***Kgr*** ..... GRANITIC ROCK
- I-4 ..... APPROX. LOCATION OF INFILTRATION TEST
- T-12 ..... APPROX. LOCATION OF EXPLORATORY TRENCH
- 13 ..... APPROX. THICKNESS OF SURFICIAL SOIL REQUIRING REMEDIAL GRADING (Feet)
- 3 ..... APPROX. DEPTH TO GROUNDWATER
- ..... APPROX. LOCATION OF GEOLOGIC CONTACT

0' 30' 60' 90' 120'

SCALE 1"=30' (On 36x24)

GEOLOGIC MAP

NORTH IRIS LANE
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SCALE	1" = 30'	DATE	03 - 04 - 2021
PROJECT NO.	G2670 - 32 - 01	FIGURE	2
SHEET	1 OF 1		

Plotted 03/04/2021 11:29AM | By ALVIN LADRILLONO | File Location:Y:\PROJECTS\G2670-32-01 North Iris Ave\SHEETS\G2670-32-01 GeologicMAP.dwg

ASSUMED CONDITIONS :

SLOPE HEIGHT	H	=	10 feet
SLOPE INCLINATION	2 : 1 (Horizontal : Vertical)		
TOTAL UNIT WEIGHT OF SOIL	γ_t	=	125 pounds per cubic foot
ANGLE OF INTERNAL FRICTION	ϕ	=	25 degrees
APPARENT COHESION	C	=	300 pounds per square foot
NO SEEPAGE FORCES			

ANALYSIS :

$\lambda_{c\phi}$	=	$\frac{\gamma_t H \tan\phi}{C}$	EQUATION (3-3), REFERENCE 1
FS	=	$\frac{NcfC}{\gamma_t H}$	EQUATION (3-2), REFERENCE 1
$\lambda_{c\phi}$	=	1.9	CALCULATED USING EQ. (3-3)
Ncf	=	12	DETERMINED USING FIGURE 10, REFERENCE 2
FS	=	2.9	FACTOR OF SAFETY CALCULATED USING EQ. (3-2)

REFERENCES :

1.....Janbu, N., Stability Analysis of Slopes with Dimensionless Parameters, Harvard Soil Mechanics, Series No. 46, 1954

2.....Janbu, N., Discussion of J.M. Bell, Dimensionless Parameters for Homogeneous Earth Slopes, Journal of Soil Mechanics and Foundation Design, No. SM6, November 1967.

SLOPE STABILITY ANALYSIS - FILL SLOPES

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TM / CW		DSK/GTYPD	DATE 03 - 04 - 2021	PROJECT NO. G2670 - 32 - 01	FIG. 3

Plotted:03/04/2021 9:20AM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\G2670-32-01 North Iris Ave\DETAILS\Slope Stability Analyses-Fill (SSAF).dwg

ASSUMED CONDITIONS :

SLOPE HEIGHT	H	= 15 feet
SLOPE INCLINATION	2 : 1 (Horizontal : Vertical)	
TOTAL UNIT WEIGHT OF SOIL	γ_t	= 130 pounds per cubic foot
ANGLE OF INTERNAL FRICTION	ϕ	= 35 degrees
APPARENT COHESION	C	= 400 pounds per square foot
NO SEEPAGE FORCES		

ANALYSIS :

$\lambda_{c\phi}$	=	$\frac{\gamma_t H \tan\phi}{C}$	EQUATION (3-3), REFERENCE 1
FS	=	$\frac{NcfC}{\gamma_t H}$	EQUATION (3-2), REFERENCE 1
$\lambda_{c\phi}$	=	3.4	CALCULATED USING EQ. (3-3)
Ncf	=	15	DETERMINED USING FIGURE 10, REFERENCE 2
FS	=	3.1	FACTOR OF SAFETY CALCULATED USING EQ. (3-2)

REFERENCES :

1.....Janbu, N., Stability Analysis of Slopes with Dimensionless Parameters, Harvard Soil Mechanics, Series No. 46, 1954

2.....Janbu, N., Discussion of J.M. Bell, Dimensionless Parameters for Homogeneous Earth Slopes, Journal of Soil Mechanics and Foundation Design, No. SM6, November 1967.

SLOPE STABILITY ANALYSIS - CUT SLOPES

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TM / CW		DSK/GTYPD	DATE 03 - 04 - 2021	PROJECT NO. G2670 - 32 - 01	FIG. 4

Plotted:03/04/2021 9:21AM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\G2670-32-01 North Iris Ave\DETAILS\Slope Stability Analyses-Cut (SSAC).dwg

ASSUMED CONDITIONS :

SLOPE HEIGHT	H	= Infinite
DEPTH OF SATURATION	Z	= 3 feet
SLOPE INCLINATION	2 : 1 (Horizontal : Vertical)	
SLOPE ANGLE	i	= 26.6 degrees
UNIT WEIGHT OF WATER	γ_w	= 62.4 pounds per cubic foot
TOTAL UNIT WEIGHT OF SOIL	γ_t	= 125 pounds per cubic foot
ANGLE OF INTERNAL FRICTION	ϕ	= 25 degrees
APPARENT COHESION	C	= 300 pounds per square foot

SLOPE SATURATED TO VERTICAL DEPTH Z BELOW SLOPE FACE

SEEPAGE FORCES PARALLEL TO SLOPE FACE

ANALYSIS :

$$FS = \frac{C + (\gamma_t - \gamma_w)\ Z\ cos^2\ i\ tan\ \phi}{\gamma_t\ Z\ sin\ i\ cos\ i} = 2.5$$

REFERENCES :

1.....Haefeli, R. *The Stability of Slopes Acted Upon by Parallel Seepage*, Proc. Second International Conference, SMFE, Rotterdam, 1948, 1, 57-62

2.....Skempton, A. W., and F.A. Delory, *Stability of Natural Slopes in London Clay*, Proc. Fourth International Conference, SMFE, London, 1957, 2, 378-81

SURFICIAL SLOPE STABILITY ANALYSIS

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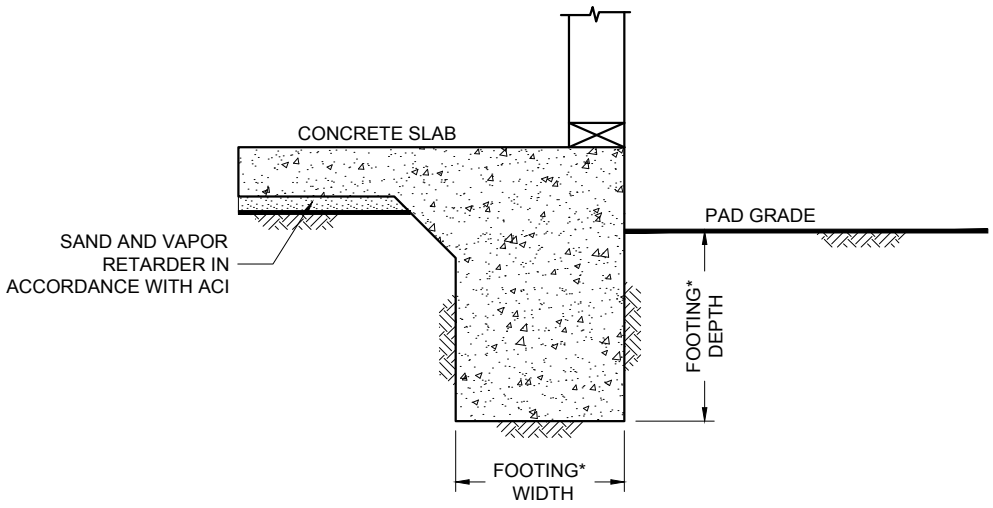
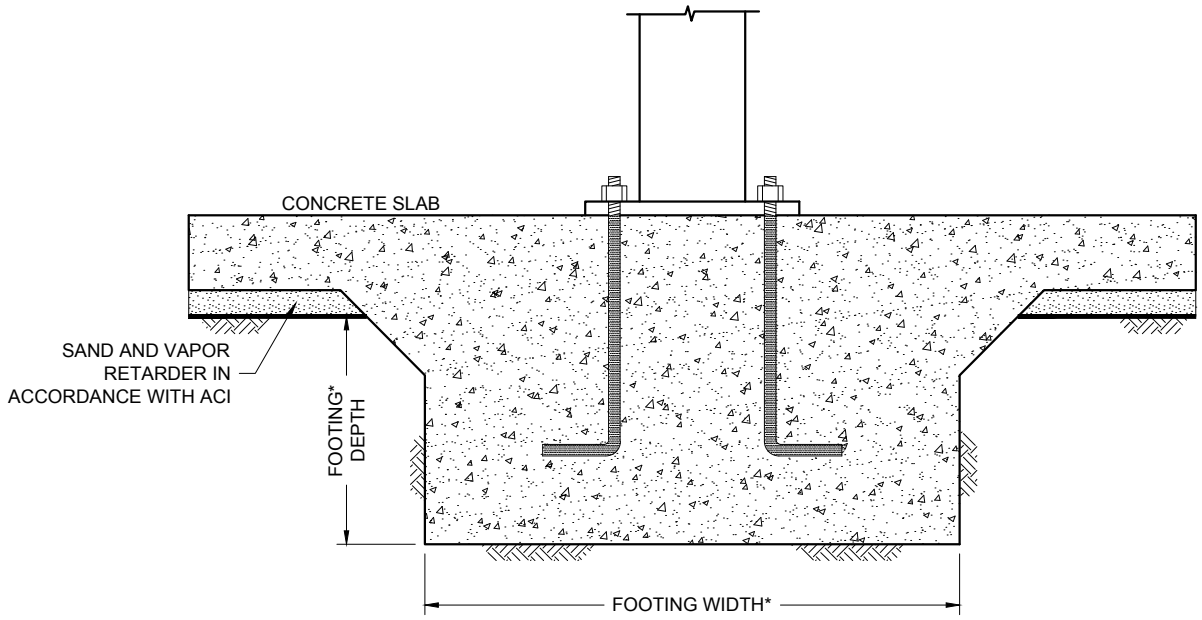
TM / CW		DSK/GTYPD	DATE 03 - 04 - 2021	PROJECT NO. G2670 - 32 - 01	FIG. 5

Plotted:03/04/2021 9:22AM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\G2670-32-01 North Iris Ave\DETAILS\Slope Stability Analyses-Surficial (SFSSA).dwg





*....SEE REPORT FOR FOUNDATION WIDTH AND DEPTH RECOMMENDATION

NO SCALE

WALL / COLUMN FOOTING DIMENSION DETAIL

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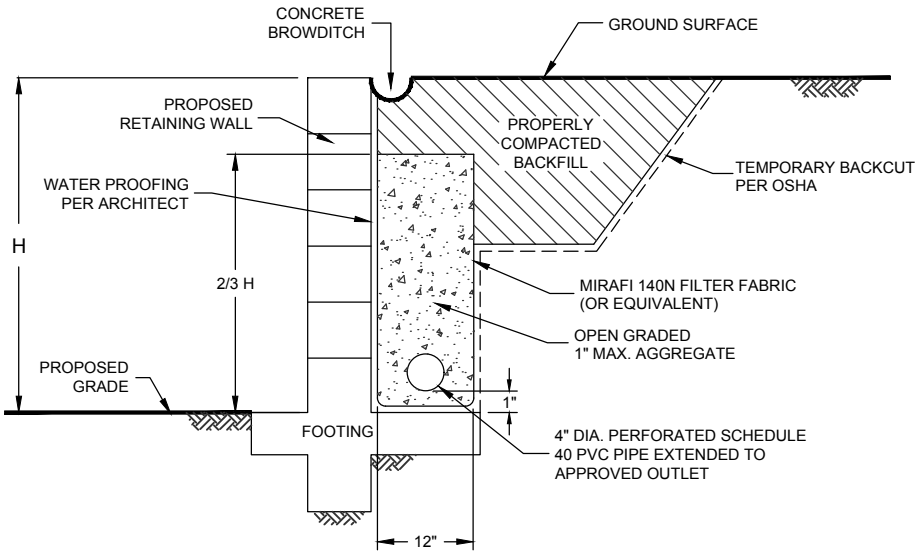
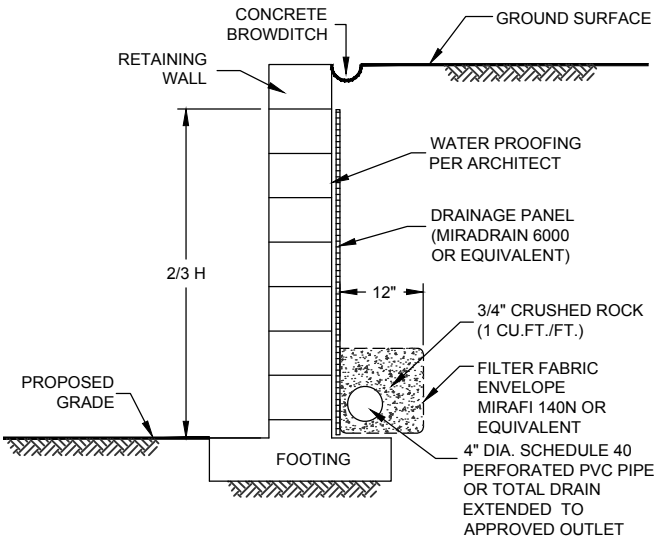
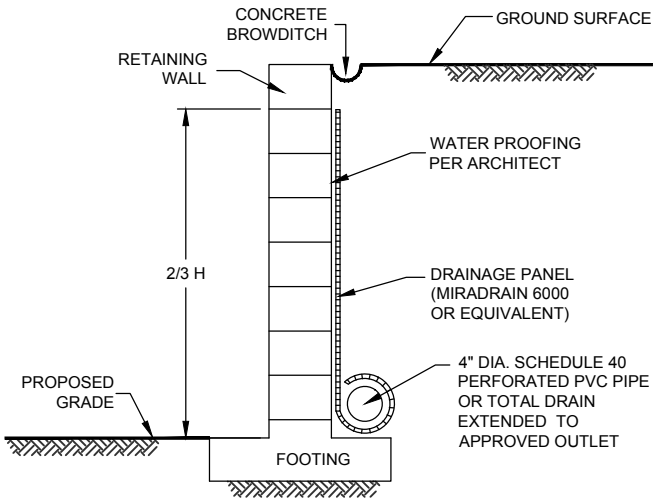
TM / CW		DSK/GTYPD

DATE 03 - 04 - 2021	PROJECT NO. G2670 - 32 - 01	FIG. 6

Plotted:03/04/2021 9:22AM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\G2670-32-01 North Iris Ave\DETAILS\Wall-Column Footing Dimension Detail (COLFOOT2).dwg







NOTE :

DRAIN SHOULD BE UNIFORMLY SLOPED TO GRAVITY OUTLET OR TO A SUMP WHERE WATER CAN BE REMOVED BY PUMPING

NO SCALE

TYPICAL RETAINING WALL DRAIN DETAIL

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TM / CW		DSK/GTYPD

DATE 03 - 04 - 2021	PROJECT NO. G2670 - 32 - 01	FIG. 7

Plotted:03/04/2021 9:24AM | By:ALVIN LADRILLONO | File Location:Y:\PROJECTS\G2670-32-01 North Iris Ave\DETAILS\Typical Retaining Wall Drainage Detail (RWDD7A).dwg

APPENDIX A

APPENDIX A

FIELD INVESTIGATION

The field investigation was performed on February 10 and 11, 2021, and consisted of excavating 12 exploratory trenches (Trench Nos. T-1 through T-12). In addition, four infiltration test (Infiltration Test No. I-1 through I-4) were performed within a proposed storm water management areas. The approximate locations of the trenches and infiltration tests are shown on the *Geologic Map*, Figure 2.

The exploratory trenches were excavated with a John Deere 310G backhoe, using a 24-inch-wide bucket. Logs of the trenches depicting the soil and geologic conditions encountered are presented on Figures A-1 through A-12. The infiltration test results are presented in Appendix C.

The soils encountered in the excavations were visually classified and logged in general accordance with American Society for Testing and Materials (ASTM) practice for Description and Identification of Soils (Visual Manual Procedure D 2488).

PROJECT NO. G2670-32-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 1 ELEV. (MSL.) 730' DATE COMPLETED 02-10-2021 EQUIPMENT JD 310J BACKHOE BY: D. GITHENS	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SM	**COLLUVIUM (Qcol)** Loose, damp, reddish brown, Silty, fine to coarse SAND; porous			
2								
4					**GRANITIC ROCK (Kgr)** Completely weathered, tan/white, weak GRANITIC ROCK; excavates as silty, fine to coarse sand			
					TERMINATED TRENCH AT 4.5 FEET Backfilled with spoils No groundwater encountered			

Figure A-1,
Log of Trench T 1, Page 1 of 1

G2670-32-01.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. G2670-32-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 2 ELEV. (MSL.) 721' DATE COMPLETED 02-10-2021 EQUIPMENT JD 310J BACKHOE BY: D. GITHENS MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	T2-1			SM	**COLLUVIUM (Qcol)** Medium dense, damp, reddish brown, Silty, fine to coarse SAND; porous			
2					**GRANITIC ROCK (Kgr)** Completely weathered, tan/orange, weak GRANITIC ROCK; excavates as silty, fine to coarse sand			
4					-At 4 feet becomes highly weathered, blue/white, moderately weak GRANITIC ROCK; excavates as silty, fine to coarse sand with 3/4" rock fragments TERMINATED TRENCH AT 4 FEET No groundwater encountered Backfilled with spoils			

Figure A-2,
Log of Trench T 2, Page 1 of 1

G2670-32-01.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. G2670-32-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 3 ELEV. (MSL.) 720' DATE COMPLETED 02-10-2021 EQUIPMENT JD 310J BACKHOE BY: D. GITHENS	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0	T3-1			SM	**COLLUVIUM (Qcol)** Loose, damp, reddish brown, Silty, fine to coarse SAND			
2					-Becomes medium dense			
4					**GRANITIC ROCK (Kgr)** Highly weathered, wite/tan/blue/moderately weak GRANITIC ROCK; excavates as silty, fine to coarse sand			
					TERMINATED TRENCH AT 5 FEET Backfilled with spoils No groundwater encountered			

Figure A-3,
Log of Trench T 3, Page 1 of 1

G2670-32-01.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

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DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 4 ELEV. (MSL.) 714' DATE COMPLETED 02-10-2021 EQUIPMENT JD 310J BACKHOE BY: D. GITHENS	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0	T4-1			SM	**COLLUVIUM (Qcol)** Loose, wet, reddish brown, Silty, fine to coarse SAND			
2								
4					**GRANITIC ROCK (Kgr)** Completely weathered, orange/tan/blue, weak GRANITIC ROCK; excavates as silty fine to coarse sand			
					TERMINATED TRENCH AT 5 FEET Backfilled with spoils Water at 3 feet (leach field)			

Figure A-4,
Log of Trench T 4, Page 1 of 1

G2670-32-01.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

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PROJECT NO. G2670-32-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 5 ELEV. (MSL.) 714' DATE COMPLETED 02-10-2021 EQUIPMENT JD 310J BACKHOE BY: D. GITHENS MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0	T5-1			SM	**COLLUVIUM (Qcol)** Loose, damp, reddish brown, Silty, fine to coarse SAND; porous			
2					-Becomes dense, dry, tan/reddish brown, silty, fine to coarse sand; porous			
	T5-2						111.6	13.6
4					-Becomes very dense, damp, reddish brown, silty, fine to coarse sand at 4 feet			
6								
8								
		+ + + + + +			**GRANITIC ROCK (Kgr)** Completely weathered, orange/black, weak GRANITIC ROCK; excavates silty, fine to coarse sand; excavates as silty, fine to coarse sand			
10					TERMINATED TRENCH AT 10 FEET No groundwater encountered Backfilled with spoils			

Figure A-5,
Log of Trench T 5, Page 1 of 1

G2670-32-01.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

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PROJECT NO. G2670-32-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 6 ELEV. (MSL.) 715' DATE COMPLETED 02-10-2021 EQUIPMENT JD 310J BACKHOE BY: D. GITHENS	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SM	**COLLUVIUM (Qcol)** Loose, damp, reddish brown, Silty, fine to coarse SAND			
2					-Becomes medium dense			
4					**GRANITIC ROCK (Kgr)** Highly weathered, reddish/tan/blue, strong GRANITIC ROCK; excavates silty, fine to coarse sand with 3" rock			
					TERMINATED TRENCH AT 5 FEET No groundwater encountered Backfilled with spoils			

Figure A-6,
Log of Trench T 6, Page 1 of 1

G2670-32-01.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

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PROJECT NO. G2670-32-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 7 ELEV. (MSL.) 709' DATE COMPLETED 02-10-2021 EQUIPMENT JD 310J BACKHOE BY: D. GITHENS MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM-SC	**ALLUVIUM (Qal)** Loose, damp, reddish brown, Silty/Clayey, fine to coarse SAND; porous			
2					-Becomes medium dense			
4								
	T7-1						110.6	12.8
6					-Becomes moderately cemented			
	T7-2							
8								
10					**GRANITIC ROCK (Kgr)** Completely weathered, black/orange, weak GRANITIC ROCK; excavates silty, fine to coarse sand			
					TERMINATED TRENCH AT 10.5 FEET No groundwater encountered Backfilled with spoils			

Figure A-7,
Log of Trench T 7, Page 1 of 1

G2670-32-01.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. G2670-32-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 8 ELEV. (MSL.) 707' DATE COMPLETED 02-10-2021 EQUIPMENT JD 310J BACKHOE BY: D. GITHENS	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					MATERIAL DESCRIPTION			
0				SM	**ALLUVIUM (Qal)** Loose, moist, reddish brown, Silty, fine to coarse SAND; porous			
					-Becomes damp at 1 foot			
2								
					-Becomes loose to medium dense at 3 feet			
4								
6								
8								
10			▼		-Saturated, reddish brown, silty, fine to coarse sand at 11 feet			
					-Up to 3/4" weathered rock fragments at 12 feet (possible granitic contact)			
12					TERMINATED TRENCH AT 12 FEET Groundwater encountered at 11 feet Backfilled with spoils			

Figure A-8,
Log of Trench T 8, Page 1 of 1

G2670-32-01.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. G2670-32-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 9 ELEV. (MSL.) 706' DATE COMPLETED 02-10-2021 EQUIPMENT JD 310J BACKHOE BY: D. GITHENS MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	**ALLUVIUM (Qal)** Loose, wet, reddish brown/dark brown, Silty, fine to coarse SAND			
2			▼		-Becomes medium dense, moderately cemented -Groundwater at 2 feet			
4								
6								
8								
		+ + + +			**GRANITIC ROCK (Kgr)** Slightly to moderately weathered, blue/white, strong GRANITIC ROCK			
					TERMINATED TRENCH AT 9.5 FEET Backfilled with spoils Groundwater encountered at 2 feet			

Figure A-9,
Log of Trench T 9, Page 1 of 1

G2670-32-01.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL
... STANDARD PENETRATION TEST
... DRIVE SAMPLE (UNDISTURBED)
... DISTURBED OR BAG SAMPLE
... CHUNK SAMPLE
... WATER TABLE OR ▽ ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. G2670-32-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 10	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
					ELEV. (MSL.) **705'** DATE COMPLETED **02-10-2021** EQUIPMENT **JD 310J BACKHOE** BY: **D. GITHENS**			
					MATERIAL DESCRIPTION			
0					**ALLUVIUM (Qal)** Loose, wet, reddish brown, Silty, fine to coarse SAND			
2			▼		**GRANITIC ROCK (Kgr)** Highly weathered, red/tan, weak GRANITIC ROCK; excavates silty, fine to coarse sand -Perched groundwater at 3 feet			
					TERMINATED TRENCH AT 3 FEET Groundwater encountered at 3 feet Backfilled with spoils			

Figure A-10,
Log of Trench T 10, Page 1 of 1

G2670-32-01.GPJ

SAMPLE SYMBOLS

- ... SAMPLING UNSUCCESSFUL
- ... STANDARD PENETRATION TEST
- ... DRIVE SAMPLE (UNDISTURBED)
- ... DISTURBED OR BAG SAMPLE
- ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR ▽ ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

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PROJECT NO. G2670-32-01

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	TRENCH T 11 ELEV. (MSL.) 707' DATE COMPLETED 02-10-2021 EQUIPMENT JD 310J BACKHOE BY: D. GITHENS MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0								
				SM	**ALLUVIUM (Qal)** Loose, wet, reddish brown/dark brown, Silty, fine to coarse SAND			
2			▼		-Groundwater at 2 feet			
	T11-1						115.3	17.9
4					-Becomes medium dense at 4 feet			
					-Becomes reddish/orange brown			
6								
8		+ + +			**GRANITIC ROCK (Kgr)** Highly weathered, tan/orange/black, weak GRANITIC ROCK; excavates silty, fine to coarse sand			
					TRENCH TERMINATED AT 8.5 FEET Groundwater encountered at 2 feet Backfilled with spoils			

Figure A-11,
Log of Trench T 11, Page 1 of 1

G2670-32-01.GPJ

SAMPLE SYMBOLS

... SAMPLING UNSUCCESSFUL ... STANDARD PENETRATION TEST ... DRIVE SAMPLE (UNDISTURBED)

... DISTURBED OR BAG SAMPLE ... CHUNK SAMPLE ... WATER TABLE OR ▽ ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

GEOCON

PROJECT NO. G2670-32-01

TRENCH T 12

ELEV. (MSL.) **705'** DATE COMPLETED **02-10-2021**

EQUIPMENT **JD 310J BACKHOE** BY: **D. GITHENS**

DEPTH IN FEET	SAMPLE NO.	LITHOLOGY	GROUNDWATER	SOIL CLASS (USCS)	MATERIAL DESCRIPTION	PENETRATION RESISTANCE (BLOWS/FT.)	DRY DENSITY (P.C.F.)	MOISTURE CONTENT (%)
0				SM	**ALLUVIUM (Qal)** Loose, moist, reddish brown, Silty, fine to coarse SAND; porous			
2					-Becomes wet at 2 feet			
4			▼		-Groundwater at 5 feet			
	T12-1			SM	Medium dense, damp, reddish brown, Silty, fine to coarse SAND		118.4	15.9
6	T12-2							
8								
10								
12					**GRANITIC ROCK (Kgr)** Completely weathered, black/orange, weak GRANITIC ROCK; excavates silty, fine to coarse sand			
					TERMINATED TRENCH AT 12 FEET Backfilled with spoils Groundwater encountered at 5 feet			

Figure A-12,
Log of Trench T 12, Page 1 of 1

G2670-32-01.GPJ

SAMPLE SYMBOLS

- ... SAMPLING UNSUCCESSFUL
- ... STANDARD PENETRATION TEST
- ... DRIVE SAMPLE (UNDISTURBED)
- ... DISTURBED OR BAG SAMPLE
- ... CHUNK SAMPLE
- ▼ ... WATER TABLE OR ▽ ... SEEPAGE

NOTE: THE LOG OF SUBSURFACE CONDITIONS SHOWN HEREON APPLIES ONLY AT THE SPECIFIC BORING OR TRENCH LOCATION AND AT THE DATE INDICATED. IT IS NOT WARRANTED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

APPENDIX B

APPENDIX B

LABORATORY TESTING

Laboratory tests were performed in accordance with generally accepted test methods of the American Society for Testing and Materials (ASTM) or other suggested procedures. Selected bulk samples were tested for maximum dry density and optimum moisture content, expansion index, soluble sulfate content, R-Value, and direct shear strength. Selected relatively undisturbed samples were tested for their in-place dry density and moisture content and consolidation characteristics. The in-place dry density and moisture content results are indicated on the exploratory trench logs. The results of our laboratory tests are summarized on Tables B-I through B-V and the following figures.

TABLE B-I
SUMMARY OF LABORATORY MAXIMUM DRY DENSITY AND OPTIMUM MOISTURE CONTENT TEST RESULTS

Sample No.	Description	Maximum Dry Density (pcf)	Optimum Moisture Content (% dry wt.)
T3-1	Dark reddish-brown Silty, fine to medium SAND with trace gravel	130.1	9.2
T7-2	Reddish-brown, Clayey, fine to medium SAND	123.3	12.8

TABLE B-II
SUMMARY OF LABORATORY DIRECT SHEAR TEST RESULTS

Sample No.	Geologic Unit Symbol (USCS Soil Type)	Dry Density (pcf)	Moisture Content (%)	Peak [Ultimate] Cohesion (psf)	Peak [Ultimate] Angle of Shear Resistance (degrees)
T3-1	Qcol (SM)	113.1	11.3	450 [450]	28 [28]
T7-2	Qcol (SM)	110.9	12.9	400 [400]	25 [25]

TABLE B-III
SUMMARY OF LABORATORY EXPANSION INDEX TEST RESULTS

Sample No.	Moisture Content (%)		Dry Density (pcf)	Expansion Index
	Before Test	After Test		
T3-1 (Qcol)	9.4	16.4	112.4	8
T7-2 (Qcol)	12.3	21.8	103.2	28

TABLE B-IV
SUMMARY OF LABORATORY WATER-SOLUBLE SULFATE TEST RESULTS

Sample No.	Water-Soluble Sulfate Content (%)	Exposure
T3-1	0.005	Not Applicable
T7-2	0.004	Not Applicable

TABLE B-V
SUMMARY OF LABORATORY RESISTANCE VALUE (R-VALUE) TEST RESULTS

Sample No.	Description	R-Value
T3-1	Dark reddish-brown Silty, fine to medium SAND with trace gravel	45
T7-2	Reddish-brown, Clayey, fine to medium SAND	9

SAMPLE NO.: **T5-2**

SAMPLE DEPTH (FT): **3'**

GEOLOGIC UNIT: **Qcol**

TEST INFORMATION	
INITIAL DRY DENSITY (PCF):	111.6
INITIAL WATER CONTENT (%):	13.6%
SAMPLE SATURATED AT (KSF):	1.0
INITIAL SATURATION (%):	74.3%



CONSOLIDATION CURVE - ASTM D 2435

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NORTH IRIS LANE, ESCONDIDO, CA

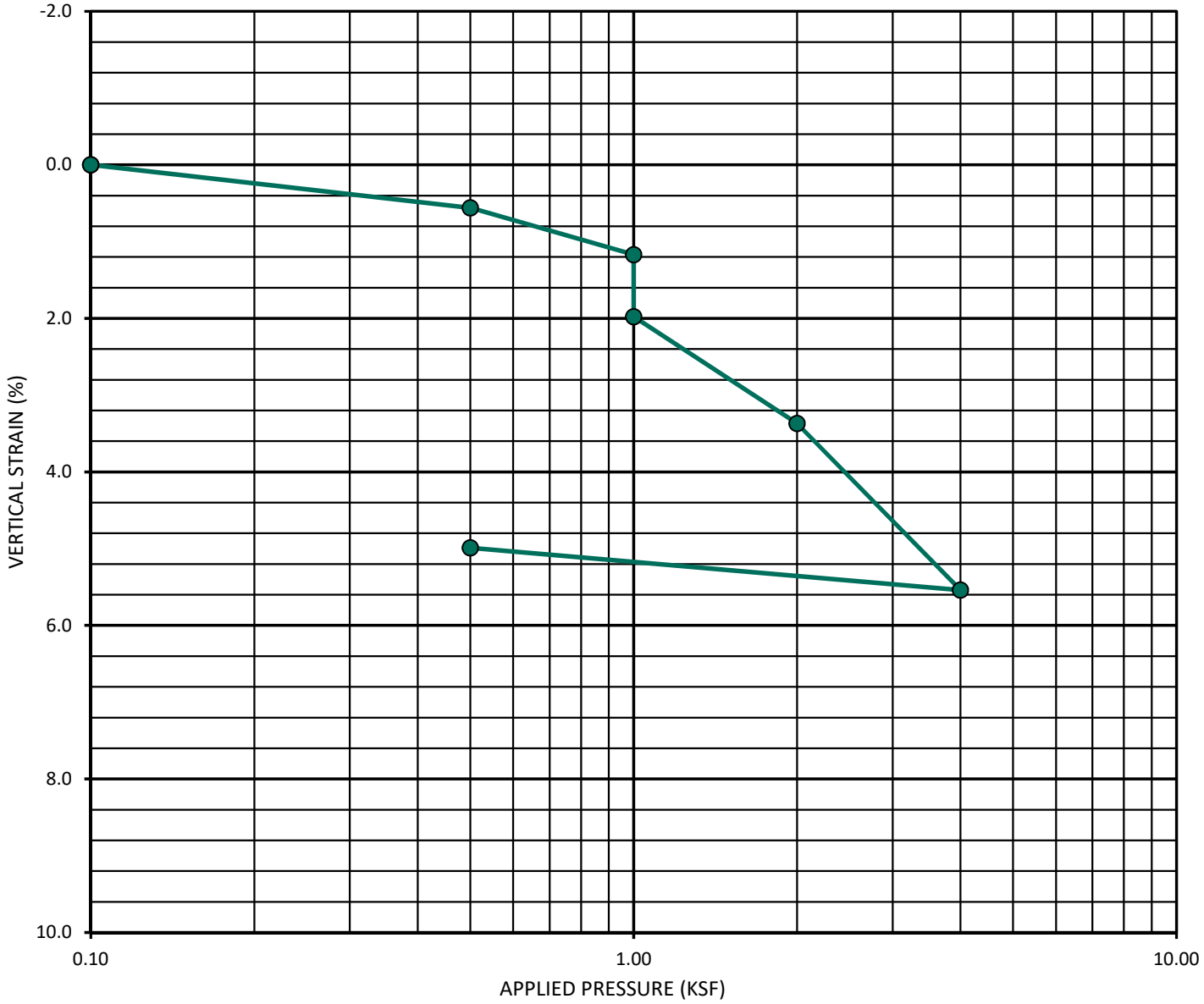
PROJECT NO.: G2670-32-01

SAMPLE NO.: **T7-1**

SAMPLE DEPTH (FT): **5'**

GEOLOGIC UNIT: **Qcol**

TEST INFORMATION	
INITIAL DRY DENSITY (PCF):	110.6
INITIAL WATER CONTENT (%):	12.8%
SAMPLE SATURATED AT (KSF):	1.0
INITIAL SATURATION (%):	67.9%



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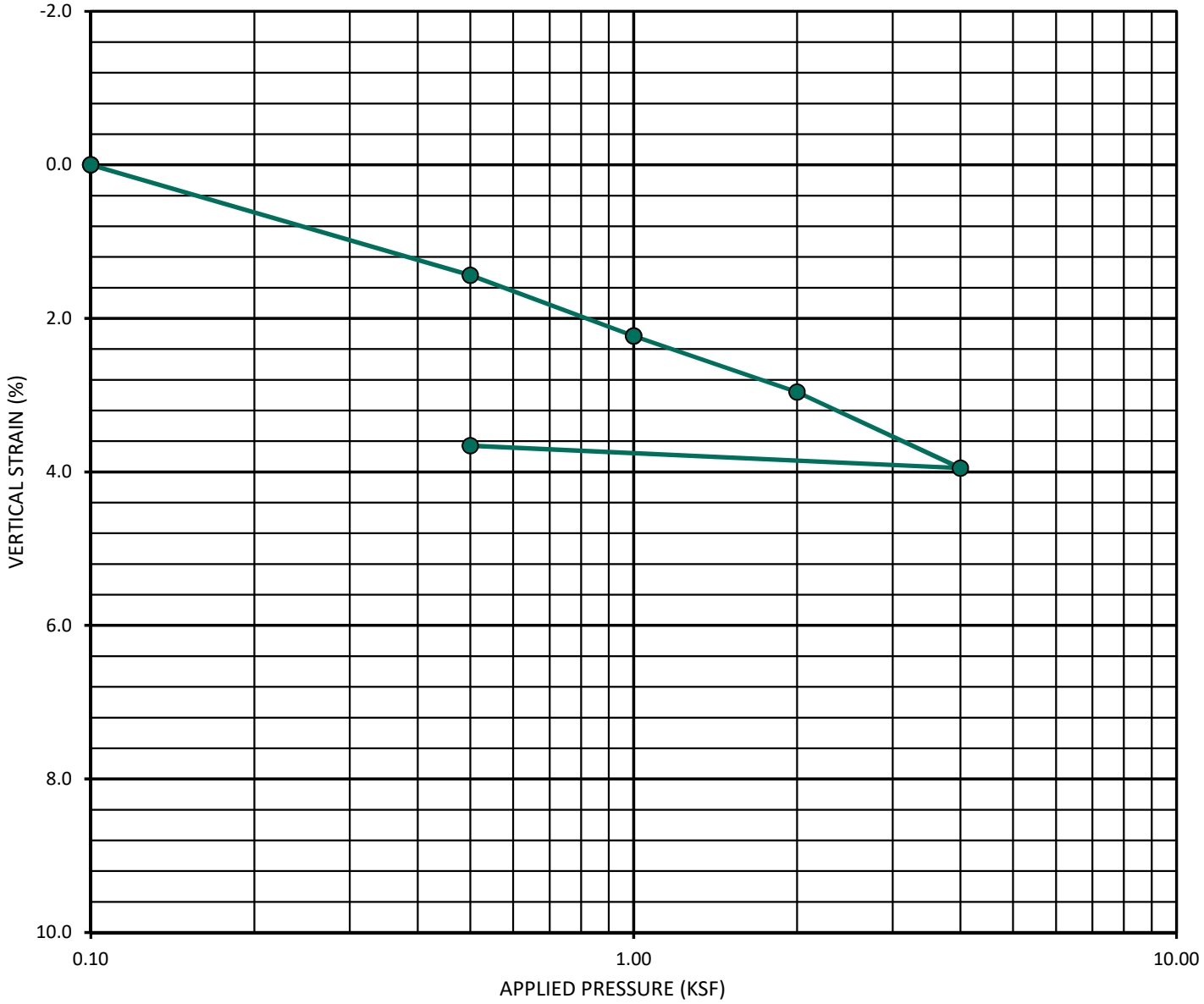
PROJECT NO.: G2670-32-01

SAMPLE NO.: **T11-1**

SAMPLE DEPTH (FT): **3'**

GEOLOGIC UNIT: **Qal**

TEST INFORMATION	
INITIAL DRY DENSITY (PCF):	115.3
INITIAL WATER CONTENT (%):	17.9%
SAMPLE SATURATED AT (KSF):	1.0
INITIAL SATURATION (%):	100+



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CONSOLIDATION CURVE - ASTM D 2435

NORTH IRIS LANE, ESCONDIDO, CA

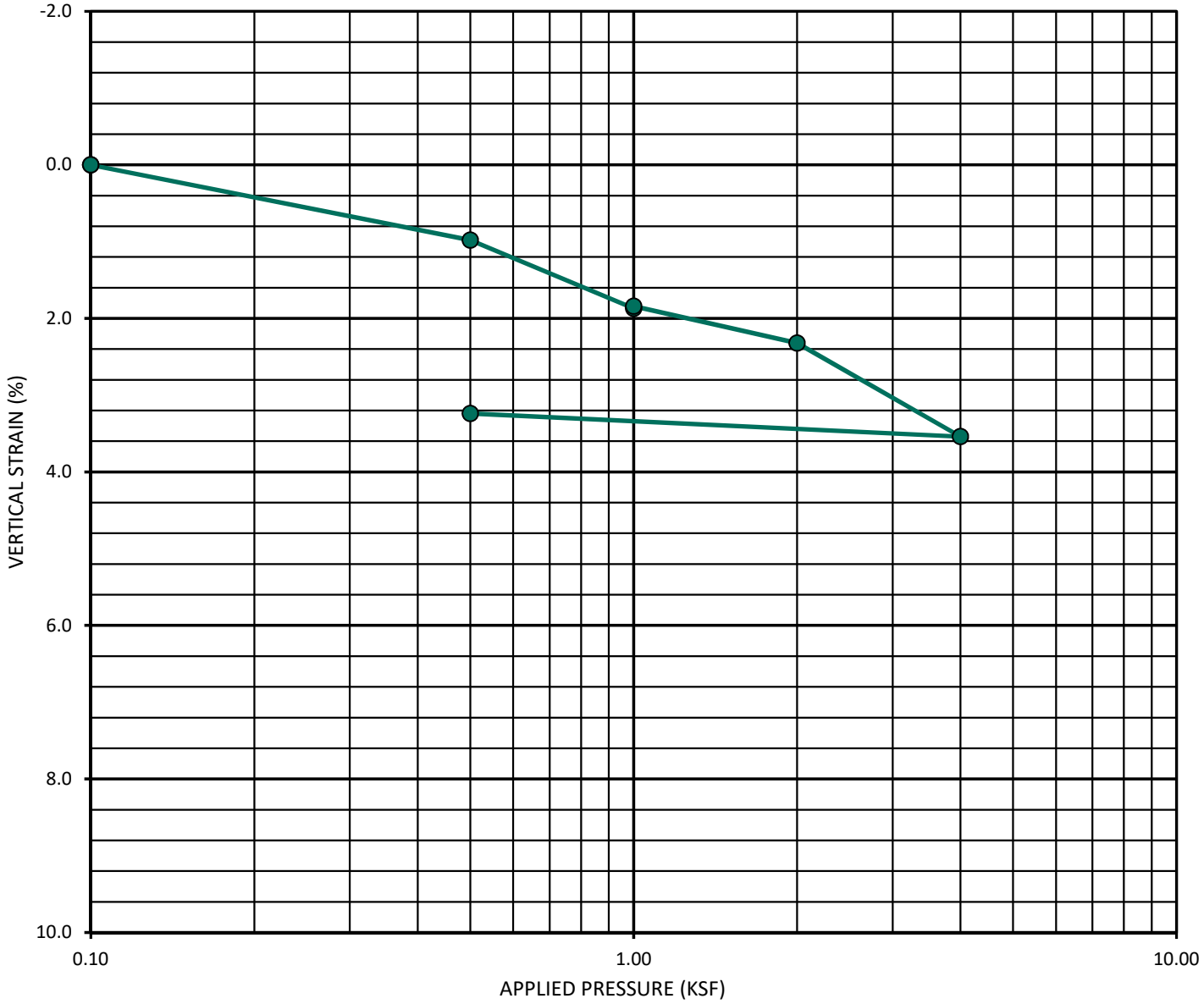
PROJECT NO.: G2670-32-01

SAMPLE NO.: **T12-1**

SAMPLE DEPTH (FT): **5'**

GEOLOGIC UNIT: **Qal**

TEST INFORMATION	
INITIAL DRY DENSITY (PCF):	118.4
INITIAL WATER CONTENT (%):	15.9%
SAMPLE SATURATED AT (KSF):	1.0
INITIAL SATURATION (%):	100+



CONSOLIDATION CURVE - ASTM D 2435

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NORTH IRIS LANE, ESCONDIDO, CA

PROJECT NO.: G2670-32-01

APPENDIX C

APPENDIX C

STORM WATER MANAGEMENT INVESTIGATION

FOR

NORTH IRIS LANE
ESCONDIDO, CALIFORNIA

PROJECT NO. G2670-32-01

APPENDIX C

STORM WATER MANAGEMENT INVESTIGATION

We understand storm water management devices are being proposed in accordance with the City of ESCONDIDO *BMP Design Manual*. If not properly constructed, there is a potential for distress to improvements and properties located hydrologically down gradient or adjacent to these devices. Factors such as the amount of water to be detained, its residence time, and soil permeability have an important effect on seepage transmission and the potential adverse impacts that may occur if the storm water management features are not properly designed and constructed. We have not performed a hydrogeological study at the site. If infiltration of storm water runoff occurs, downstream properties may be subjected to seeps, springs, slope instability, raised groundwater, movement of foundations and slabs, or other undesirable impacts as a result of water infiltration.

Hydrologic Soil Group

The United States Department of Agriculture (USDA), Natural Resources Conservation Services, possesses general information regarding the existing soil conditions for areas within the United States. The USDA website also provides the Hydrologic Soil Group. Table C-I presents the descriptions of the hydrologic soil groups. If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. In addition, the USDA website also provides an estimated saturated hydraulic conductivity for the existing soil.

TABLE C-I
HYDROLOGIC SOIL GROUP DEFINITIONS

Soil Group	Soil Group Definition
A	Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.
B	Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.
C	Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.
D	Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

The property is underlain by alluvium, colluvium, and granitic rock. After site grading, the property will be underlain with compacted fill. Compacted fill should be classified as Hydrologic Soil Group D. The Hydrologic Soil Group Map presents output from the USDA website showing the limits of the soil units.



Hydrologic Soil Group Map

Table C-II presents the information from the USDA website for the subject property.

TABLE C-II
USDA WEB SOIL SURVEY – HYDROLOGIC SOIL GROUP

Map Unit Name	Map Unit Symbol	Approximate Percentage of Property	Hydrologic Soil Group	k_{SAT} of Most Limiting Layer (Inches/ Hour)
Escondido very fine sandy loam, 5 to 9 percent slopes	EsC	>1	C	0.57 – 1.98
Escondido very fine sandy loam, 9 to 15 percent slopes, eroded	EsD2	42	C	0.57 – 1.98
Placentia sandy loam, thick surface, 2 to 9 percent slopes	PfC	58	D	0.00 – 0.06

In Situ Testing

We performed four constant-head infiltration test using the Aardvark permeameter at the locations shown on the Geologic Map, Figure 2. Table C-III presents the results of the infiltration tests. The test results are presented herein. We applied a feasibility factor of safety of 2.0 to the in-situ infiltration rates in accordance with the SWS. Soil infiltration rates from in-situ tests can vary significantly from one location to another due to the heterogeneous characteristics inherent to most soil.

TABLE C-III
INFILTRATION TEST RESULTS

Test No.	Geologic Unit	Test Elevation (feet, MSL)	Field-Saturated Hydraulic Conductivity/Infiltration Rate, k_{sat} (inch/hour)	Worksheet Infiltration Rate[1] (inch/hour)
I-1	Qal	705	0.014	0.007
I-2	Qal	708	0.009	0.0045
I-3	Kgr	720	0.035	0.017
I-4	Qcol	715	0.311	0.156
Average			0.09	0.045

[1] Using a Factor of Safety of 2.

Infiltration categories include full infiltration, partial infiltration and no infiltration. Table C-IV presents the commonly accepted definitions of the potential infiltration categories based on the infiltration rates.

TABLE C-IV
INFILTRATION CATEGORIES

Infiltration Category	Field Infiltration Rate, I (inches/hour)	Factored Infiltration Rate[1], I (inches/hour)
Full Infiltration	I > 1.0	I > 0.5
Partial Infiltration	0.10 < I ≤ 1.0	0.05 < I ≤ 0.5
No Infiltration (Infeasible)	I < 0.10	I < 0.05

[1] Using a Factor of Safety of 2.

Based on our observations and test results, the average factored infiltration rate is less than 0.05 inches per hour. Therefore, infiltration on the property is considered infeasible based on the calculated infiltrations rates.

GEOTECHNICAL CONSIDERATIONS

Groundwater Elevations

Perched groundwater was encountered at the base of the alluvium/colluvium near the southern portion of the property where a natural drainage crosses the site and discharges into a culvert beneath North Iris Lane. Since groundwater was observed within 10 feet from the bottom of the proposed stormwater BMP, infiltration due to groundwater is considered infeasible.

New or Existing Utilities

Underground utilities are located beneath North Iris Lane and within the public right of way on the eastern portion of the project where the proposed stormwater BMP is situated in close proximity. Full and partial infiltration within the areas near existing utilities should be considered infeasible. Setbacks for infiltration should be incorporated. The setback for infiltration devices should be a minimum of 10 feet and not located below a 1:1 plane from top of BMP water high water elevation to the closest edge of the deepest adjacent utility.

Existing or Planned Structures

Water should not be allowed to infiltrate in areas where it could affect the neighboring properties and adjacent structures. Mitigation for existing structures consists of not allowing water infiltration within 10 feet of the existing foundations.

Soil or Groundwater Contamination

We are unaware of contaminated soil on the property. Therefore, infiltration associated with this risk is considered feasible. However, if contamination is present the underlying soil, the introduction of water could contribute to the underground migration of contaminants.

CONCLUSIONS AND RECOMMENDATIONS

Storm Water Evaluation Narrative

We encountered alluvium, colluvium and granitic rock at the site during our investigation. We performed four infiltration tests within the underlying soils and the results indicate an average rate of 0.045 inches per hour (with an applied factor of safety of 2). We selected the test locations to be within the footprint of the proposed BMP and adjacent to the exploratory trenches.

Storm Water Evaluation Conclusion

Based on our test results, the infiltration rate for the surficial soil is less than 0.05 inches per hour. Therefore, full or partial infiltration on the property is considered infeasible based on the calculated infiltrations rates.

Storm Water Management Devices

Liners and subdrains should be incorporated into the design and construction of the planned storm water devices. The liners should be impermeable (e.g. High-density polyethylene, HDPE, with a thickness of about 30 mil or equivalent Polyvinyl Chloride**,** PVC) to prevent water migration. The subdrains should be perforated within the liner area, installed at the base and above the liner, be at least 4 inches in diameter and consist of Schedule 40 PVC pipe. The subdrains outside of the liner should consist of solid pipe. The penetration of the liners at the subdrains should be properly waterproofed. The subdrains should be connected to a proper outlet. The devices should also be installed in accordance with the manufacturer's recommendations. The liners can be removed from the base of the devices to allow incidental infiltration as discussed herein, provided an overflow device is installed to prevent overtopping of the BMP slopes.

Storm Water Standard Worksheets

The City of Escondido requests the geotechnical engineer complete the *Categorization of Infiltration Feasibility Condition* (Worksheet C.4-1) worksheet information to help evaluate the potential for infiltration on the property. Worksheet C.4-1 presents the completed information for the submittal process and is attached herein.

The regional storm water standards also have a worksheet (Worksheet D.5-1: Form I-9) that helps the project civil engineer estimate the factor of safety based on several factors. Table C-V describes the suitability assessment input parameters related to the geotechnical engineering aspects for the factor of safety determination.

TABLE C-V
SUITABILITY ASSESSMENT RELATED CONSIDERATIONS FOR INFILTRATION FACILITY SAFETY FACTORS

Consideration	High Concern – 3 Points	Medium Concern – 2 Points	Low Concern – 1 Point
Assessment Methods	Use of soil survey maps or simple texture analysis to estimate short-term infiltration rates. Use of well permeameter or borehole methods without accompanying continuous boring log. Relatively sparse testing with direct infiltration methods	Use of well permeameter or borehole methods with accompanying continuous boring log. Direct measurement of infiltration area with localized infiltration measurement methods (e.g., Infiltrometer). Moderate spatial resolution	Direct measurement with localized (i.e. small-scale) infiltration testing methods at relatively high resolution or use of extensive test pit infiltration measurement methods.
Predominant Soil Texture	Silty and clayey soils with significant fines	Loamy soils	Granular to slightly loamy soils
Site Soil Variability	Highly variable soils indicated from site assessment or unknown variability	Soil boring/test pits indicate moderately homogenous soils	Soil boring/test pits indicate relatively homogenous soils
Depth to Groundwater/ Impervious Layer	<5 feet below facility bottom	5-15 feet below facility bottom	>15 feet below facility bottom

Based on our geotechnical investigation and the previous table, Table C-VI presents the estimated factor values for the evaluation of the factor of safety. This table only presents the suitability assessment safety factor (Part A) of the worksheet. The project civil engineer should evaluate the safety factor for design (Part B) and use the combined safety factor for the design infiltration rate.

TABLE C-VI
FACTOR OF SAFETY WORKSHEET DESIGN VALUES – PART A1

Suitability Assessment Factor Category	Assigned Weight (w)	Factor Value (v)	Product (p = w x v)
Assessment Methods	0.25	3	0.75
Predominant Soil Texture	0.25	2	0.50
Site Soil Variability	0.25	2	0.50
Depth to Groundwater/ Impervious Layer	0.25	3	0.75
Suitability Assessment Safety Factor, $S_A = \sum p$			2.5

* The project civil engineer should complete Worksheet D.5-1 or Form I-9 using the data on this table. Additional information is required to evaluate the design factor of safety.

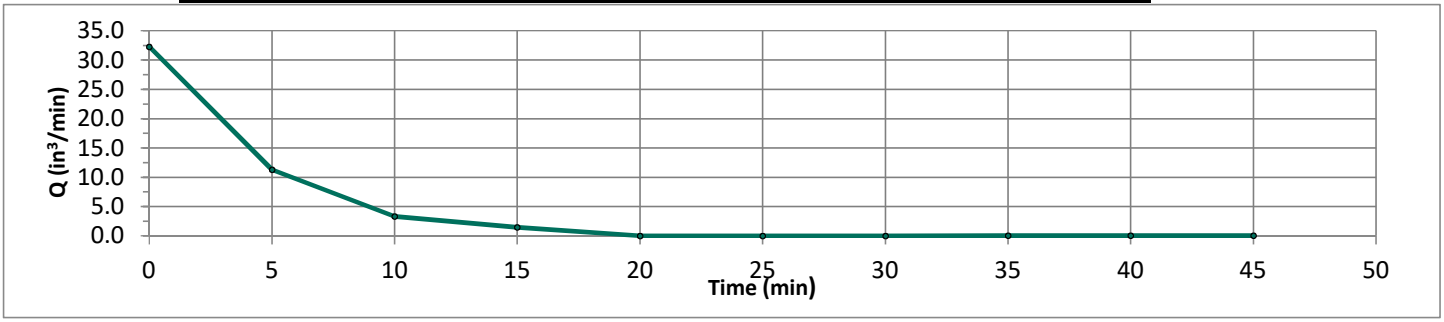
TEST NO.: I-1

GEOLOGIC UNIT: Qal

EXCAVATION ELEVATION (MSL, FT): 705

TEST INFORMATION	
BOREHOLE DIAMETER (IN):	4
BOREHOLE DEPTH (FT):	5.0
TEST/BOTTOM ELEVATION (MSL, FT):	700
MEASURED HEAD HEIGHT (IN):	4.5
FACTOR OF SAFETY:	2.0

TEST RESULTS	
STEADY FLOW RATE (IN3/MIN):	**0.055**
FIELD-SATURATED INFILTRATION RATE (IN/HR):	**0.014**
FACTORED INFILTRATION RATE (IN/HR):	**0.007**



TEST DATA

Reading	Time Elapsed (min)	Water Weight Consumed (lbs)	Water Volume Consumed (in3)	Q (in3/min)
1	0.00	0.000	0.00	0.00
2	5.00	5.830	161.45	32.289
3	5.00	2.040	56.49	11.298
4	5.00	0.600	16.62	3.323
5	5.00	0.260	7.20	1.440
6	5.00	-9.050	-250.62	0.000
7	5.00	-0.030	-0.83	0.000
8	5.00	-0.010	-0.28	0.000
9	5.00	0.010	0.28	0.055
10	5.00	0.010	0.28	0.055
11	5.00	0.010	0.28	0.055

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Constant-head, Borehole, Infiltration Test Results

North Iris Lane, Escondido, CA

PROJECT NO.: G2670-32-01

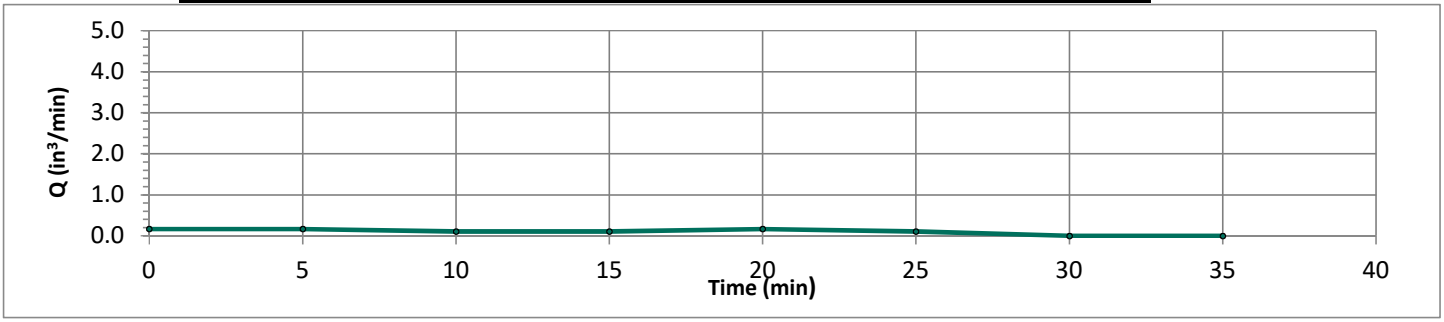
TEST NO.: **I-2**

GEOLOGIC UNIT: **Qal**

EXCAVATION ELEVATION (MSL, FT): **708**

TEST INFORMATION	
BOREHOLE DIAMETER (IN):	4
BOREHOLE DEPTH (FT):	4.0
TEST/BOTTOM ELEVATION (MSL, FT):	704
MEASURED HEAD HEIGHT (IN):	4.5
FACTOR OF SAFETY:	2.0

TEST RESULTS	
STEADY FLOW RATE (IN3/MIN):	**0.037**
FIELD-SATURATED INFILTRATION RATE (IN/HR):	**0.009**
FACTORED INFILTRATION RATE (IN/HR):	**0.005**



TEST DATA				
Reading	**Time Elapsed (min)**	**Water Weight Consumed (lbs)**	**Water Volume Consumed (in3)**	**Q (in3/min)**
1	0.00	0.000	0.00	0.00
2	5.00	0.030	0.83	0.166
3	5.00	0.030	0.83	0.166
4	5.00	0.020	0.55	0.111
5	5.00	0.020	0.55	0.111
6	5.00	0.030	0.83	0.166
7	5.00	0.020	0.55	0.111
8	5.00	0.000	0.00	0.000
9	5.00	0.000	0.00	0.000

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Constant-head, Borehole, Infiltration Test Results

North Iris Lane, Escondido, CA

PROJECT NO.: G2670-32-01

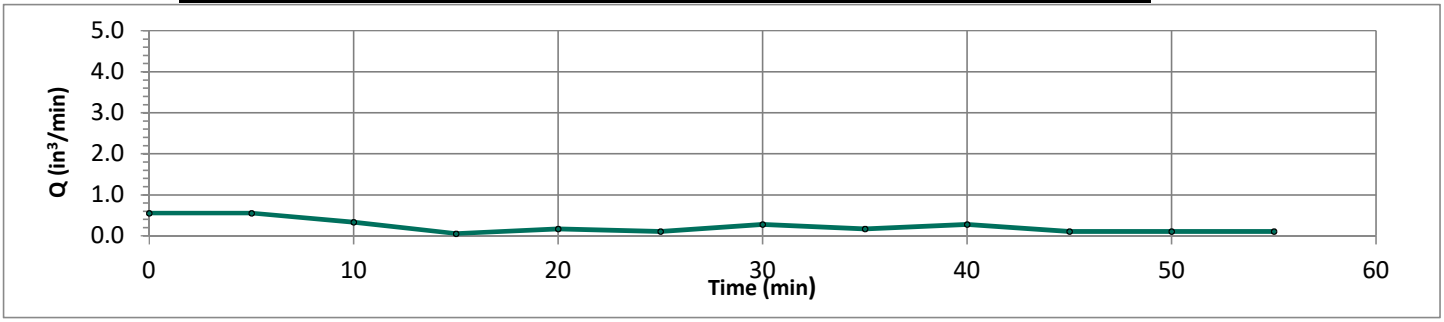
TEST NO.: **I-3**

GEOLOGIC UNIT: **Kgr**

EXCAVATION ELEVATION (MSL, FT): **720**

TEST INFORMATION	
BOREHOLE DIAMETER (IN):	4
BOREHOLE DEPTH (FT):	2.0
TEST/BOTTOM ELEVATION (MSL, FT):	718
MEASURED HEAD HEIGHT (IN):	3.5
FACTOR OF SAFETY:	2.0

TEST RESULTS	
STEADY FLOW RATE (IN3/MIN):	**0.111**
FIELD-SATURATED INFILTRATION RATE (IN/HR):	**0.035**
FACTORED INFILTRATION RATE (IN/HR):	**0.017**



TEST DATA

Reading	Time Elapsed (min)	Water Weight Consumed (lbs)	Water Volume Consumed (in3)	Q (in3/min)
1	0.00	0.000	0.00	0.00
2	5.00	0.100	2.77	0.554
3	5.00	0.100	2.77	0.554
4	5.00	0.060	1.66	0.332
5	5.00	0.010	0.28	0.055
6	5.00	0.030	0.83	0.166
7	5.00	0.020	0.55	0.111
8	5.00	0.050	1.38	0.277
9	5.00	0.030	0.83	0.166
10	5.00	0.050	1.38	0.277
11	5.00	0.020	0.55	0.111
12	5.00	0.020	0.55	0.111
13	5.00	0.020	0.55	0.111

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Constant-head, Borehole, Infiltration Test Results

North Iris Lane, Escondido, CA

PROJECT NO.: G2670-32-01

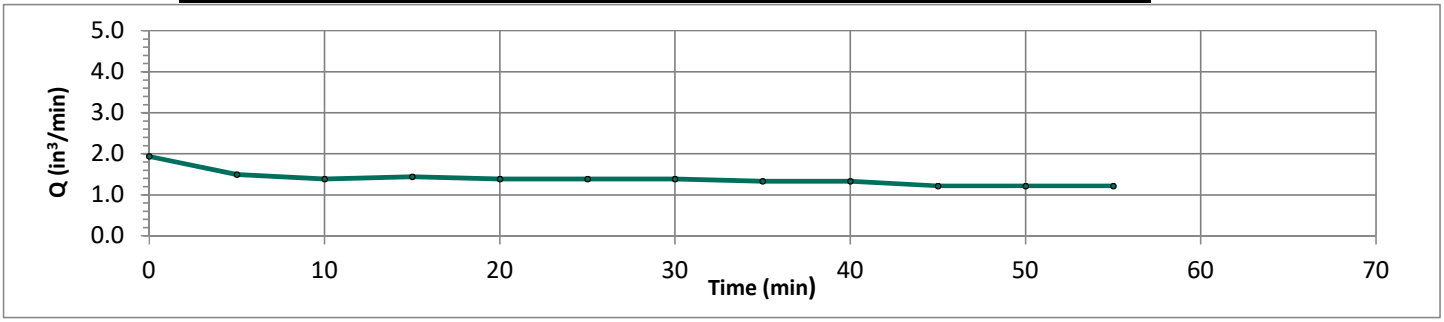
TEST NO.: **I-4**

GEOLOGIC UNIT: **Qcol**

EXCAVATION ELEVATION (MSL, FT): **715**

TEST INFORMATION	
BOREHOLE DIAMETER (IN):	4
BOREHOLE DEPTH (FT):	5.0
TEST/BOTTOM ELEVATION (MSL, FT):	710
MEASURED HEAD HEIGHT (IN):	4.5
FACTOR OF SAFETY:	2.0

TEST RESULTS	
STEADY FLOW RATE (IN3/MIN):	**1.218**
FIELD-SATURATED INFILTRATION RATE (IN/HR):	**0.311**
FACTORED INFILTRATION RATE (IN/HR):	**0.156**



TEST DATA				
Reading	**Time Elapsed (min)**	**Water Weight Consumed (lbs)**	**Water Volume Consumed (in3)**	**Q (in3/min)**
1	0.00	0.000	0.00	0.00
2	5.00	0.350	9.69	1.938
3	5.00	0.270	7.48	1.495
4	5.00	0.250	6.92	1.385
5	5.00	0.260	7.20	1.440
6	5.00	0.250	6.92	1.385
7	5.00	0.250	6.92	1.385
8	5.00	0.250	6.92	1.385
9	5.00	0.240	6.65	1.329
10	5.00	0.240	6.65	1.329
11	5.00	0.220	6.09	1.218
12	5.00	0.220	6.09	1.218
13	5.00	0.220	6.09	1.218

GEOCON
INCORPORATED
GEOTECHNICAL CONSULTANTS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121-2974
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Constant-head, Borehole, Infiltration Test Results

North Iris Lane, Escondido, CA

PROJECT NO.: G2670-32-01

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for San Diego County Area, California

g2670-32-01 - N Iris Lane



February 16, 2021

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:1,530 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 20 40 80 120

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: San Diego County Area, California
Survey Area Data: Version 15, May 27, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jan 24, 2020—Feb 12, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
EsC	Escondido very fine sandy loam, 5 to 9 percent slopes	0.0	0.3%
EsD2	Escondido very fine sandy loam, 9 to 15 percent slopes, eroded	3.4	41.9%
PfC	Placentia sandy loam, thick surface, 2 to 9 percent slo pes	4.7	57.7%
Totals for Area of Interest		**8.1**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate

pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

San Diego County Area, California

EsC—Escondido very fine sandy loam, 5 to 9 percent slopes

Map Unit Setting

National map unit symbol: hbbk
Elevation: 400 to 2,800 feet
Mean annual precipitation: 10 to 20 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 260 to 310 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Escondido and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Escondido

Setting

Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from metamorphic rock and sandstone

Typical profile

H1 - 0 to 8 inches: very fine sandy loam
H2 - 8 to 34 inches: silt loam, very fine sandy loam, fine sandy loam
H2 - 8 to 34 inches: unweathered bedrock
H2 - 8 to 34 inches:
H3 - 34 to 38 inches:

Properties and qualities

Slope: 5 to 9 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: Very high (about 12.9 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R019XD029CA
Hydric soil rating: No

Minor Components

Friant
Percent of map unit: 10 percent
Hydric soil rating: No

Fallbrook
Percent of map unit: 3 percent
Hydric soil rating: No

Vista
Percent of map unit: 2 percent
Hydric soil rating: No

EsD2—Escondido very fine sandy loam, 9 to 15 percent slopes, eroded

Map Unit Setting
National map unit symbol: hbbl
Elevation: 400 to 2,800 feet
Mean annual precipitation: 10 to 20 inches
Mean annual air temperature: 63 degrees F
Frost-free period: 260 to 310 days
Farmland classification: Not prime farmland

Map Unit Composition
Escondido and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Escondido

Setting
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Residuum weathered from metamorphic rock and sandstone

Typical profile
H1 - 0 to 6 inches: very fine sandy loam
H2 - 6 to 29 inches: silt loam, very fine sandy loam, fine sandy loam
H2 - 6 to 29 inches: unweathered bedrock
H2 - 6 to 29 inches:
H3 - 29 to 33 inches:

Properties and qualities
Slope: 9 to 15 percent
Depth to restrictive feature: 20 to 40 inches to lithic bedrock
Drainage class: Well drained
Runoff class: Medium

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water capacity: High (about 11.3 inches)

Interpretive groups

Land capability classification (irrigated): 4e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R019XD029CA
Hydric soil rating: No

Minor Components

Feianr

Percent of map unit: 10 percent
Hydric soil rating: No

Fallbrook

Percent of map unit: 3 percent
Hydric soil rating: No

Vista

Percent of map unit: 2 percent
Hydric soil rating: No

PfC—Placentia sandy loam, thick surface, 2 to 9 percent slo pes

Map Unit Setting

National map unit symbol: hbfn
Elevation: 50 to 2,500 feet
Mean annual precipitation: 12 to 18 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 200 to 300 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Placentia and similar soils: 85 percent
Minor components: 11 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Placentia

Setting

Landform: Alluvial fans
Landform position (two-dimensional): Toeslope
Landform position (three-dimensional): Base slope, rise
Down-slope shape: Linear
Across-slope shape: Convex

Parent material: Alluvium derived from granite

Typical profile

H1 - 0 to 13 inches: sandy loam
H2 - 13 to 34 inches: clay, sandy clay
H2 - 13 to 34 inches:

Properties and qualities

Slope: 2 to 9 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 25.0
Available water capacity: Low (about 3.8 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: R019XD061CA
Hydric soil rating: No

Minor Components

Bonsall

Percent of map unit: 5 percent
Hydric soil rating: No

Ramona

Percent of map unit: 5 percent
Hydric soil rating: No

Unnamed, ponded

Percent of map unit: 1 percent
Landform: Depressions
Hydric soil rating: Yes

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Worksheet C.4-1: Categorization of Infiltration Feasibility Condition

Categorization of Infiltration Feasibility Condition		Worksheet C.4-1	
Part 1 - Full Infiltration Feasibility Screening Criteria **Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?**			
Criteria	Screening Question	**Yes**	**No**
1	**Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		X
Provide basis: We performed four infiltration tests using a constant head down hole test method. The results indicate design infiltration rates of 0.007, 0.0045, 0.017, and 0.156 inches per hour (with an applied factor of safety of 2). The average of the four infiltration tests is 0.045 inches per hour. Full infiltration is considered infeasible since the design rate is below 0.5 iph. Therefore, full infiltration is not considered feasible at the site.			
2	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	X	
Provide basis: Infiltration at the proposed locations may result in lateral water migration that could adversely impact adjacent utilities, roadways, and foundations. The adverse impacts of infiltration could be reasonably mitigated to accepted levels provided side liners and a subdrain are incorporated into the design. In addition, an overflow device should be added to prevent overtopping of the BMP slopes.			

Worksheet C.4-1 Page 2 of 4			
Criteria	Screening Question	Yes	No
3	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, storm water pollutants or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.		X
Provide basis: Perched groundwater is located within 10 feet of the proposed BMP basins. Infiltration of storm water may increase the risk of contamination.			
4	**Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	X	
Provide basis: We are not aware of any potential water balance issues or change of ephemeral stream flow as a result of infiltrating storm water. Researching downstream water rights and evaluating water balance issues to stream flows is beyond the scope of the geotechnical engineer.			
Part 1 Result*	If all answers to rows 1 - 4 are "**Yes**" a full infiltration design is potentially feasible. The feasibility screening category is **Full Infiltration** If any answer from row 1-4 is "**No**", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design. Proceed to Part 2		**NO**

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by City Engineer to substantiate findings.

Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria

Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
5	**Do soil and geologic conditions allow for infiltration in any appreciable rate or volume?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		X

Provide basis: An appreciable rate is typically defined as a factored rate of at least 0.05 inches per hour (using a factor of safety of 2). Based on our experience and field testing, we anticipate that the saturated hydraulic conductivity (Ksat) of the compacted fill will be less than 0.05 inches per hour. The in-situ infiltration test results on the underlying surficial soils indicated an average design rate of 0.045 iph. Therefore, in our opinion the soil and geologic conditions do not allow for infiltration in any appreciable rate or volume based on infiltration rates.

6	**Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	X	

Provide basis: Infiltration at the proposed locations may result in lateral water migration that could adversely impact adjacent utilities, roadways, and foundations. The adverse impacts of infiltration could be reasonably mitigated to accepted levels provided side liners and a subdrain are incorporated into the design. In addition, an overflow device should be added to prevent overtopping of the BMP slopes.

Worksheet C.4-1 Page 4 of 4			
Criteria	Screening Question	**Yes**	**No**
7	**Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, storm water pollutants or other factors)?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.		X
Provide basis: Perched groundwater is located within 10 feet of the proposed BMP basins. Infiltration of storm water may increase the risk of contamination.			
8	**Can infiltration be allowed without violating downstream water rights?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	X	
Provide basis: We are not aware of any downstream water rights. Researching downstream water rights is beyond the scope of the geotechnical engineer.			
Part 2 Result*	If all answers from row 5-8 are yes then partial infiltration design is potentially feasible. The feasibility screening category is **Partial Infiltration.** If any answer from row 5-8 is no, then infiltration of any volume is considered to be **infeasible** within the drainage area. The feasibility screening category is **No Infiltration.**		**No Infiltration**

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings.

APPENDIX D

APPENDIX D

RECOMMENDED GRADING SPECIFICATIONS

FOR

NORTH IRIS LANE
ESCONDIDO, CALIFORNIA

PROJECT NO. G2670-32-01

RECOMMENDED GRADING SPECIFICATIONS

1. GENERAL

1.1 These Recommended Grading Specifications shall be used in conjunction with the Geotechnical Report for the project prepared by Geocon. The recommendations contained in the text of the Geotechnical Report are a part of the earthwork and grading specifications and shall supersede the provisions contained hereinafter in the case of conflict.

1.2 Prior to the commencement of grading, a geotechnical consultant (Consultant) shall be employed for the purpose of observing earthwork procedures and testing the fills for substantial conformance with the recommendations of the Geotechnical Report and these specifications. The Consultant should provide adequate testing and observation services so that they may assess whether, in their opinion, the work was performed in substantial conformance with these specifications. It shall be the responsibility of the Contractor to assist the Consultant and keep them apprised of work schedules and changes so that personnel may be scheduled accordingly.

1.3 It shall be the sole responsibility of the Contractor to provide adequate equipment and methods to accomplish the work in accordance with applicable grading codes or agency ordinances, these specifications and the approved grading plans. If, in the opinion of the Consultant, unsatisfactory conditions such as questionable soil materials, poor moisture condition, inadequate compaction, and/or adverse weather result in a quality of work not in conformance with these specifications, the Consultant will be empowered to reject the work and recommend to the Owner that grading be stopped until the unacceptable conditions are corrected.

2. DEFINITIONS

2.1 **Owner** shall refer to the owner of the property or the entity on whose behalf the grading work is being performed and who has contracted with the Contractor to have grading performed.

2.2 **Contractor** shall refer to the Contractor performing the site grading work.

2.3 **Civil Engineer** or **Engineer of Work** shall refer to the California licensed Civil Engineer or consulting firm responsible for preparation of the grading plans, surveying and verifying as-graded topography.

2.4 **Consultant** shall refer to the soil engineering and engineering geology consulting firm retained to provide geotechnical services for the project.

2.5 **Soil Engineer** shall refer to a California licensed Civil Engineer retained by the Owner, who is experienced in the practice of geotechnical engineering. The Soil Engineer shall be responsible for having qualified representatives on-site to observe and test the Contractor's work for conformance with these specifications.

2.6 **Engineering Geologist** shall refer to a California licensed Engineering Geologist retained by the Owner to provide geologic observations and recommendations during the site grading.

2.7 **Geotechnical Report** shall refer to a soil report (including all addenda) which may include a geologic reconnaissance or geologic investigation that was prepared specifically for the development of the project for which these Recommended Grading Specifications are intended to apply.

3. MATERIALS

3.1 Materials for compacted fill shall consist of any soil excavated from the cut areas or imported to the site that, in the opinion of the Consultant, is suitable for use in construction of fills. In general, fill materials can be classified as *soil* fills, *soil-rock* fills or *rock* fills, as defined below.

3.1.1 **Soil fills** are defined as fills containing no rocks or hard lumps greater than 12 inches in maximum dimension and containing at least 40 percent by weight of material smaller than ¾ inch in size.

3.1.2 **Soil-rock fills** are defined as fills containing no rocks or hard lumps larger than 4 feet in maximum dimension and containing a sufficient matrix of soil fill to allow for proper compaction of soil fill around the rock fragments or hard lumps as specified in Paragraph 6.2. **Oversize rock** is defined as material greater than 12 inches.

3.1.3 **Rock fills** are defined as fills containing no rocks or hard lumps larger than 3 feet in maximum dimension and containing little or no fines. Fines are defined as material smaller than ¾ inch in maximum dimension. The quantity of fines shall be less than approximately 20 percent of the rock fill quantity.

3.2 Material of a perishable, spongy, or otherwise unsuitable nature as determined by the Consultant shall not be used in fills.

3.3 Materials used for fill, either imported or on-site, shall not contain hazardous materials as defined by the California Code of Regulations, Title 22, Division 4, Chapter 30, Articles 9

and 10; 40CFR; and any other applicable local, state or federal laws. The Consultant shall not be responsible for the identification or analysis of the potential presence of hazardous materials. However, if observations, odors or soil discoloration cause Consultant to suspect the presence of hazardous materials, the Consultant may request from the Owner the termination of grading operations within the affected area. Prior to resuming grading operations, the Owner shall provide a written report to the Consultant indicating that the suspected materials are not hazardous as defined by applicable laws and regulations.

3.4 The outer 15 feet of *soil-rock* fill slopes, measured horizontally, should be composed of properly compacted *soil* fill materials approved by the Consultant. *Rock* fill may extend to the slope face, provided that the slope is not steeper than 2:1 (horizontal:vertical) and a soil layer no thicker than 12 inches is track-walked onto the face for landscaping purposes. This procedure may be utilized provided it is acceptable to the governing agency, Owner and Consultant.

3.5 Samples of soil materials to be used for fill should be tested in the laboratory by the Consultant to determine the maximum density, optimum moisture content, and, where appropriate, shear strength, expansion, and gradation characteristics of the soil.

3.6 During grading, soil or groundwater conditions other than those identified in the Geotechnical Report may be encountered by the Contractor. The Consultant shall be notified immediately to evaluate the significance of the unanticipated condition.

4. CLEARING AND PREPARING AREAS TO BE FILLED

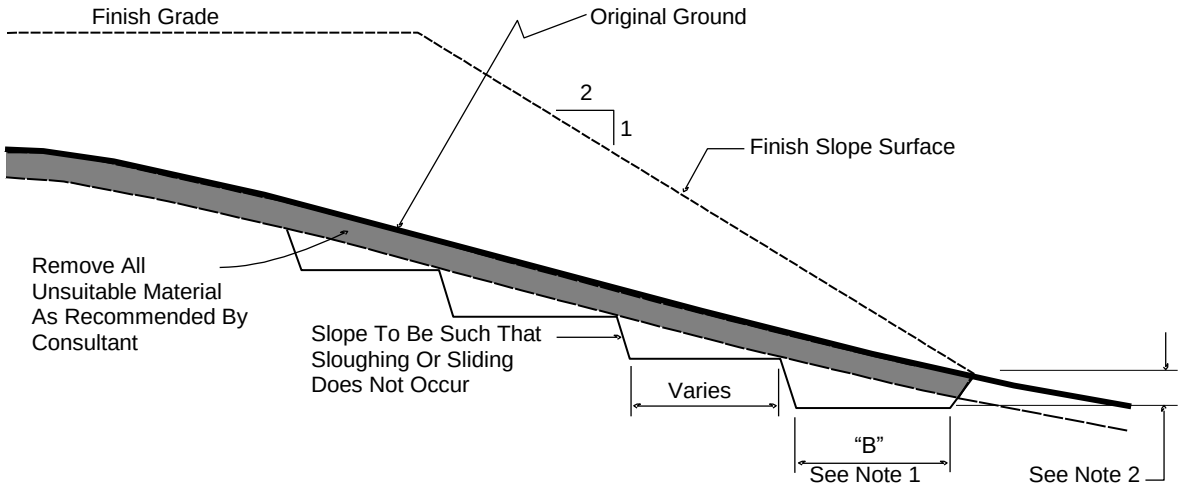
4.1 Areas to be excavated and filled shall be cleared and grubbed. Clearing shall consist of complete removal above the ground surface of trees, stumps, brush, vegetation, man-made structures, and similar debris. Grubbing shall consist of removal of stumps, roots, buried logs and other unsuitable material and shall be performed in areas to be graded. Roots and other projections exceeding 1½ inches in diameter shall be removed to a depth of 3 feet below the surface of the ground. Borrow areas shall be grubbed to the extent necessary to provide suitable fill materials.

4.2 Asphalt pavement material removed during clearing operations should be properly disposed at an approved off-site facility or in an acceptable area of the project evaluated by Geocon and the property owner. Concrete fragments that are free of reinforcing steel may be placed in fills, provided they are placed in accordance with Section 6.2 or 6.3 of this document.

4.3 After clearing and grubbing of organic matter and other unsuitable material, loose or porous soils shall be removed to the depth recommended in the Geotechnical Report. The depth of removal and compaction should be observed and approved by a representative of the Consultant. The exposed surface shall then be plowed or scarified to a minimum depth of 6 inches and until the surface is free from uneven features that would tend to prevent uniform compaction by the equipment to be used.

4.4 Where the slope ratio of the original ground is steeper than 5:1 (horizontal:vertical), or where recommended by the Consultant, the original ground should be benched in accordance with the following illustration.

TYPICAL BENCHING DETAIL



No Scale

DETAIL NOTES: (1) Key width "B" should be a minimum of 10 feet, or sufficiently wide to permit complete coverage with the compaction equipment used. The base of the key should be graded horizontal, or inclined slightly into the natural slope.

(2) The outside of the key should be below the topsoil or unsuitable surficial material and at least 2 feet into dense formational material. Where hard rock is exposed in the bottom of the key, the depth and configuration of the key may be modified as approved by the Consultant.

4.5 After areas to receive fill have been cleared and scarified, the surface should be moisture conditioned to achieve the proper moisture content, and compacted as recommended in Section 6 of these specifications.

5. COMPACTION EQUIPMENT

5.1 Compaction of *soil* or *soil-rock* fill shall be accomplished by sheepsfoot or segmented-steel wheeled rollers, vibratory rollers, multiple-wheel pneumatic-tired rollers, or other types of acceptable compaction equipment. Equipment shall be of such a design that it will be capable of compacting the *soil* or *soil-rock* fill to the specified relative compaction at the specified moisture content.

5.2 Compaction of *rock* fills shall be performed in accordance with Section 6.3.

6. PLACING, SPREADING AND COMPACTION OF FILL MATERIAL

6.1 *Soil* fill, as defined in Paragraph 3.1.1, shall be placed by the Contractor in accordance with the following recommendations:

6.1.1 *Soil* fill shall be placed by the Contractor in layers that, when compacted, should generally not exceed 8 inches. Each layer shall be spread evenly and shall be thoroughly mixed during spreading to obtain uniformity of material and moisture in each layer. The entire fill shall be constructed as a unit in nearly level lifts. Rock materials greater than 12 inches in maximum dimension shall be placed in accordance with Section 6.2 or 6.3 of these specifications.

6.1.2 In general, the *soil* fill shall be compacted at a moisture content at or above the optimum moisture content as determined by ASTM D 1557.

6.1.3 When the moisture content of *soil* fill is below that specified by the Consultant, water shall be added by the Contractor until the moisture content is in the range specified.

6.1.4 When the moisture content of the *soil* fill is above the range specified by the Consultant or too wet to achieve proper compaction, the *soil* fill shall be aerated by the Contractor by blading/mixing, or other satisfactory methods until the moisture content is within the range specified.

6.1.5 After each layer has been placed, mixed, and spread evenly, it shall be thoroughly compacted by the Contractor to a relative compaction of at least 90 percent. Relative compaction is defined as the ratio (expressed in percent) of the in-place dry density of the compacted fill to the maximum laboratory dry density as determined in accordance with ASTM D 1557. Compaction shall be continuous over the entire area, and compaction equipment shall make sufficient passes so that the specified minimum relative compaction has been achieved throughout the entire fill.

6.1.6 Where practical, soils having an Expansion Index greater than 50 should be placed at least 3 feet below finish pad grade and should be compacted at a moisture content generally 2 to 4 percent greater than the optimum moisture content for the material.

6.1.7 Properly compacted *soil* fill shall extend to the design surface of fill slopes. To achieve proper compaction, it is recommended that fill slopes be over-built by at least 3 feet and then cut to the design grade. This procedure is considered preferable to track-walking of slopes, as described in the following paragraph.

6.1.8 As an alternative to over-building of slopes, slope faces may be back-rolled with a heavy-duty loaded sheepsfoot or vibratory roller at maximum 4-foot fill height intervals. Upon completion, slopes should then be track-walked with a D-8 dozer or similar equipment, such that a dozer track covers all slope surfaces at least twice.

6.2 *Soil-rock* fill, as defined in Paragraph 3.1.2, shall be placed by the Contractor in accordance with the following recommendations:

6.2.1 Rocks larger than 12 inches but less than 4 feet in maximum dimension may be incorporated into the compacted *soil* fill, but shall be limited to the area measured 15 feet minimum horizontally from the slope face and 5 feet below finish grade or 3 feet below the deepest utility, whichever is deeper.

6.2.2 Rocks or rock fragments up to 4 feet in maximum dimension may either be individually placed or placed in windrows. Under certain conditions, rocks or rock fragments up to 10 feet in maximum dimension may be placed using similar methods. The acceptability of placing rock materials greater than 4 feet in maximum dimension shall be evaluated during grading as specific cases arise and shall be approved by the Consultant prior to placement.

6.2.3 For individual placement, sufficient space shall be provided between rocks to allow for passage of compaction equipment.

6.2.4 For windrow placement, the rocks should be placed in trenches excavated in properly compacted *soil* fill. Trenches should be approximately 5 feet wide and 4 feet deep in maximum dimension. The voids around and beneath rocks should be filled with approved granular soil having a Sand Equivalent of 30 or greater and should be compacted by flooding. Windrows may also be placed utilizing an "open-face" method in lieu of the trench procedure, however, this method should first be approved by the Consultant.

6.2.5 Windrows should generally be parallel to each other and may be placed either parallel to or perpendicular to the face of the slope depending on the site geometry. The minimum horizontal spacing for windrows shall be 12 feet center-to-center with a 5-foot stagger or offset from lower courses to next overlying course. The minimum vertical spacing between windrow courses shall be 2 feet from the top of a lower windrow to the bottom of the next higher windrow.

6.2.6 Rock placement, fill placement and flooding of approved granular soil in the windrows should be continuously observed by the Consultant.

6.3 *Rock* fills, as defined in Section 3.1.3, shall be placed by the Contractor in accordance with the following recommendations:

6.3.1 The base of the *rock* fill shall be placed on a sloping surface (minimum slope of 2 percent). The surface shall slope toward suitable subdrainage outlet facilities. The *rock* fills shall be provided with subdrains during construction so that a hydrostatic pressure buildup does not develop. The subdrains shall be permanently connected to controlled drainage facilities to control post-construction infiltration of water.

6.3.2 *Rock* fills shall be placed in lifts not exceeding 3 feet. Placement shall be by rock trucks traversing previously placed lifts and dumping at the edge of the currently placed lift. Spreading of the *rock* fill shall be by dozer to facilitate *seating* of the rock. The *rock* fill shall be watered heavily during placement. Watering shall consist of water trucks traversing in front of the current rock lift face and spraying water continuously during rock placement. Compaction equipment with compactive energy comparable to or greater than that of a 20-ton steel vibratory roller or other compaction equipment providing suitable energy to achieve the required compaction or deflection as recommended in Paragraph 6.3.3 shall be utilized. The number of passes to be made should be determined as described in Paragraph 6.3.3. Once a *rock* fill lift has been covered with *soil* fill, no additional *rock* fill lifts will be permitted over the *soil* fill.

6.3.3 Plate bearing tests, in accordance with ASTM D 1196, may be performed in both the compacted *soil* fill and in the *rock* fill to aid in determining the required minimum number of passes of the compaction equipment. If performed, a minimum of three plate bearing tests should be performed in the properly compacted *soil* fill (minimum relative compaction of 90 percent). Plate bearing tests shall then be performed on areas of *rock* fill having two passes, four passes and six passes of the compaction equipment, respectively. The number of passes required for the *rock* fill shall be determined by comparing the results of the plate bearing tests for the *soil* fill and the *rock* fill and by evaluating the deflection

variation with number of passes. The required number of passes of the compaction equipment will be performed as necessary until the plate bearing deflections are equal to or less than that determined for the properly compacted *soil* fill. In no case will the required number of passes be less than two.

6.3.4 A representative of the Consultant should be present during *rock* fill operations to observe that the minimum number of "passes" have been obtained, that water is being properly applied and that specified procedures are being followed. The actual number of plate bearing tests will be determined by the Consultant during grading.

6.3.5 Test pits shall be excavated by the Contractor so that the Consultant can state that, in their opinion, sufficient water is present and that voids between large rocks are properly filled with smaller rock material. In-place density testing will not be required in the *rock* fills.

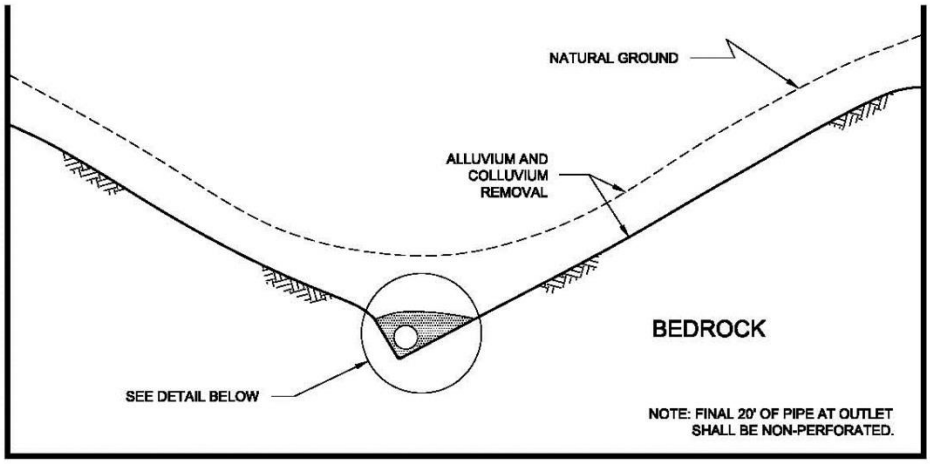
6.3.6 To reduce the potential for "piping" of fines into the *rock* fill from overlying *soil* fill material, a 2-foot layer of graded filter material shall be placed above the uppermost lift of *rock* fill. The need to place graded filter material below the *rock* should be determined by the Consultant prior to commencing grading. The gradation of the graded filter material will be determined at the time the *rock* fill is being excavated. Materials typical of the *rock* fill should be submitted to the Consultant in a timely manner, to allow design of the graded filter prior to the commencement of *rock* fill placement.

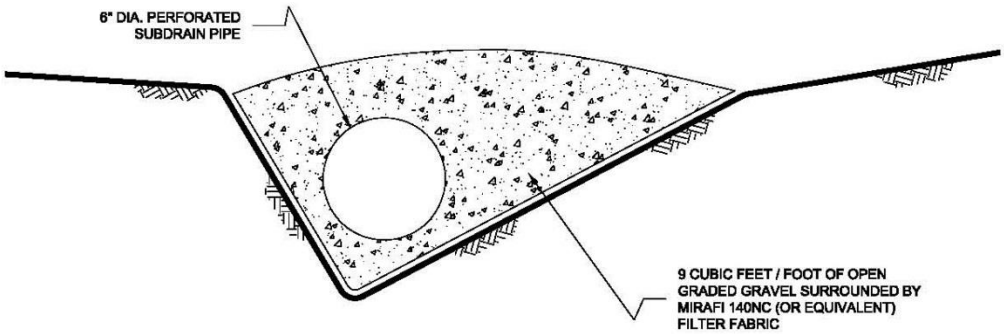
6.3.7 *Rock* fill placement should be continuously observed during placement by the Consultant.

7. SUBDRAINS

7.1 The geologic units on the site may have permeability characteristics and/or fracture systems that could be susceptible under certain conditions to seepage. The use of canyon subdrains may be necessary to mitigate the potential for adverse impacts associated with seepage conditions. Canyon subdrains with lengths in excess of 500 feet or extensions of existing offsite subdrains should use 8-inch-diameter pipes. Canyon subdrains less than 500 feet in length should use 6-inch-diameter pipes.

TYPICAL CANYON DRAIN DETAIL





NOTES:

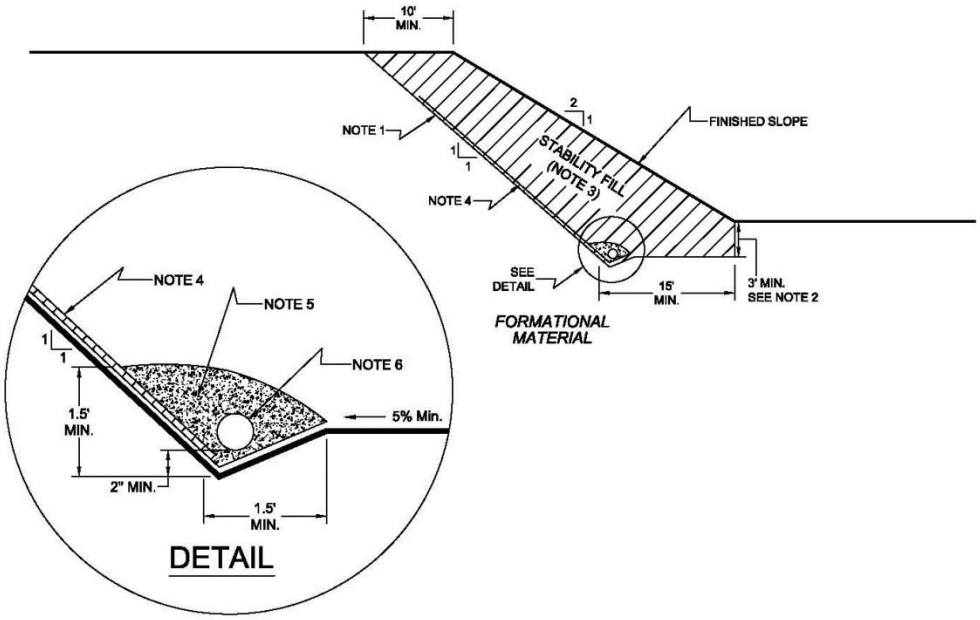
1.....6-INCH DIAMETER, SCHEDULE 80 PVC PERFORATED PIPE FOR FILLS
IN EXCESS OF 100-FEET IN DEPTH OR A PIPE LENGTH OF LONGER THAN 500 FEET.

2.....6-INCH DIAMETER, SCHEDULE 40 PVC PERFORATED PIPE FOR FILLS
LESS THAN 100-FEET IN DEPTH OR A PIPE LENGTH SHORTER THAN 500 FEET.

NO SCALE

7.2 Slope drains within stability fill keyways should use 4-inch-diameter (or lager) pipes.

TYPICAL STABILITY FILL DETAIL



NOTES:

1.....EXCAVATE BACKCUT AT 1:1 INCLINATION (UNLESS OTHERWISE NOTED).

2.....BASE OF STABILITY FILL TO BE 3 FEET INTO FORMATIONAL MATERIAL, SLOPING A MINIMUM 5% INTO SLOPE.

3.....STABILITY FILL TO BE COMPOSED OF PROPERLY COMPACTED GRANULAR SOIL.

4.....CHIMNEY DRAINS TO BE APPROVED PREFABRICATED CHIMNEY DRAIN PANELS (MIRADRAIN G200N OR EQUIVALENT) SPACED APPROXIMATELY 20 FEET CENTER TO CENTER AND 4 FEET WIDE. CLOSER SPACING MAY BE REQUIRED IF SEEPAGE IS ENCOUNTERED.

5.....FILTER MATERIAL TO BE 3/4-INCH, OPEN-GRADED CRUSHED ROCK ENCLOSED IN APPROVED FILTER FABRIC (MIRAFI 140NC).

6.....COLLECTOR PIPE TO BE 4-INCH MINIMUM DIAMETER, PERFORATED, THICK-WALLED PVC SCHEDULE 40 OR EQUIVALENT, AND SLOPED TO DRAIN AT 1 PERCENT MINIMUM TO APPROVED OUTLET.

NO SCALE

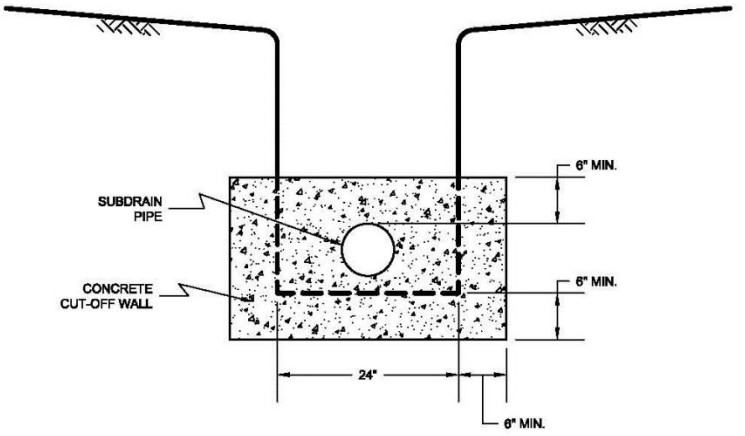
7.3 The actual subdrain locations will be evaluated in the field during the remedial grading operations. Additional drains may be necessary depending on the conditions observed and the requirements of the local regulatory agencies. Appropriate subdrain outlets should be evaluated prior to finalizing 40-scale grading plans.

7.4 *Rock* fill or *soil-rock* fill areas may require subdrains along their down-slope perimeters to mitigate the potential for buildup of water from construction or landscape irrigation. The subdrains should be at least 6-inch-diameter pipes encapsulated in gravel and filter fabric. *Rock* fill drains should be constructed using the same requirements as canyon subdrains.

7.5 Prior to outletting, the final 20-foot segment of a subdrain that will not be extended during future development should consist of non-perforated drainpipe. At the non-perforated/ perforated interface, a seepage cutoff wall should be constructed on the downslope side of the pipe.

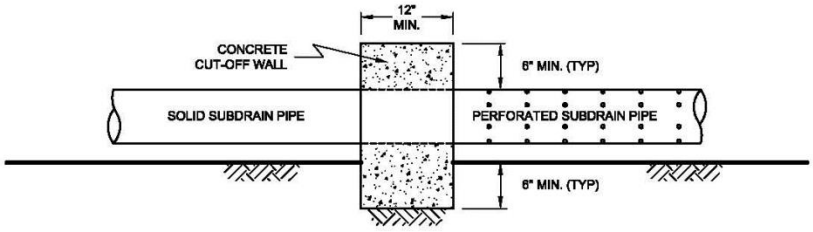
TYPICAL CUT OFF WALL DETAIL

FRONT VIEW



NO SCALE

SIDE VIEW

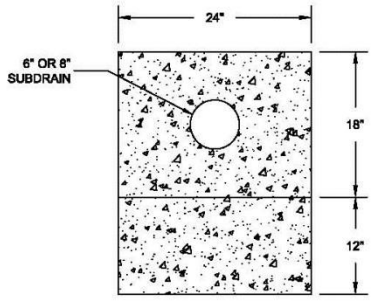


NO SCALE

7.6 Subdrains that discharge into a natural drainage course or open space area should be provided with a permanent headwall structure.

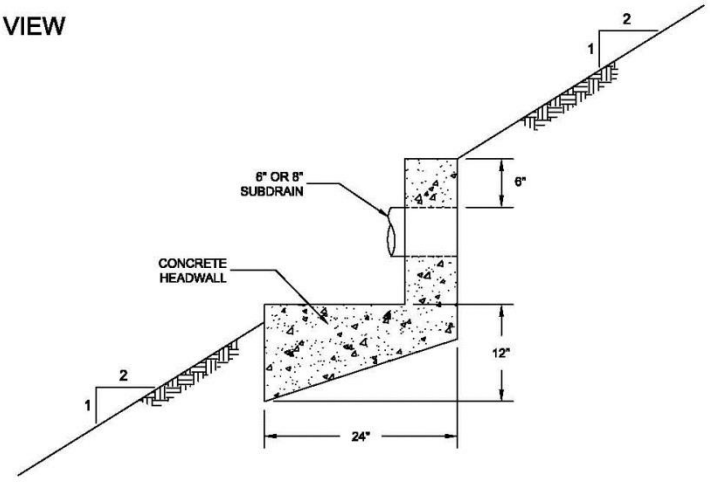
TYPICAL HEADWALL DETAIL

FRONT VIEW



NO SCALE

SIDE VIEW



NOTE: HEADWALL SHOULD OUTLET AT TOE OF FILL SLOPE OR INTO CONTROLLED SURFACE DRAINAGE

NO SCALE

7.7 The final grading plans should show the location of the proposed subdrains. After completion of remedial excavations and subdrain installation, the project civil engineer should survey the drain locations and prepare an "as-built" map showing the drain locations. The final outlet and connection locations should be determined during grading operations. Subdrains that will be extended on adjacent projects after grading can be placed on formational material and a vertical riser should be placed at the end of the subdrain. The grading contractor should consider videoing the subdrains shortly after burial to check proper installation and functionality. The contractor is responsible for the performance of the drains.

8. OBSERVATION AND TESTING

8.1 The Consultant shall be the Owner's representative to observe and perform tests during clearing, grubbing, filling, and compaction operations. In general, no more than 2 feet in vertical elevation of *soil* or *soil-rock* fill should be placed without at least one field density test being performed within that interval. In addition, a minimum of one field density test should be performed for every 2,000 cubic yards of *soil* or *soil-rock* fill placed and compacted.

8.2 The Consultant should perform a sufficient distribution of field density tests of the compacted *soil* or *soil-rock* fill to provide a basis for expressing an opinion whether the fill material is compacted as specified. Density tests shall be performed in the compacted materials below any disturbed surface. When these tests indicate that the density of any layer of fill or portion thereof is below that specified, the particular layer or areas represented by the test shall be reworked until the specified density has been achieved.

8.3 During placement of *rock* fill, the Consultant should observe that the minimum number of passes have been obtained per the criteria discussed in Section 6.3.3. The Consultant should request the excavation of observation pits and may perform plate bearing tests on the placed *rock* fills. The observation pits will be excavated to provide a basis for expressing an opinion as to whether the *rock* fill is properly seated and sufficient moisture has been applied to the material. When observations indicate that a layer of *rock* fill or any portion thereof is below that specified, the affected layer or area shall be reworked until the *rock* fill has been adequately seated and sufficient moisture applied.

8.4 A settlement monitoring program designed by the Consultant may be conducted in areas of *rock* fill placement. The specific design of the monitoring program shall be as recommended in the Conclusions and Recommendations section of the project Geotechnical Report or in the final report of testing and observation services performed during grading.

8.5 We should observe the placement of subdrains, to check that the drainage devices have been placed and constructed in substantial conformance with project specifications.

8.6 Testing procedures shall conform to the following Standards as appropriate:

8.6.1 Soil and Soil-Rock Fills:

8.6.1.1 Field Density Test, ASTM D 1556, *Density of Soil In-Place By the Sand-Cone Method.*

8.6.1.2 Field Density Test, Nuclear Method, ASTM D 6938, *Density of Soil and Soil-Aggregate In-Place by Nuclear Methods (Shallow Depth).*

8.6.1.3 Laboratory Compaction Test, ASTM D 1557, *Moisture-Density Relations of Soils and Soil-Aggregate Mixtures Using 10-Pound Hammer and 18-Inch Drop*.

8.6.1.4. Expansion Index Test, ASTM D 4829, *Expansion Index Test*.

9. PROTECTION OF WORK

9.1 During construction, the Contractor shall properly grade all excavated surfaces to provide positive drainage and prevent ponding of water. Drainage of surface water shall be controlled to avoid damage to adjoining properties or to finished work on the site. The Contractor shall take remedial measures to prevent erosion of freshly graded areas until such time as permanent drainage and erosion control features have been installed. Areas subjected to erosion or sedimentation shall be properly prepared in accordance with the Specifications prior to placing additional fill or structures.

9.2 After completion of grading as observed and tested by the Consultant, no further excavation or filling shall be conducted except in conjunction with the services of the Consultant.

10. CERTIFICATIONS AND FINAL REPORTS

10.1 Upon completion of the work, Contractor shall furnish Owner a certification by the Civil Engineer stating that the lots and/or building pads are graded to within 0.1 foot vertically of elevations shown on the grading plan and that all tops and toes of slopes are within 0.5 foot horizontally of the positions shown on the grading plans. After installation of a section of subdrain, the project Civil Engineer should survey its location and prepare an *as-built* plan of the subdrain location. The project Civil Engineer should verify the proper outlet for the subdrains and the Contractor should ensure that the drain system is free of obstructions.

10.2 The Owner is responsible for furnishing a final as-graded soil and geologic report satisfactory to the appropriate governing or accepting agencies. The as-graded report should be prepared and signed by a California licensed Civil Engineer experienced in geotechnical engineering and by a California Certified Engineering Geologist, indicating that the geotechnical aspects of the grading were performed in substantial conformance with the Specifications or approved changes to the Specifications.

LIST OF REFERENCES

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7. USGS (2016), *Quaternary Fault and Fold Database of the United States:* U.S. Geological Survey website, http://earthquakes,usgs.gov/hazards/qfaults, accessed March 2020.

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Appendix G2
Seismic Refraction Study



SEISMIC REFRACTION STUDY

NORTH IRIS LANE

Escondido, California

PREPARED FOR:

Trevor Myers
Geocon Inc.
6960 Flanders Drive
San Diego, California 92121

PREPARED BY:

Atlas Technical Consultants, LLC
6280 Riverdale Street
San Diego, California 92120

March 10, 2021

6280 Riverdale Street
San Diego, CA 92120
(877) 215-4321 | oneatlas.com

March 10, 2021

Atlas No. 121069SWG
Report No. 1

MR. TREVOR MYERS
GEOCON INC.
6960 FLANDERS DRIVE
SAN DIEGO, CA 92121

Subject: Seismic Refraction Study
North Iris Lane
Escondido, California

Dear Mr. Meyers:

In accordance with your authorization, Atlas Technical Consultants has performed a seismic refraction study pertaining to the North Iris Lane project located in Escondido, California. Specifically, our evaluation consisted of performing seven seismic P-wave refraction traverses at the project site. The purpose of our study was to develop subsurface velocity profiles of the areas studied, and to assess the depth to bedrock and apparent rippability of the subsurface materials. Our field services were conducted on February 23, 2021. This data report presents our methodology, equipment used, analysis, and results.

If you have any questions, please call us at (619) 280-4321.

Respectfully submitted,
Atlas Technical Consultants LLC

REGISTERED PROFESSIONAL GEOPHYSICIST
PATRICK F. LEHRMANN
No. 1043
Exp. 1/31/2022
STATE OF CALIFORNIA

Thomas M. Bouleanu
Senior Staff Geophysicist

Patrick F. Lehrmann, P.G., P.Gp.
Principal Geologist/Geophysicist

TMB:KJA:PFL:ds

Distribution: Mr. Trevor Myers @ myers@geoconinc.com

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Figure 4g P-Wave Profile, SL-7

1. INTRODUCTION

In accordance with your authorization, Atlas Technical Consultants has performed a seismic refraction study pertaining to the North Iris Lane project located in Escondido, California. Specifically, our evaluation consisted of performing seven seismic P-wave refraction traverses at the project site. The purpose of our study was to develop subsurface velocity profiles of the areas studied, and to assess the depth to bedrock and apparent rippability of the subsurface materials. Our field services were conducted on February 23, 2021. This data report presents our methodology, equipment used, analysis, and results.

2. SCOPE OF SERVICES

Our scope of services included:

- Performance of seven seismic P-wave refraction traverse at the project site.
- Compilation and analysis of the data collected.
- Preparation of this data report presenting our results and conclusions.

3. SITE AND PROJECT DESCRIPTION

The project site is located on adjoining residential properties to the southwest of the North Iris Lane and Robin Hills Lane intersection in Escondido, California (Figure 1). Specifically, seismic traverses were conducted around and between the residential buildings located at the site. The seismic traverses were performed at locations provided by you and your office. The area consisted of two residential buildings, as well as a number of ancillary buildings such as garages, sheds, and animal pens. Figures 2, 3a, and 3b depict the general site conditions in the area of the seismic traverses.

Based on our discussions with you, it is our understanding that your office requested this study in advance of construction activities for the subject project. We also understand that the results of our study may be used in the formulation of design and construction parameters for the project.

4. STUDY METHODOLOGY

A seismic P-wave (compression wave) refraction study was conducted at the project to develop subsurface velocity profiles of the areas studied, and to assess the depth to bedrock and apparent rippability of the subsurface materials. The seismic refraction method uses first-arrival times of refracted seismic waves to estimate the thicknesses and seismic velocities of subsurface layers. Seismic P-waves generated at the surface, using a hammer and plate, are refracted at boundaries separating materials of contrasting velocities. These refracted seismic waves are then detected by a series of surface vertical component 14-Hz geophones and recorded with a 24-channel Geometrics StrataView seismograph. The travel times of the seismic P-waves are used in conjunction with the shot-to-geophone distances to obtain thickness and velocity information on the subsurface materials.

Seven seismic traverses (SL-1 though SL-7) were conducted in the study area. The general location and length of the line was determined by surface conditions, site access, and depth of investigation, as determined by you. Shot points (signal generation locations) were conducted along the lines at the ends, midpoint, and intermediate points between the ends and the midpoint.

The seismic refraction theory requires that subsurface velocities increase with depth. A layer having a velocity lower than that of the layer above will not generally be detectable by the seismic refraction method and, therefore, could lead to errors in the depth calculations of subsequent layers. In addition, lateral variations in velocity, such as those caused by core stones, intrusions, or boulders can also result in the misinterpretation of the subsurface conditions. In general, the effective depth of evaluation for a seismic refraction traverse is approximately one-third to one-fifth of the length of the spread.

In general, the seismic P-wave velocity of a material can be correlated to rippability (see Table 1 below), or to some degree "hardness." Table 1 is based on published information from the Caterpillar Performance Handbook (Caterpillar, 2018), as well as our experience with similar materials, and assumes that a Caterpillar D-9 dozer ripping with a single shank is used. We emphasize that the cutoffs in this classification scheme are approximate and that rock characteristic, such as fracture spacing and orientation, play a significant role in determining rock quality or rippability. The rippability of a mass is also dependent on the excavation equipment used and the skill and experience of the equipment operator.

For trenching operations**,** the rippability values should be scaled downward. For example, velocities as low as 3,500 feet/second may indicate difficult ripping during trenching operations. In addition, the presence of boulders, which can be troublesome in narrow trenching operations, should be anticipated.

Table 1 – Rippability Classification

Seismic P-wave Velocity	Rippability
0 to 2,000 feet/second	Easy
2,000 to 4,000 feet/second	Moderate
4,000 to 5,500 feet/second	Difficult, Possible Blasting
5,500 to 7,000 feet/second	Very Difficult, Probable Blasting
Greater than 7,000 feet/second	Blasting Generally Required

It should be noted that the rippability cutoffs presented in Table 1 are slightly more conservative than those published in the Caterpillar Performance Handbook. Accordingly, the above classification scheme should be used with discretion, and contractors should not be relieved of making their own independent evaluation of the rippability of the on-site materials prior to submitting their bids.

5. DATA ANALYSIS

The collected data was processed using SIPwin (Rimrock Geophysics, 2003), a seismic interpretation program, and analyzed using SeisOpt Pro (Optim, 2008). SeisOpt Pro uses first arrival picks and elevation data to produce subsurface velocity models through a nonlinear optimization technique called adaptive simulated annealing. The resulting velocity model provides a tomography image of the estimated geologic conditions. Both vertical and lateral velocity information is contained in the tomography model. Changes in layer velocity are revealed as gradients rather than discrete contacts, which typically are more representative of actual conditions.

6. RESULTS AND CONCLUSIONS

As previously indicated, seismic traverses were performed at seven preselected areas as part of our study. Figures 4a through 4g present the velocity models generated from our analysis. The results from our seismic study revealed distinct layers/zones in the near surface that likely represent soil overlying granitic bedrock with varying degrees of weathering. Distinct vertical and lateral velocity variations are evident in the models. These inhomogeneities are likely related to the present of remnant boulders, intrusions, and differential weathering of the bedrock materials. It is also evident in the tomography models that the depth to bedrock is varied across the site.

Based on the refraction results, variability in the excavatability (including depth of rippability) of the subsurface materials should be expected across the project area. Furthermore, blasting may be required depending on the excavation, depth, location, equipment used, and desired rate of production. In addition, oversized materials should be expected. A contractor with excavation experience in similarly difficult conditions should be consulted for expert advice on excavation methodology, equipment, and production rate.

7. LIMITATIONS

The field evaluation and geophysical analyses presented in this report have been conducted in general accordance with current practice and the standard of care exercised by consultants performing similar tasks in the project area. No warranty, express or implied, is made regarding the conclusions, recommendations, and opinions presented in this report. There is no evaluation detailed enough to reveal every subsurface condition. Variations may exist and conditions not observed or described in this report may be present. Uncertainties relative to subsurface conditions can be reduced through additional subsurface exploration. Additional subsurface surveying will be performed upon request.

This document is intended to be used only in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Atlas should be contacted if the reader requires additional information or has questions regarding the content, interpretations presented, or completeness of this document. This report is intended exclusively for use by the client. Any use or reuse of the findings, conclusions, and/or recommendations of this report by parties other than the client is undertaken at said parties' sole risk.

8. SELECTED REFERENCES

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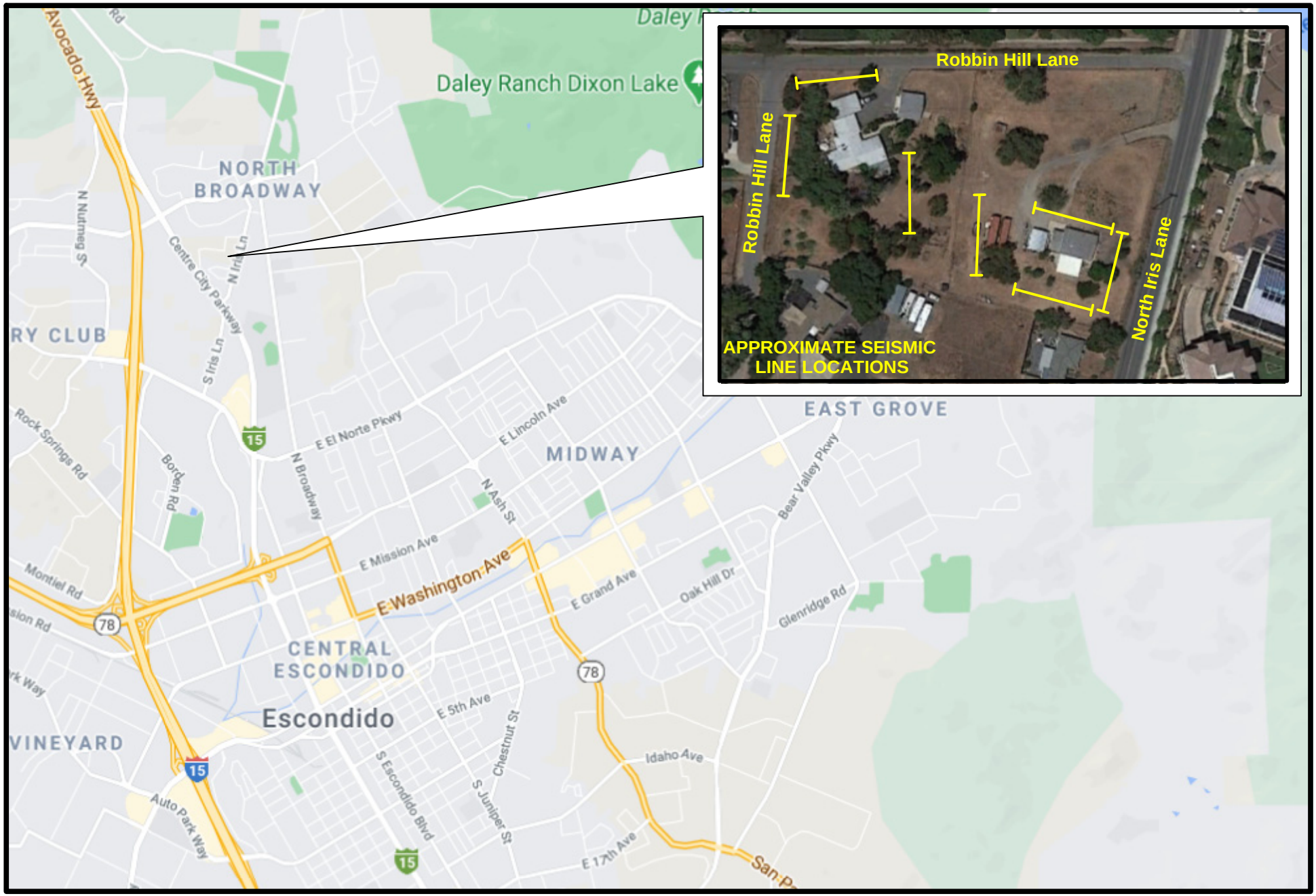


SITE LOCATION MAP

North Iris Lane
Escondido, California

Project No.: 121069SWG | Date: 03/21

ATLAS

Figure 1



SEISMIC LINE LOCATION MAP

N

North Iris Lane
Escondido, California

Project No.: 121069SWG | Date: 03/21

ATLAS

Figure 2

0 100 200

approximate scale in feet









SITE PHOTOGRAPHS
(SL-1 through SL-4)

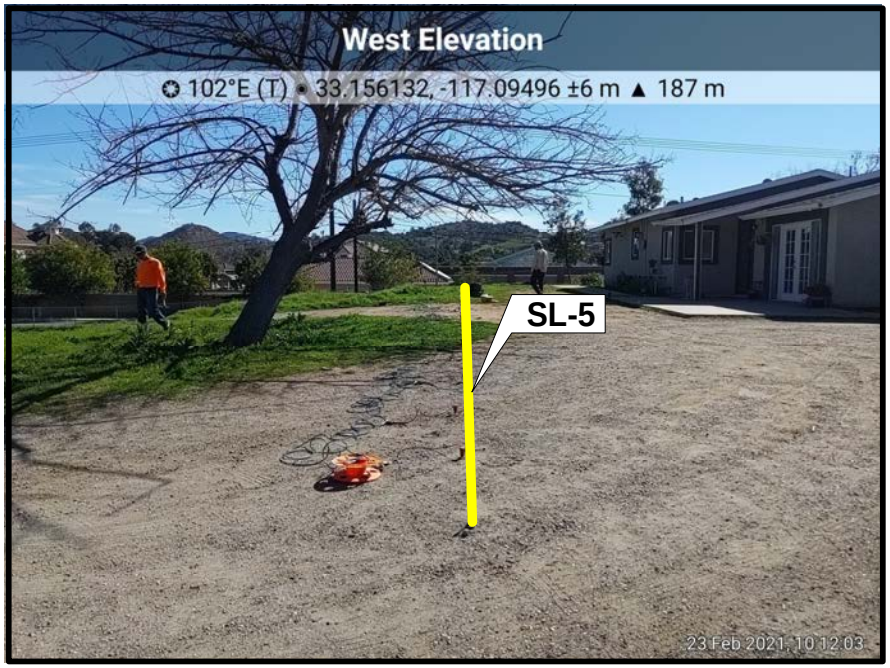
North Iris Lane
Escondido, California

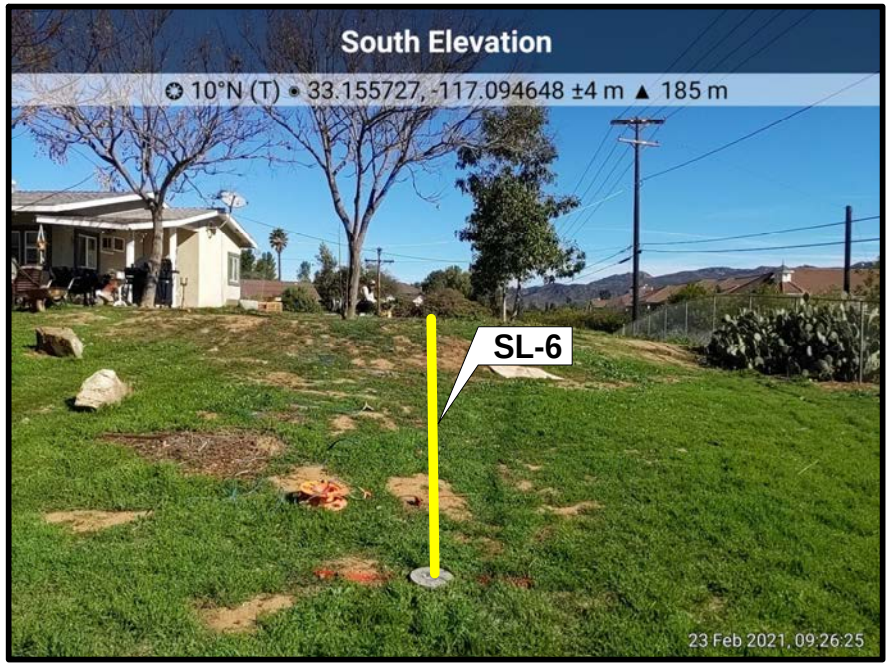
Project No.: 121069SWG

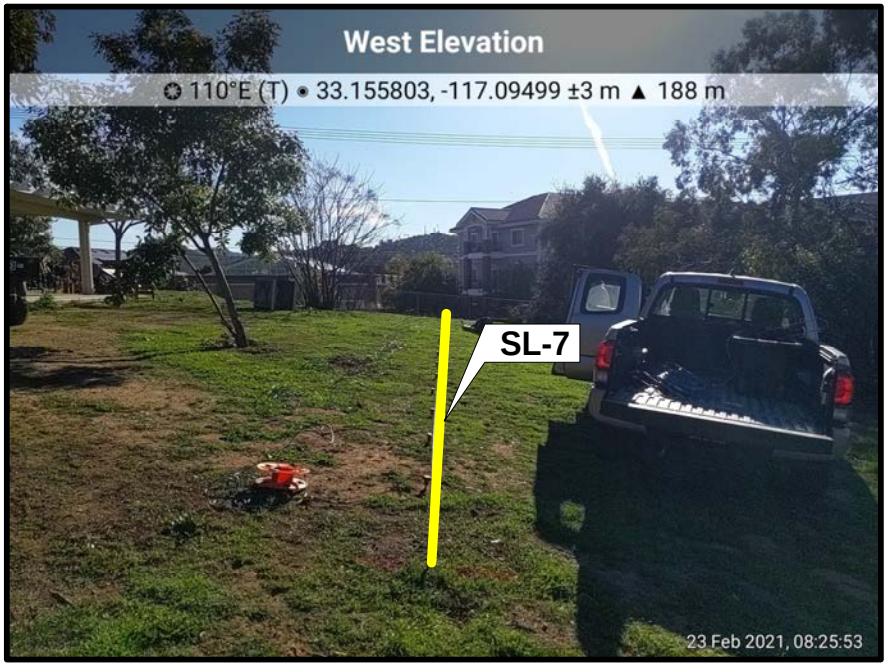
Date: 03/21

ATLAS

Figure 3a







SITE PHOTOGRAPHS (SL-5 through SL-7)

North Iris Lane
Escondido, California

Project No.: 121069SWG

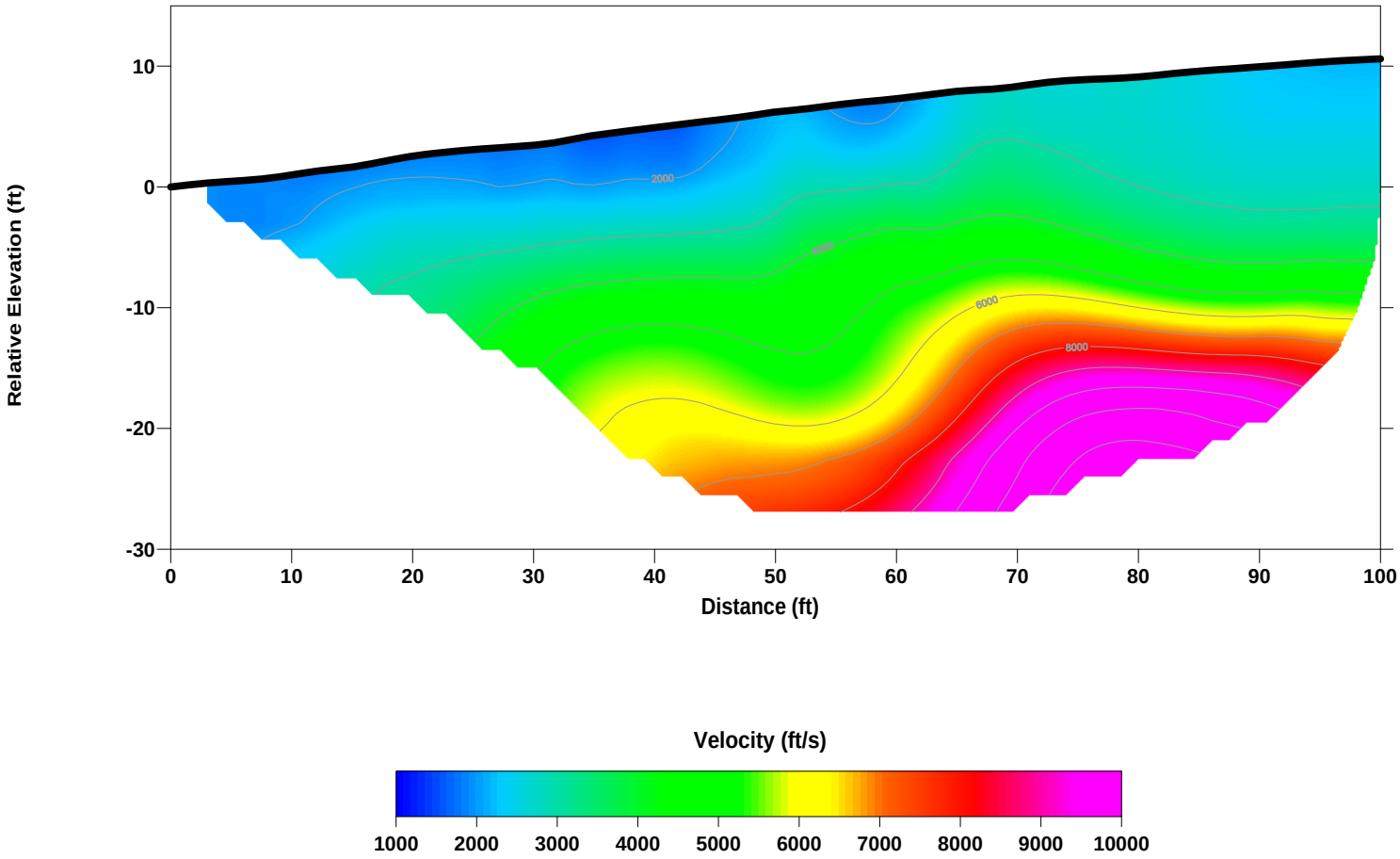
Date: 03/21

ATLAS

Figure 3b

TOMOGRAPHY MODEL

SL-1

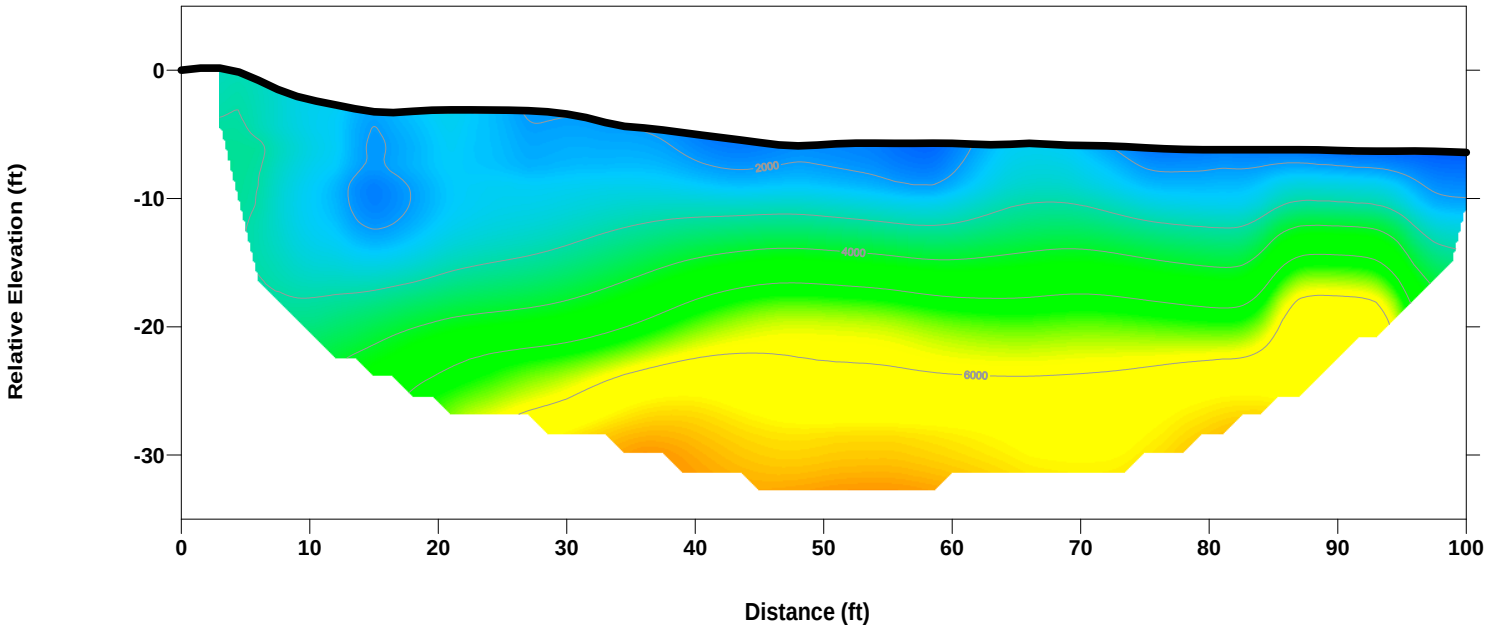


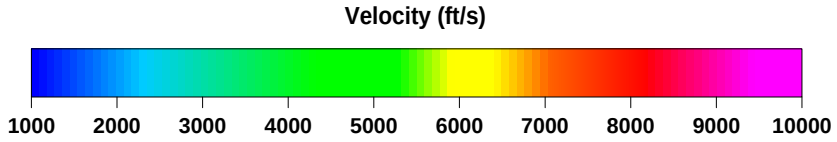
SEISMIC PROFILE (SL-1)	North Iris Lane Escondido, California Project No.: 121069SWG | Date: 03/21	ATLAS Figure 4a

Note: Contour Interval = 1,000 feet per second

TOMOGRAPHY MODEL

SL-2



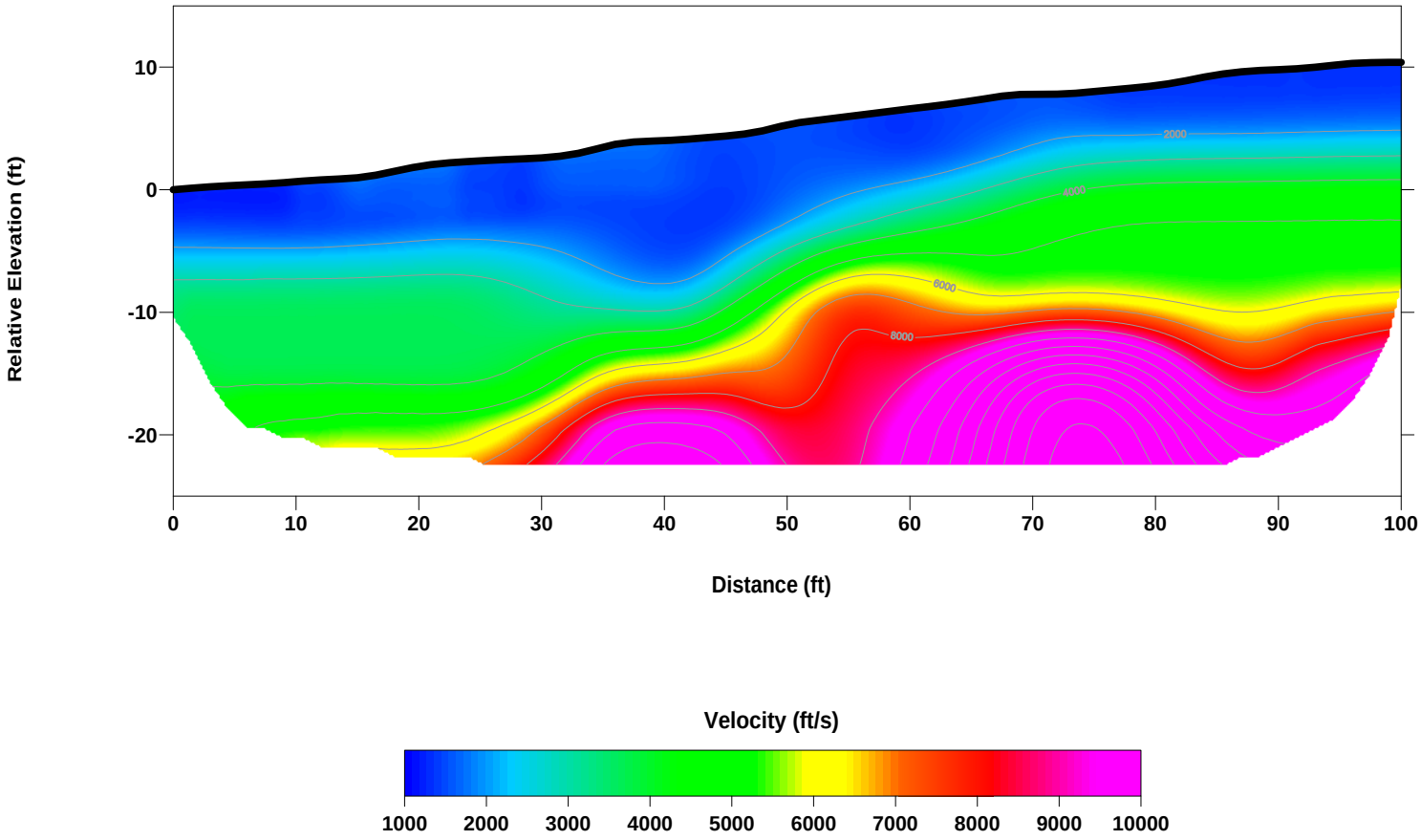


SEISMIC PROFILE (SL-2)	North Iris Lane Escondido, California Project No.: 121069SWG | Date: 03/21	ATLAS Figure 4b

Note: Contour Interval = 1,000 feet per second

TOMOGRAPHY MODEL

SL-3

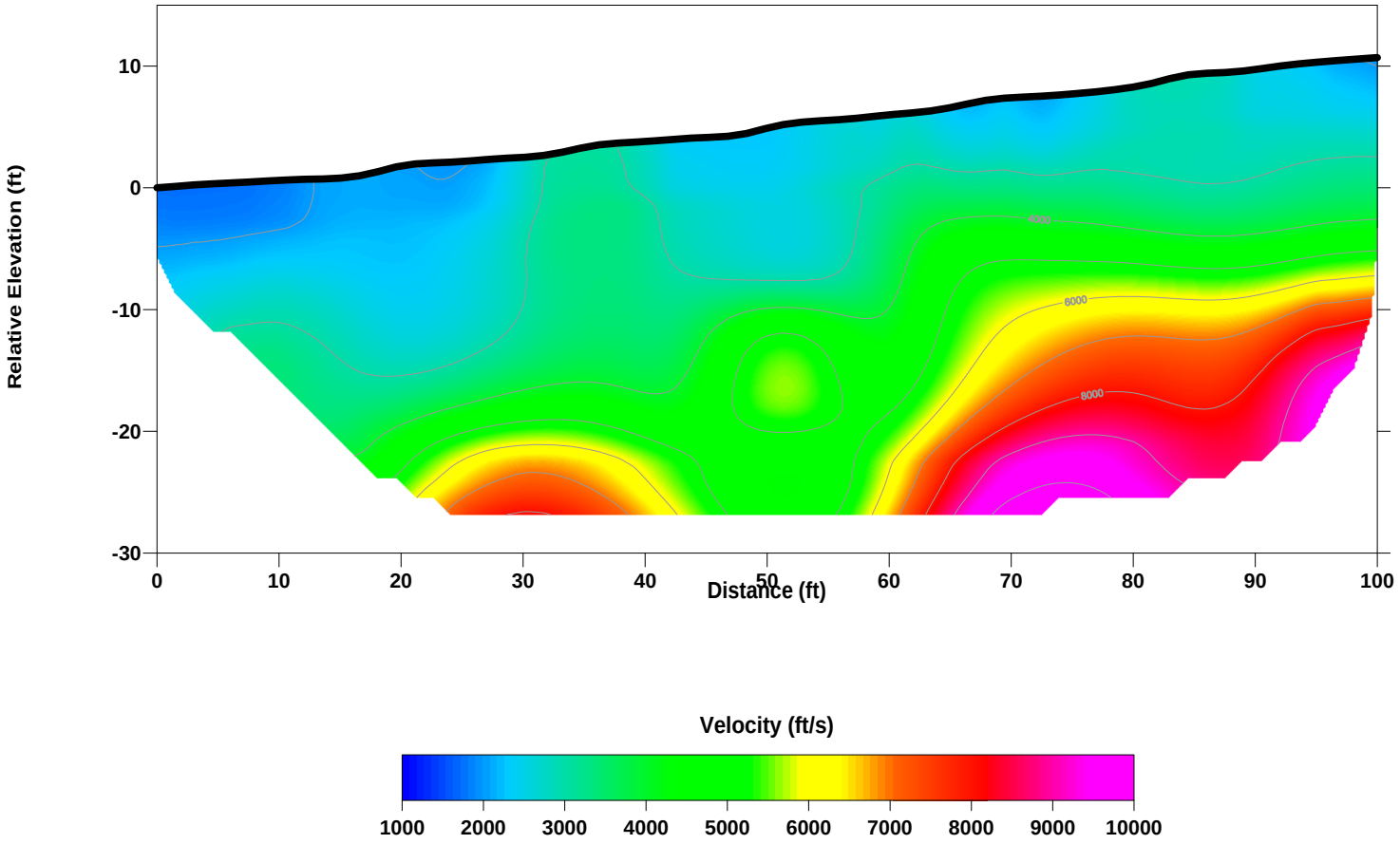


SEISMIC PROFILE (SL-3)	North Iris Lane Escondido, California	ATLAS Figure 4c
	Project No.: 121069SWG | Date: 03/21	

Note: Contour Interval = 1,000 feet per second

TOMOGRAPHY MODEL

SL-4

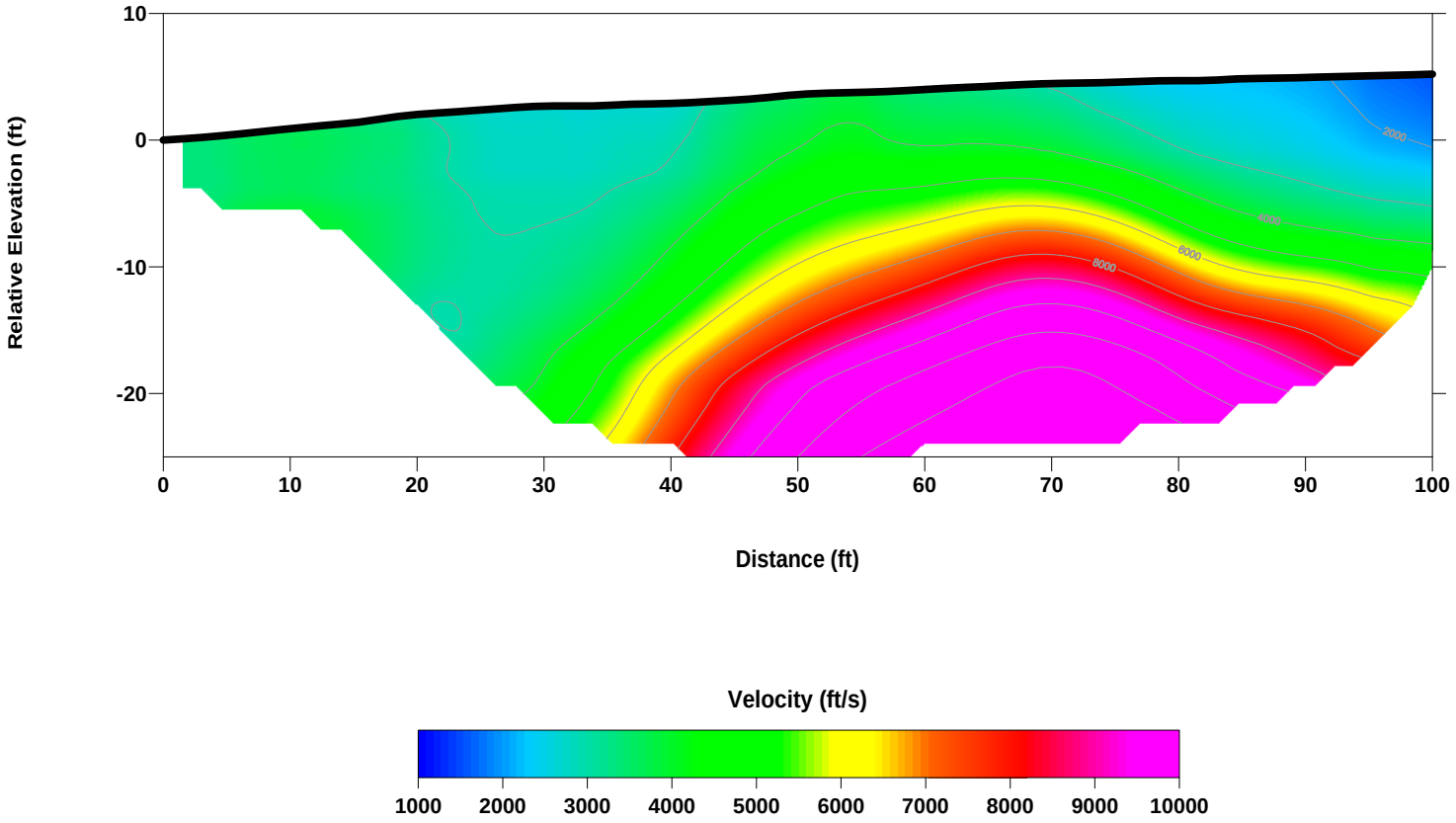


SEISMIC PROFILE (SL-4)	North Iris Lane Escondido, California Project No.: 121069SWG | Date: 03/21	ATLAS Figure 4d

Note: Contour Interval = 1,000 feet per second

TOMOGRAPHY MODEL

SL-5

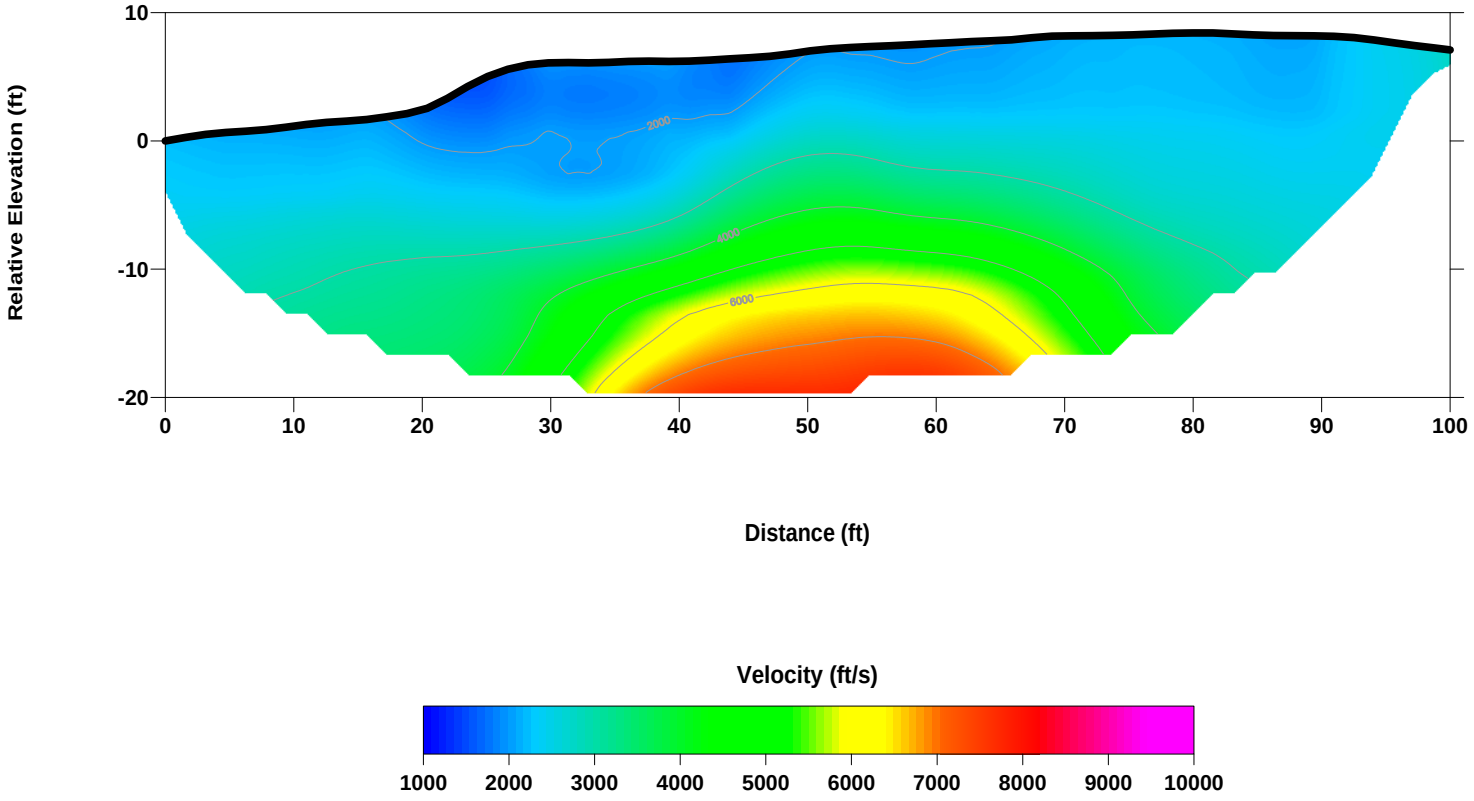


SEISMIC PROFILE (SL-5)	North Iris Lane Escondido, California Project No.: 121069SWG | Date: 03/21	ATLAS Figure 4e

Note: Contour Interval = 1,000 feet per second

TOMOGRAPHY MODEL

SL-6

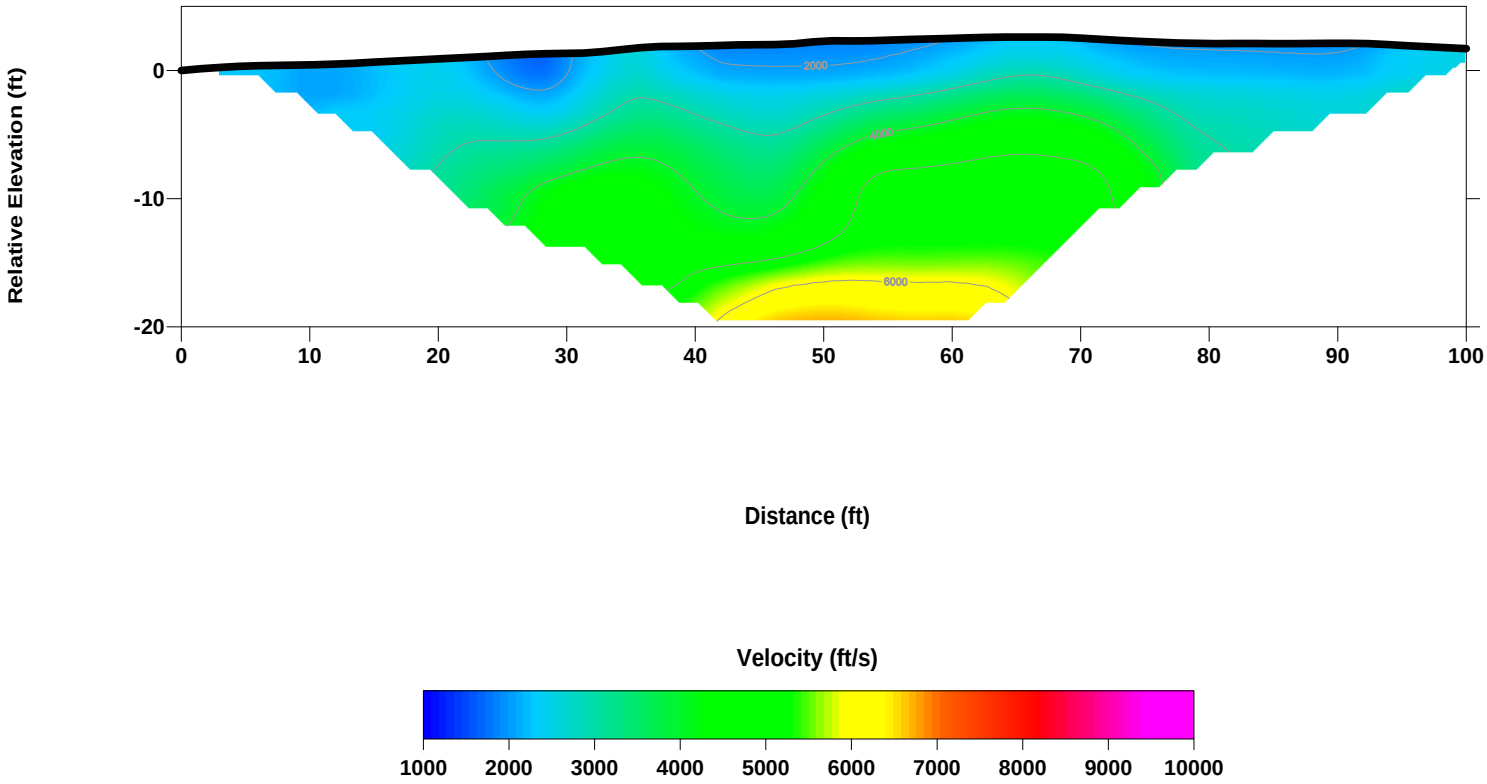


SEISMIC PROFILE (SL-6)	North Iris Lane Escondido, California Project No.: 121069SWG | Date: 03/21	ATLAS Figure 4f

Note: Contour Interval = 1,000 feet per second

TOMOGRAPHY MODEL

SL-7



SEISMIC PROFILE (SL-7)	North Iris Lane Escondido, California Project No.: 121069SWG | Date: 03/21	ATLAS Figure 4g

Note: Contour Interval = 1,000 feet per second

Appendix H
Greenhouse Gas Report

GREENHOUSE GAS

Iris Lane Multi-Family Development
City of Escondido, CA

Project Proponent:

Hall Land Co.
740 Lomas Santa Fe Drive, Suite 204
Solana Beach, CA 92075

Prepared By:

Ldn Consulting, Inc.
42428 Chisolm Trail
Murrieta, CA 92562

June 21, 2022

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LIST OF COMMON ACRONYMS

Assembly Bill 32 (AB32)

Business as Usual (BAU)

California Air Pollution Control Officers Association's (CAPCOA)

California Air Resource Board (CARB)

California Climate Action Registry General Reporting Protocol Version 3.1 (CCARGRPV3.1)

California Environmental Quality Act (CEQA)

Carbon Dioxide (CO2)

Cubic Yards (CY)

Environmental Protection Agency (EPA)

Green House Gas (GHG)

International Residential Code (IRC)

Low Carbon Fuel Standard (LCFS)

Methane (CH4)

Nitrous Oxide (N2O)

San Diego Air Basin (SDAB)

San Diego Air Pollution Control District (SDAPCD)

South Coast Air Quality Management District (SCAQMD)

Senate Bill 97 (SB97)

Vehicle Miles Traveled (VMT)

EXECUTIVE SUMMARY

This greenhouse gas assessment (GHG) was prepared according to guidelines established within the California Global Warming Solutions Act of 2006 – Assembly Bill 32 (AB32), Senate Bill 97 (SB97), California Environmental Quality Act (CEQA) and SB32. Greenhouse Gases (GHGs) analyzed in this study are Carbon Dioxide (CO_2), Methane (CH_4), and Nitrous Oxide (N_2O). To simplify GHG calculations, both CH_4 and N_2O are converted to equivalent amounts of CO_2 and are identified as carbon dioxide equivalent (CO_2e).

The Project is located at 2085 N Iris Lane. The Project proposes to annex a 7.69 acre site from the County of San Diego to the City of Escondido. The project would construct a 102 multi-family residential development. Project design features (PDFs) have been included in this Project. The applicant has agreed to implement all PDFs, which will be included in the Project's Conditions of approval and are shown in Section 1.4 of this report.

The proposed project shall be annexed into the City of Escondido from the County of San Diego. Under the County's General plan, the project site has a zoning density of R24 or 24 dwelling units per acre (DU/acre) and the project applicant is seeking an Urban 3 General Plan land-use designation that allows up to 18 du/ac and this specific project would be 13.2 DU/acre. The project zoning would be Planned Development-Residential (PD-R). Since SANDAG regional growth projections are based on zoning classifications of R24 within the County, a reduction from 24 to 18 units per acre would decrease projected growth within the region. Given this, the proposed density of 13.2 DU/Acre would produce no significant cumulative operational greenhouse gas impacts.

During construction of the Project, it is expected that approximately 917.01 Metric Tons (MT) of CO_2e will be generated. Given this, the Project would generate 30.57 MT CO_2e per year over the amortized 30-year minimum life of the Project. After Construction and during operations of the Project, a combined GHG emissions of 495.66 MT CO_2e is expected. Again, as noted above, the project PDFs will be a condition of approval as a project requirement.

The City of Escondido has a CAP Checklist screening level of 500 MT CO_2e. Projects which do not exceed this threshold would have a less than significant impact on the environment. Also, an alternative method would be to identify the annual GHG emissions divided by the project population or service population (SP) and should be less than 2.0 MT CO_2e within the City. This threshold ratio is sometimes called the GHG Efficiency Threshold. The proposed project would produce 495.66 MT CO_2e per year with a GHG efficiency of 1.56 MT CO_2e per service population. These emissions would be less than both thresholds. The project will also install multiple PDFs which are consistent with the CAP checklist. Based on this, the project would have a less than significant GHG impact and no GHG mitigation measures would be required.

1.0 INTRODUCTION

1.1 Purpose of this Study

The purpose of this GHG assessment is to provide documentation in support of the City's CEQA compliance requirement. The proposed Project's GHG emissions impacts are based on the recommendations provided in Appendix G of the CEQA Guidelines which are (14 CCR 15000 et seq.):

1. Will the Project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

2. Will the Project conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

1.2 Project Location

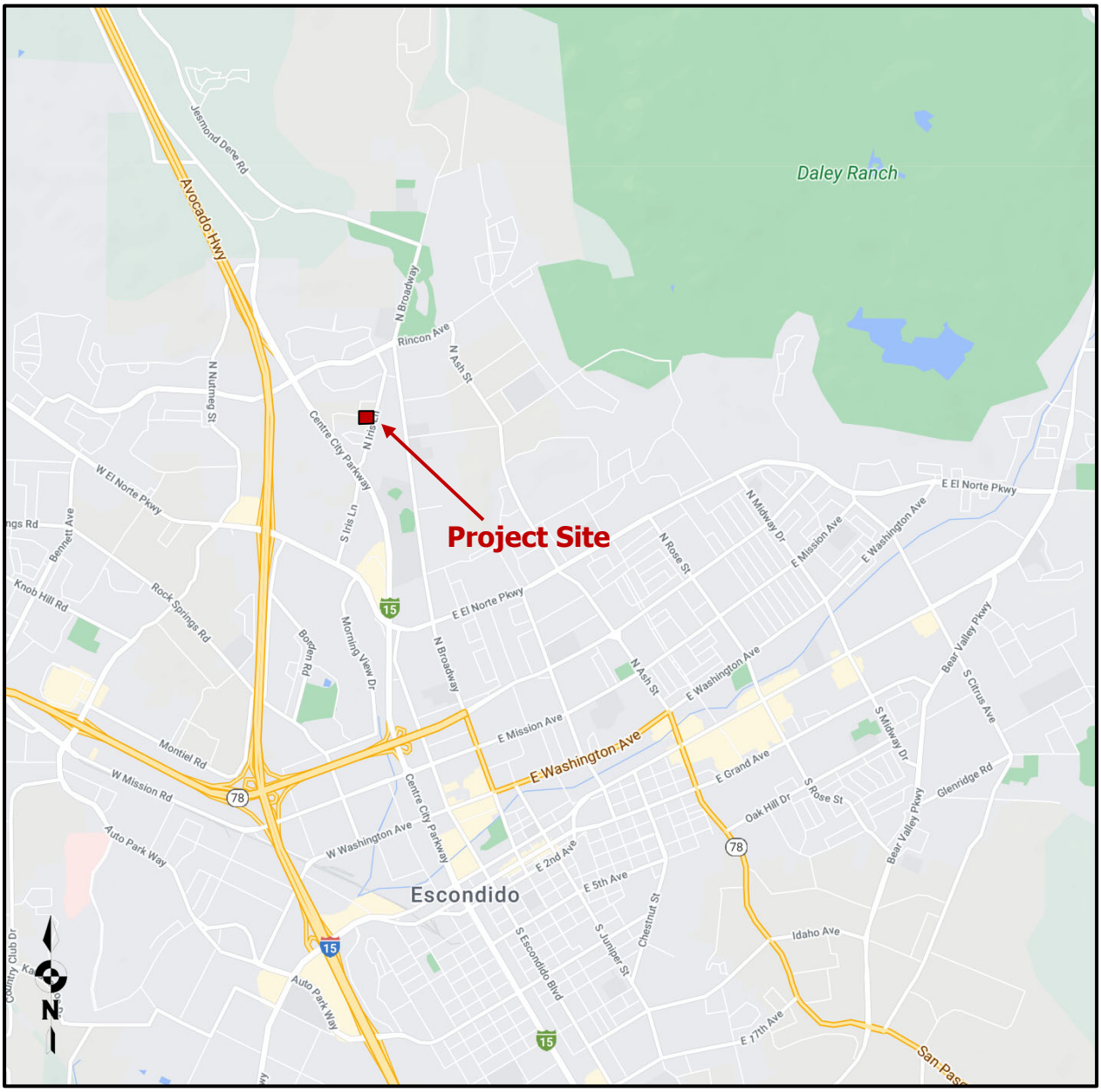
The Project site is located on a 7.69-acre site located in the northern area of the City of Escondido on 2085 North Iris Lane. A Project vicinity map is shown in Figure 1-A.

1.3 Project Description

The Project proposes to annex a 7.69 acre site from the County of San Diego to the City of Escondido. The project would construct a 102 multi-family residential development with approximately 230 parking of which 26 would be common area parking and the remaining would be within garages. The proposed project would require demolishing the existing structures onsite (approximately 10,000 Square Feet (SF)). The project also may require some blasting-related activities and materials blasted would be exported offsite and clean soils would be brought in to replace. Grading of the Project site will consist of approximately 6,812 cubic yards (CY) export and 22,112 CY of import. It is expected that the Project would begin work sometime in 2023 and be completed sometime in 2025 with full occupancy and operations expected sometime in 2025.

Of relevance to this analysis, blasting-related activities would utilize ammonium nitrate with fuel oil (ANFO) based explosives. When ANFO detonates, the blast would produce both CO and NOx (EPA, 1995) neither of which are considered GHGs.

Figure 1-A: Annexation Vicinity Map



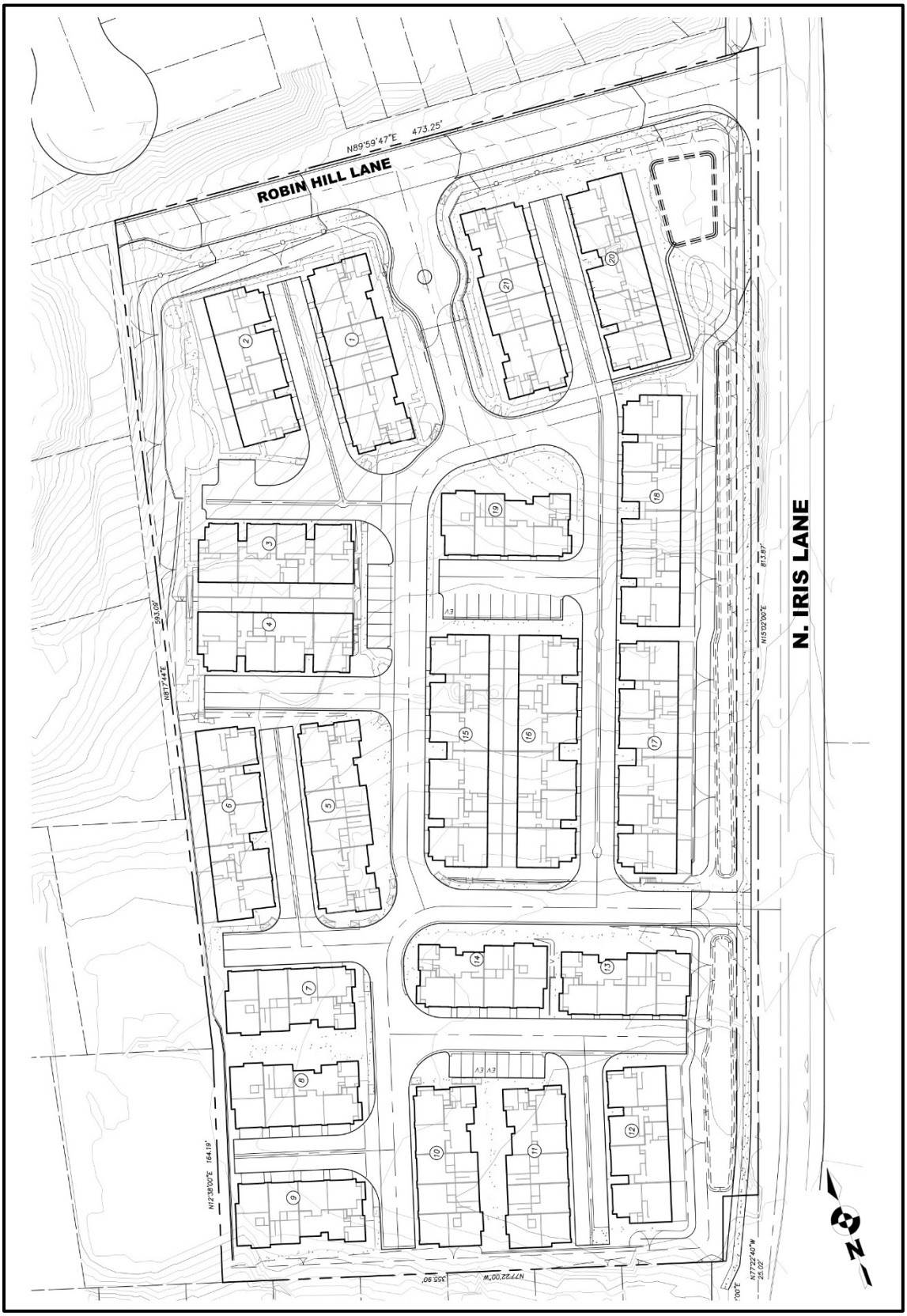
Source: (Google, 2020)

1.4 Project Design Features

Project design features (PDFs) have been incorporated into the Project to reduce emissions associated with operations of this Project. This report will define specifically which design features were included within the GHG estimation software and it should be expected that whenever a design feature is included within greenhouse gas modeling that those particular design features would be required for the Project to implement such that the City of Escondido can recommend approval. If mitigation measures are required for compliance, they will be identified later in this analysis. A list of Project PDFs are provided below. The Project site plan is shown in Figure 1-B.

1. The Project would install Low Flow water fixtures in all the units.
2. All lights within the facility will be designed use LED technology and would be for both indoor and outdoor areas.
3. The Project would provide separate waste containers to allow for simpler material separations or the Project would pay for a waste collection service that recycles the materials in accordance with AB 341 to achieve a 75% waste diversion. All green waste will be diverted from landfills and recycled as mulch.
4. The Project would not install hearth options.
5. The Project will utilize Energy Star Appliances
6. The Project would utilize Tier 4 construction Equipment with Diesel Particulate Filters (DPF) attached or equivalent.
7. The Project will plant 102 trees to sequester Carbon Dioxide (CO_2)
8. The Project shall install 2kW of solar per unit or roughly 204 kilowatts (KW) of solar in total at the project site.
9. The Project will install Electric Heat Pump Water Heaters in all units.

Figure 1-B: Project Site Development Plan



Source: (SB&O Inc., 2021)

2.0 EXISTING ENVIRONMENTAL SETTING

2.1 Understanding Greenhouse Gasses

GHGs such as water vapor and carbon dioxide are abundant in the earth's atmosphere. These gases are called "Greenhouse Gases" because they absorb and emit thermal infrared radiation which acts like an insulator to the planet. Without these gases, the earth's ambient temperature would either be extremely hot during the day or blistering cold at night. However, because these gases can both absorb and emit heat, the earth's temperature does not sway too far in either direction.

Over the years as human activities require the use of burning fossil fuels stored carbon is released into the air in the form of CO_2 and to a much lesser extent Carbon Monoxide (CO). Additionally, over the years scientist have measured this rise in Carbon Dioxide and the general consensus is that human activities contribute to the heating of the planet. Additionally, other GHGs such as Methane and Nitrous Oxide would contribute to global warming.

GHGs of concern as analyzed in this study are CO_2, Methane (CH_4), and Nitrous Oxide (N_2O). To simplify GHG calculations, both CH_4 and N_2O can be converted to an equivalent amount of CO_2 or CO_2e. CO_2e is calculated by multiplying the calculated levels of CH_4 and N_2O by a Global Warming Potential (GWP). The latest California Emissions Estimator Model (CalEEMod 2020.4.0) developed by Breeze Software uses the Intergovernmental Panel on Climate Change (IPCC) 2007 report as source data for GWP factors for both CH_4 and N_2O (CAPCOA, September 2016), using the 100-year period of 25 and 298, respectively (IPCC, 2007). Furthermore, it should be noted that biogenic GHGs from the degradation of organic materials produced by human activities such as solid waste breakdown and wastewater breakdown are also calculated within CalEEMod and presented in this report.

2.2 Existing Setting

The Project site lies in the northern portion of the County of San Diego in the City of Escondido. The existing site is occupied by residential uses. The Project would demolish approximately 10,000 SF of existing buildings prior to construction. The site is mostly disturbed. Elevations onsite average about 720 feet above sea level.

2.3 Climate (Escondido)

Climate within the San Diego Air Basin (SDAB) area often varies dramatically over short geographical distances with cooler temperatures on the western coast gradually warming to

the east as prevailing winds from the west heat up. Most of southern California is dominated by high-pressure systems for much of the year, which keeps San Diego mostly sunny and warm. Typically, during the winter months, the high-pressure system drops to the south and brings cooler, moister weather from the north. It is common for inversion layers to develop within high-pressure areas, which mostly define pressure patterns over the SDAB. These inversions are caused when a thin layer of the atmosphere increases in temperature with height. An inversion acts like a lid preventing vertical mixing of air through convective overturning.

Meteorological trends within Escondido produce daytime highs ranging between 65ºF in the winter to approximately 88ºF in the summer with August usually being the hottest month. Median temperatures range from approximately 57ºF in the winter to approximately 78ºF in the summer. Precipitation is generally about 16.2 inches per year (WRCC, 2018). Prevailing wind patterns for the area vary during any given month during the year and also vary depending on the time of day or night. The predominant pattern though throughout the year is usually from the west or westerly (WRCC, 2018).

3.0 CLIMATE CHANGE REGULATORY ENVIRONMENT

3.1 Federal

Massachusetts v. EPA

On April 2, 2007, in *Massachusetts v. EPA*, the Supreme Court directed the EPA Administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare. In making these decisions, the EPA Administrator is required to follow the language of Section 202(a) of the federal Clean Air Act. On December 7, 2009, the EPA Administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- The Administrator found that elevated concentrations of GHGs— Carbon Dioxide CO_2, CH_4, N_2O, Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), and Sulfur hexafluoride (SF_6)— in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the "endangerment finding."
- The Administrator further found the combined emissions of GHGs—CO_2, CH_4, N_2O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the "cause or contribute finding."

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

3.2 State

State Greenhouse Gas Targets

Executive Order S-3-05

EO S-3-05 (June 2005) established the following statewide goals: GHG emissions should be reduced to 2000 levels by 2010, 1990 levels by 2020, and 80 percent below 1990 levels by 2050.

AB 32 and CARB's Climate Change Scoping Plan

In furtherance of the goals established in EO S-3-05, the Legislature enacted Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 requires California to reduce its GHG emissions to 1990 levels by 2020.

Under AB 32, the California Air Resources Board (CARB) is responsible for and is recognized as having the expertise to carry out and develop the programs and regulations necessary to achieve the GHG emissions reduction mandate of AB 32. Therefore, in furtherance of AB 32, CARB adopted regulations requiring the reporting and verification of GHG emissions from specified sources, such as industrial facilities, fuel suppliers and electricity importers (see Health & Safety Code Section 35830; Cal. Code Regs., tit. 17, §§95100 et seq.). CARB is also required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 authorized CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

In 2007, CARB approved a limit on the statewide GHG emissions level for year 2020 consistent with the determined 1990 baseline (427 million metric tons (MMT) CO_2E). CARB's adoption of this limit is in accordance with Health and Safety Code Section 38550.

Further, in 2008, CARB adopted the *Climate Change Scoping Plan: A Framework for Change* (*2008 Scoping Plan*) in accordance with Health and Safety Code Section 38561. The *2008 Scoping Plan* established an overall framework for the measures to be implemented to reduce California's GHG emissions for various emission sources/sectors to 1990 levels by 2020. The *2008 Scoping Plan* evaluated opportunities for sector-specific reductions, integrated all CARB and Climate Action Team[1] early actions and additional GHG reduction features by both entities, identified additional measures to be pursued as regulations, and outlined the role of a cap-and-trade program.

In the *2008 Scoping Plan*, CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of approximately 28.5 percent from the otherwise projected 2020 emissions level; i.e., those emissions that would occur in 2020, absent GHG-reducing laws and regulations (referred to as "Business-As-Usual" [BAU]). For purposes of calculating this percent reduction, CARB assumed that all new electricity generation would be supplied by natural gas plants, no further regulatory action would impact vehicle fuel efficiency, and building energy efficiency codes would be held at 2005 standards.

In the 2011 Final Supplement to the *2008 Scoping Plan's* Functional Equivalent Document, CARB revised its estimates of the projected 2020 emissions level in light of the economic recession and the availability of updated information about GHG reduction regulations. Based on the new economic data, CARB determined that achieving the 1990 emissions level by 2020

[1] The Climate Action Team is comprised of state agency secretaries and heads of state agencies, boards and departments; these members work to coordinate statewide efforts to implement GHG emissions reduction programs and adaptation programs.

would require a reduction in GHG emissions of 21.7 percent (down from 28.5 percent) from the BAU conditions. When the 2020 emissions level projection was updated to account for newly implemented regulatory measures, including Pavley I (model years 2009–2016) and the Renewables Portfolio Standard (12 percent to 20 percent), CARB determined that achieving the 1990 emissions level in 2020 would require a reduction in GHG emissions of 16 percent (down from 28.5 percent) from the BAU conditions.

In 2014, CARB adopted the *First Update to the Climate Change Scoping Plan: Building on the Framework* (*First Update*). The stated purpose of the *First Update* was to "highlight California's success to date in reducing its GHG emissions and lay the foundation for establishing a broad framework for continued emission reductions beyond 2020, on the path to 80 percent below 1990 levels by 2050." The *First Update* found that California was on track to meet the 2020 emissions reduction mandate established by AB 32, noted that California could reduce emissions further by 2030 to levels squarely in line with those needed to stay on track to reduce emissions to 80 percent below 1990 levels by 2050 if the state realizes the expected benefits of existing policy goals.

EO B-30-15

EO B-30-15 (April 2015) identified an interim GHG reduction target in support of targets previously identified under S-3-05 and AB 32. EO B-30-15 set an interim goal of reducing statewide GHG emissions to 40 percent below 1990 levels by 2030 to keep California on its trajectory toward meeting or exceeding the long-term goal of reducing statewide GHG emissions to 80 percent below 1990 levels by 2050 as set forth in S-3-05. To facilitate achievement of this goal, EO B-30-15 calls for an update to CARB's *Scoping Plan* to express the 2030 target in terms of MMT CO_2e. The EO also calls for state agencies to continue to develop and implement GHG emission reduction programs in support of the reduction targets. Sector-specific agencies in transportation, energy, water, and forestry were required to prepare GHG reduction plans by September 2015, followed by a report on action taken in relation to these plans in June 2016.

SB 32 and AB 197

SB 32 and AB 197 (enacted in 2016) are companion bills that set a new statewide GHG reduction target; make changes to CARB's membership and increase legislative oversight of CARB's climate change-based activities; and expand dissemination of GHG and other air quality-related emissions data to enhance transparency and accountability. More specifically, SB 32 codified the 2030 emissions reduction goal of EO B-30-15 by requiring CARB to ensure that statewide GHG emissions are reduced to 40 percent below 1990 levels by 2030. AB 197 established the Joint Legislative Committee on Climate Change Policies, consisting of at least

three members of the Senate and three members of the Assembly, in order to provide ongoing oversight over implementation of the state's climate policies. AB 197 also added two members of the Legislature to CARB as nonvoting members. The legislation further requires CARB to make available and update (at least annually via its website) emissions data for GHGs, criteria air pollutants, and TACs from reporting facilities; and identify specific information for GHG emissions reduction measures when updating the scoping plan, including information regarding the range of projected GHG emissions and air pollution reductions that result from each measure and the cost-effectiveness (including avoided social costs) of each measure (see Health & Safety Code Section 38562.7).

2017 Climate Change Scoping Plan

In November 2017, CARB released *California's 2017 Climate Change Scoping Plan* for public review and comment (CARB, 2017). This update includes CARB's strategy for achieving the state's 2030 GHG target as established in Senate Bill (SB) 32 (discussed below). The strategy includes continuing the Cap-and-Trade Program through 2030,[2] inclusive policies and broad support for clean technologies, enhanced industrial efficiency and competitiveness, prioritization of transportation sustainability, continued leadership on clean energy, putting waste resources to beneficial use, supporting resilient agricultural and rural economics and natural and working lands, securing California's water supplies, and cleaning the air and public health. When discussing project-level GHG emissions reduction actions and thresholds, the *2017 Scoping Plan* states "[a]chieving no net additional increase in GHG emissions, resulting in no contribution to GHG impacts, is an appropriate overall objective for new development." However, the *2017 Scoping Plan* also recognizes that such an achievement "may not be feasible or appropriate for every project … and the inability of a project to mitigate its GHG emissions to net zero does not imply the project results in a substantial contribution to the cumulatively significant environmental impact of climate change under CEQA." CARB's Governing Board adopted the *2017 Scoping Plan* in December 2017.

Building Energy

Title 24, Part 6

Title 24 of the California Code of Regulations was established in 1978 and serves to enhance and regulate California's building standards. While not initially promulgated to reduce GHG emissions, Part 6 of Title 24 specifically establishes Building Energy Efficiency Standards that are designed to ensure new buildings and alterations or additions to existing buildings in California achieve energy efficiency and preserve outdoor and indoor environmental quality.

[2] In July 2017, AB 398 was enacted into law, thereby extending the legislatively-authorized lifetime of the Cap-and-Trade Program to December 31, 2030.

The California Energy Commission (CEC) is required by law to adopt standards every 3 years that are cost effective for homeowners over the 30-year lifespan of a building. These standards are updated to consider and incorporate new energy efficient technologies and construction methods. As a result, these standards save energy, increase electricity supply reliability, increase indoor comfort, avoid the need to construct new power plants, and help preserve the environment.

The 2016 Title 24 standards, which went into effect on January 1, 2017. When comparing the 2013 and 2016 standards for electrical consumption, it is expected that low-rise, single-family detached homes and multi-family homes would use 12 percent and 15 percent less electricity under the 2016 standards, respectively. Similarly, implementation of the 2016 standards is expected to reduce natural gas consumption by 21 percent in single-family homes and 31 percent in multi-family homes. Newly constructed non-residential buildings are estimated to achieve a 5 percent reduction in electricity consumption under the 2016 standards and no significant change relative to natural gas consumption (California Energy Commission, 2015). The current version of CalEEMod used in this analysis employs, as a default parameter, the 2016 Title 24 standards to estimate GHG emissions.

The Project would be required, at a minimum, to comply with the latest version of Title 24 standards at the time the Project seeks building permits. At the time this report was written, the 2019 standards were applicable and went into effect on January 1, 2020. The 2019 standards continue to improve upon the 2016 standards for residential and nonresidential buildings. One of the most notable changes in the 2019 standards is the requirement for the installation of rooftop solar on residential buildings (California Energy Commission, 2017). It should be noted that the State updates these regulations every three years. Thus, throughout Project construction, buildings will need comply with the most recently adopted standards.

Title 24, Part 11

In addition to the CEC's efforts, in 2008, the California Building Standards Commission adopted the nation's first green building standards. The California Green Building Standards Code (Part 11 of Title 24) is commonly referred to as CALGreen and establishes minimum mandatory standards as well as voluntary standards pertaining to the planning and design of sustainable site development, energy efficiency (in excess of the California Energy Code requirements), water conservation, material conservation, and interior air quality. The CALGreen standards initially took effect in January 2011 and instituted mandatory minimum environmental performance standards for all ground-up, new construction of commercial, low-rise residential and state-owned buildings and schools and hospitals. The CALGreen

2016 standards became effective on January 1, 2017. The mandatory standards require the following (24 CCR Part 11):

- Mandatory reduction in indoor water use through compliance with specified flow rates for plumbing fixtures and fittings
- Mandatory reduction in outdoor water use through compliance with a local water efficient landscaping ordinance or the California Department of Water Resources' Model Water Efficient Landscape Ordinance
- Sixty-five (65) percent of construction and demolition waste must be diverted from landfills
- Mandatory inspections of energy systems to ensure optimal working efficiency
- Inclusion of EV charging stations or designated spaces capable of supporting future charging stations
- Low-pollutant emitting exterior and interior finish materials, such as paints, carpets, vinyl flooring, and particle boards

The CALGreen standards also include voluntary efficiency measures that are provided at two separate tiers and implemented at the discretion of local agencies and applicants. CALGreen's Tier 1 standards call for a 15 percent improvement in energy requirements; stricter water conservation, 10 percent recycled content in building materials, 20 percent permeable paving, 20 percent cement reduction, and cool/solar-reflective roofs. CALGreen's more rigorous Tier 2 standards call for a 30 percent improvement in energy requirements, stricter water conservation, 75 percent diversion of construction and demolition waste, 15 percent recycled content in building materials, 30 percent permeable paving, 25 percent cement reduction, and cool/solar-reflective roofs.

The CALGreen standards were again updated in 2019 which includes mandatory measures for planning and design, energy efficiency, water and conservation efficiency, material and resource conservation as well as Environmental Quality. A thorough checklist is provided by California's Housing and Community Development Department (Housing and Community Development, 2019). The project would be required to utilize the latest CalGreen standards (International Code Council, 2019).

Title 20

Title 20 of the California Code of Regulations requires manufacturers of appliances to meet state and federal standards for energy and water efficiency. Performance of appliances must be certified through the CEC to demonstrate compliance with standards. New appliances regulated under Title 20 include: refrigerators, refrigerator-freezers and freezers; room air conditioners and room air-conditioning heat pumps; central air conditioners; spot air conditioners; vented gas space heaters; gas pool heaters; plumbing fittings and plumbing fixtures; fluorescent lamp ballasts; lamps; emergency lighting; traffic signal modules;

dishwaters; clothes washers and dryers; cooking products; electric motors; low voltage dry-type distribution transformers; power supplies; televisions and consumer audio and video equipment; and battery charger systems. Title 20 presents protocols for testing for each type of appliance covered under the regulations and appliances must meet the standards for energy performance, energy design, water performance and water design. Title 20 contains three types of standards for appliances: federal and state standards for federally regulated appliances, state standards for federally regulated appliances, and state standards for non-federally regulated appliances.

Mobile Sources

AB 1493

In response to the transportation sector accounting for more than half of California's CO_2 emissions, AB 1493 was enacted in July 2002. AB 1493 required CARB to set GHG emission standards for passenger vehicles, light-duty trucks, and other vehicles determined by CARB to be vehicles that are primarily used for noncommercial personal transportation in the state. The bill required that CARB set GHG emission standards for motor vehicles manufactured in 2009 and all subsequent model years. CARB adopted the standards in September 2004. When fully phased in, the near-term (2009–2012) standards will result in a reduction of about 22 percent in GHG emissions compared to the emissions from the 2002 fleet, while the mid-term (2013–2016) standards will result in a reduction of about 30 percent (CARB, Clean Car Standards - Pavley, Assembly Bill 1493, 2017).

EO S-1-07

Issued in January 2007, EO S-1-07 sets a declining Low Carbon Fuel Standard for GHG emissions measured in CO_2e grams per unit of fuel energy sold in California. The carbon intensity measures the amount of GHG emissions in the lifecycle of a fuel, including extraction/feedstock production, processing, transportation, and final consumption, per unit of energy delivered. CARB adopted the implementing regulation in April 2009 and began implementation in 2011. The LCFS is designed to encourage the use of cleaner low-carbon transportation fuels in California, encourage the production of those fuels, and therefore, reduce GHG emissions and decrease petroleum dependence in the transportation sector.

The latest amendment to LCFS implementation regulations was in 2018 and CARB approved amendments which included strengthening and smoothing the carbon intensity benchmarks through 2030 in-line with California's 2030 GHG emission reduction target enacted through SB 32 (CARB, 2018).

SB 375

SB 375 (2008) addresses GHG emissions associated with the transportation sector through regional transportation and sustainability plans. SB 375 required CARB to adopt regional GHG reduction targets for the automobile and light-truck sector for 2020 and 2035. Regional metropolitan planning organizations (MPOs) are then responsible for preparing a Sustainable Communities Strategy (SCS) within their Regional Transportation Plan. The goal of the SCS is to establish a forecasted development pattern for the region that, after considering transportation measures and policies, will achieve, if feasible and if implemented, the GHG reduction targets. If a SCS is unable to achieve the GHG reduction target, an MPO must prepare an Alternative Planning Strategy demonstrating how the GHG reduction target would be achieved through alternative development patterns, infrastructure, or additional transportation measures or policies.

Pursuant to Government Code Section 65080(b)(2)(K), a SCS does not: (i) regulate the use of land; (ii) supersede the land use authority of cities and counties; or (iii) require that a cities or counties land use policies and regulations, including those in a general plan, be consistent with it. Nonetheless, SB 375 makes regional and local planning agencies responsible for developing those strategies as part of the federally required metropolitan transportation planning process and the state-mandated housing element process.

In 2010, CARB adopted the SB 375 targets for the regional metropolitan planning organizations. The targets for SANDAG adopted in 2010 are a 7 percent reduction in emissions per capita by 2020 and a 13 percent reduction by 2035; the targets are expressed as a percent change in per capita passenger vehicle GHG emissions relative to 2005.

In October 2015, SANDAG adopted *San Diego Forward: The Regional Plan*, which contains the region's current SCS. In December 2015, CARB, by resolution, accepted SANDAG's GHG emissions quantification analysis and determination that, if implemented, the SCS would achieve CARB's 2020 and 2035 GHG emissions reduction targets for the region. More specifically, as set forth in CARB Executive Order G-15-075, CARB determined that SANDAG's SCS would achieve a 15 percent per capita reduction by 2020 and a 21 percent per capita reduction by 2035.

In 2018, CARB updated the SB 375 targets. For purposes of SANDAG, the updated targets include a 15 percent reduction in emissions per capita by 2020 and a 19 percent reduction by 2035 (CARB, 2018). SANDAG is in the process of preparing its next SCS, which will consider whether and how the region could attain these reduction targets.

Currently SANDAG is working on the 2021 Regional Plan. The current Draft Plan provides a big picture vision for how the San Diego region will grow through 2050 and beyond with an implementation program to help make the plan a reality. Within the Draft Plan, SANDAG introduced a transformative vision for transportation in San Diego County that completely reimagines how people and goods could move throughout the region in the 21st century. The plan outlines the "5 Big Moves" which are: Complete Corridors, Transit Leap, Mobility Hubs, Flexible Fleets, and the Next OS. The SANDAG Board of Directors will be asked to adopt the 2021 Regional Plan in late 2021. Once adopted, it will become the region's long-term plan to be implemented incrementally through the Regional Transportation Improvement Program (RTIP) (SANDAG, 2021).

Advanced Clean Cars Program

In January 2012, CARB approved the Advanced Clean Cars program, a new emissions-control program for model years 2015 through 2025. The program combines the control of smog- and soot-causing pollutants and GHG emissions into a single coordinated package. The package includes elements to reduce smog-forming pollution, reduce GHG emissions, promote clean cars, and provide the fuels for clean cars (CARB, 2017). To improve air quality, CARB also has implemented new emission standards to reduce smog-forming emissions beginning with 2015 model year vehicles. It is estimated that, in 2025, cars will emit 75 percent less smog-forming pollution than the average new car sold today. To reduce GHG emissions, CARB, in conjunction with the EPA and the NHTSA, also has adopted new GHG standards for model year 2017 to 2025 vehicles; the new standards are estimated to reduce GHG emissions by 34 percent in 2025 (California Air Resources Board, 2012).

EO B-16-12

EO B-16-12 (March 2012) directs state entities under the Governor's direction and control to support and facilitate development and distribution of ZEVs. This EO also sets a long-term target of reaching 1.5 million zero-emission vehicles on California's roadways by 2025. On a statewide basis, EO B-16-12 also establishes a GHG emissions reduction target from the transportation sector equaling 80 percent less than 1990 levels by 2050. In furtherance of this EO, the Governor convened an Interagency Working Group on Zero-Emission Vehicles that has published multiple reports regarding the progress made on the penetration of ZEVs in the statewide vehicle fleet.

SB 350

In 2015, SB 350 – the Clean Energy and Pollution Reduction Act – was enacted into law. As one of its elements, SB 350 establishes a statewide policy for widespread electrification of the

transportation sector, recognizing that such electrification is required for achievement of the state's 2030 and 2050 reduction targets (see Public Utilities Code Section 740.12).

Renewable Energy Procurement

SB 1078

SB 1078 (2002) established the Renewables Portfolio Standard (RPS) program, which requires an annual increase in renewable generation by the utilities equivalent to at least 1 percent of sales, with an aggregate goal of 20 percent by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20 percent of their power from renewable sources by 2010.

SB X1 2

SB X1 2 (2011) expanded the RPS by establishing that 20 percent of the total electricity sold to retail customers in California per year by December 31, 2013, and 33 percent by December 31, 2020, and in subsequent years be secured from qualifying renewable energy sources. Under the bill, a renewable electrical generation facility is one that uses biomass, solar thermal, photovoltaic, wind, geothermal, fuel cells using renewable fuels, small hydroelectric generation of 30 megawatts or less, digester gas, municipal solid waste conversion, landfill gas, ocean wave, ocean thermal, or tidal current, and that meets other specified requirements with respect to its location. In addition to the retail sellers previously covered by the RPS, SB X1 2 added local, publicly owned electric utilities to the RPS.

SB 350

SB 350 (2015) further expanded the RPS by establishing that 50 percent of the total electricity sold to retail customers in California per year by December 31, 2030 be secured from qualifying renewable energy sources. In addition, SB 350 includes the goal to double the energy efficiency savings in electricity and natural gas final end uses (such as heating, cooling, lighting, or class of energy uses on which an energy-efficiency program is focused) of retail customers through energy conservation and efficiency.

SB 100

SB 100 (2018) has further accelerated and expanded the RPS, requiring achievement of a 50 percent RPS by December 31, 2026 and a 60 percent RPS by December 31, 2030. SB 100 also established a new statewide policy goal that calls for eligible renewable energy resources and zero-carbon resources to supply 100 percent of electricity retail sales within the State of California by December 31, 2045.

Water

EO B-29-15

In response to drought-related concerns, EO B-29-15 (April 2015) set a goal of achieving a statewide reduction in potable urban water usage of 25 percent relative to water use in 2013. The term of the EO extended through February 28, 2016, although many of the directives have since become permanent water-efficiency standards and requirements. The EO includes specific directives that set strict limits on water usage in the state. In response to EO B-29-15, the California Department of Water Resources has modified and adopted a revised version of the Model Water Efficient Landscape Ordinance that, among other changes, significantly increases the requirements for landscape water use efficiency and broadens its applicability to include new development projects with smaller landscape areas.

Solid Waste

AB 939 and AB 341

AB 939 (1989), known as the Integrated Waste Management Act (Public Resources Code Sections 40000 et seq.), was passed because of the increase in waste stream and the decrease in landfill capacity. The statute established the California Integrated Waste Management Board, which oversees a disposal reporting system. AB 939 mandated a reduction of waste being disposed where jurisdictions were required to meet diversion goals of all solid waste through source reduction, recycling, and composting activities of 25 percent by 1995 and 50 percent by the year 2000.

AB 341 (2011) amended the California Integrated Waste Management Act of 1989 to include a provision declaring that it is the policy goal of the state that not less than 75 percent of solid waste generated be source-reduced, recycled, or composted by the year 2020, and annually thereafter. In addition, AB 341 required the California Department of Resources Recycling and Recovery (CalRecycle) to develop strategies to achieve the state's policy goal. CalRecycle has conducted multiple workshops and published documents that identify priority strategies that CalRecycle believes would assist the state in reaching the 75 percent goal by 2020.

Increasing the amount of commercial solid waste that is recycled, reused, or composted will reduce GHG emissions primarily by 1) reducing the energy requirements associated with the extraction, harvest, and processing of raw materials and 2) using recyclable materials that require less energy than raw materials to manufacture finished products (CalRecycle, 2020) Increased diversion of organic materials (green and food waste) will also reduce GHG

emissions (CO_2 and CH_4) resulting from decomposition in landfills by redirecting this material to processes that use the solid waste material to produce vehicle fuels, heat, electricity, or compost.

3.3 Project Specific Guidelines

Appendix G of the CEQA Guidelines

Amendments to Appendix G of the CEQA Guidelines were finalized in December 2018. According to Appendix G of the CEQA Guidelines, a project would have a significant environmental impact related to GHGs if it would:

1. *Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment.*
2. *Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.*

For purposes of this analysis, the two Appendix G checklist questions set forth above are utilized as the thresholds of significance when evaluating the environmental effects of the Project's GHG emissions. In applying these thresholds, reference is made to CEQA Guidelines Section 15064.4(b)(1)-(3).

City of Escondido General Plan

A project's adherence to the City's General Plan can be determined through demonstrating consistency with General Plan assumptions and policies. If a project would generate GHG emissions consistent with the maximum allowable buildout as defined by the General Plan, the Project would be consistent with the estimated GHG emissions for that site.

City of Escondido Climate Action Plan

The City of Escondido developed an update to the 2013 Climate Action Plan (CAP) (City of Escondido, 2020). The CAP outlines strategies and measures that the City will undertake to achieve its proportional share of State GHG emissions reduction targets. The CAP's strategies and measures are designed to reduce GHG emissions for build-out under the General Plan. The CAP does so by (1) calculating a baseline GHG emissions level as of 2012; and (2) estimating future 2030 and 2035 emissions under a business as usual standard; and (3) implementing state mandated GHG reduction targets. Measures to reduce GHG emissions for projects with land use consistent with the City's General Plan are found in the CAP. The CAP aims to achieve the following local community wide GHG reduction targets:

- 4 percent below 2012 levels (907,000 MTCO2e) by 2020,
- 42 percent below 2012 levels (547,000 MTCO2e) by 2030, and
- 52 percent below 2012 levels (456,000 MTCO2e) by 2035.

The City has also developed a Climate Action Plan Consistency Review Checklist (CAP Consistency Checklist), in conjunction with the CAP, to provide a streamlined review process for proposed new development projects that are subject to discretionary review and trigger environmental review pursuant to CEQA. This memorandum summarizes the methodology and application of a GHG screening threshold (set at 500 metric tons carbon dioxide equivalent [$MTCO_2e$] per year) for new development projects in order to determine if a project would need to demonstrate consistency with the CAP through the CAP Consistency Checklist. The memorandum also describes application of a numerical GHG threshold (set at 2.0 $MTCO_2e$ per service population (SP) per year) for use as a supplemental method for demonstrating consistency with the CAP.

A Project's "service population" refers to a Project's residential population plus employment population which would be generated by a proposed project development. This efficiency metric is expressed as MT CO_2e per service population per year (MT CO_2e/year/service population). Therefore, sometimes a residential project expresses its GHG efficiency in terms of GHG efficiency per Capita (PC) per year, instead of per service person (Project MT CO_2e/year/PC).

The San Diego Association of Governments (SANDAG), San Diego's regional planning agency, projects and estimates population for all jurisdictions in the San Diego region (SANDAG, 2020). The population in 2035 within the City of Escondido is based on SANDAG Series 13 projection year 2035 which is 172,892. Housing within the city is 55,633 units. Therefore, the 2035 population per home is 172,892 divided by the anticipated number of residential units which equates to approximately 3.1 people per residential unit in 2035.

4.0 METHODOLOGY

4.1 Construction CO_2e Emissions Calculation Methodology

Project construction dates were estimated based on a construction start date in 23 with construction ending in 25. As part of the construction operations, the Project would demolish existing structures onsite which would be approximately 10,000 SF. The project also may require some blasting-related activities and materials blasted would be exported offsite and clean soils would be brought in to replaced. Grading of the Project site will consist of approximately 6,812 cubic yards (CY) export and 22,112 CY of import.. CalEEMod was utilized for all construction calculations and has been manually updated to reflect Project Design Features. CalEEMod automatically includes haul trips based on the total quantities of demolition and soil inputs and is included in this analysis.

The Project applicant has indicated that construction design features identified in Section 1.4 would be fully utilized, and those would be made conditions of approval. Table 4.1 shows the expected timeframes for the construction of all project infrastructure, facilities, and improvements, as well as the expected number of pieces of equipment.

GHG impacts related to construction will be calculated using the latest CalEEMod 2020.4.0 model which was developed by BREEZE Software for South Coast Air Quality Management District (SCAQMD). CalEEMod incorporates emission factors from the EMFAC2017 model for on-road vehicle emissions and the OFFROAD2011 model for off-road vehicle emissions and are shown in ***Attachment A*** to this report. Additionally, it should be noted that default vehicle miles traveled (VMT) were updated to reflect EMFAC 2017 average miles driven per trip within the County for 2035 and is shown in ***Attachment B*** to this report.

Because impacts from construction activities occur over a relatively short-term period of time, they contribute a relatively minimal portion of the overall lifetime project GHG emissions. To adequately include GHG emission from construction in the lifetime/operational GHG estimates, construction emissions are amortized over a 30-year project lifetime (SCAQMD, 2008). Also, it should be noted that the assumptions above in Table 4.1 would be conservative in the event construction began/ended at a later date as annual building codes, vehicles and construction fleets improve over time and emit fewer air quality emissions as technologies improve.

Table 4.1: Expected Construction Equipment

Equipment Identification	Proposed Start	Proposed Complete	Quantity
Demolition	06/01/2023	06/28/2023	
Concrete/Industrial Saws			1
Excavators			1
Tractors/Loaders/Backhoes			1
Site Preparation	06/01/2023	07/12/2023	
Rubber Tired Dozers			3
Tractors/Loaders/Backhoes			4
Grading	07/13/2023	08/30/2023	
Excavators			1
Graders			1
Rubber Tired Dozers			1
Bore/Drill Rigs			1
Tractors/Loaders/Backhoes			3
Paving	08/31/2023	09/27/2023	
Pavers			2
Paving Equipment			2
Rollers			2
Building Construction	09/28/2023	02/12/2025	
Cranes			1
Forklifts			3
Generator Sets			1
Tractors/Loaders/Backhoes			3
Welders			1
Architectural Coating	12/15/2024	02/12/2025	
Air Compressors			1

This equipment list is based upon equipment inventory within CalEEMod. The quantity and types are based upon assumptions provided by the Project applicant.

4.2 Operational Emissions Calculation Methodology

Once construction is completed the proposed Project would generate air pollutants and GHG emissions from daily operations which would include sources such as area, energy, mobile, solid waste and water uses, which are calculated within CalEEMod. Area Sources include landscaping, consumer products, and architectural coatings as part of regular maintenance. Energy sources would be from uses such as electricity and natural gas consumption. Solid waste generated in the form of trash is also considered as decomposition of organic material breaks down to form GHGs. Water and wastewater emissions from the Project generate emissions from offsite water conveyance and wastewater treatment facilities. Finally, the Project would also generate GHGs through the use of carbon fuel burning vehicles for

transportation which were assumed to be 8 trips per a residential unit or 816 trips (LOS Engineering, 2022).

Energy Intensities as recommended by CalEEMod inputs were assumed within this report. Title 24 efficiencies as modeled within CalEEMod 2020.4.0 utilize Title 24 (2019) as defaults.

It should be noted that electrical energy-intensity factors were updated in CalEEMod 2020.4.0 to reflect San Diego Gas and Electric's (SDG&E) latest emissions rates which SDG&E provided to CAPCOA for the model update. CalEEMod 2016.3.2 (the model prior to 2020.4.0) was based on default emissions from 2009 which included a 10.5% RPS factor as indicated by California Public Utilities Commission (CPUC) (CPUC, 2016). The default CalEEMod 2020.4.0 emissions are now 540 pounds per megawatt hour (lb/MWh) which when compared with the defaults in 2016.3.2 represents a 33% achievement for RPS in 2020 which is consistent with SBX1-2.

In accordance with SB 100, SDG&E will achieve an RPS of 60% in 2030. The 4.3 identifies what the emissions in 2030 will be assuming a 60% RPS is achieved as required by current law. For purposes of this analysis, 2030 emission generation rates are used.

Table 4.3: SDG&E Energy Intensity Factors

GHG	2009 Factors (lbs/MWh) w/10.5% RPS	Current RPS Factors 2020 33% Achieved (lbs/MWh)	Current RPS Factors 2030 60% Achieved (lbs/MWh)
Carbon Dioxide (CO_2)	720.49	539.98	322.38
Methane (CH_4)	0.029	0.033	0.0197
Nitrous Oxide (N_2O)	0.006	0.004	0.0024

The CalEEMod model for the Project has been updated to implement design features identified in Section 1.4 of this analysis. PDFs 1-6 were all modeled within CalEEMod as shown in Section 1.4 above. Outputs from CalEEMod are discussed further in Section 5 of this analysis.

PDF 7 would be to plant a minimum 102 trees. CalEEMod uses the IPCC's protocol for vegetation sequestration calculations. Based on this, the model estimates how much CO_2 newly planted trees will sequester and reports the sequestration as a one-time carbon-stock change. (Per the IPCC, trees sequester CO_2 while they are actively growing) CalEEMod estimates a one-time emission reduction from each tree over the trees growing lifecycle of 20 years. The output from CalEEMod was then adjusted to reflect the 30-year annual average assumed as the facility lifecycle. Outputs from CalEEMod are discussed further in Section 5 of this analysis.

PDF 8 calls for the installation of 2kW of solar per unit. For reduction calculations associated with the PV design feature, annual energy estimates were provided by the National Renewable Energy Laboratory (NREL, 2020) and are shown as ***Attachment C*** to this report. Based on this, the Project solar (204 kW) would be estimated to generate 384,400 kWh of annual electrical energy. It should be noted that the more solar produced by the Project, the project reduces the amount of non-renewable energy added to the grid by offsite utilities. Given this, offsite generation from offsite renewables would not be offset from onsite renewables. Instead, it is assumed that an equivalent of non-renewable generation is offset at 100% from all onsite solar generation by the project. Therefore, GHG intensities identified in 2009 shown in Table 4.3 above are used within CalEEMod 2020.4.0 to determine GHG reductions from onsite solar and are shown in ***Attachment D*** to this report.

PDF-9 calls for the project to be consistent with the City's guidelines to install Heat Pump water heaters in new developments (See E-4.1 of the City's CAP). The City's CAP estimated that in the year 2035, 822 MT CO_2e will be reduced from Heat Pump water heaters which is based on the installation of 1,204 Heat Pump water heaters or roughly 0.68 MT/Heat Pump. Based on the addition of 102 heat pump water heaters, a reduction of 69.63 MT CO_2e would be expected in 2035.

5.0 FINDINGS

5.1 Project Related Construction Emissions

Utilizing the CalEEMod inputs for the model as shown in Table 4.1 above, we find that grading and construction of the Project will produce approximately 917.01 MT CO_2e over the construction life of the Project. Based on SQAQMD methodology, it is recommended to average the construction emissions over the Project life which is assumed to be 30 years. Given this, the annual construction emission would be 30.57 MT CO_2e per year. A summary of the construction emissions is shown in Table 5.1 below. The analysis of GHG emissions generated during construction activities includes the application of the design features to include the application of Tier 4 Diesel Equipment with DPF attached.

Table 5.1: Expected Construction CO_2e Emissions Summary MT/Year

Year	Bio-CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
2023	0.00	377.32	377.32	0.07	0.02	385.28
2024	0.00	465.14	465.14	0.08	0.01	470.68
2025	0.00	60.39	60.39	0.01	0.00	61.06
Total						**917.01**
Yearly Average Construction Emissions (Metric Tons/year over 30 years)						**30.57**
Expected Construction emissions are based upon CalEEMod assumptions for equipment and durations listed in Table 4.1.						

5.2 Project-Related Operational Emissions

As previously discussed, emissions generated from area, energy, mobile, solid waste and water uses are calculated within CalEEMod. These settings which are automatically populated throughout the model are based on the inputted land use and intensities expected at the Project site. Unless stated within this report, default values generated within CalEEMod were used. The calculated operational emissions for 2035 are identified in Table 5.2 below.

Based on PDF 7, the project would plant a minimum 102 trees and was modeled as such within CalEEMod. As noted in Section 4.2 of this report, CalEEMod estimates a onetime sequestration from planted trees. Based on the model outputs, the 102 trees would sequester 72.21 MT CO_2e over the tree's lifecycle. Similar to construction, the average yearly amortization over a 30 year period would be 2.41 MT CO_2e per year.

PDF 8 will reduce annual operational emissions through the addition of 204 kW of PV which would generate 384,400 kWh annually. PV is considered 100 percent renewable and once

installed would offset GHG emissions generated from non-renewable energy sources. To calculate GHG emission reductions from the PV panels, a separate CalEEMod file excluding RPS reductions was prepared and is shown in ***Attachment E*** to this report. Based on this, the GHG emission reductions from solar are expected to be 126.06 MT CO_2e annually.

PDF 9 would install heat pump water heaters which will reduce GHG emissions by 69.63 MT CO_2e annually.

Based on the CalEEMod analysis, the proposed Project buildout with annualized construction emissions would generate 693.76 MT CO_2e annually which is shown in Table 5.2. These emissions include PDFs 1-6 shown above. PDFs 7-9 reduce emissions a further 198.10 MT reducing project emissions to 495.66 MT CO_2e after all PDFs have been implemented.

Table 5.2: Proposed Project Operational GHG emissions (MT/Year)

Source	Bio-CO_2	NBio-CO_2	Total CO_2	CH_4	N_2O	CO_2e (MT/Yr)
Area	0.00	1.24	1.24	0.00	0.00	1.27
Energy	0.00	111.70	111.70	0.00	0.00	112.23
Mobile	0.00	497.30	497.30	0.04	0.02	504.78
Waste	7.14	0.00	7.14	0.42	0.00	17.70
Water	2.11	18.10	20.21	0.22	0.01	27.21
Total includes reductions from PDFs 1-6						663.19
Amortized Construction Emissions						30.57
Total						693.76
PDF 7 Plant a minimum of 102 Trees						-2.41
PDF 8 – 204 kWh of PV						-126.06
PDF 9 Install 102 heat pump water heaters						-69.63
Project Total GHG Emissions						**495.66**
SP = SANDAG Person Per household (3.1) = (102*3.1)						**316.2**
MT/SP						**1.57**

The proposed project seeks to be annexed into the City of Escondido from the County of San Diego. The County's General plan had a zoning density of 24 DU/acre and the proposed site is seeking a zoning classification of 13.2 DU/acre. Since SANDAG regional growth projections are based on zoning classifications of R24 within the County, a reduction from 24 to 13.2 DU/acre would decrease projected growth within the Region. Given this the proposed R13.2 zoning classification would be less intense in terms of GHGs for the region.

The City of Escondido has a CAP Checklist screening level suggesting that projects that emit fewer than 500 MT CO_2e would have a less than significant impact on the environment. Also,

an alternative method would be to identify the annual GHG emissions divided by the SP which should be less than 2.0 within the City. The proposed project would produce 495.66 MT CO_2e per year which produces a 1.57 MT CO_2e per service population. These emissions would be less than both thresholds. The project will also install multiple PDFs which are consistent with the CAP checklist. Based on this, the project would have a less than significant GHG impact and no GHG mitigation measures would be necessary.

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7.0 CERTIFICATIONS

The contents of this report represent an accurate depiction of the projected CO_2e emissions from the Project development based upon the best available information at the time of preparation.

DRAFT

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Date June 21, 2022

ATTACHMENT A

CalEEMod 2020.4.0 (102 Units)

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

IRIS MF (102 units)

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Parking Lot	230.00	Space	2.70	92,000.00	0
Apartments Low Rise	102.00	Dwelling Unit	4.99	102,000.00	292

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2035
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	322.38	**CH4 Intensity (lb/MWhr)**	0.02	**N2O Intensity (lb/MWhr)**	0.002

1.3 User Entered Comments & Non-Default Data

Project Characteristics - RPS 2030 which is conservative... projections and RPS estimates for 2035 would be lower

Land Use - 7.69 acres

Construction Phase - Estimated Construction Schedule

Off-road Equipment - CE

Off-road Equipment - ce

Trips and VMT -

Demolition -

Grading -

Architectural Coating - Rule 67 Paint

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Vehicle Trips - SANDAG MF 8 trip/unit; EMFAC 2017 for 2035 is 6.875 miles

Woodstoves - No hearth options onsite

Area Coating - Rule 67 Paint

Energy Use -

Water And Wastewater -

Solid Waste -

Sequestration -

Construction Off-road Equipment Mitigation - Tier 4 Equipment

Area Mitigation -

Energy Mitigation -

Water Mitigation -

Waste Mitigation -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblArchitecturalCoating	EF_Parking	250.00	100.00
tblArchitecturalCoating	EF_Residential_Exterior	250.00	100.00
tblArchitecturalCoating	EF_Residential_Interior	250.00	100.00
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	11.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstEquipMitigation	Tier	No Change	Tier 4 Final
tblConstructionPhase	NumDays	10.00	30.00
tblConstructionPhase	NumDays	20.00	35.00
tblConstructionPhase	NumDays	230.00	360.00
tblConstructionPhase	NumDays	20.00	43.00
tblFireplaces	NumberGas	56.10	0.00
tblFireplaces	NumberNoFireplace	10.20	102.00
tblFireplaces	NumberWood	35.70	0.00
tblGrading	MaterialExported	0.00	6,812.00
tblGrading	MaterialImported	0.00	17,012.00
tblGrading	MaterialImported	0.00	5,100.00
tblLandUse	LotAcreage	2.07	2.70
tblLandUse	LotAcreage	6.38	4.99
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0.02
tblProjectCharacteristics	CO2IntensityFactor	539.98	322.38
tblProjectCharacteristics	N2OIntensityFactor	0.004	0.002
tblSequestration	NumberOfNewTrees	0.00	102.00
tblVehicleTrips	HO_TL	7.50	6.88
tblVehicleTrips	HO_TTP	39.60	39.00
tblVehicleTrips	HS_TL	7.30	6.88
tblVehicleTrips	HS_TTP	18.80	19.00
tblVehicleTrips	HW_TL	10.80	6.88
tblVehicleTrips	HW_TTP	41.60	42.00
tblVehicleTrips	ST_TR	8.14	8.00
tblVehicleTrips	SU_TR	6.28	8.00
tblVehicleTrips	WD_TR	7.32	8.00
tblWoodstoves	NumberCatalytic	5.10	0.00

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

tblWoodstoves	NumberNoncatalytic	5.10	0.00

2.0 Emissions Summary

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.1643	1.6986	1.5329	4.1200e-003	0.4996	0.0675	0.5671	0.2326	0.0628	0.2953	0.0000	377.3220	377.3220	0.0702	0.0208	385.2779
2024	0.4170	1.9436	2.4974	5.2200e-003	0.1413	0.0822	0.2236	0.0381	0.0774	0.1155	0.0000	465.1382	465.1382	0.0766	0.0122	470.6811
2025	0.4986	0.2318	0.3251	6.8000e-004	0.0193	9.1600e-003	0.0285	5.2000e-003	8.6700e-003	0.0139	0.0000	60.3916	60.3916	9.2500e-003	1.4500e-003	61.0552
Maximum	**0.4986**	**1.9436**	**2.4974**	**5.2200e-003**	**0.4996**	**0.0822**	**0.5671**	**0.2326**	**0.0774**	**0.2953**	**0.0000**	**465.1382**	**465.1382**	**0.0766**	**0.0208**	**470.6811**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2023	0.0518	0.4565	1.7419	4.1200e-003	0.4996	3.0700e-003	0.5026	0.2326	2.9500e-003	0.2355	0.0000	377.3218	377.3218	0.0702	0.0208	385.2777
2024	0.2663	0.4686	2.6670	5.2200e-003	0.1413	2.3200e-003	0.1437	0.0381	2.2400e-003	0.0403	0.0000	465.1378	465.1378	0.0766	0.0122	470.6808
2025	0.4803	0.0574	0.3468	6.8000e-004	0.0193	2.9000e-004	0.0196	5.2000e-003	2.8000e-004	5.4800e-003	0.0000	60.3916	60.3916	9.2500e-003	1.4500e-003	61.0551
Maximum	**0.4803**	**0.4686**	**2.6670**	**5.2200e-003**	**0.4996**	**3.0700e-003**	**0.5026**	**0.2326**	**2.9500e-003**	**0.2355**	**0.0000**	**465.1378**	**465.1378**	**0.0766**	**0.0208**	**470.6808**

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**26.07**	**74.64**	**-9.19**	**0.00**	**0.00**	**96.43**	**18.70**	**0.00**	**96.32**	**33.76**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
6	**4-1-2023**	**6-30-2023**	0.4213	0.0699
7	**7-1-2023**	**9-30-2023**	0.8600	0.2911
8	**10-1-2023**	**12-31-2023**	0.5814	0.1413
9	**1-1-2024**	**3-31-2024**	0.5396	0.1381
10	**4-1-2024**	**6-30-2024**	0.5366	0.1351
11	**7-1-2024**	**9-30-2024**	0.5425	0.1366
12	**10-1-2024**	**12-31-2024**	0.7385	0.3251
13	**1-1-2025**	**3-31-2025**	0.7243	0.5334
		Highest	0.8600	0.5334

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5898	8.7300e-003	0.7568	4.0000e-005		4.2100e-003	4.2100e-003		4.2100e-003	4.2100e-003	0.0000	1.2413	1.2413	1.1900e-003	0.0000	1.2710
Energy	5.9900e-003	0.0512	0.0218	3.3000e-004		4.1400e-003	4.1400e-003		4.1400e-003	4.1400e-003	0.0000	124.2461	124.2461	5.1700e-003	1.4900e-003	124.8193
Mobile	0.2575	0.2479	2.4302	4.9700e-003	0.6785	2.9800e-003	0.6815	0.1811	2.7800e-003	0.1838	0.0000	497.3008	497.3008	0.0350	0.0222	504.7792
Waste						0.0000	0.0000		0.0000	0.0000	9.5243	0.0000	9.5243	0.5629	0.0000	23.5961
Water						0.0000	0.0000		0.0000	0.0000	2.1084	19.4604	21.5687	0.2178	5.2300e-003	28.5724
Total	**0.8533**	**0.3078**	**3.2088**	**5.3400e-003**	**0.6785**	**0.0113**	**0.6899**	**0.1811**	**0.0111**	**0.1922**	**11.6327**	**642.2485**	**653.8812**	**0.8220**	**0.0289**	**683.0380**

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.5898	8.7300e-003	0.7568	4.0000e-005		4.2100e-003	4.2100e-003		4.2100e-003	4.2100e-003	0.0000	1.2413	1.2413	1.1900e-003	0.0000	1.2710
Energy	5.9900e-003	0.0512	0.0218	3.3000e-004		4.1400e-003	4.1400e-003		4.1400e-003	4.1400e-003	0.0000	111.7012	111.7012	4.3900e-003	1.4100e-003	112.2318
Mobile	0.2575	0.2479	2.4302	4.9700e-003	0.6785	2.9800e-003	0.6815	0.1811	2.7800e-003	0.1838	0.0000	497.3008	497.3008	0.0350	0.0222	504.7792
Waste						0.0000	0.0000		0.0000	0.0000	7.1433	0.0000	7.1433	0.4222	0.0000	17.6971
Water						0.0000	0.0000		0.0000	0.0000	2.1084	18.0990	20.2074	0.2177	5.2300e-003	27.2065
Total	**0.8533**	**0.3078**	**3.2088**	**5.3400e-003**	**0.6785**	**0.0113**	**0.6899**	**0.1811**	**0.0111**	**0.1922**	**9.2516**	**628.3423**	**637.5940**	**0.6804**	**0.0288**	**663.1855**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**20.47**	**2.17**	**2.49**	**17.23**	**0.28**	**2.91**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	72.2160
Total	**72.2160**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	6/1/2023	6/28/2023	5	20	
2	Site Preparation	Site Preparation	6/1/2023	7/12/2023	5	30	
3	Grading	Grading	7/13/2023	8/30/2023	5	35	
4	Paving	Paving	8/31/2023	9/27/2023	5	20	
5	Building Construction	Building Construction	9/28/2023	2/12/2025	5	360	
6	Architectural Coating	Architectural Coating	12/15/2024	2/12/2025	5	43	

Acres of Grading (Site Preparation Phase): 45

Acres of Grading (Grading Phase): 35

Acres of Paving: 2.7

Residential Indoor: 206,550; Residential Outdoor: 68,850; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 5,520 (Architectural Coating – sqft)

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	1	8.00	158	0.38
Demolition	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Bore/Drill Rigs	1	8.00	221	0.50
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Building Construction	Cranes	1	7.00	231	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	3	8.00	0.00	45.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	638.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	7	18.00	0.00	2,978.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	112.00	26.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	22.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

3.2 Demolition - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.9800e-003	0.0000	4.9800e-003	7.5000e-004	0.0000	7.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.7400e-003	0.0567	0.0915	1.5000e-004		2.8000e-003	2.8000e-003		2.6800e-003	2.6800e-003	0.0000	12.6493	12.6493	2.6200e-003	0.0000	12.7147
Total	**6.7400e-003**	**0.0567**	**0.0915**	**1.5000e-004**	**4.9800e-003**	**2.8000e-003**	**7.7800e-003**	**7.5000e-004**	**2.6800e-003**	**3.4300e-003**	**0.0000**	**12.6493**	**12.6493**	**2.6200e-003**	**0.0000**	**12.7147**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	3.0500e-003	8.1000e-004	1.0000e-005	3.9000e-004	3.0000e-005	4.1000e-004	1.1000e-004	2.0000e-005	1.3000e-004	0.0000	1.3503	1.3503	7.0000e-005	2.1000e-004	1.4160
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.5000e-004	1.8300e-003	1.0000e-005	6.4000e-004	0.0000	6.5000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5140	0.5140	2.0000e-005	1.0000e-005	0.5186
Total	**2.7000e-004**	**3.2000e-003**	**2.6400e-003**	**2.0000e-005**	**1.0300e-003**	**3.0000e-005**	**1.0600e-003**	**2.8000e-004**	**2.0000e-005**	**3.0000e-004**	**0.0000**	**1.8643**	**1.8643**	**9.0000e-005**	**2.2000e-004**	**1.9346**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					4.9800e-003	0.0000	4.9800e-003	7.5000e-004	0.0000	7.5000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.6400e-003	7.1100e-003	0.1012	1.5000e-004		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	12.6493	12.6493	2.6200e-003	0.0000	12.7147
Total	**1.6400e-003**	**7.1100e-003**	**0.1012**	**1.5000e-004**	**4.9800e-003**	**3.0000e-005**	**5.0100e-003**	**7.5000e-004**	**3.0000e-005**	**7.8000e-004**	**0.0000**	**12.6493**	**12.6493**	**2.6200e-003**	**0.0000**	**12.7147**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Demolition - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	3.0500e-003	8.1000e-004	1.0000e-005	3.9000e-004	3.0000e-005	4.1000e-004	1.1000e-004	2.0000e-005	1.3000e-004	0.0000	1.3503	1.3503	7.0000e-005	2.1000e-004	1.4160
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.2000e-004	1.5000e-004	1.8300e-003	1.0000e-005	6.4000e-004	0.0000	6.5000e-004	1.7000e-004	0.0000	1.7000e-004	0.0000	0.5140	0.5140	2.0000e-005	1.0000e-005	0.5186
Total	**2.7000e-004**	**3.2000e-003**	**2.6400e-003**	**2.0000e-005**	**1.0300e-003**	**3.0000e-005**	**1.0600e-003**	**2.8000e-004**	**2.0000e-005**	**3.0000e-004**	**0.0000**	**1.8643**	**1.8643**	**9.0000e-005**	**2.2000e-004**	**1.9346**

3.3 Site Preparation - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2952	0.0000	0.2952	0.1516	0.0000	0.1516	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0399	0.4129	0.2737	5.7000e-004		0.0190	0.0190		0.0175	0.0175	0.0000	50.1760	50.1760	0.0162	0.0000	50.5817
Total	**0.0399**	**0.4129**	**0.2737**	**5.7000e-004**	**0.2952**	**0.0190**	**0.3142**	**0.1516**	**0.0175**	**0.1691**	**0.0000**	**50.1760**	**50.1760**	**0.0162**	**0.0000**	**50.5817**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-004	0.0433	0.0115	1.9000e-004	5.4600e-003	3.5000e-004	5.8200e-003	1.5000e-003	3.4000e-004	1.8400e-003	0.0000	19.1446	19.1446	9.6000e-004	3.0400e-003	20.0760
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	5.1000e-004	6.1700e-003	2.0000e-005	2.1700e-003	1.0000e-005	2.1800e-003	5.8000e-004	1.0000e-005	5.9000e-004	0.0000	1.7348	1.7348	5.0000e-005	5.0000e-005	1.7503
Total	**1.4300e-003**	**0.0438**	**0.0177**	**2.1000e-004**	**7.6300e-003**	**3.6000e-004**	**8.0000e-003**	**2.0800e-003**	**3.5000e-004**	**2.4300e-003**	**0.0000**	**20.8794**	**20.8794**	**1.0100e-003**	**3.0900e-003**	**21.8263**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.2952	0.0000	0.2952	0.1516	0.0000	0.1516	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.9800e-003	0.0303	0.3130	5.7000e-004		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	50.1760	50.1760	0.0162	0.0000	50.5817
Total	**6.9800e-003**	**0.0303**	**0.3130**	**5.7000e-004**	**0.2952**	**1.4000e-004**	**0.2954**	**0.1516**	**1.4000e-004**	**0.1517**	**0.0000**	**50.1760**	**50.1760**	**0.0162**	**0.0000**	**50.5817**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.3 Site Preparation - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.0000e-004	0.0433	0.0115	1.9000e-004	5.4600e-003	3.5000e-004	5.8200e-003	1.5000e-003	3.4000e-004	1.8400e-003	0.0000	19.1446	19.1446	9.6000e-004	3.0400e-003	20.0760
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.3000e-004	5.1000e-004	6.1700e-003	2.0000e-005	2.1700e-003	1.0000e-005	2.1800e-003	5.8000e-004	1.0000e-005	5.9000e-004	0.0000	1.7348	1.7348	5.0000e-005	5.0000e-005	1.7503
Total	**1.4300e-003**	**0.0438**	**0.0177**	**2.1000e-004**	**7.6300e-003**	**3.6000e-004**	**8.0000e-003**	**2.0800e-003**	**3.5000e-004**	**2.4300e-003**	**0.0000**	**20.8794**	**20.8794**	**1.0100e-003**	**3.0900e-003**	**21.8263**

3.4 Grading - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1256	0.0000	0.1256	0.0602	0.0000	0.0602	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0337	0.3496	0.2937	6.8000e-004		0.0147	0.0147		0.0135	0.0135	0.0000	60.1388	60.1388	0.0195	0.0000	60.6250
Total	**0.0337**	**0.3496**	**0.2937**	**6.8000e-004**	**0.1256**	**0.0147**	**0.1403**	**0.0602**	**0.0135**	**0.0737**	**0.0000**	**60.1388**	**60.1388**	**0.0195**	**0.0000**	**60.6250**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.2900e-003	0.2021	0.0538	8.9000e-004	0.0255	1.6500e-003	0.0272	7.0100e-003	1.5800e-003	8.5900e-003	0.0000	89.3616	89.3616	4.5000e-003	0.0142	93.7091
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.5000e-004	5.9000e-004	7.2000e-003	2.0000e-005	2.5300e-003	1.0000e-005	2.5400e-003	6.7000e-004	1.0000e-005	6.8000e-004	0.0000	2.0239	2.0239	6.0000e-005	6.0000e-005	2.0420
Total	**4.1400e-003**	**0.2027**	**0.0610**	**9.1000e-004**	**0.0280**	**1.6600e-003**	**0.0297**	**7.6800e-003**	**1.5900e-003**	**9.2700e-003**	**0.0000**	**91.3855**	**91.3855**	**4.5600e-003**	**0.0143**	**95.7510**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.1256	0.0000	0.1256	0.0602	0.0000	0.0602	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	8.4000e-003	0.0364	0.3857	6.8000e-004		1.7000e-004	1.7000e-004		1.7000e-004	1.7000e-004	0.0000	60.1387	60.1387	0.0195	0.0000	60.6250
Total	**8.4000e-003**	**0.0364**	**0.3857**	**6.8000e-004**	**0.1256**	**1.7000e-004**	**0.1258**	**0.0602**	**1.7000e-004**	**0.0604**	**0.0000**	**60.1387**	**60.1387**	**0.0195**	**0.0000**	**60.6250**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.4 Grading - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.2900e-003	0.2021	0.0538	8.9000e-004	0.0255	1.6500e-003	0.0272	7.0100e-003	1.5800e-003	8.5900e-003	0.0000	89.3616	89.3616	4.5000e-003	0.0142	93.7091
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.5000e-004	5.9000e-004	7.2000e-003	2.0000e-005	2.5300e-003	1.0000e-005	2.5400e-003	6.7000e-004	1.0000e-005	6.8000e-004	0.0000	2.0239	2.0239	6.0000e-005	6.0000e-005	2.0420
Total	**4.1400e-003**	**0.2027**	**0.0610**	**9.1000e-004**	**0.0280**	**1.6600e-003**	**0.0297**	**7.6800e-003**	**1.5900e-003**	**9.2700e-003**	**0.0000**	**91.3855**	**91.3855**	**4.5600e-003**	**0.0143**	**95.7510**

3.5 Paving - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0269	20.0269	6.4800e-003	0.0000	20.1888
Paving	3.5400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0139**	**0.1019**	**0.1458**	**2.3000e-004**		**5.1000e-003**	**5.1000e-003**		**4.6900e-003**	**4.6900e-003**	**0.0000**	**20.0269**	**20.0269**	**6.4800e-003**	**0.0000**	**20.1888**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	2.8000e-004	3.4300e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9638	0.9638	3.0000e-005	3.0000e-005	0.9724
Total	**4.1000e-004**	**2.8000e-004**	**3.4300e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9638**	**0.9638**	**3.0000e-005**	**3.0000e-005**	**0.9724**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	2.8000e-003	0.0122	0.1730	2.3000e-004		6.0000e-005	6.0000e-005		6.0000e-005	6.0000e-005	0.0000	20.0268	20.0268	6.4800e-003	0.0000	20.1888
Paving	3.5400e-003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**6.3400e-003**	**0.0122**	**0.1730**	**2.3000e-004**		**6.0000e-005**	**6.0000e-005**		**6.0000e-005**	**6.0000e-005**	**0.0000**	**20.0268**	**20.0268**	**6.4800e-003**	**0.0000**	**20.1888**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.1000e-004	2.8000e-004	3.4300e-003	1.0000e-005	1.2000e-003	1.0000e-005	1.2100e-003	3.2000e-004	1.0000e-005	3.3000e-004	0.0000	0.9638	0.9638	3.0000e-005	3.0000e-005	0.9724
Total	**4.1000e-004**	**2.8000e-004**	**3.4300e-003**	**1.0000e-005**	**1.2000e-003**	**1.0000e-005**	**1.2100e-003**	**3.2000e-004**	**1.0000e-005**	**3.3000e-004**	**0.0000**	**0.9638**	**0.9638**	**3.0000e-005**	**3.0000e-005**	**0.9724**

3.6 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0527	0.4819	0.5442	9.0000e-004		0.0234	0.0234		0.0221	0.0221	0.0000	77.6546	77.6546	0.0185	0.0000	78.1164
Total	**0.0527**	**0.4819**	**0.5442**	**9.0000e-004**		**0.0234**	**0.0234**		**0.0221**	**0.0221**	**0.0000**	**77.6546**	**77.6546**	**0.0185**	**0.0000**	**78.1164**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0200e-003	0.0387	0.0136	1.8000e-004	5.7800e-003	2.3000e-004	6.0100e-003	1.6700e-003	2.2000e-004	1.8900e-003	0.0000	17.4767	17.4767	5.3000e-004	2.5300e-003	18.2445
Worker	0.0102	7.0300e-003	0.0857	2.6000e-004	0.0301	1.7000e-004	0.0303	8.0000e-003	1.5000e-004	8.1500e-003	0.0000	24.1068	24.1068	7.1000e-004	6.6000e-004	24.3224
Total	**0.0112**	**0.0457**	**0.0994**	**4.4000e-004**	**0.0359**	**4.0000e-004**	**0.0363**	**9.6700e-003**	**3.7000e-004**	**0.0100**	**0.0000**	**41.5834**	**41.5834**	**1.2400e-003**	**3.1900e-003**	**42.5669**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0110	0.0749	0.5849	9.0000e-004		2.0000e-004	2.0000e-004		2.0000e-004	2.0000e-004	0.0000	77.6545	77.6545	0.0185	0.0000	78.1163
Total	**0.0110**	**0.0749**	**0.5849**	**9.0000e-004**		**2.0000e-004**	**2.0000e-004**		**2.0000e-004**	**2.0000e-004**	**0.0000**	**77.6545**	**77.6545**	**0.0185**	**0.0000**	**78.1163**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.0200e-003	0.0387	0.0136	1.8000e-004	5.7800e-003	2.3000e-004	6.0100e-003	1.6700e-003	2.2000e-004	1.8900e-003	0.0000	17.4767	17.4767	5.3000e-004	2.5300e-003	18.2445
Worker	0.0102	7.0300e-003	0.0857	2.6000e-004	0.0301	1.7000e-004	0.0303	8.0000e-003	1.5000e-004	8.1500e-003	0.0000	24.1068	24.1068	7.1000e-004	6.6000e-004	24.3224
Total	**0.0112**	**0.0457**	**0.0994**	**4.4000e-004**	**0.0359**	**4.0000e-004**	**0.0363**	**9.6700e-003**	**3.7000e-004**	**0.0100**	**0.0000**	**41.5834**	**41.5834**	**1.2400e-003**	**3.1900e-003**	**42.5669**

3.6 Building Construction - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1928	1.7611	2.1179	3.5300e-003		0.0803	0.0803		0.0756	0.0756	0.0000	303.7223	303.7223	0.0718	0.0000	305.5179
Total	**0.1928**	**1.7611**	**2.1179**	**3.5300e-003**		**0.0803**	**0.0803**		**0.0756**	**0.0756**	**0.0000**	**303.7223**	**303.7223**	**0.0718**	**0.0000**	**305.5179**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.8500e-003	0.1502	0.0521	6.8000e-004	0.0226	9.0000e-004	0.0235	6.5300e-003	8.6000e-004	7.3900e-003	0.0000	67.1512	67.1512	2.1100e-003	9.7300e-003	70.1032
Worker	0.0373	0.0247	0.3138	9.8000e-004	0.1177	6.2000e-004	0.1183	0.0313	5.7000e-004	0.0318	0.0000	91.9059	91.9059	2.5200e-003	2.4300e-003	92.6920
Total	**0.0412**	**0.1749**	**0.3659**	**1.6600e-003**	**0.1403**	**1.5200e-003**	**0.1418**	**0.0378**	**1.4300e-003**	**0.0392**	**0.0000**	**159.0570**	**159.0570**	**4.6300e-003**	**0.0122**	**162.7952**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0429	0.2928	2.2873	3.5300e-003		8.0000e-004	8.0000e-004		8.0000e-004	8.0000e-004	0.0000	303.7220	303.7220	0.0718	0.0000	305.5175
Total	**0.0429**	**0.2928**	**2.2873**	**3.5300e-003**		**8.0000e-004**	**8.0000e-004**		**8.0000e-004**	**8.0000e-004**	**0.0000**	**303.7220**	**303.7220**	**0.0718**	**0.0000**	**305.5175**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.8500e-003	0.1502	0.0521	6.8000e-004	0.0226	9.0000e-004	0.0235	6.5300e-003	8.6000e-004	7.3900e-003	0.0000	67.1512	67.1512	2.1100e-003	9.7300e-003	70.1032
Worker	0.0373	0.0247	0.3138	9.8000e-004	0.1177	6.2000e-004	0.1183	0.0313	5.7000e-004	0.0318	0.0000	91.9059	91.9059	2.5200e-003	2.4300e-003	92.6920
Total	**0.0412**	**0.1749**	**0.3659**	**1.6600e-003**	**0.1403**	**1.5200e-003**	**0.1418**	**0.0378**	**1.4300e-003**	**0.0392**	**0.0000**	**159.0570**	**159.0570**	**4.6300e-003**	**0.0122**	**162.7952**

3.6 Building Construction - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0212	0.1933	0.2493	4.2000e-004		8.1800e-003	8.1800e-003		7.6900e-003	7.6900e-003	0.0000	35.9475	35.9475	8.4500e-003	0.0000	36.1588
Total	**0.0212**	**0.1933**	**0.2493**	**4.2000e-004**		**8.1800e-003**	**8.1800e-003**		**7.6900e-003**	**7.6900e-003**	**0.0000**	**35.9475**	**35.9475**	**8.4500e-003**	**0.0000**	**36.1588**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.4000e-004	0.0176	6.0600e-003	8.0000e-005	2.6800e-003	1.1000e-004	2.7800e-003	7.7000e-004	1.0000e-004	8.7000e-004	0.0000	7.7939	7.7939	2.6000e-004	1.1300e-003	8.1366
Worker	4.1600e-003	2.6500e-003	0.0349	1.1000e-004	0.0139	7.0000e-005	0.0140	3.7000e-003	6.0000e-005	3.7600e-003	0.0000	10.6088	10.6088	2.7000e-004	2.7000e-004	10.6959
Total	**4.6000e-003**	**0.0202**	**0.0409**	**1.9000e-004**	**0.0166**	**1.8000e-004**	**0.0168**	**4.4700e-003**	**1.6000e-004**	**4.6300e-003**	**0.0000**	**18.4027**	**18.4027**	**5.3000e-004**	**1.4000e-003**	**18.8325**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.0800e-003	0.0346	0.2706	4.2000e-004		9.0000e-005	9.0000e-005		9.0000e-005	9.0000e-005	0.0000	35.9475	35.9475	8.4500e-003	0.0000	36.1587
Total	**5.0800e-003**	**0.0346**	**0.2706**	**4.2000e-004**		**9.0000e-005**	**9.0000e-005**		**9.0000e-005**	**9.0000e-005**	**0.0000**	**35.9475**	**35.9475**	**8.4500e-003**	**0.0000**	**36.1587**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.6 Building Construction - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	4.4000e-004	0.0176	6.0600e-003	8.0000e-005	2.6800e-003	1.1000e-004	2.7800e-003	7.7000e-004	1.0000e-004	8.7000e-004	0.0000	7.7939	7.7939	2.6000e-004	1.1300e-003	8.1366
Worker	4.1600e-003	2.6500e-003	0.0349	1.1000e-004	0.0139	7.0000e-005	0.0140	3.7000e-003	6.0000e-005	3.7600e-003	0.0000	10.6088	10.6088	2.7000e-004	2.7000e-004	10.6959
Total	**4.6000e-003**	**0.0202**	**0.0409**	**1.9000e-004**	**0.0166**	**1.8000e-004**	**0.0168**	**4.4700e-003**	**1.6000e-004**	**4.6300e-003**	**0.0000**	**18.4027**	**18.4027**	**5.3000e-004**	**1.4000e-003**	**18.8325**

3.7 Architectural Coating - 2024

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1817					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0800e-003	7.3100e-003	0.0109	2.0000e-005		3.7000e-004	3.7000e-004		3.7000e-004	3.7000e-004	0.0000	1.5320	1.5320	9.0000e-005	0.0000	1.5341
Total	**0.1828**	**7.3100e-003**	**0.0109**	**2.0000e-005**		**3.7000e-004**	**3.7000e-004**		**3.7000e-004**	**3.7000e-004**	**0.0000**	**1.5320**	**1.5320**	**9.0000e-005**	**0.0000**	**1.5341**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2024

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	2.2000e-004	2.8200e-003	1.0000e-005	1.0600e-003	1.0000e-005	1.0600e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.8269	0.8269	2.0000e-005	2.0000e-005	0.8339
Total	**3.4000e-004**	**2.2000e-004**	**2.8200e-003**	**1.0000e-005**	**1.0600e-003**	**1.0000e-005**	**1.0600e-003**	**2.8000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.8269**	**0.8269**	**2.0000e-005**	**2.0000e-005**	**0.8339**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1817					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8000e-004	7.7000e-004	0.0110	2.0000e-005		0.0000	0.0000		0.0000	0.0000	0.0000	1.5320	1.5320	9.0000e-005	0.0000	1.5341
Total	**0.1819**	**7.7000e-004**	**0.0110**	**2.0000e-005**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**1.5320**	**1.5320**	**9.0000e-005**	**0.0000**	**1.5341**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2024

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	2.2000e-004	2.8200e-003	1.0000e-005	1.0600e-003	1.0000e-005	1.0600e-003	2.8000e-004	1.0000e-005	2.9000e-004	0.0000	0.8269	0.8269	2.0000e-005	2.0000e-005	0.8339
Total	**3.4000e-004**	**2.2000e-004**	**2.8200e-003**	**1.0000e-005**	**1.0600e-003**	**1.0000e-005**	**1.0600e-003**	**2.8000e-004**	**1.0000e-005**	**2.9000e-004**	**0.0000**	**0.8269**	**0.8269**	**2.0000e-005**	**2.0000e-005**	**0.8339**

3.7 Architectural Coating - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4694					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.6500e-003	0.0178	0.0280	5.0000e-005		8.0000e-004	8.0000e-004		8.0000e-004	8.0000e-004	0.0000	3.9575	3.9575	2.2000e-004	0.0000	3.9629
Total	**0.4720**	**0.0178**	**0.0280**	**5.0000e-005**		**8.0000e-004**	**8.0000e-004**		**8.0000e-004**	**8.0000e-004**	**0.0000**	**3.9575**	**3.9575**	**2.2000e-004**	**0.0000**	**3.9629**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2000e-004	5.2000e-004	6.8500e-003	2.0000e-005	2.7300e-003	1.0000e-005	2.7500e-003	7.3000e-004	1.0000e-005	7.4000e-004	0.0000	2.0839	2.0839	5.0000e-005	5.0000e-005	2.1010
Total	**8.2000e-004**	**5.2000e-004**	**6.8500e-003**	**2.0000e-005**	**2.7300e-003**	**1.0000e-005**	**2.7500e-003**	**7.3000e-004**	**1.0000e-005**	**7.4000e-004**	**0.0000**	**2.0839**	**2.0839**	**5.0000e-005**	**5.0000e-005**	**2.1010**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.4694					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.6000e-004	2.0000e-003	0.0284	5.0000e-005		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005	0.0000	3.9575	3.9575	2.2000e-004	0.0000	3.9629
Total	**0.4698**	**2.0000e-003**	**0.0284**	**5.0000e-005**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**	**0.0000**	**3.9575**	**3.9575**	**2.2000e-004**	**0.0000**	**3.9629**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.7 Architectural Coating - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.2000e-004	5.2000e-004	6.8500e-003	2.0000e-005	2.7300e-003	1.0000e-005	2.7500e-003	7.3000e-004	1.0000e-005	7.4000e-004	0.0000	2.0839	2.0839	5.0000e-005	5.0000e-005	2.1010
Total	**8.2000e-004**	**5.2000e-004**	**6.8500e-003**	**2.0000e-005**	**2.7300e-003**	**1.0000e-005**	**2.7500e-003**	**7.3000e-004**	**1.0000e-005**	**7.4000e-004**	**0.0000**	**2.0839**	**2.0839**	**5.0000e-005**	**5.0000e-005**	**2.1010**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2575	0.2479	2.4302	4.9700e-003	0.6785	2.9800e-003	0.6815	0.1811	2.7800e-003	0.1838	0.0000	497.3008	497.3008	0.0350	0.0222	504.7792
Unmitigated	0.2575	0.2479	2.4302	4.9700e-003	0.6785	2.9800e-003	0.6815	0.1811	2.7800e-003	0.1838	0.0000	497.3008	497.3008	0.0350	0.0222	504.7792

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Low Rise	816.00	816.00	816.00	1,814,520	1,814,520
Parking Lot	0.00	0.00	0.00		
Total	816.00	816.00	816.00	1,814,520	1,814,520

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Low Rise	6.88	6.88	6.88	42.00	19.00	39.00	86	11	3
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Low Rise	0.581445	0.061322	0.168269	0.110400	0.022610	0.006703	0.010268	0.006246	0.000647	0.000667	0.027159	0.000784	0.003479
Parking Lot	0.581445	0.061322	0.168269	0.110400	0.022610	0.006703	0.010268	0.006246	0.000647	0.000667	0.027159	0.000784	0.003479

5.0 Energy Detail

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install High Efficiency Lighting

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	52.4021	52.4021	3.2500e-003	3.3000e-004	52.5803
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	64.9470	64.9470	4.0300e-003	4.0000e-004	65.1678
NaturalGas Mitigated	5.9900e-003	0.0512	0.0218	3.3000e-004		4.1400e-003	4.1400e-003		4.1400e-003	4.1400e-003	0.0000	59.2991	59.2991	1.1400e-003	1.0900e-003	59.6515
NaturalGas Unmitigated	5.9900e-003	0.0512	0.0218	3.3000e-004		4.1400e-003	4.1400e-003		4.1400e-003	4.1400e-003	0.0000	59.2991	59.2991	1.1400e-003	1.0900e-003	59.6515

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.11122e+006	5.9900e-003	0.0512	0.0218	3.3000e-004		4.1400e-003	4.1400e-003		4.1400e-003	4.1400e-003	0.0000	59.2991	59.2991	1.1400e-003	1.0900e-003	59.6515
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**5.9900e-003**	**0.0512**	**0.0218**	**3.3000e-004**		**4.1400e-003**	**4.1400e-003**		**4.1400e-003**	**4.1400e-003**	**0.0000**	**59.2991**	**59.2991**	**1.1400e-003**	**1.0900e-003**	**59.6515**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Low Rise	1.11122e+006	5.9900e-003	0.0512	0.0218	3.3000e-004		4.1400e-003	4.1400e-003		4.1400e-003	4.1400e-003	0.0000	59.2991	59.2991	1.1400e-003	1.0900e-003	59.6515
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**5.9900e-003**	**0.0512**	**0.0218**	**3.3000e-004**		**4.1400e-003**	**4.1400e-003**		**4.1400e-003**	**4.1400e-003**	**0.0000**	**59.2991**	**59.2991**	**1.1400e-003**	**1.0900e-003**	**59.6515**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	411945	60.2384	3.7400e-003	3.7000e-004	60.4432
Parking Lot	32200	4.7086	2.9000e-004	3.0000e-005	4.7246
Total		**64.9470**	**4.0300e-003**	**4.0000e-004**	**65.1678**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Low Rise	347086	50.7541	3.1500e-003	3.1000e-004	50.9267
Parking Lot	11270	1.6480	1.0000e-004	1.0000e-005	1.6536
Total		**52.4021**	**3.2500e-003**	**3.2000e-004**	**52.5803**

6.0 Area Detail

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.5898	8.7300e-003	0.7568	4.0000e-005		4.2100e-003	4.2100e-003		4.2100e-003	4.2100e-003	0.0000	1.2413	1.2413	1.1900e-003	0.0000	1.2710
Unmitigated	0.5898	8.7300e-003	0.7568	4.0000e-005		4.2100e-003	4.2100e-003		4.2100e-003	4.2100e-003	0.0000	1.2413	1.2413	1.1900e-003	0.0000	1.2710

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1628					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4043					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0228	8.7300e-003	0.7568	4.0000e-005		4.2100e-003	4.2100e-003		4.2100e-003	4.2100e-003	0.0000	1.2413	1.2413	1.1900e-003	0.0000	1.2710
Total	**0.5898**	**8.7300e-003**	**0.7568**	**4.0000e-005**		**4.2100e-003**	**4.2100e-003**		**4.2100e-003**	**4.2100e-003**	**0.0000**	**1.2413**	**1.2413**	**1.1900e-003**	**0.0000**	**1.2710**

IRIS MF (102 units) - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1628					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.4043					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0228	8.7300e-003	0.7568	4.0000e-005		4.2100e-003	4.2100e-003		4.2100e-003	4.2100e-003	0.0000	1.2413	1.2413	1.1900e-003	0.0000	1.2710
Total	**0.5898**	**8.7300e-003**	**0.7568**	**4.0000e-005**		**4.2100e-003**	**4.2100e-003**		**4.2100e-003**	**4.2100e-003**	**0.0000**	**1.2413**	**1.2413**	**1.1900e-003**	**0.0000**	**1.2710**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

Use Water Efficient Irrigation System

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	20.2074	0.2177	5.2300e-003	27.2065
Unmitigated	21.5687	0.2178	5.2300e-003	28.5724

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	6.64571 / 4.18969	21.5687	0.2178	5.2300e-003	28.5724
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**21.5687**	**0.2178**	**5.2300e-003**	**28.5724**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Low Rise	6.64571 / 3.35175	20.2074	0.2177	5.2300e-003	27.2065
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**20.2074**	**0.2177**	**5.2300e-003**	**27.2065**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	7.1433	0.4222	0.0000	17.6971
Unmitigated	9.5243	0.5629	0.0000	23.5961

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	46.92	9.5243	0.5629	0.0000	23.5961
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**9.5243**	**0.5629**	**0.0000**	**23.5961**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Low Rise	35.19	7.1433	0.4222	0.0000	17.6971
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Total		**7.1433**	**0.4222**	**0.0000**	**17.6971**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	72.2160	0.0000	0.0000	72.2160

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	102	72.2160	0.0000	0.0000	72.2160
Total		**72.2160**	**0.0000**	**0.0000**	**72.2160**

ATTACHMENT B

EMFAC 2017 (2035 - VMT per Trip Calculations)

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: County
Region: SAN DIEGO
Calendar Year: 2035
Season: Annual
Vehicle Classification: EMFAC2007 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips
SAN DIEGO	2035	HHDT	Aggregated	Aggregated	GAS	19.08407476	2479.244144	381.8341678
SAN DIEGO	2035	HHDT	Aggregated	Aggregated	DSL	18254.54977	2302893.489	196550.7286
SAN DIEGO	2035	HHDT	Aggregated	Aggregated	NG	1743.611948	71069.77251	6800.086597
SAN DIEGO	2035	LDA	Aggregated	Aggregated	GAS	1743038.203	60161271	8192817.852
SAN DIEGO	2035	LDA	Aggregated	Aggregated	DSL	21358.48464	746246.2432	100886.8794
SAN DIEGO	2035	LDA	Aggregated	Aggregated	ELEC	99028.05263	3780117.911	476878.1082
SAN DIEGO	2035	LDT1	Aggregated	Aggregated	GAS	190874.4617	6159579.628	872278.0498
SAN DIEGO	2035	LDT1	Aggregated	Aggregated	DSL	26.57831443	848.634638	120.4507753
SAN DIEGO	2035	LDT1	Aggregated	Aggregated	ELEC	5624.399908	216578.7376	27162.89091
SAN DIEGO	2035	LDT2	Aggregated	Aggregated	GAS	514959.2047	17230528	2391592.483
SAN DIEGO	2035	LDT2	Aggregated	Aggregated	DSL	4992.107416	173166.7246	23616.86351
SAN DIEGO	2035	LDT2	Aggregated	Aggregated	ELEC	19320.86035	515173.8388	93316.1592
SAN DIEGO	2035	LHDT1	Aggregated	Aggregated	GAS	33746.39232	1185631.469	502770.9634
SAN DIEGO	2035	LHDT1	Aggregated	Aggregated	DSL	38715.06475	1342853.69	486986.8109
SAN DIEGO	2035	LHDT2	Aggregated	Aggregated	GAS	6005.465647	204627.9358	89472.48999
SAN DIEGO	2035	LHDT2	Aggregated	Aggregated	DSL	15477.50558	522173.8775	194687.5495
SAN DIEGO	2035	MCY	Aggregated	Aggregated	GAS	87039.41453	602328.1204	174078.8291
SAN DIEGO	2035	MDV	Aggregated	Aggregated	GAS	328931.1203	11020863.81	1518405.53
SAN DIEGO	2035	MDV	Aggregated	Aggregated	DSL	11266.00447	392271.7924	52938.92386
SAN DIEGO	2035	MDV	Aggregated	Aggregated	ELEC	13614.9908	366845.3392	65998.28671
SAN DIEGO	2035	MH	Aggregated	Aggregated	GAS	7284.507707	68440.99114	728.742151
SAN DIEGO	2035	MH	Aggregated	Aggregated	DSL	3866.456944	31748.93248	386.6456944
SAN DIEGO	2035	MHDT	Aggregated	Aggregated	GAS	4823.928101	264563.4051	96517.15345
SAN DIEGO	2035	MHDT	Aggregated	Aggregated	DSL	28084.55978	1545799.495	274372.3327
SAN DIEGO	2035	OBUS	Aggregated	Aggregated	GAS	1214.404945	56721.69279	24297.81414
SAN DIEGO	2035	OBUS	Aggregated	Aggregated	DSL	859.7433616	60137.727	8759.854993
SAN DIEGO	2035	SBUS	Aggregated	Aggregated	GAS	632.5586018	30389.26217	2530.234407
SAN DIEGO	2035	SBUS	Aggregated	Aggregated	DSL	1879.159687	59746.68643	21685.24225
SAN DIEGO	2035	UBUS	Aggregated	Aggregated	GAS	580.4429593	60984.8873	2321.771837
SAN DIEGO	2035	UBUS	Aggregated	Aggregated	DSL	0	0	0
SAN DIEGO	2035	UBUS	Aggregated	Aggregated	NG	1557.385687	175036.4426	6229.542747
						Total	109351118.8	15905571.1
						VMT/Trip	6.875019958	

ATTACHMENT C

NREL PV Watts Energy Calculations

NREL
NATIONAL RENEWABLE ENERGY LABORATORY

Caution: Photovoltaic system performance predictions calculated by PVWatts® include many inherent assumptions and uncertainties and do not reflect variations between PV technologies nor site-specific characteristics except as represented by PVWatts® inputs. For example, PV modules with better performance are not differentiated within PVWatts® from lesser performing modules. Both NREL and private companies provide more sophisticated PV modeling tools (such as the System Advisor Model at https://sam.nrel.gov) that allow for more precise and complex modeling of PV systems.

The expected range is based on 30 years of actual weather data at the given location and is intended to provide an indication of the variation you might see. For more information, please refer to this NREL report: The Error Report.

Disclaimer: The PVWatts® Model ("Model") is provided by the National Renewable Energy Laboratory ("NREL"), which is operated by the Alliance for Sustainable Energy, LLC ("Alliance") for the U.S. Department Of Energy ("DOE") and may be used for any purpose whatsoever.

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any support, consulting, training or assistance of any kind with regard to the use of the Model or any updates, revisions or new versions of the Model.

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The energy output range is based on analysis of 30 years of historical weather data for nearby , and is intended to provide an indication of the possible interannual variability in generation for a Fixed (open rack) PV system at this location.

RESULTS

348,400 kWh/Year*

System output may range from 334,882 to 350,595 kWh per year near this location.

Month	Solar Radiation (kWh / m^2 / day)	AC Energy (kWh)	Value ($)
January	4.79	23,751	3,762
February	5.18	22,919	3,630
March	6.20	30,164	4,778
April	6.60	30,909	4,896
May	7.06	33,598	5,322
June	7.52	34,588	5,479
July	7.48	35,017	5,547
August	7.53	34,562	5,475
September	6.89	30,780	4,876
October	5.80	27,145	4,300
November	4.97	23,330	3,696
December	4.34	21,636	3,427
Annual	**6.20**	**348,399**	**$ 55,188**

Location and Station Identification

Requested Location	escondido ca
Weather Data Source	Lat, Lon: 33.13, -117.1 0.8 mi
Latitude	33.13° N
Longitude	117.1° W

PV System Specifications *(Residential)*

DC System Size	204 kW
Module Type	Premium
Array Type	Fixed (roof mount)
Array Tilt	20°
Array Azimuth	180°
System Losses	14.08%
Inverter Efficiency	96%
DC to AC Size Ratio	1.2

Economics

Average Retail Electricity Rate	0.158 $/kWh

Performance Metrics

Capacity Factor	19.5%

ATTACHMENT D

CalEEMod (204 kW Solar)

204KW Solar - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

204KW Solar

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Industrial	1.00	User Defined Unit	1.00	0.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2035
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Project would install 204 kw solar. Solar genertated by the project site does not offset solar provided by SDGE but rather power generated from non-renewable sources.

Land Use - Rooftop Solar

Construction Phase -

Off-road Equipment -

Off-road Equipment - zero hours

Trips and VMT - zero

Grading -

Architectural Coating -

Vehicle Trips -

Woodstoves - asdf

Area Coating -

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Landscape Equipment - zero

Energy Use -

Water And Wastewater -

Energy Mitigation - Based on PVWatts, 204 kw of solar would generate 384,400kWh per year.

Area Mitigation -

Vehicle Emission Factors -

Vehicle Emission Factors -

Vehicle Emission Factors -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblAreaMitigation	UseLowVOCPaintParkingValue	0	250
tblLandUse	LotAcreage	0.00	1.00
tblOffRoadEquipment	UsageHours	8.00	0.00
tblProjectCharacteristics	CH4IntensityFactor	0.033	0.029
tblProjectCharacteristics	CO2IntensityFactor	539.98	720.49
tblProjectCharacteristics	N2OIntensityFactor	0.004	0.006
tblTripsAndVMT	WorkerTripNumber	3.00	0.00

2.0 Emissions Summary

204KW Solar - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2019	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Maximum	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

		Highest		

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	-125.6253	-125.6253	-0.0051	-0.0011	-126.0635
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**-125.6253**	**-125.6253**	**-0.0051**	**-0.0011**	**-126.0634**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**628,126,450.00**	**628,126,450.00**	**0.00**	**0.00**	**630,317,300.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Site Preparation	Site Preparation	5/2/2019	5/2/2019	5	1	

Acres of Grading (Site Preparation Phase): 0

204KW Solar - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Graders	1	0.00	187	0.41

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Site Preparation	1	0.00	0.00	0.00	16.80	6.60	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Site Preparation - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

204KW Solar - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

204KW Solar - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

3.2 Site Preparation - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Industrial	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Industrial	14.70	6.60	6.60	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Industrial	0.575453	0.061728	0.171227	0.112384	0.022882	0.006522	0.009800	0.006298	0.000679	0.000623	0.027611	0.000857	0.003936

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Kilowatt Hours of Renewable Electricity Generated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	-125.6253	-125.6253	-0.0051	-0.0011	-126.0635
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Industrial	-384400	-125.6253	-0.0051	-0.0011	-126.0635
Total		**-125.6253**	**-0.0051**	**-0.0011**	**-126.0635**

6.0 Area Detail

6.1 Mitigation Measures Area

204KW Solar - San Diego County, Annual

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Unmitigated	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0000	0.0000	1.0000e-005	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	2.0000e-005	2.0000e-005	0.0000	0.0000	2.0000e-005
Total	**0.0000**	**0.0000**	**1.0000e-005**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**2.0000e-005**	**2.0000e-005**	**0.0000**	**0.0000**	**2.0000e-005**

7.0 Water Detail

7.1 Mitigation Measures Water

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Industrial	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Industrial	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Appendix I
Phase I Environmental Site Assessment

PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

PROPERTY SOUTHWEST OF ROBIN HILL LANE AND NORTH IRIS LANE ESCONDIDO, CALIFORNIA

GEOCON
INCORPORATED

GEOTECHNICAL
ENVIRONMENTAL
MATERIALS

PREPARED FOR

HALLMARK DEVELOPMENT CORPORATION
SOLANA BEACH, CALIFORNIA

FEBRUARY 18, 2021
PROJECT NO. G2670-62-02

Project No. G2670-62-02
February 18, 2021

Hallmark Development Corporation
740 Lomas Santa Fe Drive, Suite 204
Solana Beach, California 92075

Attention: Ms. Mariana McGrain

Subject: PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT
PROPERTY SOUTHWEST OF ROBIN HILL LANE AND NORTH IRIS LANE
ESCONDIDO, CALIFORNIA

Dear Ms. McGrain:

In accordance with your request and our Proposal No. LE-21034 dated January 19, 2021, we have performed a Phase I Environmental Site Assessment (ESA) of the property and improvements located southwest of Robin Hill Lane and North Iris Lane (the Site) in Escondido, California.

We performed the Phase I ESA to provide information regarding the potential for existing hazardous substances and/or petroleum product impacts at the Site as part of Hallmark Development Corporation's due diligence prior to purchasing the Site. The accompanying report presents the details of our Phase I ESA.

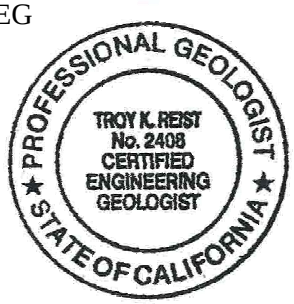
We appreciate the opportunity to have performed this Phase I ESA for Hallmark Development Corporation. Please contact us if you have any questions concerning this report or if we may be of further service.

Very truly yours,

GEOCON INCORPORATED

Cole E. Mikesell
Staff Geologist

Troy K. Reist, CEG
Senior Geologist



CEM:TKR:dmc

(e-mail) Addressee

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PHASE I ENVIRONMENTAL SITE ASSESSMENT REPORT

1. INTRODUCTION

We have performed a Phase I Environmental Site Assessment (ESA) of the property located southwest of Robin Hill Lane and North Iris Lane (the Site) in Escondido, California. Hallmark Development Corporation (the Client) requested the Phase I ESA to provide information regarding the potential for existing hazardous substances and/or petroleum product impacts at the Site as part of their due diligence prior to purchasing the Site. This report describes the methodology and procedures and present the findings of the Phase I ESA.

1.1 Purpose and Objectives

The purpose of the Phase I ESA was to identify evidence or indications of 'recognized environmental conditions' (RECs) as defined by the American Society for Testing and Materials (ASTM) *Designation E 1527-13 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process*. Section 1.1.1 of *ASTM Designation E 1527-13* defines an REC as "the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not recognized environmental conditions." De minimis conditions are those that generally do not present a threat to human health or the environment and that generally would not be the subject of enforcement action if brought to the attention of appropriate governmental agencies.

ASTM *Designation E 1527-13* also defines 'Historical' and 'Controlled' RECs. They define an 'Historical REC' (HREC) as "A past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls)." ASTM defines a 'Controlled REC' (CREC) as "a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls)." An HREC is not an REC if a property meets current standards for unrestricted residential use. A CREC remains an REC by definition when the property does not meet the unrestricted residential use requirements unconditionally.

We also conducted the Phase I ESA in general accordance with the requirements of 40 Code of Federal Regulations (CFR) Part 312 titled *Standards and Practices for All Appropriate Inquiries*, as required under Sections 101(35)(B)(ii) and (iii) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The purpose of conducting an all appropriate inquiries investigation into the previous ownership and uses of a property is to meet the provisions necessary for the landowner, contiguous property owner, and/or bona fide prospective purchaser to qualify for certain landowner liability protections under CERCLA.

The following principles are an integral part of ASTM *Designation E1527-13*:

- **"Uncertainty Not Eliminated -** No environmental site assessment can wholly eliminate uncertainty regarding the potential for recognized environmental conditions in connection with a property. Performance of this practice is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions in connection with a property, and this practice recognizes reasonable limits of time and cost."

- **"Not Exhaustive -** All Appropriate Inquiries does not mean an exhaustive assessment of a property. There is a point at which the cost of information obtained or the time required to gather it outweighs the usefulness of the information and, in fact, may be a material detriment to the orderly completion of transactions. One of the purposes of this practice is to identify a balance between the competing goals of limiting the costs and time demands inherent in performing an environmental site assessment and the reduction of uncertainty about unknown conditions resulting from additional information."

- **"Level of Inquiry is Variable -** Not every property will warrant the same level of assessment. Consistent with good commercial and customary practice, the appropriate level of environmental site assessment will be guided by the type of property subject to assessment, the expertise and risk tolerance of the user, and the information developed in the course of the inquiry."

1.2 Scope of Services

We performed the scope of services outlined in our Proposal No. LE-21034 dated January 19, 2021, with the exception that we did not review Sanborn fire insurance maps, as Environmental Data Resources, Inc. (EDR) indicated that there are none available for the Site or surrounding vicinity. The main components of the Phase I ESA and their objectives, as specified by the referenced standards, include the following:

- **Physical Setting Review:** we reviewed physical setting references for information concerning the topographic, geologic, and hydrogeologic characteristics of the Site and vicinity. Such information may be indicative of pathways (i.e., direction and/or extent) that a contaminant could migrate along in the event of a spill or release.

- **Regulatory Agency Records Review:** we reviewed publicly available Federal, State, and local regulatory agency records for information regarding the use, storage, and disposal of

hazardous substances and/or petroleum products at the Site and facilities and properties adjoining or within ¼ mile of the Site. Such records may identify RECs at or potentially affecting the Site.

- **Site History Review:** we reviewed information regarding the historical uses of the Site and adjoining and nearby facilities and properties back to the Site's and other properties' first use or 1940, whichever is earlier, that could have led to RECs on or near the Site. Historical sources reviewed included aerial photographs, topographic maps, and city directories. In addition, we conducted interviews with persons who were expected to be reasonably knowledgeable about historical and/or current conditions at and uses of the Site.

- **Site Reconnaissance:** we performed a site reconnaissance to observe site conditions and activities for evidence of RECs. The site reconnaissance was for the Site only. We viewed offsite properties and features solely from the vantage of the Site and public thoroughfares.

1.3 Report Limitations

We prepared this Phase I ESA report exclusively for the Client. The information obtained is only relevant for the dates of the records reviewed and the latest site visit. Therefore, the information contained herein is only valid as of the date of the report and may require an update after 180 days to reflect updated records and another reconnaissance to assess current site conditions.

The Client should recognize that a Phase I ESA is not a comprehensive site characterization and should not be construed as such. The findings and conclusions presented in this report are predicated on the site reconnaissance, information in the specified regulatory records, and information regarding the historical usage of the Site, as presented in this report. The Client should also understand that wetlands, asbestos-containing building materials, lead-containing paint, lead in drinking water, radon, mercury related to mining activities, methane, and mold surveys were not included in the scope of services for this Phase I ESA. Assessment for potential naturally occurring hazards such as asbestos and arsenic was also not included.

Therefore, the report should only be deemed conclusive with respect to the information obtained. No guarantee or warranty of the results of the Phase I ESA is implied within this report or any subsequent reports, correspondence or consultation, either express or implied. We strived to conduct the services summarized herein in accordance with the local standard of care in the geographic region at the time the services were rendered.

1.4 Data Gaps

A data gap is defined by ASTM *Designation E 1527-13* as "a lack of or inability to obtain information required by this practice despite good faith efforts by the environmental professional to gather such information." Data gaps could include such things as insufficient historical information, the inability to interview persons with direct site knowledge (e.g., the owner(s), past owner(s), tenants, workers, etc.) or

the lack of access to all parts of a site during the site reconnaissance. As indicated in Section 1.2, we did not review Sanborn fire insurance maps for the Site and surrounding vicinity because there are none for the Site and vicinity. We do not consider this a significant data gap however, because of other available historical information we reviewed.

2. SITE DESCRIPTION

This section provides information regarding the location and physical characteristics of the Site including its size, topography, geologic, soil, and hydrogeologic conditions.

2.1 Location and Legal Description

The 7.7-acre Site is located southwest of Robin Hill Lane and North Iris Lane Road in Escondido, California (Figure 1). The Site consists of five contiguous parcels and are further identified as San Diego County Assessor's parcel numbers 224-310-05 through -08 and -20. A copy of the parcel map is in Appendix A.

The Site is depicted in the southwestern quarter of Section 4 of Township 12 South, Range 2 West, San Bernardino Base and Meridian on the United States Geological Survey's (USGS) *Valley Center, California,* 7.5-minute topographic map (USGS, 2018).

2.2 Site and Vicinity General Characteristics

The Site is developed with four single-family residences and associated improvements. The surrounding vicinity includes single- and multi-family residences. Figure 2 depicts the site boundaries and features and surrounding properties. Further site description is provided in Sections 2.4 and 6.

2.2.1 Topography

The topography of the site vicinity is characterized by hills and ravines with gentle to steep slopes, as well as relatively flat-lying valley areas. The Site generally slopes to the southeast. The USGS *Valley Center, California,* 7.5-minute topographic map (USGS, 2018), depicts the elevation of the Site as ranging from approximately 710 to 730 feet above mean sea level.

2.2.2 Geologic and Soil Conditions

The Site is located in the Peninsular Ranges geomorphic province of Southern California (Norris and Webb, 1990). This geomorphic province extends approximately 900 miles from its northern terminus against the Transverse Ranges and Los Angeles Basin, south to the tip of Baja California. In general, the province is characterized by rugged mountains in Mesozoic igneous and metamorphic rocks to the

east, with a dissected coastal plain on Cenozoic sediments to the west. The Peninsular Ranges vary in width from approximately 30 to 100 miles, and are traversed fault zones trending roughly northwest-southeast.

Information concerning the surficial geologic conditions at and in proximity to the Site from the *Geologic Map of the Valley Center 7.5' Quadrangle, San Diego County, California* (USGS, 1999) indicates that the Site is underlain by late to middle-Pleistocene fluvial sediments, which are typically moderately well consolidated, poorly sorted, and permeable.

Information concerning the soil conditions at and in proximity to the Site from the United States Department of Agriculture, Natural Resources Conservation Service, Web Soil Survey (http://websoilsurvey.nrcs.usda.gov/app/HomePage.htm) indicates that site soil is Escondido very fine sandy loam and Placentia sandy loam, which is well drained and has moderate infiltration rates.

2.2.3 Hydrologic and Hydrogeologic Conditions

Groundwater quality and occurrence information available from the California Department of Water Resources and the California State Water Resources Control Board (SWRCB) indicates that the Site is located in the Escondido Hydrologic Sub-Area (904.62) of the Escondido Hydrologic Area (904.60), of the Carlsbad Hydrologic Unit (904.00). Groundwater in the Escondido Hydrologic Sub-Area has existing beneficial use designations for municipal, agricultural, and industrial supply purposes (SWRCB, 2016).

In an effort to assess local groundwater conditions, we reviewed reports available on the SWRCB's GeoTracker online database (http://geotracker.waterboards.ca.gov) for nearby facilities with a groundwater monitoring well array. Three groundwater monitoring wells were installed at Escondido High School in relation to the removal of three USTs. The depth to groundwater within these wells was reported to be approximately 7 feet with groundwater flow towards the west.

2.3 Current and Planned Uses of the Site

The current use of the Site is residential. The Client reported that they plan to redevelop the Site with 102 townhomes. Further description of the Site is provided in Section 6.

2.4 Descriptions of Structures, Roads, Other Improvements on the Site

The Site is improved with four single-family residences, a paved driveway, a septic tank, and a well. The southern portion of the Site is currently used as a horse pasture. Further description of the Site is provided in Section 6.3.

2.5 Current Uses of Adjoining Properties

Current uses of adjoining properties are primarily residential. Further information regarding adjoining properties is provided in Section 6.4.

3. USER–PROVIDED INFORMATION

This section summarizes site information provided by the Client – the "user" of this Phase I ESA. Also provided are responses to inquiries to the Client via a "user" questionnaire for information pertaining to the Site. Mariana McGrain with Hallmark Development Corp completed the questionnaire (Appendix B).

3.1 Title, Appraisal and Sale Agreement Records

Ms. McGrain provided a Preliminary Title Report (PTR) for the Site prepared by Chicago Title Company and dated December 11, 2020. The PTR indicates that the site parcels are owned by Debra A. Lindblad. The PTR identifies no issues regarding the environmental condition of the Site.

3.2 Environmental Liens or Activity and Use Limitations

Ms. McGrain indicated that she has no knowledge of environmental liens on or activity and use limitations for the Site.

3.3 Specialized Knowledge

Ms. McGrain indicated she has no specialized knowledge of the Site.

3.4 Commonly Known or Reasonably Ascertainable Information

Ms. McGrain indicated the Site is 7.69 acres of partially vacant land with four single-family residences.

3.5 Owner, Property Manager, and Occupant Information

Ms. McGrain indicated the Site is owned by the current property owners.

3.6 Valuation Reduction for Environmental Issues

According to Ms. McGrain, the monetary value of the Site has not been reduced due to environmental issues.

3.7 Reason for Performing the Phase I ESA

The Phase I ESA was requested to provide information regarding the potential for existing hazardous substance and/or petroleum product impacts at the Site for due diligence purposes.

4. RECORDS REVIEW

This section summarizes information we obtained from readily available agency records for the Site and properties and facilities in the surrounding vicinity.

4.1 Standard Environmental Record Sources

EDR searched federal, state, and local databases regarding the use, storage, disposal, or release of hazardous substances and/or petroleum products for the Site and area within one mile of the Site. The databases that list the Site and/or properties/facilities within one mile of the Site and the number of properties/facilities listed are summarized in the table below. A copy of *The EDR Radius Map™ Report with GeoCheck,* dated January 28, 2021, is in Appendix C.

Database Name	Search Radius (Mile)	Number of Listings
STATE AND LOCAL DATABASES		
CERS HAZ WASTE	¼	1
RCRA-NonGen (Resource Conservation and Recovery Act – Non-Generators)	½	16
EDR HIGH RISK HISTORICAL DATABASES AND EDR RECOVERED GOVERNMENT ARCHIVES		
EDR Historical Auto Stations	¼	1
EDR Historical Cleaner	¼	2

4.1.1 Site

The Site is not listed on any of the databases searched by EDR.

4.1.2 Offsite Properties

Twenty offsite properties are identified in the regulatory databases reviewed all of which are listed on non-release related databases. Distances reported by EDR may differ from actual distances. Two EDR Historical Cleaner and one EDR Historical Auto Stations are listed as adjacent to the Site, however, upon further research it is likely that these are errors given that the City Directory has no information pertaining to the addresses listed. No further information aside from the names of the businesses is

provided in the EDR report. Based upon these findings and the other listings on non-release-related databases, these properties are unlikely to have caused an REC at the Site.

4.1.3 Orphan Summary

EDR's Orphan Summary identifies properties with incomplete address information and therefore cannot be accurately plotted. No properties are identified in the Orphan Summary.

4.2 Additional Environmental Record Sources

This section summarizes information from additional, readily available environmental record sources regarding the Site and properties/facilities within one mile from the Site.

4.2.1 GeoTracker and EnviroStor Databases

We reviewed GeoTracker and the California Department of Toxic Substance Control's (DTSC) EnviroStor (http://www.envirostor.dtsc.ca.gov/public/) online databases for information regarding the Site and nearby properties/facilities that are within ¼ mile of the Site. GeoTracker and EnviroStor do not have information pertaining to the Site or any properties/facilities within ¼ mile of the Site.

4.2.2 State of California Department of Conservation, Geologic Energy Management Division

We reviewed the California Geologic Energy Management Division (CalGem) website (https://maps.conservation.ca.gov/doggr/wellfinder) to evaluate the potential for existing/former oil, gas, or geothermal wells on the Site or properties proximal to the Site. CalGem information indicates that no former or current wells are or were located within one mile of the Site.

4.2.3 County of San Diego Department of Agriculture, Weights and Measures

We submitted a request to the County of San Diego, Department of Agriculture, Weights and Measures (DAWM), Pesticide Use Enforcement Division regarding possible use of restricted pesticides/herbicides at the Site. That office maintains such records for approximately 4 years. The DAWM indicated that no record of restricted pesticide/herbicide use was reported for the site APNs for the period of 2017 through 2021.

4.2.4 San Diego Air Pollution Control District

We submitted a request to the San Diego Air Pollution Control District (APCD) for records pertaining to the Site. The APCD indicated that no records are on file for the site APNs.

4.2.5 County of San Diego Department of Environmental Health

We submitted a request to the DEH for records pertaining to the Site. The DEH indicated that no records are on file for the site APNs.

4.2.6 San Diego Gas and Electric Company

No transformers were observed onsite or were likely on the Site previously. Therefore, San Diego Gas & Electric Company was not contacted as part of this assessment.

5. HISTORICAL USE

This section summarizes information obtained from a variety of sources regarding the historical uses of the Site in an effort to identify those uses that could have led to RECs. The sources of information included historical aerial photographs, historical topographic maps, and an abstract of city directories provided by EDR.

5.1 Aerial Photographs

We reviewed historical aerial photographs for the years 1939, 1946, 1953, 1964, 1967, 1970, 1979, 1985, 1989, 1995, 1996, 2002, 2005, 2009, 2012 and 2016 (Appendix D) for indications of past land uses that had the potential to have impacted the Site through the use, storage or disposal of hazardous substances and/or petroleum products. The following table summarizes our observations of the Site and adjacent properties.

Year	Observations	
	Site	Adjacent Properties
1939 (1" = 500')	The Site appears to have been vacant.	Adjacent properties appear to be undeveloped land to the north, south, and west, with a few structures adjacent to the east.
1946 (1" = 500')	Conditions appear to have been similar to those observed on the 1939 aerial photograph.	Conditions appear to have been similar to those observed on the 1939 aerial photograph with the exception that a structure adjacent to the south appears to have been developed.
1953 (1" = 500')	Conditions appear to have been similar to those observed on the 1946 aerial photograph with the exception that development in the northeastern portion of the Site appears to have begun.	Conditions appear to have been similar to those observed on the 1946 aerial photograph.
1964 (1" = 500')	Five structures appear to have been developed at the Site, with four dirt roads connecting to the structures on the Site.	Conditions appear to have been similar to those observed on the 1953 aerial photograph with the exception that multiple properties adjacent to the west appear to have been developed.

Year	Observations	
	Site	Adjacent Properties
1967 (1" = 500')	Conditions appear to have been similar to those observed on the 1964 aerial photograph.	Conditions appear to have been similar to those observed on the 1964 aerial photograph.
1970 (1" = 500')	Conditions appear to have been similar to those observed on the 1967 aerial photograph.	Conditions appear to have been similar to those observed on the 1967 aerial photograph.
1979 (1" = 500')	Conditions appear to have been similar to those observed on the 1970 aerial photograph.	Conditions appear to have been similar to those observed on the 1970 aerial photograph with the exception that the properties adjacent to the north have been graded and developed into single-family residences.
1985 (1" = 500')	Conditions appear to have been similar to those observed on the 1979 aerial photograph.	Conditions appear to have been similar to those observed on the 1979 aerial photograph with the exception that the adjacent properties to the south have been developed into single-family residences.
1989 (1" = 500')	Conditions appear to have been similar to those observed on the 1985 aerial photograph.	Conditions appear to have been similar to those observed on the 1985 aerial photograph.
1995 (1" = 500')	Conditions appear to have been similar to those observed on the 1989 aerial photograph.	Conditions appear to have been similar to those observed on the 1989 aerial photograph.
1996 (1" = 500')	Conditions appear to have been similar to those observed on the 1995 aerial photograph.	Conditions appear to have been similar to those observed on the 1995 aerial photograph.
2002 (1" = 500')	Conditions appear to have been similar to those observed on the 1996 aerial photograph.	Conditions appear to have been similar to those observed on the 1996 aerial photograph.
2005 (1" = 500')	Conditions appear to have been similar to those observed on the 2002 aerial photograph.	Conditions appear to have been similar to those observed on the 2002 aerial photograph.
2009 (1" = 500')	Conditions appear to have been similar to those observed on the 2005 aerial photograph.	Conditions appear to have been similar to those observed on the 2005 aerial photograph with the exception that the properties adjacent to the east have begun development.
2012 (1" = 500')	Conditions appear to have been similar to those observed on the 2009 aerial photograph.	Conditions appear to have been similar to those observed on the 2009 aerial photograph with the exception that further development on the properties adjacent to the east have been further developed.
2016 (1" = 500')	Conditions appear to have been similar to those observed on the 2012 aerial photograph.	Conditions appear to have been similar to those observed on the 2012 aerial photograph.

We observed no conditions on or uses of the Site or adjoining properties on the historical aerial photographs with the potential to have caused an REC at the Site.

5.2 Topographic Maps

We reviewed historical topographic maps for the years 1893, 1901, 1947, 1948, 1949, 1968, 1975, 1996 and 2012 (Appendix E). The following table summarizes observations of the Site and adjacent properties on the historical topographic maps.

Year	Observations	
	Site	**Adjacent Properties**
1893 (1:62,500)	No structures or land use are depicted on the Site.	A structure adjacent to the south is depicted, as well as a structure adjacent to the northwest.
1901 (1:62,500)	Conditions are similar to those depicted on the 1893 topographic map.	Conditions are similar to those depicted on the 1893 topographic map.
1947 (1:50,000)	Conditions are similar to those depicted on the 1930 topographic map.	Conditions are similar to those depicted on the 1901 topographic map with the exception that three additional structures are depicted to the southeast of the Site. The structure depicted to the northwest is no longer depicted.
1948 (1:24,000)	Conditions are similar to those depicted on the 1947 topographic map.	Conditions are similar to those depicted on the 1947 topographic map.
1949 (1:24,000)	Conditions are similar to those depicted on the 1948 topographic map.	Conditions are similar to those depicted on the 1948 topographic map.
1968 (1:24,000)	Four structures are depicted at the Site.	Conditions are similar to those depicted on the 1949 topographic map with the exception that 15 structures are now depicted to the west of the Site.
1975 (1:24,000)	The northern portion of the Site is shaded pink indicating an urban environment.	The adjacent properties to the north and northwest are shaded pink indicating an urban environment.
1996 (1:24,000)	Conditions are similar to those depicted on the 1975 topographic map with the exception that the Site is no longer shaded pink.	Conditions are similar to those depicted on the 1975 topographic map with the exception that the properties to the north, south, and west are now shaded.
2012 (1:24,000)	No shading or structures are depicted.	No shading or structures are depicted.

The historical topographic maps depict no conditions, structures, or uses on the Site or adjacent properties that would suggest the presence of RECs.

5.3 City Directories

EDR prepared an abstract of city directories including city, cross-reference, and telephone directories summarized in the *EDR-City Directory Image Report* dated January 29, 2021. The directories were reviewed at approximately 5-year intervals, if available, from 1903 to 2017. A copy of the EDR city

directory abstract including information regarding offsite facilities is in Appendix F. The city directories indicate only residential owners for the Site from 1980 to 2017. None of the businesses or residents identified in the city directories suggest uses that pose the potential for the use, storage, or releases of hazardous substances and/or petroleum products on the Site.

6. SITE RECONNAISSANCE

This section summarizes observations of the Site and surrounding properties made during the site reconnaissance.

6.1 Methodology and Limiting Conditions

Cole E. Mikesell, Staff Geologist with Geocon, performed the site reconnaissance unaccompanied on February 5, 2021, by walking the Site. Mr. Mikesell performed the offsite survey by observing adjacent properties from the Site and adjacent public streets. Weather on the day of the site reconnaissance was clear with temperatures in the mid-70s. Photographs of various site features and offsite properties are appended. Figure 2 is a Site Plan illustrating selected site features.

6.2 General Site Setting

The Site is located in an area of predominantly residential (multi-family and single-family) use.

6.3 Onsite Survey

The Site is a relatively flat area that gently slopes to the northwest (Photographs 1 through 19). A well and water storage system was observed in the large field in front of 2039 N Iris Lane (Photographs 20 and 21). A number of sheds and storage areas were observed with various debris and equipment scattered about (Photographs 22 through 27). A pile of crushed asphalt was observed to the northeast of the property at 2085 N Iris Lane (Photograph 28). The four single-family residences located at the Site were inspected and no RECs were observed (Photographs 29 through 32).

6.4 Offsite Survey

Properties within the site vicinity include:

- **North:** Single-family residential (Photograph 33).
- **South:** Single-family residential (Photograph 34).
- **East:** Meadowbrook Village, Christian Retirement Community (Photograph 35).
- **West:** Single-family residential (Photograph 36).

We observed no evidence of RECs on the surrounding properties.

7. INTERVIEWS

The current property owners and occupants, Debra Anne Lindblad, and Robert Price, reported via a site owner/occupant questionnaire (Appendix B) that the Site has been used for residential single-family homes for upwards of 70 years. Mr. Price reported that the property at 2089 N Iris Lane had used light machinery within the garage in the late 1960s and 1970s. Associated with these machines, Mr. Price reported that cutting oils, kerosene, and solvents were used at the Site. Mr. Price reported that no chemical-containing underground or aboveground storage tanks exist or have previously existed on Site. Mr. Price reported that the property at 2085 N Iris Lane is on a well, while 2089 uses that well for irrigation only. Mr. Price also reported that 2089 and 2085 N Iris Lane use a septic tank. Mr. Price indicated that there are no obvious indicators that point to the presence or likely presence of contamination at the Site. Ms. Lindblad reported that fill dirt has been brought onto the Site from an offsite source. Upon further questioning, it was revealed that a local contractor dumped two dump truck loads of material in front of the property at 2039 N Iris Lane. No documentation concerning the materials source was provided, and thus the undocumented material is considered an REC.

8. SUMMARY OF FINDINGS

The following table summarizes our findings and opinions regarding the Site, including known or suspect RECs, CRECs, HRECs, and de minimis environmental conditions.

Assessment Category	Observed (Y/N)	(REC/ CREC/ HREC/ DM or None)	Recommended Actions	Report Section(s)
Hazardous Substances/Petroleum Products	N	N	NFA	
Hazardous Wastes	N	N	NFA	
Non-Hazardous Wastes	N	N	NFA	
Aboveground/Underground Storage Tanks	N	N	NFA	
Unidentified Substance Containers	N	N	NFA	
Equipment Potentially Containing PCBs	N	N	NFA	
Wastewater Systems	N	N	NFA	
Evidence of Releases	N	N	NFA	
Pools of Liquid, Pits, Ponds, Lagoons	N	N	NFA	
Wells	N	N	NFA	
Other Site Issues	Y	REC	AA	6.3, 7
Nearby Properties	N	N	NFA	
Historical Land Use – Site	N	N	NFA	
Historical Land Use – Nearby Properties	N	N	NFA	

Recommended Action:
AA = Additional action recommended.
NFA = No further action required at this time.
DM = De minimis condition where additional activities do not appear warranted at this time.

As described in Section 6.3 and 7, two dump truck loads of undocumented material were placed at the Site. Given the unknown source and nature of the material, it is considered an REC at the Site.

9. CONCLUSIONS AND RECOMMENDATIONS

We have performed a Phase I ESA, in general conformance with the scope and limitations of ASTM E 1527-13, of the 7.7-acre property located southwest of Robin Hill Lane and North Iris Lane Road in Escondido, California. The San Diego County APNs for the Site are 224-310-05 through -08 and -20.

This assessment has revealed that two piles of undocumented material were placed in front of 2039 N Iris Lane. Given the unknown source and nature of the material it is considered an REC. We recommend that the undocumented material be removed from the Site, or that the material be evaluated for the potential for contaminants, which could support reuse of the material on the Site.

If soil staining or petroleum odors are observed during grading observations, we recommend retaining an environmental professional to observe and possibly sample areas of potential impact to determine if further action is warranted. Additionally, any undocumented subsurface structures or areas of apparent contamination encountered during site redevelopment activities including septic tanks, USTs, wells, asphalt, etc. should be properly abandoned/removed in accordance with San Diego County regulatory requirements.

10. REFERENCES

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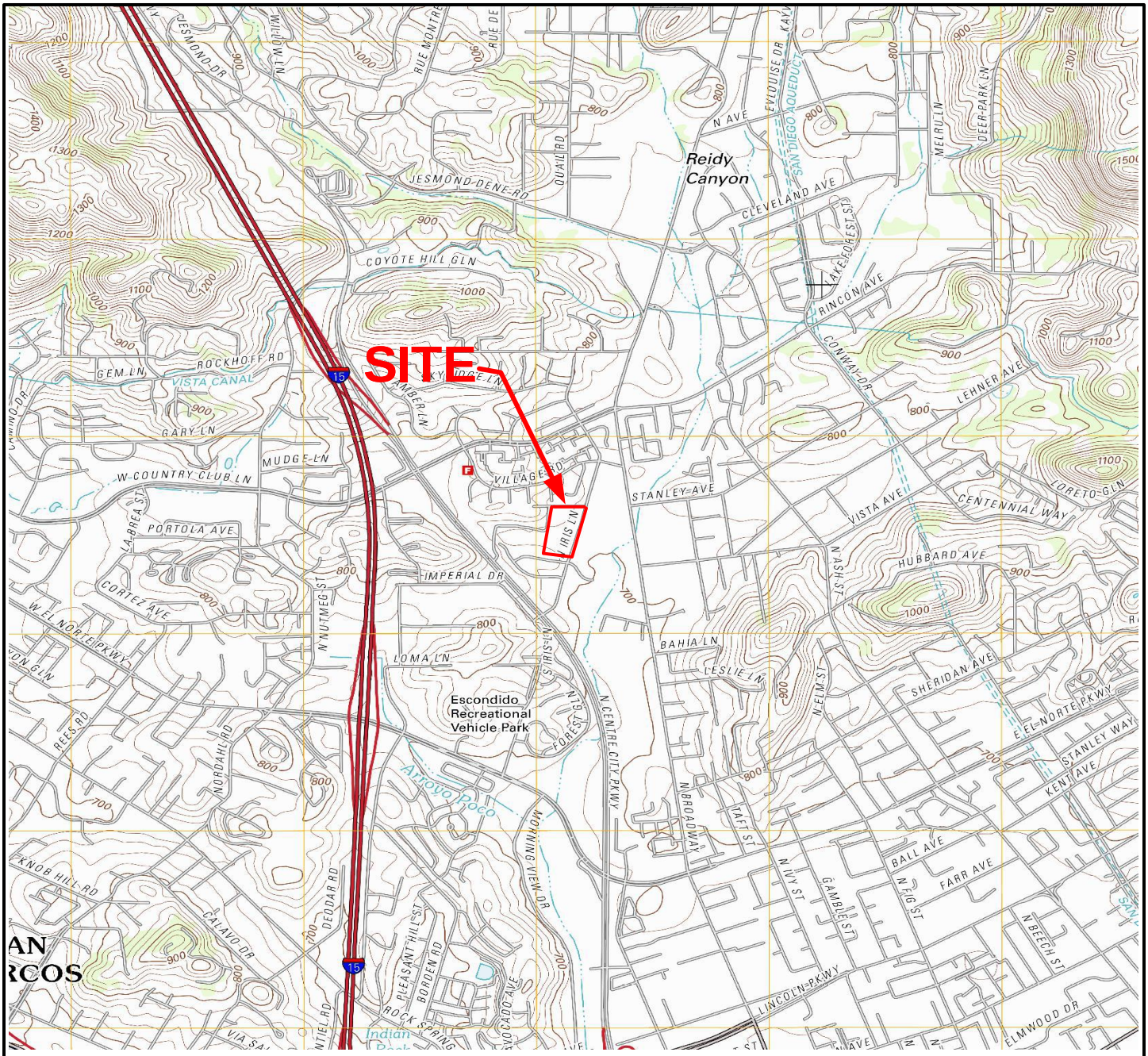
11. QUALIFICATIONS

This Phase I ESA report was prepared by Cole E. Mikesell with oversight by Troy K. Reist, CEG. We declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in Section 312.10 of 40 CFR Part 312. We have the specific qualifications based on education, training, and experience, to assess a property of the nature, history, and setting of the subject property. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312.

Mr. Mikesell has a BS degree in Geology with an emphasis in Environmental Geosciences. Mr. Mikesell is a certified Geologist-In-Training in the State of California. Mr. Mikesell has 4 years of experience in the geotechnical and environmental field. He has performed exploratory drilling, infiltration testing, foundation and earthworks observation, and prepared Phase I and Phase II ESAs throughout southern California.

Mr. Reist is a Professional Geologist and Certified Engineering Geologist, with a BS degree in Geology and has over 23 years of experience in the geotechnical and environmental consulting industry in California. Mr. Reist investigates, remediates and manages geotechnical and environmental issues on residential, commercial, industrial, and agricultural properties throughout southern California.



Base Map:
USGS Topographic Map, 7.5-minute Series
Valley Center, CA
Scale 1:24,000

N

NO SCALE

VICINITY MAP

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PROPERTY SOUTHWEST OF ROBIN HILL LANE AND NORTH IRIS LANE ESCONDIDO, CALIFORNIA

FEBRUARY 2021	PROJECT NO. G2670-62-02	FIG. 1

PROPERTY SOUTHWEST OF ROBIN HILL LANE AND NORTH IRIS LANE ESCONDIDO, CALIFORNIA

APPROXIMATE SITE BOUNDARY

RESIDENTIAL

RESIDENTIAL

RESIDENTIAL

RESIDENTIAL

ROBIN HILL LANE

N IRIS LANE

15 18 33 11 16 19 10 32 28 17 27 36 23 13 31 14 12 25 9 22 24 21 5 6 8 29 30 26 1 7 2 35 4 20 3 34

Google Earth

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36 - APPROXIMATE LOCATION AND DIRECTION OF PHOTOGRAPH

N

NOT TO SCALE

SITE PLAN

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FIGURE 2
DATE FEBRUARY 2021



Photograph #1
View to the northeast across the central portion of the Site.



Photograph #2
View to the southwest across the southwestern portion of the Site.

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Photograph #3
View to the south across the horse corral in the southern portion of Site.



Photograph #4
View to the west towards the western boundary of the Site.

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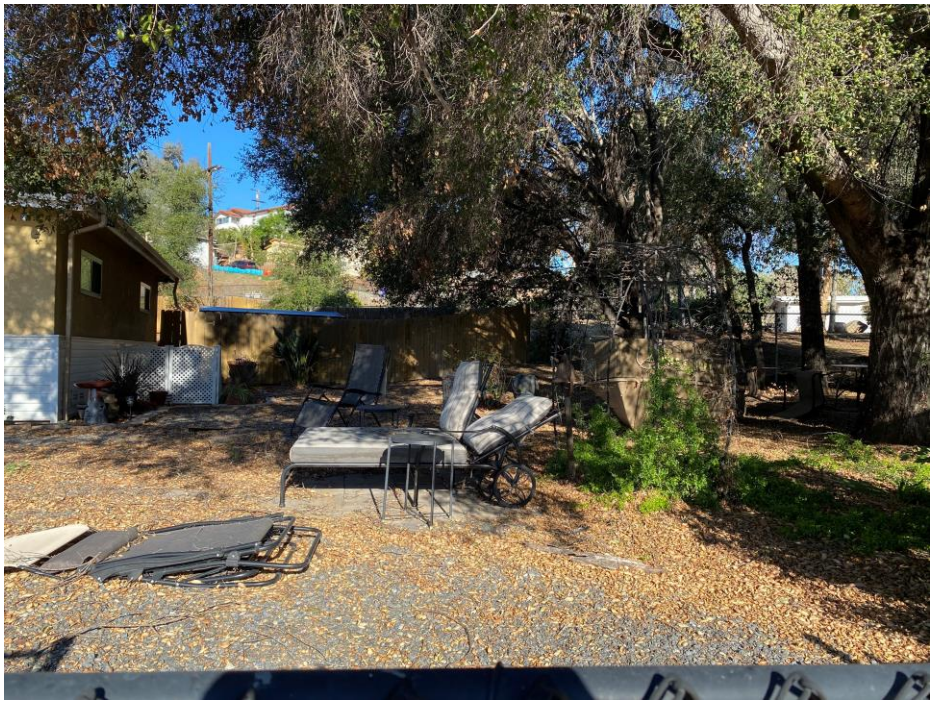

Photograph #5
View of the front yard of 2039 N Iris Lane.



Photograph #6
View to the southwest across the central portion of the Site.

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Photograph #7
View of the front yard of 2047 N Iris Lane.



Photograph #8
View to the backyard of 2047 N Iris Lane.

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Photograph #9
View to the north across the northeastern portion of the Site.



Photograph #10
View to the south across the northeastern portion of the Site.

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Photograph #11
View to the west along the northern boundary of the Site.



Photograph #12
Chicken coops located to the southeast of 2089 N Iris Lane.

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Photograph #13
View to the north along the fence line between 2089 N Iris Lane and 2085 N Iris Lane.



Photograph #14
View to the southeast along the fence line between 2089 N Iris Lane and 2039 N Iris Lane.

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Photograph #15
View to the east along the northern boundary of the Site.



Photograph #16
View to the south along the western boundary of the Site.

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Photograph #17
View of the front yard of 2089 N Iris Lane.



Photograph #18
View to the west along the northern boundary of the Site.

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Photograph #19
View to the south along the fence line between 2089 N Iris Lane and 2085 N Iris Lane.



Photograph #20
Well located to the southeast of 2069 N Iris Lane, just north of the horse corral.

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Photograph #21
Water tank located on the fence line between 2047 N Iris Lane and 2085 N Iris Lane.



Photograph #22
Storage sheds located to the northeast of 2039 N Iris Lane.

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Photograph #23
Miscellaneous supplies located near the storage containers to the west of 2085 N Iris Lane.



Photograph #24
Shed and debris located on the fence line between 2089 N Iris Lane and 2039 N Iris Lane.

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Photograph #25
Miscellaneous debris located on the fence line between 2089 N Iris Lane and 2039 N Iris Lane.



Photograph #26
View to the north along the western boundary of the Site.

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Photograph #27
Miscellaneous debris within a storage container to the northwest of 2085 N Iris Lane.



Photograph #28
Crushed asphalt concrete located to the north of 2085 N Iris Lane.

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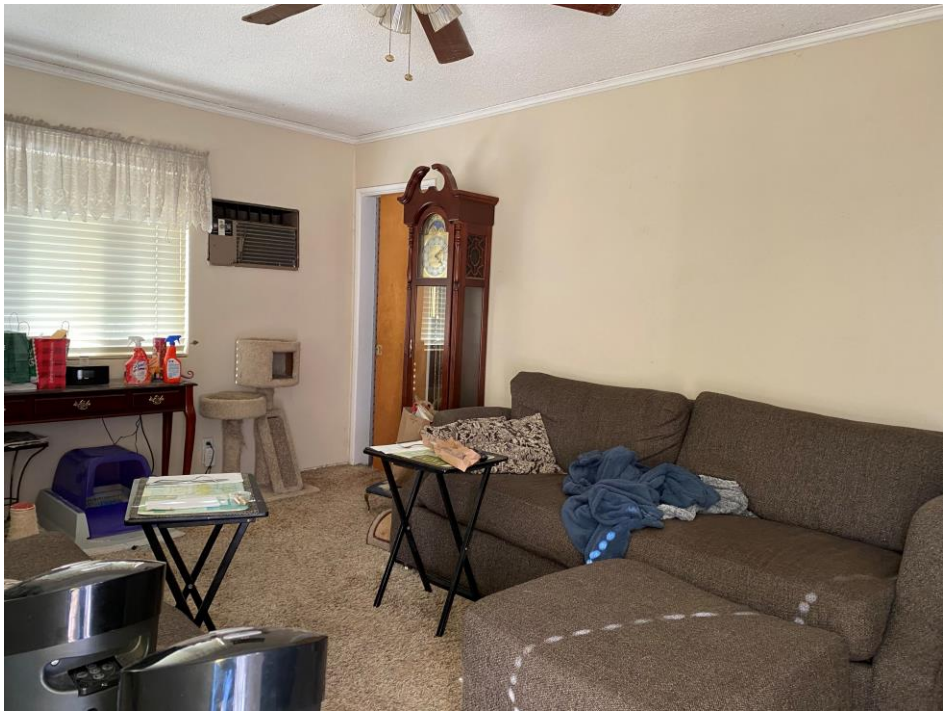
Photograph #29
View inside 2039 N Iris Lane.



Photograph #30
View inside 2047 N Iris Lane.

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SITE PHOTOGRAPHS

PROPERTY SOUTHWEST OF ROBIN HILL LANE
AND NORTH IRIS LANE
ESCONDIDO, CALIFORNIA

PROJECT NO. G2670-62-02



Photograph #31
View inside 2085 N Iris Lane.



Photograph #32
View inside 2089 N Iris Lane.

GEOCON
INCORPORATED
GEOTECHNICAL ■ ENVIRONMENTAL ■ MATERIALS
6960 FLANDERS DRIVE - SAN DIEGO, CALIFORNIA 92121-2974
PHONE 858 558-6900 - FAX 858 558-6159

CEM | FEBRUARY 2021

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ESCONDIDO, CALIFORNIA

PROJECT NO. G2670-62-02



Photograph #33
View of the residential homes adjacent to the north of the Site.



Photograph #34
View of the horse corral and beyond to the residential homes adjacent to the south of the Site.

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Photograph #35
Meadowbrook Village Christian Retirement Community, adjacent to the east of the Site.



Photograph #36
Single-family residence adjacent to the west of the Site.

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SITE PHOTOGRAPHS

PROPERTY SOUTHWEST OF ROBIN HILL LANE
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ESCONDIDO, CALIFORNIA

PROJECT NO. G2670-62-02

APPENDIX A

04

1"=200'

SW COR OF NE 1/4 OF SE 1/4 OF SEC 5

SLY LI OF DB 201 PG 27

NE COR OF NW 1/4 OF SW 1/4 OF SEC 4

SE COR OF NW 1/4 OF SW 1/4 OF SEC 4

1330

2658(DJ)

DETAIL
NO SCALE

64

66

25
SHT 1

22
SHT 1

224-31, 32

N.W. COR OF S.W. 1/4 OF SW 1/4 OF SEC 4

SEE DETAIL

2658 FT ELY OF SW COR OF NE 1/4 OF SE 1/4 OF SEC 5

SLY LI OF DB 201 PG 27

1 0.50 AC

2 3 4 5 1.33 AC 6 3.69 AC

7 8 1.17 AC 9 0.50 AC

10 11 12 13

14 15 23 22

17 0.74 AC 25 24 20 1.41 AC

26

27 0.79 AC

28

30 0.79 AC

31 0.71 AC

33 2.94 AC

34 0.58 AC

35 0.60 AC

36 1.10 AC

37

38 39 40

42 0.53 AC

43

44 0.60 AC

45 0.62 AC

46 0.54 AC

49 13.34 AC
PAR 1 SBE MAP 141-37-108

50 2.27 AC

52

53 54 55

310

STATE HWY 395

X1-SD-77F

OF ESCONDIDO

CITY OF ESCONDIDO

E LI SW 1/4 OF SW 1/4 LOT 6

DEL RINCON LN

NORTH IRIS RD

CHEYENNE LN

IMPERIAL ST DR

PM65 PAR A

PM65 PAR B

PM65 PAR C

PM15589 PAR A

PM15589 PAR B

PM15589 PAR C

OP

94

226/84

226/36

226/37

30

CHANGES

BLK	OLD	NEW	YR	CUT	
USE	PARCEL		41	NEXT	
	32	41,42	73	3446	CC
	42	ACCOR	74	5687	
	300-22	43	77	503	
	41	44-46	77	1310	
	26	47&48	78	639	
	47&48	49&50	78	3470	
	37	51&52	79	662	
	50	SAME & ST OP	79	3284	CHG.
310	29	ST OP	80	1343	
	50	SAME & OP	80	3653	CANC.
	21&51	PG 94	85	16	
	49	SAME & OP	89	4613	
	50	SAME & ST WID	89	4764	
	28	53-55	89	2442	

ES
12-4-70

SAN DIEGO COUNTY ASSESSOR'S MAP BK 224 PG 31

THIS MAP WAS PREPARED FOR ASSESSMENT PURPOSES ONLY. NO LIABILITY IS ASSUMED FOR THE ACCURACY OF THE DATA SHOWN. ASSESSOR'S PARCELS MAY NOT COMPLY WITH LOCAL SUBDIVISION OR BUILDING ORDINANCES.

SEC 4 - T12S-R2W - LOT 6 & POR SW 1/4 OF SW 1/4
ROS 1471,8104,13640

APPENDIX B

PROPERTY BACKGROUND INFORMATION QUESTIONNAIRE FOR SITE OWNER, OCCUPANT, OR REPRESENTATIVE

Site: North Iris, Escondido, CA; Project No. G2670-62-02

***Please elaborate on any question answered "yes." If the question does not apply to the site, please answer "N/A".**

1) Describe the current uses of the Site.
Residential

2) How long has the Site been used for these purposes?
70 YEARS

3) How long have you occupied the Site? I don't occupy either property
2089 & 2085 Rentals

4) List the existing structures on the property and their age. 2089 65 years } Approx
2085 75 years }

5) Describe the past uses, owners, and operators of the Site. (Be as detailed as possible and note approximate time periods.) 2085 - Grandparents House 1948 → until Death
2089 - Parents house 1955 - 2013

6) Utilities including electricity, natural gas, water, sewer, and trash removal are provided to the Site by which utility/companies.

Water - Escondido
Sewer - Septic
Electricity - SDGE
Natural Gas - 2089 - Propane 2085 all electric
Trash – Escondido

7) What type of heating, ventilating, and air conditioning (HVAC) system is located at the Site and how is the HVAC system powered?
2089 - HVAC Propane 2085 - Electric Wall AC/Heater

8) Have the Site or adjoining properties been used for industrial activities, such the following? (Please note that an adjoining property is a property that is contiguous with, or directly across the street from the Site.)

Gasoline Station	[ ] Yes [X] No
Printing Facility	[ ] Yes [X] No
Metal Plating Manufacturing	[ ] Yes [X] No
Landfill	[ ] Yes [X] No
Motor Repair Facility	[ ] Yes [X] No
Dry Cleaners	[ ] Yes [X] No
Junkyard	[ ] Yes [X] No
Waste Treatment	[ ] Yes [X] No
Storage, Disposal, or Recycling Facility	[ ] Yes [X] No

Describe other industrial activities, if any. 2089 - original owner (my Father) Had machines in Garage in late 1960s & 1970s.

9) Have any hazardous substances, petroleum products, unidentified waste materials, tires, automotive or industrial batteries, or other waste materials been dumped aboveground, buried, or burned on the Site?

[ ] Yes [ ] No ? Again, machine shop in Garage. light machining using cutting oils, Kerosene, solvents etc AT 2089 -

10) Have any of the following items been stored on the Site in containers greater than 5 gallons?

Paint	[ ] Yes [✓] No
Chemicals	[ ] Yes [ ] No
Pesticides	[ ] Yes [✓] No

11) Are hazardous wastes generated at the Site? If yes, describe the means of disposal and frequency of disposal.

[ ] Yes [✓] No

12) Have petroleum products been stored on the Site or transferred across the Site in pipelines, either above or belowground? No Pipelines - cutting oils for machines used in Garage at 2089. 50 years Ago were ? stored in Drum. maybe other drums ? Kerosene

[✓] Yes [ ] No

13) Has fill dirt been brought onto the Site from an offsite source?

[ ] Yes [✓] No

14) Is there evidence that the fill dirt in Question 13 may be contaminated?

[ ] Yes [✓] No

15) Are there currently any pits, ponds, or lagoons on the Site?

[ ] Yes [✓] No

16) Have any pits, ponds, or lagoons previously existed on the Site?

[ ] Yes [✓] No

17) Are there currently areas on the Site with stained soil?

[ ] Yes [✓] No

18) Have stained soils previously existed on the Site?

[ ] Yes [✓] No

19) Do chemical-containing underground or aboveground storage tanks exist, or have they existed previously on the Site?

[ ] Yes [✓] No

20) Do fill pipes, vent pipes, or access ways indicating the presence of current or former underground storage tanks exist on the Site?

[ ] Yes [✓] No

21) Have fill pipes or vent pipes which may indicate the presence of a current or former underground storage tank been removed from the Site?

[ ] Yes [✓] No

22) Are floor drains stained with anything other than water in any area on the Site?

[ ] Yes [✓] No

23) Do floor drains on the Site emit foul odors?

[ ] Yes [✓] No

24) Is the Site served by a private well or a non-public water source?

[✓] Yes [ ] No 2085 on Well - 2089 well for irrigation

25) Are contaminants known to exist in any private well or non-public water system serving the Site?

[ ] Yes [✓] No

26) Does the Site discharge wastewater, other than domestic wastewater or storm water, into the sewer?

[ ] Yes [✓] No

27) Other than permission for domestic hookup, have any city, county, or local permits for wastewater discharge been issued to the Site?

[ ] Yes [✓] No

28) Does a septic tank exist, or has one existed previously on the Site?

[✓] Yes [ ] No 2088 & 2085 on Septic

29) Do cesspools or cisterns currently exist on the Site?

[ ] Yes [✓] No

30) Have cesspools or cisterns previously existed on the Site?

[ ] Yes [✓] No

31) Other than storm water, does the Site discharge waste water onto the neighboring Site?

[ ] Yes [✓] No

32) Is there a transformer or capacitor that may contain PCBs on the Site?

[ ] Yes [✓] No

33) Is there hydraulic equipment such as automobile lifts or elevators on the Site?

[ ] Yes [✓] No

34) Are PCBs contained in hydraulic oil associated with hydraulic equipment located on the Site?

[ ] Yes [✓] No

35) Has an asbestos and/or lead-based paint survey been conducted at the Site? If so, what were the findings?

[ ] Yes [✓] No

36) Other than small quantities of legal pesticides used for landscape maintenance (e.g., Roundup), have pesticides, herbicides, or insecticides been applied on the Site?
[ ] Yes [✓] No

37) Are you aware of any environmental liens against the Site that are filed or recorded under federal, tribal, state, or local law?

[ ] Yes [✓] No

38) Have any environmental violations or citations associated with activities conducted on the Site been issued?

[ ] Yes [X] No

39) Has the Site been included in other environmental assessments? If so, can copies of the reports be provided?

[ ] Yes [X] No

40) Have other environmental assessments identified hazardous substances or petroleum products that exist, or may have existed on the Site?

[ ] Yes [X] No

41) Are there any pending lawsuits that involve the release or threatened release of hazardous substances associated with the Site?

[ ] Yes [X] No

42) Are you aware of any activity and land use limitations, such as engineering controls, land use restrictions or institutional controls that are in place on the Site and/or have been filed or recorded in a registry under federal, tribal, state or local law?

[ ] Yes [X] No

43) Are you aware of any commonly known or reasonably ascertainable information about the Site that would help the environmental professional to identify conditions indicative of hazardous substance releases or threatened hazardous substance releases?

[ ] Yes [X] No

44) Do you have any specialized knowledge or experience related to the Site or nearby properties, including the knowledge of the chemicals and processes used by this type of business?

[ ] Yes [X] No

45) Based in your knowledge or experience related to the Site, are there any obvious indicators that point to the presence or likely presence of contamination at the Site?

[ ] Yes [X] No

46) If the purchase price of the Site was below fair market value, did this occur because contamination was/is known or believed to be present on the Site?

[ ] Yes [ ] No [✓] N/A

Robert Price 2/5/21
NAME (IN PRINT) DATE

Robert Price
SIGNATURE

[ ] Owner [ ] Occupant [ ] Owner Representative

Please feel free to contact me if you have any questions.
When complete, return the questionnaire via email or fax:

Mr. Cole Mikesell
Geocon Incorporated
Cmikesell@geoconinc.com
(619) 788-3750 PHONE
(858) 558-6159 FAX

PROPERTY BACKGROUND INFORMATION QUESTIONNAIRE FOR SITE OWNER, OCCUPANT, OR REPRESENTATIVE

Site: Home Located at 2039 North Iris Lane, Escondido, CA; Project No. G2670-62-02

***Please elaborate on any question answered "yes." If the question does not apply to the site, please answer "N/A".**

1) Describe the current uses of the Site.

- **Single family home**

2) How long has the Site been used for these purposes?

- **Since December, 1958**

3) How long have you occupied the Site?

- **Deb has been in occupancy since October 3, 2013**

4) List the existing structures on the property and their age.

- **Main house, 63 years old**
- **Garden Shed at back of house, 30 years old**
- **Garden Shed in back yard, 17 years**
- **Playhouse, 25 years old**

5) Describe the past uses, owners, and operators of the Site. (Be as detailed as possible and note approximate time periods.)

- **The site has always been a single family home. It was built by Jim and Earlyne Swanson in 1958 and occupied by them both until his death on April 20, 2007. Earlyne remained in the home until her death on June 19, 2019. Debra moved in October 3, 2013 and cared for her mother until her death. Debra inherited the home upon Earlyne's death and still resides in the home with her husband of five years, Kris Lindblad.**

6) Utilities including electricity, natural gas, water, sewer, and trash removal are provided to the Site by which utility/companies.

- Water - Rincon Water District
- Sewer - Septic
- Electricity - SDG&E
- Natural Gas - SDG&E
- Trash – EDCO

- **7)** What type of heating, ventilating, and air conditioning (HVAC) system is located at the Site and how is the HVAC system powered?

- Gas heat
- Electric Air Conditioning
- Forced air floor vents

8) Have the Site or adjoining properties been used for industrial activities, such the following? (Please note that an adjoining property is a property that is contiguous with, or directly across the street from the Site.)

Gasoline Station [ ] Yes [X] No

Printing Facility [ ] Yes [X] No

Metal Plating Manufacturing[ ] Yes [X] No

Landfill [ ] Yes [X] No

Motor Repair Facility [ ] Yes [X] No

Dry Cleaners [ ] Yes [X] No

Junkyard[ ] Yes [X] No

Waste Treatment [ ] Yes [X] No

Storage, Disposal, or Recycling Facility [ ] Yes [X] No

Describe other industrial activities, if any.

9) Have any hazardous substances, petroleum products, unidentified waste materials, tires, automotive or industrial batteries, or other waste materials been dumped aboveground, buried, or burned on the Site?

[ ] Yes [X] No

10) Have any of the following items been stored on the Site in containers greater than 5 gallons?

Paint [ ] Yes [X] No

Chemicals [ ] Yes [X] No

Pesticides [ ] Yes [X] No

11) Are hazardous wastes generated at the Site? If yes, describe the means of disposal and frequency of disposal.

[ ] Yes [X] No

12) Have petroleum products been stored on the Site or transferred across the Site in pipelines, either above or belowground?

[ ] Yes [X] No

13) Has fill dirt been brought onto the Site from an offsite source?

[**X**] Yes [ ] No

14) Is there evidence that the fill dirt in Question 13 may be contaminated?

[ ] Yes [**X**] No

15) Are there currently any pits, ponds, or lagoons on the Site?

[ ] Yes [**X**] No

16) Have any pits, ponds, or lagoons previously existed on the Site?

[ ] Yes [**X**] No

17) Are there currently areas on the Site with stained soil?

[ ] Yes [**X**] No

18) Have stained soils previously existed on the Site?

[ ] Yes [**X**] No

19) Do chemical-containing underground or aboveground storage tanks exist, or have they existed previously on the Site?

[ ] Yes [**X**] No

20) Do fill pipes, vent pipes, or access ways indicating the presence of current or former underground storage tanks exist on the Site?

[ ] Yes [**X**] No

21) Have fill pipes or vent pipes which may indicate the presence of a current or former underground storage tank been removed from the Site?

[ ] Yes [**X**] No

22) Are floor drains stained with anything other than water in any area on the Site?

[ ] Yes [**X**] No

23) Do floor drains on the Site emit foul odors?

[ ] Yes [**X**] No

24) Is the Site served by a private well or a non-public water source?

[ ] Yes [**X**] No

25) Are contaminants known to exist in any private well or non-public water system serving the Site?

[ ] Yes [**X**] No

26) Does the Site discharge wastewater, other than domestic wastewater or storm water, into the sewer?

[ ] Yes [**X**] No

27) Other than permission for domestic hookup, have any city, county, or local permits for wastewater discharge been issued to the Site?
[ ] Yes [**X**] No

28) Does a septic tank exist, or has one existed previously on the Site?

[**X**] Yes [ ] No

29) Do cesspools or cisterns currently exist on the Site?

[ ] Yes [**X**] No

30) Have cesspools or cisterns previously existed on the Site?

[ ] Yes [**X**] No

31) Other than storm water, does the Site discharge waste water onto the neighboring Site?

[ ] Yes [**X**] No

32) Is there a transformer or capacitor that may contain PCBs on the Site?

[ ] Yes [**X**] No

33) Is there hydraulic equipment such as automobile lifts or elevators on the Site?

[ ] Yes [**X**] No

34) Are PCBs contained in hydraulic oil associated with hydraulic equipment located on the Site?

[ ] Yes [**X**] No

35) Has an asbestos and/or lead-based paint survey been conducted at the Site? If so, what were the findings?

[ ] Yes [**X**] No

36) Other than small quantities of legal pesticides used for landscape maintenance (e.g., Roundup), have pesticides, herbicides, or insecticides been applied on the Site?
[ ] Yes [**X**] No

37) Are you aware of any environmental liens against the Site that are filed or recorded under federal, tribal, state, or local law?

[ ] Yes [**X**] No

38) Have any environmental violations or citations associated with activities conducted on the Site been issued?

[ ] Yes [**X**] No

39) Has the Site been included in other environmental assessments? If so, can copies of the reports be provided?

[ ] Yes [**X**] No

40) Have other environmental assessments identified hazardous substances or petroleum products that exist, or may have existed on the Site?

[ ] Yes [**X**] No

41) Are there any pending lawsuits that involve the release or threatened release of hazardous substances associated with the Site?

[ ] Yes [**X**] No

42) Are you aware of any activity and land use limitations, such as engineering controls, land use restrictions or institutional controls that are in place on the Site and/or have been filed or recorded in a registry under federal, tribal, state or local law?

[ ] Yes [**X**] No

43) Are you aware of any commonly known or reasonably ascertainable information about the Site that would help the environmental professional to identify conditions indicative of hazardous substance releases or threatened hazardous substance releases?

[ ] Yes [**X**] No

44) Do you have any specialized knowledge or experience related to the Site or nearby properties, including the knowledge of the chemicals and processes used by this type of business?

[ ] Yes [**X**] No

45) Based in your knowledge or experience related to the Site, are there any obvious indicators that point to the presence or likely presence of contamination at the Site?

[ ] Yes [**X**] No

46) If the purchase price of the Site was below fair market value, did this occur because contamination was/is known or believed to be present on the Site?

[ ] Yes [ ] No [**X**] N/A

Debra Anne Lindblad

_____ _____

NAME (IN PRINT) DATE

_____

SIGNATURE

[**X**] Owner [**X**] Occupant [ ] Owner Representative

Please feel free to contact me if you have any questions.
When complete, return the questionnaire via email or fax:

Mr. Cole Mikesell
Geocon Incorporated
Cmikesell@geoconinc.com
(619) 788-3750 PHONE
(858) 558-6159 FAX

PROPERTY BACKGROUND INFORMATION QUESTIONNAIRE FOR SITE OWNER, OCCUPANT, OR REPRESENTATIVE

Site: Home Located at 2047/North Iris Lane, Escondido, CA; Project No. G2670-62-02

***Please elaborate on any question answered "yes." If the question does not apply to the site, please answer "N/A".**

1) Describe the current uses of the Site.

- **Single family home**

2) How long has the Site been used for these purposes?

- **Since 1961**

3) How long have you occupied the Site?

- **Eric Walker has been in occupancy since October 3, 2013**

4) List the existing structures on the property and their age.

- **The house is 60 years old**

5) Describe the past uses, owners, and operators of the Site. (Be as detailed as possible and note approximate time periods.)

- **The site has always been a single family home. It was built and owned by Frances Rose Zickefoose in 1961 and occupied by her until her death in 1993. At that time the home became the property of her daughter, Frances Earlyne Swanson. Mrs. Swanson rented the home for a period of approximately two years. At that time the home became occupied by Mrs. Swanson's daughter, Debra Anne Walker. July 30, 2013 Mrs. Swanson quit claimed the property to her daughter, Debra Walker. Debra remained in the home until Oct. 3, 2013 when she moved in to her mother's home assist her due to health issues. The home was then occupied by Debra Walker's son. In late 2018 Debra quit claimed home to Eric, who now resides there with his wife of nearly three years, Amanda Ramsdell.**

6) Utilities including electricity, natural gas, water, sewer, and trash removal are provided to the Site by which utility/companies.

- Water - Rincon Water District
- Sewer - Septic
- Electricity - SDG&E
- Natural Gas - SDG&E
- Trash – EDCO

- **7)** What type of heating, ventilating, and air conditioning (HVAC) system is located at the Site and how is the HVAC system powered?
- Gas heat
- Electric Air Conditioning

• Forced air floor vents

8) Have the Site or adjoining properties been used for industrial activities, such the following? (Please note that an adjoining property is a property that is contiguous with, or directly across the street from the Site.)

Gasoline Station [ ] Yes [X] No

Printing Facility [ ] Yes [X] No

Metal Plating Manufacturing[ ] Yes [X] No

Landfill [ ] Yes [X] No

Motor Repair Facility [ ] Yes [X] No

Dry Cleaners [ ] Yes [X] No

Junkyard[ ] Yes [X] No

Waste Treatment [ ] Yes [X] No

Storage, Disposal, or Recycling Facility [ ] Yes [X] No

Describe other industrial activities, if any.

9) Have any hazardous substances, petroleum products, unidentified waste materials, tires, automotive or industrial batteries, or other waste materials been dumped aboveground, buried, or burned on the Site?

[ ] Yes [X] No

10) Have any of the following items been stored on the Site in containers greater than 5 gallons?

Paint [ ] Yes [X] No

Chemicals [ ] Yes [X] No

Pesticides [ ] Yes [X] No

11) Are hazardous wastes generated at the Site? If yes, describe the means of disposal and frequency of disposal.

[ ] Yes [X] No

12) Have petroleum products been stored on the Site or transferred across the Site in pipelines, either above or belowground?

[ ] Yes [X] No

13) Has fill dirt been brought onto the Site from an offsite source?

[**X**] Yes [ ] No

14) Is there evidence that the fill dirt in Question 13 may be contaminated?

[ ] Yes [**X**] No

15) Are there currently any pits, ponds, or lagoons on the Site?

[ ] Yes [**X**] No

16) Have any pits, ponds, or lagoons previously existed on the Site?

[ ] Yes [**X**] No

17) Are there currently areas on the Site with stained soil?

[ ] Yes [**X**] No

18) Have stained soils previously existed on the Site?

[ ] Yes [**X**] No

19) Do chemical-containing underground or aboveground storage tanks exist, or have they existed previously on the Site?

[ ] Yes [**X**] No

20) Do fill pipes, vent pipes, or access ways indicating the presence of current or former underground storage tanks exist on the Site?

[ ] Yes [**X**] No

21) Have fill pipes or vent pipes which may indicate the presence of a current or former underground storage tank been removed from the Site?

[ ] Yes [**X**] No

22) Are floor drains stained with anything other than water in any area on the Site?

[ ] Yes [**X**] No

23) Do floor drains on the Site emit foul odors?

[ ] Yes [**X**] No

24) Is the Site served by a private well or a non-public water source?

[ ] Yes [**X**] No

25) Are contaminants known to exist in any private well or non-public water system serving the Site?

[ ] Yes [**X**] No

26) Does the Site discharge wastewater, other than domestic wastewater or storm water, into the sewer?

[ ] Yes [**X**] No

27) Other than permission for domestic hookup, have any city, county, or local permits for wastewater discharge been issued to the Site?
[ ] Yes [**X**] No

28) Does a septic tank exist, or has one existed previously on the Site?

[**X**] Yes [ ] No

29) Do cesspools or cisterns currently exist on the Site?

[ ] Yes [**X**] No

30) Have cesspools or cisterns previously existed on the Site?

[ ] Yes [**X**] No

31) Other than storm water, does the Site discharge waste water onto the neighboring Site?

[ ] Yes [**X**] No

32) Is there a transformer or capacitor that may contain PCBs on the Site?

[ ] Yes [**X**] No

33) Is there hydraulic equipment such as automobile lifts or elevators on the Site?

[ ] Yes [**X**] No

34) Are PCBs contained in hydraulic oil associated with hydraulic equipment located on the Site?

[ ] Yes [**X**] No

35) Has an asbestos and/or lead-based paint survey been conducted at the Site? If so, what were the findings?

[ ] Yes [**X**] No

36) Other than small quantities of legal pesticides used for landscape maintenance (e.g., Roundup), have pesticides, herbicides, or insecticides been applied on the Site?
[ ] Yes [**X**] No

37) Are you aware of any environmental liens against the Site that are filed or recorded under federal, tribal, state, or local law?

[ ] Yes [**X**] No

38) Have any environmental violations or citations associated with activities conducted on the Site been issued?

[ ] Yes [**X**] No

39) Has the Site been included in other environmental assessments? If so, can copies of the reports be provided?

[ ] Yes [**X**] No

40) Have other environmental assessments identified hazardous substances or petroleum products that exist, or may have existed on the Site?

[ ] Yes [**X**] No

41) Are there any pending lawsuits that involve the release or threatened release of hazardous substances associated with the Site?

[ ] Yes [**X**] No

42) Are you aware of any activity and land use limitations, such as engineering controls, land use restrictions or institutional controls that are in place on the Site and/or have been filed or recorded in a registry under federal, tribal, state or local law?

[ ] Yes [**X**] No

43) Are you aware of any commonly known or reasonably ascertainable information about the Site that would help the environmental professional to identify conditions indicative of hazardous substance releases or threatened hazardous substance releases?

[ ] Yes [**X**] No

44) Do you have any specialized knowledge or experience related to the Site or nearby properties, including the knowledge of the chemicals and processes used by this type of business?

[ ] Yes [**X**] No

45) Based in your knowledge or experience related to the Site, are there any obvious indicators that point to the presence or likely presence of contamination at the Site?

[ ] Yes [**X**] No

46) If the purchase price of the Site was below fair market value, did this occur because contamination was/is known or believed to be present on the Site?

[ ] Yes [ ] No [**X**] N/A

Debra Anne Lindblad

_____ _____

NAME (IN PRINT) DATE

_____

SIGNATURE

[**X**] Owner [**X**] Occupant [ ] Owner Representative

Please feel free to contact me if you have any questions.
When complete, return the questionnaire via email or fax:

Mr. Cole Mikesell
Geocon Incorporated
Cmikesell@geoconinc.com
(619) 788-3750 PHONE
(858) 558-6159 FAX

APPENDIX C

North Iris
2085 N Iris Ln
Escondido, CA 92026

Inquiry Number: 6348594.2s
January 28, 2021

The EDR Radius Map™ Report with GeoCheck®

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-13), the ASTM Standard Practice for Environmental Site Assessments for Forestland or Rural Property (E 2247-16), the ASTM Standard Practice for Limited Environmental Due Diligence: Transaction Screen Process (E 1528-14) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

2085 N IRIS LN
ESCONDIDO, CA 92026

COORDINATES

Latitude (North):	33.1555410 - 33° 9' 19.94''
Longitude (West):	117.0947800 - 117° 5' 41.20''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	491161.4
UTM Y (Meters):	3668342.8
Elevation:	715 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	5640948 VALLEY CENTER, CA
Version Date:	2012

AERIAL PHOTOGRAPHY IN THIS REPORT

Portions of Photo from:	20140530
Source:	USDA

MAPPED SITES SUMMARY

Target Property Address:
2085 N IRIS LN
ESCONDIDO, CA 92026

Click on Map ID to see full detail.

MAP ID	SITE NAME	ADDRESS	DATABASE ACRONYMS	RELATIVE ELEVATION	DIST (ft. & mi.) DIRECTION
A1	TOMMIE S SIGNAL SERV	420 ROBIN HILL DR	EDR Hist Auto	Higher	12, 0.002, WNW
A2	FERGUSON CLEANERS	426 ROBIN HILL DR	EDR Hist Cleaner	Higher	12, 0.002, WNW
A3	VERIBEST CLEANERS	419 ROBIN HILL DR	EDR Hist Cleaner	Higher	15, 0.003, NW
4	ANNE GRASSER	2108 WOODBURY PL	RCRA NonGen / NLR	Higher	122, 0.023, NNW
5	MARY JONES	2126 TERRACE VIEW PL	RCRA NonGen / NLR	Higher	298, 0.056, NW
6	KAREN FOWZER	507 ROBIN HILL LN	RCRA NonGen / NLR	Higher	459, 0.087, West
B7	CHRIS GOMEZ	268 PARKSIDE GLEN	RCRA NonGen / NLR	Higher	503, 0.095, NNW
B8	DAVIE BRANDON R	387 ROUNDTREE GLN	RCRA NonGen / NLR	Higher	658, 0.125, NW
C9	COLLING, MARTIN	415 SHADY BROOK PL	RCRA NonGen / NLR	Higher	695, 0.132, NW
D10	RINCON DEL DIABLO MW	1920 N IRIS LN	San Diego Co. HMMD, CERS HAZ WASTE, CERS	Lower	703, 0.133, South
D11	RINCON DEL DIABLO MU	1920 N IRIS LN	RCRA NonGen / NLR	Lower	703, 0.133, South
B12	BRONNEY SAMONTY	379 ROUNDTREE GLEN	RCRA NonGen / NLR	Higher	705, 0.134, NW
B13	JEFF BROOKS	380 ROUNDTREE GLEN	RCRA NonGen / NLR	Higher	734, 0.139, NNW
14	LINDA WISMA	232 CRESTVIEW GLEN	RCRA NonGen / NLR	Higher	737, 0.140, NNW
C15	ULDA SANTANA	2132 WOODGLEN PLACE	RCRA NonGen / NLR	Higher	824, 0.156, WNW
16	YVONNE BURDICK	213 CRESTVIEW GLEN	RCRA NonGen / NLR	Higher	913, 0.173, North
17	DENA MCKENNEY	522 SMOKETREE GLEN	RCRA NonGen / NLR	Higher	1032, 0.195, NW
E18	JUSTIN PANLASIGUI	2107 PEPPER TREE PL	RCRA NonGen / NLR	Higher	1212, 0.230, WNW
E19	CORA GARLAND	2109 PEPPER TREE PL	RCRA NonGen / NLR	Higher	1224, 0.232, WNW
20	CALVIN CHRISTIAN SCH	2000 N BROADWAY	RCRA NonGen / NLR	Lower	1262, 0.239, ESE

EXECUTIVE SUMMARY

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL ---------- National Priority List
Proposed NPL ---------- Proposed National Priority List Sites
NPL LIENS ---------- Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL ---------- National Priority List Deletions

Federal CERCLIS list

FEDERAL FACILITY ---------- Federal Facility Site Information listing
SEMS ---------- Superfund Enterprise Management System

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE ---------- Superfund Enterprise Management System Archive

Federal RCRA CORRACTS facilities list

CORRACTS ---------- Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF ---------- RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG ---------- RCRA - Large Quantity Generators
RCRA-SQG ---------- RCRA - Small Quantity Generators
RCRA-VSQG ---------- RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

Federal institutional controls / engineering controls registries

LUCIS ---------- Land Use Control Information System

US ENG CONTROLS..... Engineering Controls Sites List
US INST CONTROLS..... Institutional Controls Sites List

Federal ERNS list

ERNS..... Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE..... State Response Sites

State- and tribal - equivalent CERCLIS

ENVIROSTOR..... EnviroStor Database

State and tribal landfill and/or solid waste disposal site lists

SWF/LF..... Solid Waste Information System

State and tribal leaking storage tank lists

SAN DIEGO CO. SAM..... Environmental Case Listing
LUST..... Geotracker's Leaking Underground Fuel Tank Report
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land
CPS-SLIC..... Statewide SLIC Cases

State and tribal registered storage tank lists

FEMA UST..... Underground Storage Tank Listing
UST..... Active UST Facilities
AST..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST..... Underground Storage Tanks on Indian Land

State and tribal voluntary cleanup sites

VCP..... Voluntary Cleanup Program Properties
INDIAN VCP..... Voluntary Cleanup Priority Listing

State and tribal Brownfields sites

BROWNFIELDS..... Considered Brownfieds Sites Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT..... Waste Management Unit Database
SWRCY..... Recycler Database
HAULERS..... Registered Waste Tire Haulers Listing
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands

ODI	Open Dump Inventory
DEBRIS REGION 9	Torres Martinez Reservation Illegal Dump Site Locations
IHS OPEN DUMPS	Open Dumps on Indian Land

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL	Delisted National Clandestine Laboratory Register
HIST Cal-Sites	Historical Calsites Database
SCH	School Property Evaluation Program
CDL	Clandestine Drug Labs
San Diego Co. HMMD	Hazardous Materials Management Division Database
Toxic Pits	Toxic Pits Cleanup Act Sites
US CDL	National Clandestine Laboratory Register
PFAS	PFAS Contamination Site Location Listing

Local Lists of Registered Storage Tanks

SWEEPS UST	SWEEPS UST Listing
HIST UST	Hazardous Substance Storage Container Database
CERS TANKS	California Environmental Reporting System (CERS) Tanks
CA FID UST	Facility Inventory Database

Local Land Records

LIENS	Environmental Liens Listing
LIENS 2	CERCLA Lien Information
DEED	Deed Restriction Listing

Records of Emergency Release Reports

HMIRS	Hazardous Materials Information Reporting System
CHMIRS	California Hazardous Material Incident Report System
LDS	Land Disposal Sites Listing
MCS	Military Cleanup Sites Listing
SPILLS 90	SPILLS 90 data from FirstSearch

Other Ascertainable Records

FUDS	Formerly Used Defense Sites
DOD	Department of Defense Sites
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
US FIN ASSUR	Financial Assurance Information
EPA WATCH LIST	EPA WATCH LIST
2020 COR ACTION	2020 Corrective Action Program List
TSCA	Toxic Substances Control Act
TRIS	Toxic Chemical Release Inventory System
SSTS	Section 7 Tracking Systems
ROD	Records Of Decision
RMP	Risk Management Plans
RAATS	RCRA Administrative Action Tracking System
PRP	Potentially Responsible Parties
PADS	PCB Activity Database System
ICIS	Integrated Compliance Information System
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)

EXECUTIVE SUMMARY

MLTS	Material Licensing Tracking System
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
PCB TRANSFORMER	PCB Transformer Registration Database
RADINFO	Radiation Information Database
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
DOT OPS	Incident and Accident Data
CONSENT	Superfund (CERCLA) Consent Decrees
INDIAN RESERV	Indian Reservations
FUSRAP	Formerly Utilized Sites Remedial Action Program
UMTRA	Uranium Mill Tailings Sites
LEAD SMELTERS	Lead Smelter Sites
US AIRS	Aerometric Information Retrieval System Facility Subsystem
US MINES	Mines Master Index File
ABANDONED MINES	Abandoned Mines
FINDS	Facility Index System/Facility Registry System
UXO	Unexploded Ordnance Sites
ECHO	Enforcement & Compliance History Information
DOCKET HWC	Hazardous Waste Compliance Docket Listing
FUELS PROGRAM	EPA Fuels Program Registered Listing
CA BOND EXP. PLAN	Bond Expenditure Plan
Cortese	"Cortese" Hazardous Waste & Substances Sites List
CUPA Listings	CUPA Resources List
DRYCLEANERS	Cleaner Facilities
EMI	Emissions Inventory Data
ENF	Enforcement Action Listing
Financial Assurance	Financial Assurance Information Listing
HAZNET	Facility and Manifest Data
ICE	ICE
HIST CORTESE	Hazardous Waste & Substance Site List
HWP	EnviroStor Permitted Facilities Listing
HWT	Registered Hazardous Waste Transporter Database
MINES	Mines Site Location Listing
MWMP	Medical Waste Management Program Listing
NPDES	NPDES Permits Listing
PEST LIC	Pesticide Regulation Licenses Listing
PROC	Certified Processors Database
Notify 65	Proposition 65 Records
UIC	UIC Listing
UIC GEO	UIC GEO (GEOTRACKER)
WASTEWATER PITS	Oil Wastewater Pits Listing
WDS	Waste Discharge System
WIP	Well Investigation Program Case List
MILITARY PRIV SITES	MILITARY PRIV SITES (GEOTRACKER)
PROJECT	PROJECT (GEOTRACKER)
WDR	Waste Discharge Requirements Listing
SAN DIEGO CO LOP	Local Oversight Program Listing
CIWQS	California Integrated Water Quality System
CERS	CERS
NON-CASE INFO	NON-CASE INFO (GEOTRACKER)
OTHER OIL GAS	OTHER OIL & GAS (GEOTRACKER)
PROD WATER PONDS	PROD WATER PONDS (GEOTRACKER)
SAMPLING POINT	SAMPLING POINT (GEOTRACKER)
WELL STIM PROJ	Well Stimulation Project (GEOTRACKER)
MINES MRDS	Mineral Resources Data System

HWTS Hazardous Waste Tracking System

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP EDR Proprietary Manufactured Gas Plants

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF Recovered Government Archive Solid Waste Facilities List
RGA LUST Recovered Government Archive Leaking Underground Storage Tank

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

ADDITIONAL ENVIRONMENTAL RECORDS

Local Lists of Hazardous waste / Contaminated Sites

CERS HAZ WASTE: List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

A review of the CERS HAZ WASTE list, as provided by EDR, and dated 10/19/2020 has revealed that there is 1 CERS HAZ WASTE site within approximately 0.25 miles of the target property.

Lower Elevation	Address	Direction / Distance	Map ID	Page
RINCON DEL DIABLO MW	***1920 N IRIS LN***	***S 1/8 - 1/4 (0.133 mi.)***	***D10***	***24***

Other Ascertainable Records

RCRA NonGen / NLR: RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or

dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

A review of the RCRA NonGen / NLR list, as provided by EDR, and dated 12/14/2020 has revealed that there are 16 RCRA NonGen / NLR sites within approximately 0.25 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
ANNE GRASSER	2108 WOODBURY PL	NNW 0 - 1/8 (0.023 mi.)	4	9
MARY JONES EPA ID:: CAC002967635	2126 TERRACE VIEW PL	NW 0 - 1/8 (0.056 mi.)	5	12
KAREN FOWZER EPA ID:: CAC003034640	507 ROBIN HILL LN	W 0 - 1/8 (0.087 mi.)	6	14
CHRIS GOMEZ	268 PARKSIDE GLEN	NNW 0 - 1/8 (0.095 mi.)	B7	17
DAVIE BRANDON R EPA ID:: CAC003046055	387 ROUNDTREE GLN	NW 0 - 1/8 (0.125 mi.)	B8	19
COLLING, MARTIN EPA ID:: CAC003034392	415 SHADY BROOK PL	NW 1/8 - 1/4 (0.132 mi.)	C9	22
BRONNEY SAMONTY	379 ROUNDTREE GLEN	NW 1/8 - 1/4 (0.134 mi.)	B12	44
JEFF BROOKS	380 ROUNDTREE GLEN	NNW 1/8 - 1/4 (0.139 mi.)	B13	46
LINDA WISMA	232 CRESTVIEW GLEN	NNW 1/8 - 1/4 (0.140 mi.)	14	49
ULDA SANTANA	2132 WOODGLEN PLACE	WNW 1/8 - 1/4 (0.156 mi.)	C15	51
YVONNE BURDICK EPA ID:: CAC003010425	213 CRESTVIEW GLEN	N 1/8 - 1/4 (0.173 mi.)	16	54
DENA MCKENNEY EPA ID:: CAC002970620	522 SMOKETREE GLEN	NW 1/8 - 1/4 (0.195 mi.)	17	56
JUSTIN PANLASIGUI EPA ID:: CAC003025994	2107 PEPPER TREE PL	WNW 1/8 - 1/4 (0.230 mi.)	E18	59
CORA GARLAND EPA ID:: CAC003026295	2109 PEPPER TREE PL	WNW 1/8 - 1/4 (0.232 mi.)	E19	61

Lower Elevation	Address	Direction / Distance	Map ID	Page
RINCON DEL DIABLO MU EPA ID:: CAL000042534	1920 N IRIS LN	S 1/8 - 1/4 (0.133 mi.)	D11	41
CALVIN CHRISTIAN SCH EPA ID:: CAC003036557	2000 N BROADWAY	ESE 1/8 - 1/4 (0.239 mi.)	20	64

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR Hist Auto: EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past

sites and operations that typically create environmental concerns, but may not show up in current government records searches.

A review of the EDR Hist Auto list, as provided by EDR, has revealed that there is 1 EDR Hist Auto site within approximately 0.125 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
TOMMIE S SIGNAL SERV	420 ROBIN HILL DR	WNW 0 - 1/8 (0.002 mi.)	A1	9

EDR Hist Cleaner: EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

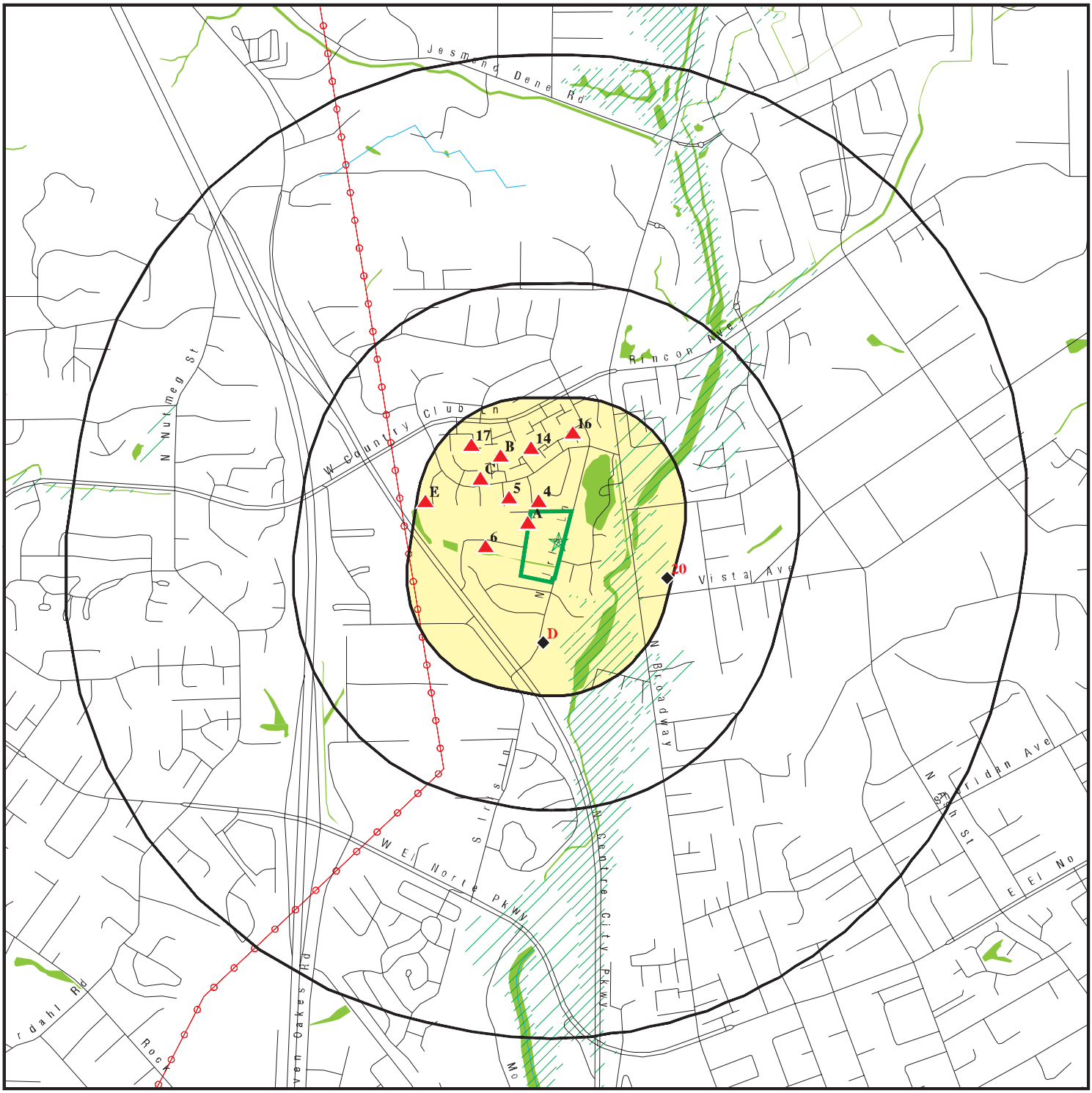
A review of the EDR Hist Cleaner list, as provided by EDR, has revealed that there are 2 EDR Hist Cleaner sites within approximately 0.125 miles of the target property.

Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
FERGUSON CLEANERS	426 ROBIN HILL DR	WNW 0 - 1/8 (0.002 mi.)	A2	9
VERIBEST CLEANERS	419 ROBIN HILL DR	NW 0 - 1/8 (0.003 mi.)	A3	9

EXECUTIVE SUMMARY

There were no unmapped sites in this report.

OVERVIEW MAP - 6348594.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

National Priority List Sites

Dept. Defense Sites

0 1/4 1/2 1 Miles

Indian Reservations BIA

Power transmission lines

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

State Wetlands

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	North Iris	CLIENT:	Geocon Env. Consultants, Inc.
ADDRESS:	2085 N Iris Ln Escondido CA 92026	CONTACT:	Cole Mikesell
LAT/LONG:	33.155541 / 117.09478	INQUIRY #:	6348594.2s
		DATE:	January 28, 2021 6:33 pm

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DETAIL MAP - 6348594.2S



Target Property

Sites at elevations higher than or equal to the target property

Sites at elevations lower than the target property

Manufactured Gas Plants

Sensitive Receptors

National Priority List Sites

Dept. Defense Sites

0 1/16 1/8 1/4 Miles

Indian Reservations BIA

Power transmission lines

Special Flood Hazard Area (1%)

0.2% Annual Chance Flood Hazard

National Wetland Inventory

State Wetlands

Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME:	North Iris	CLIENT:	Geocon Env. Consultants, Inc.
ADDRESS:	2085 N Iris Ln Escondido CA 92026	CONTACT:	Cole Mikesell
LAT/LONG:	33.155541 / 117.09478	INQUIRY #:	6348594.2s
		DATE:	January 28, 2021 6:36 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	1.000		0	0	0	0	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
SEMS	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site list								
SEMS-ARCHIVE	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-VSQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
LUCIS	0.500		0	0	0	NR	NR	0
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROLS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	0.001		0	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	0	NR	0
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
SAN DIEGO CO. SAM	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LUST	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
CPS-SLIC	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
FEMA UST	0.250		0	0	NR	NR	NR	0
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
State and tribal Brownfields sites								
BROWNFIELDS	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	0.001		0	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
IHS OPEN DUMPS	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US HIST CDL	0.001		0	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
CDL	0.001		0	NR	NR	NR	NR	0
San Diego Co. HMMD	0.001		0	NR	NR	NR	NR	0
CERS HAZ WASTE	0.250		0	1	NR	NR	NR	1
Toxic Pits	1.000		0	0	0	0	NR	0
US CDL	0.001		0	NR	NR	NR	NR	0
PFAS	0.500		0	0	0	NR	NR	0
Local Lists of Registered Storage Tanks								
SWEEPS UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
CERS TANKS	0.250		0	0	NR	NR	NR	0
CA FID UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS	0.001		0	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
LIENS 2	0.001		0	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	0.001		0	NR	NR	NR	NR	0
CHMIRS	0.001		0	NR	NR	NR	NR	0
LDS	0.001		0	NR	NR	NR	NR	0
MCS	0.001		0	NR	NR	NR	NR	0
SPILLS 90	0.001		0	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		5	11	NR	NR	NR	16
FUDS	1.000		0	0	0	0	NR	0
DOD	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
US FIN ASSUR	0.001		0	NR	NR	NR	NR	0
EPA WATCH LIST	0.001		0	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
TSCA	0.001		0	NR	NR	NR	NR	0
TRIS	0.001		0	NR	NR	NR	NR	0
SSTS	0.001		0	NR	NR	NR	NR	0
ROD	1.000		0	0	0	0	NR	0
RMP	0.001		0	NR	NR	NR	NR	0
RAATS	0.001		0	NR	NR	NR	NR	0
PRP	0.001		0	NR	NR	NR	NR	0
PADS	0.001		0	NR	NR	NR	NR	0
ICIS	0.001		0	NR	NR	NR	NR	0
FTTS	0.001		0	NR	NR	NR	NR	0
MLTS	0.001		0	NR	NR	NR	NR	0
COAL ASH DOE	0.001		0	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
PCB TRANSFORMER	0.001		0	NR	NR	NR	NR	0
RADINFO	0.001		0	NR	NR	NR	NR	0
HIST FTTS	0.001		0	NR	NR	NR	NR	0
DOT OPS	0.001		0	NR	NR	NR	NR	0
CONSENT	1.000		0	0	0	0	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
FUSRAP	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
LEAD SMELTERS	0.001		0	NR	NR	NR	NR	0
US AIRS	0.001		0	NR	NR	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
ABANDONED MINES	0.250		0	0	NR	NR	NR	0
FINDS	0.001		0	NR	NR	NR	NR	0
UXO	1.000		0	0	0	0	NR	0
ECHO	0.001		0	NR	NR	NR	NR	0
DOCKET HWC	0.001		0	NR	NR	NR	NR	0
FUELS PROGRAM	0.250		0	0	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
Cortese	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
EMI	0.001		0	NR	NR	NR	NR	0
ENF	0.001		0	NR	NR	NR	NR	0
Financial Assurance	0.001		0	NR	NR	NR	NR	0
HAZNET	0.001		0	NR	NR	NR	NR	0
ICE	0.001		0	NR	NR	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
HWT	0.250		0	0	NR	NR	NR	0
MINES	0.250		0	0	NR	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
NPDES	0.001		0	NR	NR	NR	NR	0
PEST LIC	0.001		0	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
UIC	0.001		0	NR	NR	NR	NR	0
UIC GEO	0.001		0	NR	NR	NR	NR	0
WASTEWATER PITS	0.500		0	0	0	NR	NR	0
WDS	0.001		0	NR	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
MILITARY PRIV SITES	0.001		0	NR	NR	NR	NR	0
PROJECT	0.001		0	NR	NR	NR	NR	0
WDR	0.001		0	NR	NR	NR	NR	0
SAN DIEGO CO LOP	0.001		0	NR	NR	NR	NR	0
CIWQS	0.001		0	NR	NR	NR	NR	0
CERS	0.001		0	NR	NR	NR	NR	0
NON-CASE INFO	0.001		0	NR	NR	NR	NR	0
OTHER OIL GAS	0.001		0	NR	NR	NR	NR	0
PROD WATER PONDS	0.001		0	NR	NR	NR	NR	0
SAMPLING POINT	0.001		0	NR	NR	NR	NR	0
WELL STIM PROJ	0.001		0	NR	NR	NR	NR	0
MINES MRDS	0.001		0	NR	NR	NR	NR	0
HWTS	TP		NR	NR	NR	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR Hist Auto	0.125		1	NR	NR	NR	NR	1
EDR Hist Cleaner	0.125		2	NR	NR	NR	NR	2
EDR RECOVERED GOVERNMENT ARCHIVES								
Exclusive Recovered Govt. Archives								
RGA LF	0.001		0	NR	NR	NR	NR	0
RGA LUST	0.001		0	NR	NR	NR	NR	0
- Totals --		0	8	12	0	0	0	20

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

A1 **TOMMIE S SIGNAL SERVICE** **EDR Hist Auto** **1008997409**
WNW **420 ROBIN HILL DR** **N/A**
< 1/8 **SAN DIEGO, CA**
0.002 mi.
12 ft. **Site 1 of 3 in cluster A**

Relative: EDR Hist Auto
Higher

Actual: **740 ft.**

Year:	Name:	Type:
1966	TOMMIE S SIGNAL SERVICE	GASOLINE STATIONS
1970	EDWARDS ENCO SERVICE	GASOLINE STATIONS

A2 **FERGUSON CLEANERS** **EDR Hist Cleaner** **1009128841**
WNW **426 ROBIN HILL DR** **N/A**
< 1/8 **SAN DIEGO, CA**
0.002 mi.
12 ft. **Site 2 of 3 in cluster A**

Relative: EDR Hist Cleaner
Higher

Actual: **736 ft.**

Year:	Name:	Type:
1966	FERGUSON CLEANERS	CLEANERS AND DYERS
1970	FERGUSON CLEANERS	CLEANERS AND DYERS

A3 **VERIBEST CLEANERS** **EDR Hist Cleaner** **1009129701**
NW **419 ROBIN HILL DR** **N/A**
< 1/8 **SAN DIEGO, CA**
0.003 mi.
15 ft. **Site 3 of 3 in cluster A**

Relative: EDR Hist Cleaner
Higher

Actual: **740 ft.**

Year:	Name:	Type:
1970	VERIBEST CLEANERS	CLEANERS AND DYERS

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4 **ANNE GRASSER** **RCRA NonGen / NLR** **1026164012**
NNW **2108 WOODBURY PL** **CAC003064019**
< 1/8 **ESCONDIDO, CA 92026**
0.023 mi.
122 ft.

Relative: RCRA NonGen / NLR:
Higher

Actual: **734 ft.**

Date Form Received by Agency:		2020-04-22 00:00:00.0
Handler Name:	ANNE GRASSER	
Handler Address:		2108 WOODBURY PL
Handler City,State,Zip:		ESCONDIDO, CA 92026-1311
EPA ID:		CAC003064019
Contact Name:		ANNE GRASSER
Contact Address:		2108 WOODBURY PL
Contact City,State,Zip:		ESCONDIDO, CA 92026-1311
Contact Telephone:		619-339-8669
Contact Fax:		Not reported
Contact Email:		INFO@JJANDSCONSTRUCTION.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified

ANNE GRASSER (Continued) **1026164012**

Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Not reported
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	2108 WOODBURY PL
Mailing City,State,Zip:	ESCONDIDO, CA 92026-1311
Owner Name:	ANNE GRASSER
Owner Type:	Other
Operator Name:	ANNE GRASSER
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No

ANNE GRASSER (Continued) **1026164012**

Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2020-04-24 18:56:40.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name:	ANNE GRASSER
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	2108 WOODBURY PL
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026-1311
Owner/Operator Telephone:	619-339-8669
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name:	ANNE GRASSER
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	2108 WOODBURY PL
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026-1311
Owner/Operator Telephone:	619-339-8669
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	2020-04-22 00:00:00.0
Handler Name: ANNE GRASSER	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

ANNE GRASSER (Continued) **1026164012**

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

5
NW
< 1/8
0.056 mi.
298 ft.

MARY JONES
2126 TERRACE VIEW PLACE
ESCONDIDO, CA 92026

RCRA NonGen / NLR **1024747858**
CAC002967635

Relative:
Higher

Actual:
764 ft.

RCRA NonGen / NLR:

Date Form Received by Agency:		2018-06-21 00:00:00.0
Handler Name:	MARY JONES	
Handler Address:		2126 TERRACE VIEW PLACE
Handler City,State,Zip:		ESCONDIDO, CA 92026
EPA ID:		CAC002967635
Contact Name:		MARY JONES
Contact Address:		2126 TERRACE VIEW PLACE
Contact City,State,Zip:		ESCONDIDO, CA 92026
Contact Telephone:		760-807-8683
Contact Fax:		Not reported
Contact Email:		VANESSAPIZARRO@ALLIANCE-ENVIRO.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Handler Activities
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		2126 TERRACE VIEW PLACE
Mailing City,State,Zip:		ESCONDIDO, CA 92026
Owner Name:		MARY JONES
Owner Type:		Other
Operator Name:		MARY JONES
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		Yes
Universal Waste Destination Facility:		Yes
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported

MARY JONES (Continued) **1024747858**

Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2018-08-31 17:14:04.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name:	MARY JONES
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	2126 TERRACE VIEW PLACE
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026
Owner/Operator Telephone:	760-807-8683
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name:	MARY JONES
Legal Status:	Other

MARY JONES (Continued) **1024747858**

Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	2126 TERRACE VIEW PLACE
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026
Owner/Operator Telephone:	760-807-8683
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	2018-06-21 00:00:00.0
Handler Name: MARY JONES	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

Evaluation Action Summary:

Evaluations:	No Evaluations Found

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6 **KAREN FOWZER** **RCRA NonGen / NLR** **1025854412**
West **507 ROBIN HILL LN** **CAC003034640**
< 1/8 **ESCONDIDO, CA 92026**
0.087 mi.
459 ft.

Relative:
Higher

Actual:
722 ft.

RCRA NonGen / NLR:

Date Form Received by Agency:	2019-09-19 00:00:00.0
Handler Name: KAREN FOWZER	
Handler Address:	507 ROBIN HILL LN
Handler City,State,Zip:	ESCONDIDO, CA 92026-1325
EPA ID:	CAC003034640
Contact Name:	KAREN FOWZER
Contact Address:	507 ROBIN HILL LN
Contact City,State,Zip:	ESCONDIDO, CA 92026-1325
Contact Telephone:	805-444-1255
Contact Fax:	Not reported
Contact Email:	RTRIM@HSABATEMENT.COM
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Not a generator, verified

KAREN FOWZER (Continued) **1025854412**

Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Not reported
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	507 ROBIN HILL LN
Mailing City,State,Zip:	ESCONDIDO, CA 92026-1325
Owner Name:	KAREN FOWZER
Owner Type:	Other
Operator Name:	KAREN FOWZER
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No

KAREN FOWZER (Continued) **1025854412**

Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2019-09-27 16:23:19.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name:	KAREN FOWZER
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	507 ROBIN HILL LN
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026-1325
Owner/Operator Telephone:	805-444-1255
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name:	KAREN FOWZER
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	507 ROBIN HILL LN
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026-1325
Owner/Operator Telephone:	805-444-1755
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	2019-09-19 00:00:00.0
Handler Name: KAREN FOWZER	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

KAREN FOWZER (Continued) **1025854412**

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

B7 **CHRIS GOMEZ** **RCRA NonGen / NLR** **1026470585**
NNW **268 PARKSIDE GLEN** **CAC003076126**
< 1/8 **ESCONDIDO, CA 92026**
0.095 mi.
503 ft. **Site 1 of 4 in cluster B**

Relative:
Higher

Actual:
769 ft.

RCRA NonGen / NLR:

Date Form Received by Agency:		2020-07-23 00:00:00.0
Handler Name:	CHRIS GOMEZ	
Handler Address:		268 PARKSIDE GLEN
Handler City,State,Zip:		ESCONDIDO, CA 92026
EPA ID:		CAC003076126
Contact Name:		CHRIS GOMEZ
Contact Address:		268 PARKSIDE GLEN
Contact City,State,Zip:		ESCONDIDO, CA 92026
Contact Telephone:		619-850-9190
Contact Fax:		Not reported
Contact Email:		OFFICE@SOCALABATEMENT.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		268 PARKSIDE GLEN
Mailing City,State,Zip:		ESCONDIDO, CA 92026
Owner Name:		CHRIS GOMEZ
Owner Type:		Other
Operator Name:		CHRIS GOMEZ
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported

CHRIS GOMEZ (Continued) **1026470585**

Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2020-08-14 15:09:30.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name:	CHRIS GOMEZ
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	268 PARKSIDE GLEN
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026
Owner/Operator Telephone:	619-850-9190
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name:	CHRIS GOMEZ
Legal Status:	Other

CHRIS GOMEZ (Continued) **1026470585**

Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	268 PARKSIDE GLEN
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026
Owner/Operator Telephone:	619-850-9190
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	2020-07-23 00:00:00.0
Handler Name: CHRIS GOMEZ	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

Evaluation Action Summary:

Evaluations:	No Evaluations Found

B8 **DAVIE BRANDON R** **RCRA NonGen / NLR** **1025865197**
NW **387 ROUNDTREE GLN** **CAC003046055**
< 1/8 **ESCONDIDO, CA 92026**
0.125 mi.
658 ft. **Site 2 of 4 in cluster B**

Relative:
Higher

Actual:
778 ft.

RCRA NonGen / NLR:

Date Form Received by Agency:	2019-12-05 00:00:00.0
Handler Name: DAVIE BRANDON R	
Handler Address:	387 ROUNDTREE GLN
Handler City,State,Zip:	ESCONDIDO, CA 92026-1306
EPA ID:	CAC003046055
Contact Name:	BRANDON DAVIE
Contact Address:	387 ROUNDTREE GLN
Contact City,State,Zip:	ESCONDIDO, CA 92026-1306
Contact Telephone:	619-218-8024
Contact Fax:	Not reported
Contact Email:	BDAVIE91@GMAIL.COM
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Not a generator, verified

DAVIE BRANDON R (Continued) **1025865197**

Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Not reported
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	387 ROUNDTREE GLN
Mailing City,State,Zip:	ESCONDIDO, CA 92026-1306
Owner Name:	BRANDON DAVIE
Owner Type:	Other
Operator Name:	BRANDON DAVIE
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No

DAVIE BRANDON R (Continued) **1025865197**

Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2019-12-06 16:31:25.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name:	BRANDON DAVIE
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	387 ROUNDTREE GLN
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026-1306
Owner/Operator Telephone:	619-218-8024
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name:	BRANDON DAVIE
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	387 ROUNDTREE GLN
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026-1306
Owner/Operator Telephone:	619-218-8024
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	2019-12-05 00:00:00.0
Handler Name: DAVIE BRANDON R	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

DAVIE BRANDON R (Continued) **1025865197**

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

C9 **COLLING, MARTIN** **RCRA NonGen / NLR** **1025854165**
NW **415 SHADY BROOK PL** **CAC003034392**
1/8-1/4 **ESCONDIDO, CA 92026**
0.132 mi.
695 ft. **Site 1 of 2 in cluster C**

Relative: **Higher**

Actual: **776 ft.**

RCRA NonGen / NLR:

Date Form Received by Agency:		2019-09-18 00:00:00.0
Handler Name:	COLLING, MARTIN	
Handler Address:		415 SHADY BROOK PL
Handler City,State,Zip:		ESCONDIDO, CA 92026-1307
EPA ID:		CAC003034392
Contact Name:		COLLING, MARTIN
Contact Address:		415 SHADY BROOK PL
Contact City,State,Zip:		ESCONDIDO, CA 92026-1307
Contact Telephone:		760-310-2933
Contact Fax:		Not reported
Contact Email:		JLITTRELL@ALLCOUNTY.US
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		415 SHADY BROOK PL
Mailing City,State,Zip:		ESCONDIDO, CA 92026-1307
Owner Name:		COLLING, MARTIN
Owner Type:		Other
Operator Name:		COLLING, MARTIN
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported

COLLING, MARTIN (Continued) **1025854165**

Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2019-09-27 16:23:14.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name:	COLLING, MARTIN
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	415 SHADY BROOK PL
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026-1307
Owner/Operator Telephone:	760-310-2933
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name:	COLLING, MARTIN
Legal Status:	Other

COLLING, MARTIN (Continued) **1025854165**

Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	415 SHADY BROOK PL
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026-1307
Owner/Operator Telephone:	760-310-2933
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	2019-09-18 00:00:00.0
Handler Name: COLLING, MARTIN	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

Evaluation Action Summary:

Evaluations:	No Evaluations Found

D10 **RINCON DEL DIABLO MWD** **San Diego Co. HMMD** **S100734078**
South **1920 N IRIS LN** **CERS HAZ WASTE** **N/A**
1/8-1/4 **ESCONDIDO, CA 92026** **CERS**
0.133 mi.
703 ft. **Site 1 of 2 in cluster D**

Relative:
Lower

Actual:
705 ft.

HMMD SAN DIEGO:

Name:	RINCON DEL DIABLO MWD
Address:	1920 N IRIS LN
City,State,Zip:	ESCONDIDO, CA 92026
Permit Number:	128219
Business Type:	6HK52
EPA Id Number:	CAL000042534
APN:	226-190-10-00
Last HMMD Inspection:	01/18/2012
Facility Telephone:	760-745-5522
Permit Status:	OPEN
Permit Expiration:	07/31/2013
Date Last Updated:	11/02/2012
Facility Owner:	RINCON DEL DIABLO
Facility Mailing Address:	1920 N IRIS LN
Facility Mailing City:	ESCONDIDO

RINCON DEL DIABLO MWD (Continued) **S100734078**

Facility Mailing State:	CA
Facility Mailing Zip:	92026-1318
UST Owner:	Not reported
Handle Regulated Hazmat:	Y
Own Or Operate UST:	Not reported
Subject To APSA:	Not reported
Generate Haz Waste:	Y
Treat Haz Waste:	Not reported
Generate Medical Waste:	Not reported

Inventory Active Permits (not SQG Medical):

Permit Number:	128219
Update Date:	11/02/2012
Case Number:	74-86-2
Name:	ACETYLENE GAS
Other Information:	Not reported
Material Waste:	Material
Hazardous Categories 1:	PRESSURE RELEASE
Hazardous Categories 2:	Not reported

Permit Number:	128219
Update Date:	11/02/2012
Case Number:	7440-31-1
Name:	ARGON 75%, CARBON DIOXIDE 25%
Other Information:	Not reported
Material Waste:	Material
Hazardous Categories 1:	PRESSURE RELEASE
Hazardous Categories 2:	Not reported

Permit Number:	128219
Update Date:	11/02/2012
Case Number:	68476-34-6
Name:	DIESEL FUEL
Other Information:	Not reported
Material Waste:	Material
Hazardous Categories 1:	FIRE
Hazardous Categories 2:	CHRONIC

Permit Number:	128219
Update Date:	11/02/2012
Case Number:	8002-05-9
Name:	OILS, LUBRICATING
Other Information:	Not reported
Material Waste:	Material
Hazardous Categories 1:	FIRE
Hazardous Categories 2:	CHRONIC

Permit Number:	128219
Update Date:	11/02/2012
Case Number:	7782-44-7
Name:	OXYGEN
Other Information:	Not reported
Material Waste:	Material
Hazardous Categories 1:	CHRONIC
Hazardous Categories 2:	Not reported

Permit Number:	128219
Update Date:	11/02/2012

RINCON DEL DIABLO MWD (Continued) **S100734078**

Case Number: Not reported
Name: WASTE 221 WASTE OIL & MIXED OIL
Other Information: WASTE MOTOR OILS
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Permit Number: 128219
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 223 UNSPEC OIL CONTAINING WASTE
Other Information: WO ABSORBANT
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Permit Number: 128219
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 343 UNSPEC ORGANIC LIQUID MIXTURE
Other Information: DIESEL FUEL WASTE
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Permit Number: 128219
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 444 USED BATTERIES
Other Information: Not reported
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Permit Number: 128219
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 888 USED OIL FILTERS
Other Information: Not reported
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Name: RINCON DEL DIABLO MWD
Address: 1920 N IRIS LN
City,State,Zip: ESCONDIDO, CA 92026
Permit Number: 128219
Business Type: 6HK52
EPA Id Number: CAL000042534
APN: 226-190-10-00
Last HMMD Inspection: 01/18/2012
Facility Telephone: 760-745-5522
Permit Status: OPEN
Permit Expiration: 07/31/2013
Date Last Updated: 11/02/2012
Facility Owner: RINCON DEL DIABLO

RINCON DEL DIABLO MWD (Continued) **S100734078**

Facility Mailing Address:	1920 N IRIS LN
Facility Mailing City:	ESCONDIDO
Facility Mailing State:	CA
Facility Mailing Zip:	92026-1318
UST Owner:	Not reported
Handle Regulated Hazmat:	Y
Own Or Operate UST:	Not reported
Subject To APSA:	Not reported
Generate Haz Waste:	Y
Treat Haz Waste:	Not reported
Generate Medical Waste:	Not reported

Inventory Active Permits (not SQG Medical):

Permit Number:	128219
Update Date:	11/02/2012
Case Number:	74-86-2
Name:	ACETYLENE GAS
Other Information:	Not reported
Material Waste:	Material
Hazardous Categories 1:	PRESSURE RELEASE
Hazardous Categories 2:	Not reported

Permit Number:	128219
Update Date:	11/02/2012
Case Number:	7440-31-1
Name:	ARGON 75%, CARBON DIOXIDE 25%
Other Information:	Not reported
Material Waste:	Material
Hazardous Categories 1:	PRESSURE RELEASE
Hazardous Categories 2:	Not reported

Permit Number:	128219
Update Date:	11/02/2012
Case Number:	68476-34-6
Name:	DIESEL FUEL
Other Information:	Not reported
Material Waste:	Material
Hazardous Categories 1:	FIRE
Hazardous Categories 2:	CHRONIC

Permit Number:	128219
Update Date:	11/02/2012
Case Number:	8002-05-9
Name:	OILS, LUBRICATING
Other Information:	Not reported
Material Waste:	Material
Hazardous Categories 1:	FIRE
Hazardous Categories 2:	CHRONIC

Permit Number:	128219
Update Date:	11/02/2012
Case Number:	7782-44-7
Name:	OXYGEN
Other Information:	Not reported
Material Waste:	Material
Hazardous Categories 1:	CHRONIC
Hazardous Categories 2:	Not reported

RINCON DEL DIABLO MWD (Continued) **S100734078**

Permit Number: 128219
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 221 WASTE OIL & MIXED OIL
Other Information: WASTE MOTOR OILS
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Permit Number: 128219
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 223 UNSPEC OIL CONTAINING WASTE
Other Information: WO ABSORBANT
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Permit Number: 128219
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 343 UNSPEC ORGANIC LIQUID MIXTURE
Other Information: DIESEL FUEL WASTE
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Permit Number: 128219
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 444 USED BATTERIES
Other Information: Not reported
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Permit Number: 128219
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 888 USED OIL FILTERS
Other Information: Not reported
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Name: RINCON DEL DIABLO MWD
Address: 1920 N IRIS LN
City,State,Zip: ESCONDIDO, CA 92026
Permit Number: Not reported
Business Type: Not reported
EPA Id Number: CAL000042534
APN: Not reported
Last HMMD Inspection: Not reported
Facility Telephone: 760-745-5522
Permit Status: Permit Renewed
Permit Expiration: Not reported

RINCON DEL DIABLO MWD (Continued) **S100734078**

Date Last Updated:	08/13/2020
Facility Owner:	Not reported
Facility Mailing Address:	1920 N IRIS LN, ESCONDIDO, CA 92026-1318
Facility Mailing City:	Not reported
Facility Mailing State:	Not reported
Facility Mailing Zip:	Not reported
UST Owner:	N
Handle Regulated Hazmat:	Not reported
Own Or Operate UST:	Not reported
Subject To APSA:	Not reported
Generate Haz Waste:	Y
Treat Haz Waste:	N
Generate Medical Waste:	Not reported

Inspection Violation:

Record ID:	DEH2002-HUPFP-128219
Permit Status:	Permit Renewed
Active Permit:	Y
Facility Id Number:	37-000-128219
Program Element:	Hazardous Materials Release Response Plans
Inspection Type:	Routine
Inspection Number:	5647045
Return To Compliance Date:	2017-05-04T00:00:00.000
Nov:	No
Violation Classification:	Class II
Underground Storage Tank Id:	Not reported
Container/Tank Id:	Not reported
Last Update:	2020-08-13T00:00:00.000
Inspection Date:	2017-05-03T08:21:00.000
Violation Code:	1020002 Initial and/or annual employee training not conducted for hazardous materials management and/or employee training records not available or not maintained for 3 years. HSC 25505(a)(4)

Record ID:	DEH2002-HUPFP-128219
Permit Status:	Permit Renewed
Active Permit:	Y
Facility Id Number:	37-000-128219
Program Element:	Hazardous Waste Generator
Inspection Type:	Routine
Inspection Number:	4092562
Return To Compliance Date:	2015-03-26T00:00:00.000
Nov:	No
Violation Classification:	Minor
Underground Storage Tank Id:	Not reported
Container/Tank Id:	Not reported
Last Update:	2020-08-13T00:00:00.000
Inspection Date:	2015-03-25T00:00:00.000
Violation Code:	3020001 Failure to ensure employees are familiar with the handling and compliance of hazardous waste regulations and emergency response. 22 CCR 12 66262.34(d)(2); 40 CFR 1 262.34(d)(5)(iii)

Record ID:	DEH2002-HUPFP-128219
Permit Status:	Permit Renewed
Active Permit:	Y
Facility Id Number:	37-000-128219
Program Element:	Hazardous Materials Release Response Plans
Inspection Type:	Routine
Inspection Number:	4092562

RINCON DEL DIABLO MWD (Continued) **S100734078**

Return To Compliance Date: 2015-03-26T00:00:00.000
Nov: No
Violation Classification: Minor
Underground Storage Tank Id: Not reported
Container/Tank Id: Not reported
Last Update: 2020-08-13T00:00:00.000
Inspection Date: 2015-03-25T00:00:00.000
Violation Code: 1020001 Failure to include an adequate training program in the business plan, which is reasonable and appropriate for the size of the business and the nature of the hazardous material handled; HSC 6.95 25505(a)4

Waste and Materials:

Record ID: DEH2002-HUPFP-128219
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2020-HCHEM-0254378
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2020-08-13T02:31:32.000
Chemical Name: OXYGEN
Common Name: OXYGEN gas
Case Number: 7782-44-7

Record ID: DEH2002-HUPFP-128219
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2020-HCHEM-0254379
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2020-08-13T02:31:32.000
Chemical Name: DIESEL FUEL
Common Name: DIESEL FUEL
Case Number: 68476-34-6

Record ID: DEH2002-HUPFP-128219
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2020-HCHEM-0254380
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2020-08-13T02:31:32.000
Chemical Name: ACETYLENE GAS
Common Name: ACETYLENE GAS
Case Number: 74-86-2

Record ID: DEH2002-HUPFP-128219
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2020-HWAST-0224086
Trade Secret: N
Hazardous Material Type: Not reported
Last Updated: 2020-08-13T02:31:32.000
Chemical Name: Lubricating oils, used
Common Name: Used lubricating oils
Case Number: Not reported

RINCON DEL DIABLO MWD (Continued) **S100734078**

Record ID:	DEH2002-HUPFP-128219
Permit Status:	Permit Renewed
Active Permit:	Y
Child Record Id:	DEH2019-HCHEM-0222311
Trade Secret:	N
Hazardous Material Type:	Pure
Last Updated:	2020-02-26T02:06:41.000
Chemical Name:	DIESEL FUEL
Common Name:	DIESEL FUEL
Case Number:	68476-34-6

Record ID:	DEH2002-HUPFP-128219
Permit Status:	Permit Renewed
Active Permit:	Y
Child Record Id:	DEH2019-HCHEM-0222310
Trade Secret:	N
Hazardous Material Type:	Pure
Last Updated:	2020-02-26T02:06:41.000
Chemical Name:	OXYGEN
Common Name:	OXYGEN gas
Case Number:	7782-44-7

Record ID:	DEH2002-HUPFP-128219
Permit Status:	Permit Renewed
Active Permit:	Y
Child Record Id:	DEH2019-HCHEM-0222312
Trade Secret:	N
Hazardous Material Type:	Pure
Last Updated:	2020-02-26T02:06:41.000
Chemical Name:	ACETYLENE GAS
Common Name:	ACETYLENE GAS
Case Number:	74-86-2

Record ID:	DEH2002-HUPFP-128219
Permit Status:	Permit Renewed
Active Permit:	Y
Child Record Id:	DEH2019-HWAST-0192041
Trade Secret:	N
Hazardous Material Type:	Not reported
Last Updated:	2020-02-26T02:06:41.000
Chemical Name:	Lubricating oils, used
Common Name:	Used lubricating oils
Case Number:	Not reported

Record ID:	DEH2002-HUPFP-128219
Permit Status:	Permit Renewed
Active Permit:	Y
Child Record Id:	DEH2018-HCHEM-0193273
Trade Secret:	N
Hazardous Material Type:	Pure
Last Updated:	2019-04-19T05:56:49.000
Chemical Name:	OXYGEN
Common Name:	OXYGEN
Case Number:	7782-44-7

Record ID:	DEH2002-HUPFP-128219
Permit Status:	Permit Renewed

RINCON DEL DIABLO MWD (Continued) **S100734078**

Active Permit: Y
Child Record Id: DEH2018-HCHEM-0193274
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2019-04-19T05:56:49.000
Chemical Name: DIESEL FUEL
Common Name: DIESEL FUEL
Case Number: 68476-34-6

Record ID: DEH2002-HUPFP-128219
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2018-HCHEM-0193275
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2019-04-19T05:56:49.000
Chemical Name: ACETYLENE GAS
Common Name: ACETYLENE GAS
Case Number: 74-86-2

Record ID: DEH2002-HUPFP-128219
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2018-HWAST-0167034
Trade Secret: N
Hazardous Material Type: Not reported
Last Updated: 2019-04-19T05:56:50.000
Chemical Name: Lubricating oils, used
Common Name: Used lubricating oils
Case Number: Not reported

Record ID: DEH2002-HUPFP-128219
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2017-HCHEM-0140285
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2018-07-06T02:32:36.000
Chemical Name: DIESEL FUEL
Common Name: DIESEL FUEL
Case Number: 68476-34-6

Record ID: DEH2002-HUPFP-128219
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2017-HCHEM-0140286
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2018-07-06T02:32:36.000
Chemical Name: ACETYLENE GAS
Common Name: ACETYLENE GAS
Case Number: 74-86-2

Record ID: DEH2002-HUPFP-128219
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0097025

RINCON DEL DIABLO MWD (Continued) **S100734078**

Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2016-07-12T02:32:28.000
Chemical Name: OXYGEN
Common Name: OXYGEN
Case Number: 7782-44-7

Record ID: DEH2002-HUPFP-128219
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0097026
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2016-07-12T02:32:28.000
Chemical Name: DIESEL FUEL
Common Name: DIESEL FUEL
Case Number: 68476-34-6

Record ID: DEH2002-HUPFP-128219
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HCHEM-0097027
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2016-07-12T02:32:28.000
Chemical Name: ACETYLENE GAS
Common Name: ACETYLENE GAS
Case Number: 74-86-2

Record ID: DEH2002-HUPFP-128219
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2016-HWAST-0079047
Trade Secret: N
Hazardous Material Type: Not reported
Last Updated: 2016-07-12T02:32:28.000
Chemical Name: Lubricating oils, used
Common Name: Used lubricating oils
Case Number: Not reported

Record ID: DEH2002-HUPFP-128219
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2017-HCHEM-0140284
Trade Secret: N
Hazardous Material Type: Pure
Last Updated: 2018-07-06T02:32:36.000
Chemical Name: OXYGEN
Common Name: OXYGEN
Case Number: 7782-44-7

Record ID: DEH2002-HUPFP-128219
Permit Status: Permit Renewed
Active Permit: Y
Child Record Id: DEH2017-HWAST-0118761
Trade Secret: N
Hazardous Material Type: Not reported

RINCON DEL DIABLO MWD (Continued) **S100734078**

Last Updated: 2018-07-06T02:32:36.000
Chemical Name: Lubricating oils, used
Common Name: Used lubricating oils
Case Number: Not reported

Name: RINCON DEL DIABLO MWD
Address: 1920 N IRIS LN
City,State,Zip: ESCONDIDO, CA 92026
Permit Number: 128219
Business Type: 6HK52
EPA Id Number: CAL000042534
APN: 226-190-10-00
Last HMMD Inspection: 01/18/2012
Facility Telephone: 760-745-5522
Permit Status: OPEN
Permit Expiration: 07/31/2013
Date Last Updated: 11/02/2012
Facility Owner: RINCON DEL DIABLO
Facility Mailing Address: 1920 N IRIS LN
Facility Mailing City: ESCONDIDO
Facility Mailing State: CA
Facility Mailing Zip: 92026-1318
UST Owner: Not reported
Handle Regulated Hazmat: Y
Own Or Operate UST: Not reported
Subject To APSA: Not reported
Generate Haz Waste: Y
Treat Haz Waste: Not reported
Generate Medical Waste: Not reported

Inventory Active Permits (not SQG Medical):
Permit Number: 128219
Update Date: 11/02/2012
Case Number: 74-86-2
Name: ACETYLENE GAS
Other Information: Not reported
Material Waste: Material
Hazardous Categories 1: PRESSURE RELEASE
Hazardous Categories 2: Not reported

Permit Number: 128219
Update Date: 11/02/2012
Case Number: 7440-31-1
Name: ARGON 75%, CARBON DIOXIDE 25%
Other Information: Not reported
Material Waste: Material
Hazardous Categories 1: PRESSURE RELEASE
Hazardous Categories 2: Not reported

Permit Number: 128219
Update Date: 11/02/2012
Case Number: 68476-34-6
Name: DIESEL FUEL
Other Information: Not reported
Material Waste: Material
Hazardous Categories 1: FIRE
Hazardous Categories 2: CHRONIC

RINCON DEL DIABLO MWD (Continued) **S100734078**

Permit Number:	128219
Update Date:	11/02/2012
Case Number:	8002-05-9
Name:	OILS, LUBRICATING
Other Information:	Not reported
Material Waste:	Material
Hazardous Categories 1:	FIRE
Hazardous Categories 2:	CHRONIC

Permit Number:	128219
Update Date:	11/02/2012
Case Number:	7782-44-7
Name:	OXYGEN
Other Information:	Not reported
Material Waste:	Material
Hazardous Categories 1:	CHRONIC
Hazardous Categories 2:	Not reported

Permit Number:	128219
Update Date:	11/02/2012
Case Number:	Not reported
Name:	WASTE 221 WASTE OIL & MIXED OIL
Other Information:	WASTE MOTOR OILS
Material Waste:	Waste
Hazardous Categories 1:	Not reported
Hazardous Categories 2:	Not reported

Permit Number:	128219
Update Date:	11/02/2012
Case Number:	Not reported
Name:	WASTE 223 UNSPEC OIL CONTAINING WASTE
Other Information:	WO ABSORBANT
Material Waste:	Waste
Hazardous Categories 1:	Not reported
Hazardous Categories 2:	Not reported

Permit Number:	128219
Update Date:	11/02/2012
Case Number:	Not reported
Name:	WASTE 343 UNSPEC ORGANIC LIQUID MIXTURE
Other Information:	DIESEL FUEL WASTE
Material Waste:	Waste
Hazardous Categories 1:	Not reported
Hazardous Categories 2:	Not reported

Permit Number:	128219
Update Date:	11/02/2012
Case Number:	Not reported
Name:	WASTE 444 USED BATTERIES
Other Information:	Not reported
Material Waste:	Waste
Hazardous Categories 1:	Not reported
Hazardous Categories 2:	Not reported

Permit Number:	128219
Update Date:	11/02/2012
Case Number:	Not reported

RINCON DEL DIABLO MWD (Continued) **S100734078**

Name: WASTE 888 USED OIL FILTERS
Other Information: Not reported
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Name: RINCON DEL DIABLO MWD
Address: 1920 N IRIS LN
City,State,Zip: ESCONDIDO, CA 92026
Permit Number: 128219
Business Type: 6HK52
EPA Id Number: CAL000042534
APN: 226-190-10-00
Last HMMD Inspection: 01/18/2012
Facility Telephone: 760-745-5522
Permit Status: OPEN
Permit Expiration: 07/31/2013
Date Last Updated: 11/02/2012
Facility Owner: RINCON DEL DIABLO
Facility Mailing Address: 1920 N IRIS LN
Facility Mailing City: ESCONDIDO
Facility Mailing State: CA
Facility Mailing Zip: 92026-1318
UST Owner: Not reported
Handle Regulated Hazmat: Y
Own Or Operate UST: Not reported
Subject To APSA: Not reported
Generate Haz Waste: Y
Treat Haz Waste: Not reported
Generate Medical Waste: Not reported

Inventory Active Permits (not SQG Medical):
Permit Number: 128219
Update Date: 11/02/2012
Case Number: 74-86-2
Name: ACETYLENE GAS
Other Information: Not reported
Material Waste: Material
Hazardous Categories 1: PRESSURE RELEASE
Hazardous Categories 2: Not reported

Permit Number: 128219
Update Date: 11/02/2012
Case Number: 7440-31-1
Name: ARGON 75%, CARBON DIOXIDE 25%
Other Information: Not reported
Material Waste: Material
Hazardous Categories 1: PRESSURE RELEASE
Hazardous Categories 2: Not reported

Permit Number: 128219
Update Date: 11/02/2012
Case Number: 68476-34-6
Name: DIESEL FUEL
Other Information: Not reported
Material Waste: Material
Hazardous Categories 1: FIRE

RINCON DEL DIABLO MWD (Continued) **S100734078**

Hazardous Categories 2: CHRONIC

Permit Number: 128219
Update Date: 11/02/2012
Case Number: 8002-05-9
Name: OILS, LUBRICATING
Other Information: Not reported
Material Waste: Material
Hazardous Categories 1: FIRE
Hazardous Categories 2: CHRONIC

Permit Number: 128219
Update Date: 11/02/2012
Case Number: 7782-44-7
Name: OXYGEN
Other Information: Not reported
Material Waste: Material
Hazardous Categories 1: CHRONIC
Hazardous Categories 2: Not reported

Permit Number: 128219
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 221 WASTE OIL & MIXED OIL
Other Information: WASTE MOTOR OILS
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Permit Number: 128219
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 223 UNSPEC OIL CONTAINING WASTE
Other Information: WO ABSORBANT
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Permit Number: 128219
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 343 UNSPEC ORGANIC LIQUID MIXTURE
Other Information: DIESEL FUEL WASTE
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Permit Number: 128219
Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 444 USED BATTERIES
Other Information: Not reported
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

Permit Number: 128219

RINCON DEL DIABLO MWD (Continued) **S100734078**

Update Date: 11/02/2012
Case Number: Not reported
Name: WASTE 888 USED OIL FILTERS
Other Information: Not reported
Material Waste: Waste
Hazardous Categories 1: Not reported
Hazardous Categories 2: Not reported

CERS HAZ WASTE:
Name: RINCON DEL DIABLO MWD
Address: 1920 N IRIS LN
City,State,Zip: ESCONDIDO, CA 92026
Site ID: 61674
CERS ID: 10368946
CERS Description: Hazardous Waste Generator

CERS:
Name: RINCON DEL DIABLO MWD
Address: 1920 N IRIS LN
City,State,Zip: ESCONDIDO, CA 92026
Site ID: 61674
CERS ID: 10368946
CERS Description: Chemical Storage Facilities

Violations:
Site ID: 61674
Site Name: RINCON DEL DIABLO MWD
Violation Date: 03-25-2015
Citation: HSC 6.95 25508(a)(1) - California Health and Safety Code, Chapter 6.95, Section(s) 25508(a)(1)
Violation Description: Failure to establish and electronically submit an adequate training program in safety procedures in the event of a release or threatened release of a hazardous material.
Violation Notes: Returned to compliance on 03/26/2015.
Violation Division: San Diego County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Site ID: 61674
Site Name: RINCON DEL DIABLO MWD
Violation Date: 05-03-2017
Citation: HSC 6.95 25505(a)(4) - California Health and Safety Code, Chapter 6.95, Section(s) 25505(a)(4)
Violation Description: Failure to provide initial and annual training to all employees in safety procedures in the event of a release or threatened release of a hazardous material or failure to document and maintain training records for a minimum of three years.
Violation Notes: Returned to compliance on 05/04/2017.
Violation Division: San Diego County Department of Env Health
Violation Program: HMRRP
Violation Source: CERS

Evaluation:
Eval General Type: Compliance Evaluation Inspection
Eval Date: 03-25-2015

RINCON DEL DIABLO MWD (Continued) **S100734078**

Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	Inspector: Kieu Bridget Inspection ID:4092562
Eval Division:	San Diego County Department of Env Health
Eval Program:	HW
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	03-25-2015
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Inspector: Kieu Bridget Inspection ID:4092562
Eval Division:	San Diego County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	05-03-2017
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	Inspector: Walsh Todd Inspection ID:5647045
Eval Division:	San Diego County Department of Env Health
Eval Program:	HW
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	05-03-2017
Violations Found:	Yes
Eval Type:	Routine done by local agency
Eval Notes:	Inspector: Walsh Todd Inspection ID:5647045
Eval Division:	San Diego County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	06-04-2019
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	Inspector: Walsh Todd Inspection ID:6165753
Eval Division:	San Diego County Department of Env Health
Eval Program:	HMRRP
Eval Source:	CERS
Eval General Type:	Compliance Evaluation Inspection
Eval Date:	06-04-2019
Violations Found:	No
Eval Type:	Routine done by local agency
Eval Notes:	Inspector: Walsh Todd Inspection ID:6165753
Eval Division:	San Diego County Department of Env Health
Eval Program:	HW
Eval Source:	CERS

Coordinates:

Site ID:	61674
Facility Name:	RINCON DEL DIABLO MWD
Env Int Type Code:	HWG
Program ID:	10368946

RINCON DEL DIABLO MWD (Continued) **S100734078**

Coord Name:	Not reported
Ref Point Type Desc:	Center of a facility or station.
Latitude:	33.152820
Longitude:	-117.095310

Affiliation:

Affiliation Type Desc:	Environmental Contact
Entity Name:	STEVE PLYLER
Entity Title:	Not reported
Affiliation Address:	1920 N. IRIS LANE
Affiliation City:	ESCONDIDO
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92026
Affiliation Phone:	Not reported

Affiliation Type Desc:	Facility Mailing Address
Entity Name:	Mailing Address
Entity Title:	Not reported
Affiliation Address:	1920 N IRIS LN
Affiliation City:	ESCONDIDO
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92026-1318
Affiliation Phone:	Not reported

Affiliation Type Desc:	Parent Corporation
Entity Name:	Rincon Del Diablo MWD
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	Not reported

Affiliation Type Desc:	CUPA District
Entity Name:	San Diego County Env Health
Entity Title:	Not reported
Affiliation Address:	PO Box 129261
Affiliation City:	San Diego
Affiliation State:	CA
Affiliation Country:	Not reported
Affiliation Zip:	92112-9261
Affiliation Phone:	(858) 505-6880

Affiliation Type Desc:	Legal Owner
Entity Name:	RINCON DEL DIABLO MUNICIPAL WAT
Entity Title:	Not reported
Affiliation Address:	1920 N. IRIS LANE
Affiliation City:	ESCONDIDO
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	00000
Affiliation Phone:	(760) 745-5522

Affiliation Type Desc:	Operator

RINCON DEL DIABLO MWD (Continued) **S100734078**

Entity Name:	RINCON DEL DIABLO
Entity Title:	Not reported
Affiliation Address:	Not reported
Affiliation City:	Not reported
Affiliation State:	Not reported
Affiliation Country:	Not reported
Affiliation Zip:	Not reported
Affiliation Phone:	(760) 533-0558
Affiliation Type Desc:	Property Owner
Entity Name:	RINCON DEL DIABLO MUNICIPAL WAT
Entity Title:	Not reported
Affiliation Address:	1920 N. IRIS LANE
Affiliation City:	ESCONDIDO
Affiliation State:	CA
Affiliation Country:	United States
Affiliation Zip:	00000
Affiliation Phone:	(760) 745-5522

D11 **RINCON DEL DIABLO MUNI WATER** **RCRA NonGen / NLR** **1024788178**
South **1920 N IRIS LN** **CAL000042534**
1/8-1/4 **ESCONDIDO, CA 92027**
0.133 mi.
703 ft. **Site 2 of 2 in cluster D**

Relative: RCRA NonGen / NLR:
Lower

Date Form Received by Agency:	1991-01-08 00:00:00.0
Handler Name:	RINCON DEL DIABLO MUNI WATER
Handler Address:	1920 N IRIS LN
Handler City,State,Zip:	ESCONDIDO, CA 92027-0000
EPA ID:	CAL000042534
Contact Name:	CLINT R. BAZE,
Contact Address:	1920 N IRIS LANE
Contact City,State,Zip:	ESCONDIDO, CA 92026
Contact Telephone:	760-745-5522
Contact Fax:	760-745-4235
Contact Email:	CBAZE@RINCONWATER.ORG
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Handler Activities
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	1920 N IRIS LN
Mailing City,State,Zip:	ESCONDIDO, CA 92026-0000
Owner Name:	RINCON DEL DIABLO WTR
Owner Type:	Other
Operator Name:	CLINT R. BAZE,
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No

Actual:
705 ft.

RINCON DEL DIABLO MUNI WATER (Continued) **1024788178**

Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	Yes
Universal Waste Destination Facility:	Yes
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2018-09-05 15:41:32.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name:	RINCON DEL DIABLO WTR
Legal Status:	Other

RINCON DEL DIABLO MUNI WATER (Continued) **1024788178**

Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	1920 N IRIS LN
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026-0000
Owner/Operator Telephone:	760-745-5522
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported
Owner/Operator Indicator:	Operator
Owner/Operator Name:	CLINT R. BAZE,
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	1920 N IRIS LANE
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026
Owner/Operator Telephone:	760-745-5522
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	1991-01-08 00:00:00.0
Handler Name:	RINCON DEL DIABLO MUNI WATER
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

Evaluation Action Summary:

Evaluations:	No Evaluations Found

B12 **BRONNEY SAMONTY** **RCRA NonGen / NLR** **1026469475**
NW **379 ROUNDTREE GLEN** **CAC003074951**
1/8-1/4 **ESCONDIDO, CA 92026**
0.134 mi.
705 ft. **Site 3 of 4 in cluster B**

Relative:
Higher

Actual:
760 ft.

RCRA NonGen / NLR:

Date Form Received by Agency:		2020-07-15 00:00:00.0
Handler Name:	BRONNEY SAMONTY	
Handler Address:		379 ROUNDTREE GLEN
Handler City,State,Zip:		ESCONDIDO, CA 92026
EPA ID:		CAC003074951
Contact Name:		BRONNEY SAMONTY
Contact Address:		379 ROUNDTREE GLEN
Contact City,State,Zip:		ESCONDIDO, CA 92026
Contact Telephone:		760-705-0210
Contact Fax:		Not reported
Contact Email:		VANESSAPIZARRO@ALLIANCE-ENVIRO.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		379 ROUNDTREE GLEN
Mailing City,State,Zip:		ESCONDIDO, CA 92026
Owner Name:		BRONNEY SAMONTY
Owner Type:		Other
Operator Name:		BRONNEY SAMONTY
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported

BRONNEY SAMONTY (Continued) **1026469475**

Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2020-08-14 15:09:08.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name:	BRONNEY SAMONTY
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	379 ROUNDTREE GLEN
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026
Owner/Operator Telephone:	760-705-0210
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name:	BRONNEY SAMONTY
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	379 ROUNDTREE GLEN
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026
Owner/Operator Telephone:	760-705-0210
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

BRONNEY SAMONTY (Continued) **1026469475**

Historic Generators:
Receive Date: 2020-07-15 00:00:00.0
Handler Name: BRONNEY SAMONTY
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

B13 **JEFF BROOKS** **RCRA NonGen / NLR** **1026470907**
NNW **380 ROUNDTREE GLEN** **CAC003076466**
1/8-1/4 **ESCONDIDO, CA 92026**
0.139 mi.
734 ft. **Site 4 of 4 in cluster B**

Relative: **Higher**
Actual: **762 ft.**

RCRA NonGen / NLR:
Date Form Received by Agency: 2020-07-27 00:00:00.0
Handler Name: JEFF BROOKS
Handler Address: 380 ROUNDTREE GLEN
Handler City,State,Zip: ESCONDIDO, CA 92026
EPA ID: CAC003076466
Contact Name: JEFF BROOKS
Contact Address: 380 ROUNDTREE GLEN
Contact City,State,Zip: ESCONDIDO, CA 92026
Contact Telephone: 415-722-5640
Contact Fax: Not reported
Contact Email: VANESSAPIZARRO@ALLIANCE-ENVIRO.COM
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported
Active Site Indicator: Not reported
State District Owner: Not reported
State District: Not reported
Mailing Address: 380 ROUNDTREE GLEN
Mailing City,State,Zip: ESCONDIDO, CA 92026
Owner Name: JEFF BROOKS

JEFF BROOKS (Continued) **1026470907**

Owner Type:	Other
Operator Name:	JEFF BROOKS
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2020-08-14 15:09:37.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No

JEFF BROOKS (Continued) **1026470907**

Sub-Part P Indicator: No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name:	JEFF BROOKS
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	380 ROUNDTREE GLEN
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026
Owner/Operator Telephone:	415-722-5640
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name:	JEFF BROOKS
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	380 ROUNDTREE GLEN
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026
Owner/Operator Telephone:	415-722-5640
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	2020-07-27 00:00:00.0
Handler Name: JEFF BROOKS	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

Evaluation Action Summary:

Evaluations:	No Evaluations Found

14
NNW
1/8-1/4
0.140 mi.
737 ft.

LINDA WISMA
232 CRESTVIEW GLEN
ESCONDIDO, CA 92026

RCRA NonGen / NLR

1026465450
CAC003070690

Relative:
Higher

Actual:
728 ft.

RCRA NonGen / NLR:

Date Form Received by Agency:		2020-06-12 00:00:00.0
Handler Name:	LINDA WISMA	
Handler Address:		232 CRESTVIEW GLEN
Handler City,State,Zip:		ESCONDIDO, CA 92026
EPA ID:		CAC003070690
Contact Name:		LINDA WISMA
Contact Address:		232 CRESTVIEW GLEN
Contact City,State,Zip:		ESCONDIDO, CA 92026
Contact Telephone:		760-484-2008
Contact Fax:		Not reported
Contact Email:		CUSTOMERSERVICE@EFRENVIRO.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Not reported
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		232 CRESTVIEW GLEN
Mailing City,State,Zip:		ESCONDIDO, CA 92026
Owner Name:		LINDA WISMA
Owner Type:		Other
Operator Name:		LINDA WISMA
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		No
Universal Waste Destination Facility:		No
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported

LINDA WISMA (Continued) **1026465450**

Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2020-07-10 18:44:05.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name:	LINDA WISMA
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	232 CRESTVIEW GLEN
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026
Owner/Operator Telephone:	760-484-2008
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name:	LINDA WISMA
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	232 CRESTVIEW GLEN
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026
Owner/Operator Telephone:	760-484-2008
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

LINDA WISMA (Continued) **1026465450**

Historic Generators:
Receive Date: 2020-06-12 00:00:00.0
Handler Name: LINDA WISMA
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

C15 **ULDA SANTANA** **RCRA NonGen / NLR** **1026468071**
WNW **2132 WOODGLEN PLACE** **CAC003073466**
1/8-1/4 **ESCONDIDO, CA 92026**
0.156 mi.
824 ft. **Site 2 of 2 in cluster C**

Relative:
Higher

Actual:
757 ft.

RCRA NonGen / NLR:
Date Form Received by Agency: 2020-07-06 00:00:00.0
Handler Name: ULDA SANTANA
Handler Address: 2132 WOODGLEN PLACE
Handler City,State,Zip: ESCONDIDO, CA 92026
EPA ID: CAC003073466
Contact Name: ULDA SANTANA
Contact Address: 2132 WOODGLEN PLACE
Contact City,State,Zip: ESCONDIDO, CA 92026
Contact Telephone: 760-805-2348
Contact Fax: Not reported
Contact Email: VANESSAPIZARRO@ALLIANCE-ENVIRO.COM
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported
Active Site Indicator: Not reported
State District Owner: Not reported
State District: Not reported
Mailing Address: 2132 WOODGLEN PLACE
Mailing City,State,Zip: ESCONDIDO, CA 92026
Owner Name: ULDA SANTANA

ULDA SANTANA (Continued) **1026468071**

Owner Type:	Other
Operator Name:	ULDA SANTANA
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2020-07-10 18:45:05.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No

ULDA SANTANA (Continued) **1026468071**

Sub-Part P Indicator: No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name:	ULDA SANTANA
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	2132 WOODGLEN PLACE
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026
Owner/Operator Telephone:	760-805-2348
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name:	ULDA SANTANA
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	2132 WOODGLEN PLACE
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026
Owner/Operator Telephone:	760-805-2348
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	2020-07-06 00:00:00.0
Handler Name: ULDA SANTANA	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations: No Violations Found

Evaluation Action Summary:

Evaluations: No Evaluations Found

16
North
1/8-1/4
0.173 mi.
913 ft.

YVONNE BURDICK
213 CRESTVIEW GLEN
ESCONDIDO, CA 92026

RCRA NonGen / NLR

1025830868
CAC003010425

Relative:
Higher

Actual:
719 ft.

RCRA NonGen / NLR:

Date Form Received by Agency:		2019-04-16 00:00:00.0
Handler Name:	YVONNE BURDICK	
Handler Address:		213 CRESTVIEW GLEN
Handler City,State,Zip:		ESCONDIDO, CA 92026
EPA ID:		CAC003010425
Contact Name:		YVONNE BURDICK
Contact Address:		213 CRESTVIEW GLEN
Contact City,State,Zip:		ESCONDIDO, CA 92026
Contact Telephone:		858-204-2505
Contact Fax:		Not reported
Contact Email:		NANCYL@PWSEI.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Handler Activities
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		213 CRESTVIEW GLEN
Mailing City,State,Zip:		ESCONDIDO, CA 92026
Owner Name:		YVONNE BURDICK
Owner Type:		Other
Operator Name:		YVONNE BURDICK
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		Yes
Universal Waste Destination Facility:		Yes
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported

YVONNE BURDICK (Continued) **1025830868**

Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2019-06-26 18:52:18.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name:	YVONNE BURDICK
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	213 CRESTVIEW GLEN
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026
Owner/Operator Telephone:	858-204-2505
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name:	YVONNE BURDICK
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	213 CRESTVIEW GLEN
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026
Owner/Operator Telephone:	858-204-2505
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

YVONNE BURDICK (Continued) **1025830868**

Historic Generators:
- Receive Date: 2019-04-16 00:00:00.0
- Handler Name: YVONNE BURDICK
- Federal Waste Generator Description: Not a generator, verified
- State District Owner: Not reported
- Large Quantity Handler of Universal Waste: No
- Recognized Trader Importer: No
- Recognized Trader Exporter: No
- Spent Lead Acid Battery Importer: No
- Spent Lead Acid Battery Exporter: No
- Current Record: Yes
- Non Storage Recycler Activity: Not reported
- Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
- NAICS Code: 56299
- NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
- Violations: No Violations Found

Evaluation Action Summary:
- Evaluations: No Evaluations Found

17
NW
1/8-1/4
0.195 mi.
1032 ft.

DENA MCKENNEY **RCRA NonGen / NLR** **1024750830**
522 SMOKETREE GLEN **CAC002970620**
ESCONDIDO, CA 92026

Relative:
Higher

Actual:
788 ft.

RCRA NonGen / NLR:
- Date Form Received by Agency: 2018-07-12 00:00:00.0
- Handler Name: DENA MCKENNEY
- Handler Address: 522 SMOKETREE GLEN
- Handler City,State,Zip: ESCONDIDO, CA 92026
- EPA ID: CAC002970620
- Contact Name: DENA MCKENNEY
- Contact Address: 522 SMOKETREE GLEN
- Contact City,State,Zip: ESCONDIDO, CA 92026
- Contact Telephone: 619-850-9190
- Contact Fax: Not reported
- Contact Email: SOCALREMEDIATION@GMAIL.COM
- Contact Title: Not reported
- EPA Region: 09
- Land Type: Not reported
- Federal Waste Generator Description: Not a generator, verified
- Non-Notifier: Not reported
- Biennial Report Cycle: Not reported
- Accessibility: Not reported
- Active Site Indicator: Handler Activities
- State District Owner: Not reported
- State District: Not reported
- Mailing Address: 522 SMOKETREE GLEN
- Mailing City,State,Zip: ESCONDIDO, CA 92026
- Owner Name: DENA MCKENNEY

DENA MCKENNEY (Continued) **1024750830**

Owner Type:	Other
Operator Name:	DENA MCKENNEY
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	Yes
Universal Waste Destination Facility:	Yes
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2018-09-05 15:39:10.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No

DENA MCKENNEY (Continued) **1024750830**

Sub-Part P Indicator: No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name:	DENA MCKENNEY
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	522 SMOKETREE GLEN
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026
Owner/Operator Telephone:	619-850-9190
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name:	DENA MCKENNEY
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	522 SMOKETREE GLEN
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026
Owner/Operator Telephone:	619-850-9190
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	2018-07-12 00:00:00.0
Handler Name: DENA MCKENNEY	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations:	No Violations Found

Evaluation Action Summary:

Evaluations:	No Evaluations Found

E18
WNW
1/8-1/4
0.230 mi.
1212 ft.

JUSTIN PANLASIGUI
2107 PEPPER TREE PL
ESCONDIDO, CA 92026

Site 1 of 2 in cluster E

RCRA NonGen / NLR **1025846222**
CAC003025994

Relative:
Higher

Actual:
757 ft.

RCRA NonGen / NLR:

Date Form Received by Agency:		2019-07-26 00:00:00.0
Handler Name:	JUSTIN PANLASIGUI	
Handler Address:		2107 PEPPER TREE PL
Handler City,State,Zip:		ESCONDIDO, CA 92026-1304
EPA ID:		CAC003025994
Contact Name:		JUSTIN PANLASIGUI
Contact Address:		2107 PEPPER TREE PL
Contact City,State,Zip:		ESCONDIDO, CA 92026-1304
Contact Telephone:		760-505-2920
Contact Fax:		Not reported
Contact Email:		RTRIM@HSABATEMENT.COM
Contact Title:		Not reported
EPA Region:		09
Land Type:		Not reported
Federal Waste Generator Description:		Not a generator, verified
Non-Notifier:		Not reported
Biennial Report Cycle:		Not reported
Accessibility:		Not reported
Active Site Indicator:		Handler Activities
State District Owner:		Not reported
State District:		Not reported
Mailing Address:		2107 PEPPER TREE PL
Mailing City,State,Zip:		ESCONDIDO, CA 92026-1304
Owner Name:		JUSTIN PANLASIGUI
Owner Type:		Other
Operator Name:		JUSTIN PANLASIGUI
Operator Type:		Other
Short-Term Generator Activity:		No
Importer Activity:		No
Mixed Waste Generator:		No
Transporter Activity:		No
Transfer Facility Activity:		No
Recycler Activity with Storage:		No
Small Quantity On-Site Burner Exemption:		No
Smelting Melting and Refining Furnace Exemption:		No
Underground Injection Control:		No
Off-Site Waste Receipt:		No
Universal Waste Indicator:		Yes
Universal Waste Destination Facility:		Yes
Federal Universal Waste:		No
Active Site Fed-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site Converter Treatment storage and Disposal Facility:		Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:		Not reported
Active Site State-Reg Handler:		---
Federal Facility Indicator:		Not reported
Hazardous Secondary Material Indicator:		N
Sub-Part K Indicator:		Not reported
Commercial TSD Indicator:		No
Treatment Storage and Disposal Type:		Not reported
2018 GPRA Permit Baseline:		Not on the Baseline
2018 GPRA Renewals Baseline:		Not on the Baseline
Permit Renewals Workload Universe:		Not reported

JUSTIN PANLASIGUI (Continued) **1025846222**

Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2019-07-29 17:13:38.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Operator
Owner/Operator Name:	JUSTIN PANLASIGUI
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	2107 PEPPER TREE PL
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026-1304
Owner/Operator Telephone:	760-505-2920
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Owner
Owner/Operator Name:	JUSTIN PANLASIGUI
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	2107 PEPPER TREE PL
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026-1304
Owner/Operator Telephone:	760-550-7739
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

JUSTIN PANLASIGUI (Continued) **1025846222**

Historic Generators:
Receive Date: 2019-07-26 00:00:00.0
Handler Name: JUSTIN PANLASIGUI
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 56299
NAICS Description: ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

E19 **CORA GARLAND** **RCRA NonGen / NLR** **1025846459**
WNW **2109 PEPPER TREE PL** **CAC003026295**
1/8-1/4 **ESCONDIDO, CA 92026**
0.232 mi.
1224 ft. **Site 2 of 2 in cluster E**

Relative:
Higher

Actual:
757 ft.

RCRA NonGen / NLR:
Date Form Received by Agency: 2019-07-29 00:00:00.0
Handler Name: CORA GARLAND
Handler Address: 2109 PEPPER TREE PL
Handler City,State,Zip: ESCONDIDO, CA 92026-1304
EPA ID: CAC003026295
Contact Name: CORA GARLAND
Contact Address: 2109 PEPPER TREE PL
Contact City,State,Zip: ESCONDIDO, CA 92026-1304
Contact Telephone: 760-877-9309
Contact Fax: Not reported
Contact Email: CINDYEDWARDS@ALLIANCE-ENVIRO.COM
Contact Title: Not reported
EPA Region: 09
Land Type: Not reported
Federal Waste Generator Description: Not a generator, verified
Non-Notifier: Not reported
Biennial Report Cycle: Not reported
Accessibility: Not reported
Active Site Indicator: Not reported
State District Owner: Not reported
State District: Not reported
Mailing Address: 2109 PEPPER TREE PL
Mailing City,State,Zip: ESCONDIDO, CA 92026-1304
Owner Name: CORA GARLAND

CORA GARLAND (Continued) **1025846459**

Owner Type:	Other
Operator Name:	CORA GARLAND
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported
Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2019-09-10 15:06:10.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No

CORA GARLAND (Continued) **1025846459**

Sub-Part P Indicator: No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name:	CORA GARLAND
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	2109 PEPPER TREE PL
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026-1304
Owner/Operator Telephone:	760-877-9309
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name:	CORA GARLAND
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	2109 PEPPER TREE PL
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026-1304
Owner/Operator Telephone:	760-877-9309
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Historic Generators:

Receive Date:	2019-07-29 00:00:00.0
Handler Name: CORA GARLAND	
Federal Waste Generator Description:	Not a generator, verified
State District Owner:	Not reported
Large Quantity Handler of Universal Waste:	No
Recognized Trader Importer:	No
Recognized Trader Exporter:	No
Spent Lead Acid Battery Importer:	No
Spent Lead Acid Battery Exporter:	No
Current Record:	Yes
Non Storage Recycler Activity:	Not reported
Electronic Manifest Broker:	Not reported

List of NAICS Codes and Descriptions:

NAICS Code:	56299
NAICS Description:	ALL OTHER WASTE MANAGEMENT SERVICES

Facility Has Received Notices of Violations:

Violations: No Violations Found

Evaluation Action Summary:

Evaluations: No Evaluations Found

20
ESE
1/8-1/4
0.239 mi.
1262 ft.

CALVIN CHRISTIAN SCHOOL
2000 N BROADWAY
ESCONDIDO, CA 92026

RCRA NonGen / NLR

1025856245
CAC003036557

Relative:
Lower

Actual:
709 ft.

RCRA NonGen / NLR:

Date Form Received by Agency:	2019-10-01 00:00:00.0
Handler Name:	CALVIN CHRISTIAN SCHOOL
Handler Address:	2000 N BROADWAY
Handler City,State,Zip:	ESCONDIDO, CA 92026
EPA ID:	CAC003036557
Contact Name:	BILL STUTZMAN
Contact Address:	2000 N BROADWAY
Contact City,State,Zip:	ESCONDIDO, CA 92026
Contact Telephone:	760-489-6430
Contact Fax:	Not reported
Contact Email:	BILLSTUTZMAN@CALVINSOCAL.ORG
Contact Title:	Not reported
EPA Region:	09
Land Type:	Not reported
Federal Waste Generator Description:	Not a generator, verified
Non-Notifier:	Not reported
Biennial Report Cycle:	Not reported
Accessibility:	Not reported
Active Site Indicator:	Not reported
State District Owner:	Not reported
State District:	Not reported
Mailing Address:	2000 N BROADWAY
Mailing City,State,Zip:	ESCONDIDO, CA 92026
Owner Name:	CALVIN CHRISTIAN SCHOOL
Owner Type:	Other
Operator Name:	BILL STUTZMAN
Operator Type:	Other
Short-Term Generator Activity:	No
Importer Activity:	No
Mixed Waste Generator:	No
Transporter Activity:	No
Transfer Facility Activity:	No
Recycler Activity with Storage:	No
Small Quantity On-Site Burner Exemption:	No
Smelting Melting and Refining Furnace Exemption:	No
Underground Injection Control:	No
Off-Site Waste Receipt:	No
Universal Waste Indicator:	No
Universal Waste Destination Facility:	No
Federal Universal Waste:	No
Active Site Fed-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site Converter Treatment storage and Disposal Facility:	Not reported
Active Site State-Reg Treatment Storage and Disposal Facility:	Not reported
Active Site State-Reg Handler:	---
Federal Facility Indicator:	Not reported
Hazardous Secondary Material Indicator:	N
Sub-Part K Indicator:	Not reported
Commercial TSD Indicator:	No
Treatment Storage and Disposal Type:	Not reported
2018 GPRA Permit Baseline:	Not on the Baseline
2018 GPRA Renewals Baseline:	Not on the Baseline
Permit Renewals Workload Universe:	Not reported

CALVIN CHRISTIAN SCHOOL (Continued) **1025856245**

Permit Workload Universe:	Not reported
Permit Progress Universe:	Not reported
Post-Closure Workload Universe:	Not reported
Closure Workload Universe:	Not reported
202 GPRA Corrective Action Baseline:	No
Corrective Action Workload Universe:	No
Subject to Corrective Action Universe:	No
Non-TSDFs Where RCRA CA has Been Imposed Universe:	No
TSDFs Potentially Subject to CA Under 3004 (u)/(v) Universe:	No
TSDFs Only Subject to CA under Discretionary Auth Universe:	No
Corrective Action Priority Ranking:	No NCAPS ranking
Environmental Control Indicator:	No
Institutional Control Indicator:	No
Human Exposure Controls Indicator:	N/A
Groundwater Controls Indicator:	N/A
Operating TSDF Universe:	Not reported
Full Enforcement Universe:	Not reported
Significant Non-Complier Universe:	No
Unaddressed Significant Non-Complier Universe:	No
Addressed Significant Non-Complier Universe:	No
Significant Non-Complier With a Compliance Schedule Universe:	No
Financial Assurance Required:	Not reported
Handler Date of Last Change:	2019-10-04 16:30:49.0
Recognized Trader-Importer:	No
Recognized Trader-Exporter:	No
Importer of Spent Lead Acid Batteries:	No
Exporter of Spent Lead Acid Batteries:	No
Recycler Activity Without Storage:	No
Manifest Broker:	No
Sub-Part P Indicator:	No

Handler - Owner Operator:

Owner/Operator Indicator:	Owner
Owner/Operator Name:	CALVIN CHRISTIAN SCHOOL
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	2000 N BROADWAY
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026
Owner/Operator Telephone:	760-489-6430
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

Owner/Operator Indicator:	Operator
Owner/Operator Name:	BILL STUTZMAN
Legal Status:	Other
Date Became Current:	Not reported
Date Ended Current:	Not reported
Owner/Operator Address:	2000 N BROADWAY
Owner/Operator City,State,Zip:	ESCONDIDO, CA 92026
Owner/Operator Telephone:	760-489-6430
Owner/Operator Telephone Ext:	Not reported
Owner/Operator Fax:	Not reported
Owner/Operator Email:	Not reported

CALVIN CHRISTIAN SCHOOL (Continued) **1025856245**

Historic Generators:
Receive Date: 2019-10-01 00:00:00.0
Handler Name: CALVIN CHRISTIAN SCHOOL
Federal Waste Generator Description: Not a generator, verified
State District Owner: Not reported
Large Quantity Handler of Universal Waste: No
Recognized Trader Importer: No
Recognized Trader Exporter: No
Spent Lead Acid Battery Importer: No
Spent Lead Acid Battery Exporter: No
Current Record: Yes
Non Storage Recycler Activity: Not reported
Electronic Manifest Broker: Not reported

List of NAICS Codes and Descriptions:
NAICS Code: 611620
NAICS Description: SPORTS AND RECREATION INSTRUCTION

Facility Has Received Notices of Violations:
Violations: No Violations Found

Evaluation Action Summary:
Evaluations: No Evaluations Found

Count: 0 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
		NO SITES FOUND			

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List

National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 10/28/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 11/25/2020
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 01/14/2021
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 3
Telephone 215-814-5418

EPA Region 4
Telephone 404-562-8033

EPA Region 5
Telephone 312-886-6686

EPA Region 6
Telephone: 214-655-6659

EPA Region 7
Telephone: 913-551-7247

EPA Region 8
Telephone: 303-312-6774

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites

A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 10/28/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 11/25/2020
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 01/14/2021
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens

Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

Federal Delisted NPL site list

Delisted NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 10/28/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 11/25/2020
Number of Days to Update: 20

Source: EPA
Telephone: N/A
Last EDR Contact: 01/14/2021
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Quarterly

Federal CERCLIS list

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 04/03/2019
Date Data Arrived at EDR: 04/05/2019
Date Made Active in Reports: 05/14/2019
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 12/23/2020
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Varies

SEMS: Superfund Enterprise Management System

SEMS (Superfund Enterprise Management System) tracks hazardous waste sites, potentially hazardous waste sites, and remedial activities performed in support of EPA's Superfund Program across the United States. The list was formerly know as CERCLIS, renamed to SEMS by the EPA in 2015. The list contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). This dataset also contains sites which are either proposed to or on the National Priorities List (NPL) and the sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 10/28/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 11/25/2020
Number of Days to Update: 20

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 01/14/2021
Next Scheduled EDR Contact: 04/26/2021
Data Release Frequency: Quarterly

Federal CERCLIS NFRAP site list

SEMS-ARCHIVE: Superfund Enterprise Management System Archive

SEMS-ARCHIVE (Superfund Enterprise Management System Archive) tracks sites that have no further interest under the Federal Superfund Program based on available information. The list was formerly known as the CERCLIS-NFRAP, renamed to SEMS ARCHIVE by the EPA in 2015. EPA may perform a minimal level of assessment work at a site while it is archived if site conditions change and/or new information becomes available. Archived sites have been removed and archived from the inventory of SEMS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list the site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. The decision does not necessarily mean that there is no hazard associated with a given site; it only means that. based upon available information, the location is not judged to be potential NPL site.

Date of Government Version: 10/28/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 11/25/2020
Number of Days to Update: 20

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 01/14/2021
Next Scheduled EDR Contact: 04/26/2021
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 5

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 12/17/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 5

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/17/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 5

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/17/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 5

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/17/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

RCRA-VSQG: RCRA - Very Small Quantity Generators (Formerly Conditionally Exempt Small Quantity Generators)

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Very small quantity generators (VSQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 5

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/17/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

Federal institutional controls / engineering controls registries

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 08/06/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 11/11/2020
Number of Days to Update: 82

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 11/05/2020
Next Scheduled EDR Contact: 02/22/2021
Data Release Frequency: Varies

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 10/28/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 11/18/2020
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 11/05/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: Varies

US INST CONTROLS: Institutional Controls Sites List

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 10/28/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 11/18/2020
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 11/05/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/15/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 7

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 12/15/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 10/26/2020
Date Data Arrived at EDR: 10/26/2020
Date Made Active in Reports: 01/13/2021
Number of Days to Update: 79

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/26/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 10/26/2020
Date Data Arrived at EDR: 10/26/2020
Date Made Active in Reports: 01/13/2021
Number of Days to Update: 79

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/26/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 11/09/2020
Date Data Arrived at EDR: 11/10/2020
Date Made Active in Reports: 01/14/2021
Number of Days to Update: 65

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 11/10/2020
Next Scheduled EDR Contact: 02/22/2021
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing
Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

LUST REG 8: Leaking Underground Storage Tanks
California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

LUST: Leaking Underground Fuel Tank Report (GEOTRACKER)
Leaking Underground Storage Tank (LUST) Sites included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Quarterly

LUST REG 4: Underground Storage Tank Leak List

Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database

Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6L: Leaking Underground Storage Tank Case Listing

For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land

LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land

A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 04/29/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN LUST R5: Leaking Underground Storage Tanks on Indian Land
Leaking underground storage tanks located on Indian Land in Michigan, Minnesota and Wisconsin.

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84
Source: EPA, Region 5
Telephone: 312-886-7439
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/26/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 78
Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 04/08/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84
Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84
Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 04/15/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 04/08/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84
Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

CPS-SLIC: Statewide SLIC Cases (GEOTRACKER)
Cleanup Program Sites (CPS; also known as Site Cleanups [SC] and formerly known as Spills, Leaks, Investigations, and Cleanups [SLIC] sites) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: No Update Planned

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: No Update Planned

State and tribal registered storage tank lists

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 07/21/2020
Date Data Arrived at EDR: 09/03/2020
Date Made Active in Reports: 11/25/2020
Number of Days to Update: 83

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 01/04/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Varies

UST CLOSURE: Proposed Closure of Underground Storage Tank (UST) Cases
UST cases that are being considered for closure by either the State Water Resources Control Board or the Executive Director have been posted for a 60-day public comment period. UST Case Closures being proposed for consideration by the State Water Resources Control Board. These are primarily UST cases that meet closure criteria under the decisional framework in State Water Board Resolution No. 92-49 and other Board orders. UST Case Closures proposed for consideration by the Executive Director pursuant to State Water Board Resolution No. 2012-0061. These are cases that meet the criteria of the Low-Threat UST Case Closure Policy. UST Case Closure Review Denials and Approved Orders.

Date of Government Version: 09/03/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 12/03/2020
Number of Days to Update: 86
Source: State Water Resources Control Board
Telephone: 916-327-7844
Last EDR Contact: 12/08/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

MILITARY UST SITES: Military UST Sites (GEOTRACKER)
Military ust sites

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83
Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
A listing of aboveground storage tank petroleum storage tank locations.

Date of Government Version: 07/06/2016
Date Data Arrived at EDR: 07/12/2016
Date Made Active in Reports: 09/19/2016
Number of Days to Update: 69
Source: California Environmental Protection Agency
Telephone: 916-327-5092
Last EDR Contact: 12/09/2020
Next Scheduled EDR Contact: 03/29/2021
Data Release Frequency: Varies

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 04/03/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84
Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 04/08/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84
Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84
Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 12/15/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN UST R1: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 04/29/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN UST R8: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 85

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/26/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 78

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 04/08/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INDIAN UST R5: Underground Storage Tanks on Indian Land

The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 04/14/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 84

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 12/16/2020
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R1: Voluntary Cleanup Priority Listing

A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 07/27/2015
Date Data Arrived at EDR: 09/29/2015
Date Made Active in Reports: 02/18/2016
Number of Days to Update: 142

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 12/15/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Varies

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 10/26/2020
Date Data Arrived at EDR: 10/26/2020
Date Made Active in Reports: 01/13/2021
Number of Days to Update: 79

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/26/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Quarterly

State and tribal Brownfields sites

BROWNFIELDS: Considered Brownfieds Sites Listing
A listing of sites the SWRCB considers to be Brownfields since these are sites have come to them through the MOA Process.

Date of Government Version: 09/21/2020
Date Data Arrived at EDR: 09/22/2020
Date Made Active in Reports: 12/11/2020
Number of Days to Update: 80

Source: State Water Resources Control Board
Telephone: 916-323-7905
Last EDR Contact: 12/17/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 09/14/2020
Date Data Arrived at EDR: 09/15/2020
Date Made Active in Reports: 12/10/2020
Number of Days to Update: 86

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 12/11/2020
Next Scheduled EDR Contact: 03/29/2021
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 01/25/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/08/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 05/28/2020
Date Data Arrived at EDR: 05/29/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 75

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 11/05/2020
Next Scheduled EDR Contact: 02/22/2021
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 01/25/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Varies

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: No Update Planned

IHS OPEN DUMPS: Open Dumps on Indian Land
A listing of all open dumps located on Indian Land in the United States.

Date of Government Version: 04/01/2014
Date Data Arrived at EDR: 08/06/2014
Date Made Active in Reports: 01/29/2015
Number of Days to Update: 176

Source: Department of Health & Human Serivces, Indian Health Service
Telephone: 301-443-1452
Last EDR Contact: 10/30/2020
Next Scheduled EDR Contact: 02/08/2021
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations that have been removed from the DEAs National Clandestine Laboratory Register.

Date of Government Version: 03/18/2020
Date Data Arrived at EDR: 03/19/2020
Date Made Active in Reports: 06/09/2020
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/16/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: No Update Planned

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 10/26/2020
Date Data Arrived at EDR: 10/26/2020
Date Made Active in Reports: 01/13/2021
Number of Days to Update: 79

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/26/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Quarterly

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 06/30/2019
Date Data Arrived at EDR: 05/28/2020
Date Made Active in Reports: 08/12/2020
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Varies

CERS HAZ WASTE: CERS HAZ WASTE

List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Hazardous Chemical Management, Hazardous Waste Onsite Treatment, Household Hazardous Waste Collection, Hazardous Waste Generator, and RCRA LQ HW Generator programs.

Date of Government Version: 10/19/2020
Date Data Arrived at EDR: 10/19/2020
Date Made Active in Reports: 01/07/2021
Number of Days to Update: 80

Source: CalEPA
Telephone: 916-323-2514
Last EDR Contact: 01/20/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

US CDL: Clandestine Drug Labs

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 03/18/2020
Date Data Arrived at EDR: 03/19/2020
Date Made Active in Reports: 06/09/2020
Number of Days to Update: 82

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 11/16/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: Quarterly

PFAS: PFAS Contamination Site Location Listing

A listing of PFAS contaminated sites included in the GeoTracker database.

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 12/01/2020
Number of Days to Update: 84

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/08/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

Local Lists of Registered Storage Tanks

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 05/20/2020
Date Data Arrived at EDR: 05/20/2020
Date Made Active in Reports: 08/06/2020
Number of Days to Update: 78

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 11/16/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SAN FRANCISCO AST: Aboveground Storage Tank Site Listing
Aboveground storage tank sites

Date of Government Version: 11/05/2020
Date Data Arrived at EDR: 11/06/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 81

Source: San Francisco County Department of Public Health
Telephone: 415-252-3896
Last EDR Contact: 10/28/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Varies

CA FID UST: Facility Inventory Database
The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CERS TANKS: California Environmental Reporting System (CERS) Tanks
List of sites in the California Environmental Protection Agency (CalEPA) Regulated Site Portal which fall under the Aboveground Petroleum Storage and Underground Storage Tank regulatory programs.

Date of Government Version: 10/19/2020
Date Data Arrived at EDR: 10/19/2020
Date Made Active in Reports: 01/07/2021
Number of Days to Update: 80

Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 01/20/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Quarterly

Local Land Records

LIENS: Environmental Liens Listing
A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 08/26/2020
Date Data Arrived at EDR: 08/28/2020
Date Made Active in Reports: 11/17/2020
Number of Days to Update: 81

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/23/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Varies

LIENS 2: CERCLA Lien Information
A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 10/28/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 11/25/2020
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 01/14/2021
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Semi-Annually

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 08/31/2020
Date Data Arrived at EDR: 08/31/2020
Date Made Active in Reports: 11/20/2020
Number of Days to Update: 81
Source: DTSC and SWRCB
Telephone: 916-323-3400
Last EDR Contact: 12/01/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 09/20/2020
Date Data Arrived at EDR: 09/22/2020
Date Made Active in Reports: 12/14/2020
Number of Days to Update: 83
Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 12/17/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 09/30/2020
Date Data Arrived at EDR: 10/19/2020
Date Made Active in Reports: 01/07/2021
Number of Days to Update: 80
Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 01/20/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Semi-Annually

LDS: Land Disposal Sites Listing (GEOTRACKER)

Land Disposal sites (Landfills) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83
Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing (GEOTRACKER)

Military sites (consisting of: Military UST sites; Military Privatized sites; and Military Cleanup sites [formerly known as DoD non UST]) included in GeoTracker. GeoTracker is the Water Boards data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater.

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Quarterly

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators / No Longer Regulated

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 12/14/2020
Date Data Arrived at EDR: 12/17/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 5

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 12/17/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 09/29/2020
Date Data Arrived at EDR: 11/17/2020
Date Made Active in Reports: 01/25/2021
Number of Days to Update: 69

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 11/17/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 01/15/2021
Next Scheduled EDR Contact: 04/26/2021
Data Release Frequency: Semi-Annually

FEDLAND: Federal and Indian Lands

Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/11/2018
Date Made Active in Reports: 11/06/2019
Number of Days to Update: 574

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 01/07/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: N/A

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 01/01/2017
Date Data Arrived at EDR: 02/03/2017
Date Made Active in Reports: 04/07/2017
Number of Days to Update: 63
Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 11/09/2020
Next Scheduled EDR Contact: 02/22/2021
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 09/21/2020
Date Data Arrived at EDR: 09/22/2020
Date Made Active in Reports: 12/14/2020
Number of Days to Update: 83
Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 12/17/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

EPA WATCH LIST: EPA WATCH LIST

EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 08/30/2013
Date Data Arrived at EDR: 03/21/2014
Date Made Active in Reports: 06/17/2014
Number of Days to Update: 88
Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 11/02/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Quarterly

2020 COR ACTION: 2020 Corrective Action Program List

The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 09/30/2017
Date Data Arrived at EDR: 05/08/2018
Date Made Active in Reports: 07/20/2018
Number of Days to Update: 73
Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 11/06/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Varies

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2016
Date Data Arrived at EDR: 06/17/2020
Date Made Active in Reports: 09/10/2020
Number of Days to Update: 85
Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 12/18/2020
Next Scheduled EDR Contact: 03/29/2021
Data Release Frequency: Every 4 Years

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 08/14/2020
Date Made Active in Reports: 11/04/2020
Number of Days to Update: 82

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 11/17/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Annually

SSTS: Section 7 Tracking Systems

Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 10/19/2020
Date Data Arrived at EDR: 10/19/2020
Date Made Active in Reports: 01/04/2021
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 01/21/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Annually

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 10/28/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 11/25/2020
Number of Days to Update: 20

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 01/14/2021
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Annually

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 11/02/2020
Date Data Arrived at EDR: 11/12/2020
Date Made Active in Reports: 01/25/2021
Number of Days to Update: 74

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 04/27/2020
Date Data Arrived at EDR: 05/06/2020
Date Made Active in Reports: 06/09/2020
Number of Days to Update: 34
Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 01/14/2021
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Quarterly

PADS: PCB Activity Database System
PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 10/09/2019
Date Data Arrived at EDR: 10/11/2019
Date Made Active in Reports: 12/20/2019
Number of Days to Update: 70
Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 01/08/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Annually

ICIS: Integrated Compliance Information System
The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 11/18/2016
Date Data Arrived at EDR: 11/23/2016
Date Made Active in Reports: 02/10/2017
Number of Days to Update: 79
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/30/2020
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Quarterly

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25
Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/18/2017
Next Scheduled EDR Contact: 12/04/2017
Data Release Frequency: No Update Planned

MLTS: Material Licensing Tracking System
MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 08/05/2020
Date Data Arrived at EDR: 08/10/2020
Date Made Active in Reports: 10/08/2020
Number of Days to Update: 59
Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COAL ASH DOE: Steam-Electric Plant Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 12/04/2019
Date Made Active in Reports: 01/15/2020
Number of Days to Update: 42
Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 12/01/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 01/12/2017
Date Data Arrived at EDR: 03/05/2019
Date Made Active in Reports: 11/11/2019
Number of Days to Update: 251
Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 11/30/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Varies

PCB TRANSFORMER: PCB Transformer Registration Database
The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 09/13/2019
Date Data Arrived at EDR: 11/06/2019
Date Made Active in Reports: 02/10/2020
Number of Days to Update: 96
Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 11/06/2021
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Varies

RADINFO: Radiation Information Database
The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 07/01/2019
Date Data Arrived at EDR: 07/01/2019
Date Made Active in Reports: 09/23/2019
Number of Days to Update: 84
Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 01/08/2021
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40
Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 01/02/2020
Date Data Arrived at EDR: 01/28/2020
Date Made Active in Reports: 04/17/2020
Number of Days to Update: 80

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 01/27/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Quarterly

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 09/30/2020
Date Data Arrived at EDR: 10/08/2020
Date Made Active in Reports: 01/04/2021
Number of Days to Update: 88

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 01/04/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2017
Date Data Arrived at EDR: 06/22/2020
Date Made Active in Reports: 11/20/2020
Number of Days to Update: 151

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 12/23/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Biennially

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 07/14/2015
Date Made Active in Reports: 01/10/2017
Number of Days to Update: 546

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 01/08/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Semi-Annually

FUSRAP: Formerly Utilized Sites Remedial Action Program

DOE established the Formerly Utilized Sites Remedial Action Program (FUSRAP) in 1974 to remediate sites where radioactive contamination remained from Manhattan Project and early U.S. Atomic Energy Commission (AEC) operations.

Date of Government Version: 08/08/2017
Date Data Arrived at EDR: 09/11/2018
Date Made Active in Reports: 09/14/2018
Number of Days to Update: 3

Source: Department of Energy
Telephone: 202-586-3559
Last EDR Contact: 11/06/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Varies

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 08/30/2019
Date Data Arrived at EDR: 11/15/2019
Date Made Active in Reports: 01/28/2020
Number of Days to Update: 74

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 11/20/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 10/28/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 11/25/2020
Number of Days to Update: 20

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 01/14/2021
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites
A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)
The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 10/12/2016
Date Data Arrived at EDR: 10/26/2016
Date Made Active in Reports: 02/03/2017
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 09/26/2017
Next Scheduled EDR Contact: 01/08/2018
Data Release Frequency: Annually

US MINES: Mines Master Index File
Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 11/03/2020
Date Data Arrived at EDR: 11/23/2020
Date Made Active in Reports: 01/25/2021
Number of Days to Update: 63

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 11/23/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: Semi-Annually

MINES VIOLATIONS: MSHA Violation Assessment Data
Mines violation and assessment information. Department of Labor, Mine Safety & Health Administration.

Date of Government Version: 11/24/2020
Date Data Arrived at EDR: 11/30/2020
Date Made Active in Reports: 01/25/2021
Number of Days to Update: 56

Source: DOL, Mine Safety & Health Admi
Telephone: 202-693-9424
Last EDR Contact: 11/24/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Quarterly

US MINES 2: Ferrous and Nonferrous Metal Mines Database Listing

This map layer includes ferrous (ferrous metal mines are facilities that extract ferrous metals, such as iron ore or molybdenum) and nonferrous (Nonferrous metal mines are facilities that extract nonferrous metals, such as gold, silver, copper, zinc, and lead) metal mines in the United States.

Date of Government Version: 05/06/2020
Date Data Arrived at EDR: 05/27/2020
Date Made Active in Reports: 08/13/2020
Number of Days to Update: 78

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 11/25/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: Varies

US MINES 3: Active Mines & Mineral Plants Database Listing

Active Mines and Mineral Processing Plant operations for commodities monitored by the Minerals Information Team of the USGS.

Date of Government Version: 04/14/2011
Date Data Arrived at EDR: 06/08/2011
Date Made Active in Reports: 09/13/2011
Number of Days to Update: 97

Source: USGS
Telephone: 703-648-7709
Last EDR Contact: 11/25/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: Varies

ABANDONED MINES: Abandoned Mines

An inventory of land and water impacted by past mining (primarily coal mining) is maintained by OSMRE to provide information needed to implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). The inventory contains information on the location, type, and extent of AML impacts, as well as, information on the cost associated with the reclamation of those problems. The inventory is based upon field surveys by State, Tribal, and OSMRE program officials. It is dynamic to the extent that it is modified as new problems are identified and existing problems are reclaimed.

Date of Government Version: 09/16/2020
Date Data Arrived at EDR: 09/17/2020
Date Made Active in Reports: 12/10/2020
Number of Days to Update: 84

Source: Department of Interior
Telephone: 202-208-2609
Last EDR Contact: 12/10/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 11/04/2020
Date Data Arrived at EDR: 12/01/2020
Date Made Active in Reports: 01/25/2021
Number of Days to Update: 55

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 12/01/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Quarterly

UXO: Unexploded Ordnance Sites

A listing of unexploded ordnance site locations

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 07/02/2020
Date Made Active in Reports: 09/17/2020
Number of Days to Update: 77

Source: Department of Defense
Telephone: 703-704-1564
Last EDR Contact: 01/15/2021
Next Scheduled EDR Contact: 04/26/2021
Data Release Frequency: Varies

DOCKET HWC: Hazardous Waste Compliance Docket Listing
A complete list of the Federal Agency Hazardous Waste Compliance Docket Facilities.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 07/26/2018
Date Made Active in Reports: 10/05/2018
Number of Days to Update: 71
Source: Environmental Protection Agency
Telephone: 202-564-0527
Last EDR Contact: 11/17/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: Varies

ECHO: Enforcement & Compliance History Information
ECHO provides integrated compliance and enforcement information for about 800,000 regulated facilities nationwide.

Date of Government Version: 10/03/2020
Date Data Arrived at EDR: 10/06/2020
Date Made Active in Reports: 01/04/2021
Number of Days to Update: 90
Source: Environmental Protection Agency
Telephone: 202-564-2280
Last EDR Contact: 01/08/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Quarterly

FUELS PROGRAM: EPA Fuels Program Registered Listing
This listing includes facilities that are registered under the Part 80 (Code of Federal Regulations) EPA Fuels Programs. All companies now are required to submit new and updated registrations.

Date of Government Version: 11/13/2020
Date Data Arrived at EDR: 11/13/2020
Date Made Active in Reports: 01/25/2021
Number of Days to Update: 73
Source: EPA
Telephone: 800-385-6164
Last EDR Contact: 11/13/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Quarterly

CA BOND EXP. PLAN: Bond Expenditure Plan
Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6
Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 06/22/2020
Date Data Arrived at EDR: 06/22/2020
Date Made Active in Reports: 09/04/2020
Number of Days to Update: 74
Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 12/17/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

CUPA LIVERMORE-PLEASANTON: CUPA Facility Listing
list of facilities associated with the various CUPA programs in Livermore-Pleasanton

Date of Government Version: 05/01/2019
Date Data Arrived at EDR: 05/14/2019
Date Made Active in Reports: 07/17/2019
Number of Days to Update: 64
Source: Livermore-Pleasanton Fire Department
Telephone: 925-454-2361
Last EDR Contact: 11/13/2020
Next Scheduled EDR Contact: 02/22/2021
Data Release Frequency: Varies

DRYCLEAN AVAQMD: Antelope Valley Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the Antelope Valley Air Quality Management District.

Date of Government Version: 08/25/2020
Date Data Arrived at EDR: 08/26/2020
Date Made Active in Reports: 11/13/2020
Number of Days to Update: 79

Source: Antelope Valley Air Quality Management District
Telephone: 661-723-8070
Last EDR Contact: 11/23/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Varies

DRYCLEAN SOUTH COAST: South Coast Air Quality Management District Drycleaner Listing
A listing of dry cleaners in the South Coast Air Quality Management District

Date of Government Version: 08/19/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 09/04/2020
Number of Days to Update: 14

Source: South Coast Air Quality Management District
Telephone: 909-396-3211
Last EDR Contact: 11/16/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: Varies

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 08/06/2020
Date Data Arrived at EDR: 08/28/2020
Date Made Active in Reports: 11/17/2020
Number of Days to Update: 81

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 11/23/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Annually

EMI: Emissions Inventory Data
Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 06/16/2020
Date Made Active in Reports: 08/28/2020
Number of Days to Update: 73

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 12/18/2020
Next Scheduled EDR Contact: 03/29/2021
Data Release Frequency: Varies

ENF: Enforcement Action Listing
A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 10/16/2020
Date Data Arrived at EDR: 10/19/2020
Date Made Active in Reports: 01/07/2021
Number of Days to Update: 80

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 01/20/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 10/13/2020
Date Data Arrived at EDR: 10/14/2020
Date Made Active in Reports: 01/04/2021
Number of Days to Update: 82

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 01/22/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 08/05/2020
Date Data Arrived at EDR: 08/05/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 79

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 11/04/2020
Next Scheduled EDR Contact: 02/22/2021
Data Release Frequency: Varies

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method. This database begins with calendar year 1993.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 04/15/2020
Date Made Active in Reports: 07/02/2020
Number of Days to Update: 78

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 01/05/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Annually

ICE: ICE

Contains data pertaining to the Permitted Facilities with Inspections / Enforcements sites tracked in Envirostor.

Date of Government Version: 08/17/2020
Date Data Arrived at EDR: 08/17/2020
Date Made Active in Reports: 11/05/2020
Number of Days to Update: 80

Source: Department of Toxic Subsances Control
Telephone: 877-786-9427
Last EDR Contact: 11/13/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List

The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

HWP: EnviroStor Permitted Facilities Listing

Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 08/17/2020
Date Data Arrived at EDR: 08/17/2020
Date Made Active in Reports: 11/05/2020
Number of Days to Update: 80

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 11/13/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Quarterly

HWT: Registered Hazardous Waste Transporter Database

A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 10/05/2020
Date Data Arrived at EDR: 10/06/2020
Date Made Active in Reports: 12/23/2020
Number of Days to Update: 78

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 01/05/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Quarterly

MINES: Mines Site Location Listing
A listing of mine site locations from the Office of Mine Reclamation.

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83
Source: Department of Conservation
Telephone: 916-322-1080
Last EDR Contact: 12/08/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 08/31/2020
Date Data Arrived at EDR: 08/31/2020
Date Made Active in Reports: 11/20/2020
Number of Days to Update: 81
Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 12/01/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Varies

NPDES: NPDES Permits Listing
A listing of NPDES permits, including stormwater.

Date of Government Version: 11/09/2020
Date Data Arrived at EDR: 11/10/2020
Date Made Active in Reports: 01/27/2021
Number of Days to Update: 78
Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 11/09/2020
Next Scheduled EDR Contact: 02/22/2021
Data Release Frequency: Quarterly

PEST LIC: Pesticide Regulation Licenses Listing
A listing of licenses and certificates issued by the Department of Pesticide Regulation. The DPR issues licenses and/or certificates to: Persons and businesses that apply or sell pesticides; Pest control dealers and brokers; Persons who advise on agricultural pesticide applications.

Date of Government Version: 08/31/2020
Date Data Arrived at EDR: 08/31/2020
Date Made Active in Reports: 11/20/2020
Number of Days to Update: 81
Source: Department of Pesticide Regulation
Telephone: 916-445-4038
Last EDR Contact: 12/01/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Quarterly

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 12/01/2020
Number of Days to Update: 84
Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 12/08/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Quarterly

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 12/07/2020
Date Data Arrived at EDR: 12/09/2020
Date Made Active in Reports: 12/10/2020
Number of Days to Update: 1
Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 12/07/2020
Next Scheduled EDR Contact: 03/29/2021
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

UIC: UIC Listing
A listing of wells identified as underground injection wells, in the California Oil and Gas Wells database.

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 12/01/2020
Number of Days to Update: 84
Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 12/08/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

UIC GEO: Underground Injection Control Sites (GEOTRACKER)
Underground control injection sites

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83
Source: State Water Resource Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

WASTEWATER PITS: Oil Wastewater Pits Listing
Water officials discovered that oil producers have been dumping chemical-laden wastewater into hundreds of unlined pits that are operating without proper permits. Inspections completed by the Central Valley Regional Water Quality Control Board revealed the existence of previously unidentified waste sites. The water boards review found that more than one-third of the region's active disposal pits are operating without permission.

Date of Government Version: 11/19/2019
Date Data Arrived at EDR: 01/07/2020
Date Made Active in Reports: 03/09/2020
Number of Days to Update: 62
Source: RWQCB, Central Valley Region
Telephone: 559-445-5577
Last EDR Contact: 01/08/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Varies

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9
Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 11/13/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: No Update Planned

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13
Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 12/15/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: No Update Planned

MILITARY PRIV SITES: Military Privatized Sites (GEOTRACKER)
Military privatized sites

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

PROJECT: Project Sites (GEOTRACKER)
Projects sites

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

WDR: Waste Discharge Requirements Listing

In general, the Waste Discharge Requirements (WDRs) Program (sometimes also referred to as the "Non Chapter 15 (Non 15) Program") regulates point discharges that are exempt pursuant to Subsection 20090 of Title 27 and not subject to the Federal Water Pollution Control Act. Exemptions from Title 27 may be granted for nine categories of discharges (e.g., sewage, wastewater, etc.) that meet, and continue to meet, the preconditions listed for each specific exemption. The scope of the WDRs Program also includes the discharge of wastes classified as inert, pursuant to section 20230 of Title 27.

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 12/01/2020
Number of Days to Update: 84
Source: State Water Resources Control Board
Telephone: 916-341-5810
Last EDR Contact: 12/08/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Quarterly

CIWQS: California Integrated Water Quality System

The California Integrated Water Quality System (CIWQS) is a computer system used by the State and Regional Water Quality Control Boards to track information about places of environmental interest, manage permits and other orders, track inspections, and manage violations and enforcement activities.

Date of Government Version: 08/31/2020
Date Data Arrived at EDR: 08/31/2020
Date Made Active in Reports: 11/20/2020
Number of Days to Update: 81
Source: State Water Resources Control Board
Telephone: 866-794-4977
Last EDR Contact: 12/01/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Varies

CERS: CalEPA Regulated Site Portal Data

The CalEPA Regulated Site Portal database combines data about environmentally regulated sites and facilities in California into a single database. It combines data from a variety of state and federal databases, and provides an overview of regulated activities across the spectrum of environmental programs for any given location in California. These activities include hazardous materials and waste, state and federal cleanups, impacted ground and surface waters, and toxic materials

Date of Government Version: 10/19/2020
Date Data Arrived at EDR: 10/19/2020
Date Made Active in Reports: 01/07/2021
Number of Days to Update: 80
Source: California Environmental Protection Agency
Telephone: 916-323-2514
Last EDR Contact: 01/20/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

NON-CASE INFO: Non-Case Information Sites (GEOTRACKER)

Non-Case Information sites

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

OTHER OIL GAS: Other Oil & Gas Projects Sites (GEOTRACKER)

Other Oil & Gas Projects sites

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

PROD WATER PONDS: Produced Water Ponds Sites (GEOTRACKER)
Produced water ponds sites

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

SAMPLING POINT: Sampling Point ? Public Sites (GEOTRACKER)
Sampling point - public sites

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

WELL STIM PROJ: Well Stimulation Project (GEOTRACKER)
Includes areas of groundwater monitoring plans, a depiction of the monitoring network, and the facilities, boundaries, and subsurface characteristics of the oilfield and the features (oil and gas wells, produced water ponds, UIC wells, water supply wells, etc?) being monitored

Date of Government Version: 09/08/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 11/30/2020
Number of Days to Update: 83
Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 12/04/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Varies

HWTS: Hazardous Waste Tracking System
DTSC maintains the Hazardous Waste Tracking System that stores ID number information since the early 1980s and manifest data since 1993. The system collects both manifest copies from the generator and destination facility.

Date of Government Version: 10/13/2020
Date Data Arrived at EDR: 10/14/2020
Date Made Active in Reports: 11/03/2020
Number of Days to Update: 20
Source: Department of Toxic Substances Control
Telephone: 916-324-2444
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Varies

MINES MRDS: Mineral Resources Data System
Mineral Resources Data System

Date of Government Version: 04/06/2018
Date Data Arrived at EDR: 10/21/2019
Date Made Active in Reports: 10/24/2019
Number of Days to Update: 3
Source: USGS
Telephone: 703-648-6533
Last EDR Contact: 11/25/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: Varies

PCS ENF: Enforcement data
No description is available for this data

Date of Government Version: 12/31/2014
Date Data Arrived at EDR: 02/05/2015
Date Made Active in Reports: 03/06/2015
Number of Days to Update: 29
Source: EPA
Telephone: 202-564-2497
Last EDR Contact: 12/30/2020
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Varies

PCS INACTIVE: Listing of Inactive PCS Permits
An inactive permit is a facility that has shut down or is no longer discharging.

Date of Government Version: 11/05/2014
Date Data Arrived at EDR: 01/06/2015
Date Made Active in Reports: 05/06/2015
Number of Days to Update: 120

Source: EPA
Telephone: 202-564-2496
Last EDR Contact: 01/04/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Semi-Annually

PCS: Permit Compliance System

PCS is a computerized management information system that contains data on National Pollutant Discharge Elimination System (NPDES) permit holding facilities. PCS tracks the permit, compliance, and enforcement status of NPDES facilities.

Date of Government Version: 07/14/2011
Date Data Arrived at EDR: 08/05/2011
Date Made Active in Reports: 09/29/2011
Number of Days to Update: 55

Source: EPA, Office of Water
Telephone: 202-564-2496
Last EDR Contact: 01/04/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Semi-Annually

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR Hist Auto: EDR Exclusive Historical Auto Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR Hist Cleaner: EDR Exclusive Historical Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR RECOVERED GOVERNMENT ARCHIVES

Exclusive Recovered Govt. Archives

RGA LF: Recovered Government Archive Solid Waste Facilities List

The EDR Recovered Government Archive Landfill database provides a list of landfills derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the Department of Resources Recycling and Recovery in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 01/13/2014
Number of Days to Update: 196

Source: Department of Resources Recycling and Recovery
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

RGA LUST: Recovered Government Archive Leaking Underground Storage Tank

The EDR Recovered Government Archive Leaking Underground Storage Tank database provides a list of LUST incidents derived from historical databases and includes many records that no longer appear in current government lists. Compiled from Records formerly available from the State Water Resources Control Board in California.

Date of Government Version: N/A
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 12/30/2013
Number of Days to Update: 182

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/01/2012
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

COUNTY RECORDS

ALAMEDA COUNTY:

CS ALAMEDA: Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 01/09/2019
Date Data Arrived at EDR: 01/11/2019
Date Made Active in Reports: 03/05/2019
Number of Days to Update: 53

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/04/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Semi-Annually

UST ALAMEDA: Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 10/01/2020
Date Data Arrived at EDR: 10/06/2020
Date Made Active in Reports: 12/23/2020
Number of Days to Update: 78

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 01/04/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA AMADOR: CUPA Facility List
Cupa Facility List

Date of Government Version: 10/19/2020
Date Data Arrived at EDR: 10/22/2020
Date Made Active in Reports: 01/12/2021
Number of Days to Update: 82

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 10/19/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA BUTTE: CUPA Facility Listing
Cupa facility list.

Date of Government Version: 04/21/2017
Date Data Arrived at EDR: 04/25/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 106

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 12/30/2020
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: No Update Planned

CALVERAS COUNTY:

CUPA CALVERAS: CUPA Facility Listing
Cupa Facility Listing

Date of Government Version: 12/15/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 12/24/2020
Number of Days to Update: 8

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 12/15/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

COLUSA COUNTY:

CUPA COLUSA: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/06/2020
Date Data Arrived at EDR: 04/23/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 78

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 10/28/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Semi-Annually

CONTRA COSTA COUNTY:

SL CONTRA COSTA: Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 10/19/2020
Date Data Arrived at EDR: 10/22/2020
Date Made Active in Reports: 01/13/2021
Number of Days to Update: 83

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 01/25/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA DEL NORTE: CUPA Facility List
Cupa Facility list

Date of Government Version: 06/08/2020
Date Data Arrived at EDR: 08/13/2020
Date Made Active in Reports: 10/22/2020
Number of Days to Update: 70

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 01/25/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA EL DORADO: CUPA Facility List
CUPA facility list.

Date of Government Version: 10/22/2020
Date Data Arrived at EDR: 11/03/2020
Date Made Active in Reports: 01/20/2021
Number of Days to Update: 78

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 01/25/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA FRESNO: CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 10/02/2020
Date Data Arrived at EDR: 10/06/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 77

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 01/15/2021
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Semi-Annually

GLENN COUNTY:

CUPA GLENN: CUPA Facility List
Cupa facility list

Date of Government Version: 01/22/2018
Date Data Arrived at EDR: 01/24/2018
Date Made Active in Reports: 03/14/2018
Number of Days to Update: 49

Source: Glenn County Air Pollution Control District
Telephone: 830-934-6500
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: No Update Planned

HUMBOLDT COUNTY:

CUPA HUMBOLDT: CUPA Facility List
CUPA facility list.

Date of Government Version: 08/13/2020
Date Data Arrived at EDR: 08/17/2020
Date Made Active in Reports: 11/05/2020
Number of Days to Update: 80

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 11/11/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Semi-Annually

IMPERIAL COUNTY:

CUPA IMPERIAL: CUPA Facility List
Cupa facility list.

Date of Government Version: 10/14/2020
Date Data Arrived at EDR: 10/15/2020
Date Made Active in Reports: 01/05/2021
Number of Days to Update: 82

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

INYO COUNTY:

CUPA INYO: CUPA Facility List
Cupa facility list.

Date of Government Version: 04/02/2018
Date Data Arrived at EDR: 04/03/2018
Date Made Active in Reports: 06/14/2018
Number of Days to Update: 72

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 11/11/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Varies

KERN COUNTY:

CUPA KERN: CUPA Facility List
A listing of sites included in the Kern County Hazardous Material Business Plan.

Date of Government Version: 10/29/2020
Date Data Arrived at EDR: 10/30/2020
Date Made Active in Reports: 01/15/2021
Number of Days to Update: 77

Source: Kern County Public Health
Telephone: 661-321-3000
Last EDR Contact: 01/15/2021
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Varies

UST KERN: Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 07/28/2020
Date Data Arrived at EDR: 07/30/2020
Date Made Active in Reports: 10/14/2020
Number of Days to Update: 76

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA KINGS: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 05/11/2020
Date Data Arrived at EDR: 05/12/2020
Date Made Active in Reports: 07/27/2020
Number of Days to Update: 76

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 01/25/2021
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Varies

LAKE COUNTY:

CUPA LAKE: CUPA Facility List
Cupa facility list

Date of Government Version: 08/13/2020
Date Data Arrived at EDR: 08/13/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 71

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 01/11/2021
Next Scheduled EDR Contact: 04/26/2021
Data Release Frequency: Varies

LASSEN COUNTY:

CUPA LASSEN: CUPA Facility List
Cupa facility list

Date of Government Version: 07/31/2020
Date Data Arrived at EDR: 08/21/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 80

Source: Lassen County Environmental Health
Telephone: 530-251-8528
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

LOS ANGELES COUNTY:

AOCONCERN: Key Areas of Concerns in Los Angeles County
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office. Date of Government Version: 3/30/2009 Exide Site area is a cleanup plan of lead-impacted soil surrounding the former Exide Facility as designated by the DTSC. Date of Government Version: 7/17/2017

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: N/A
Telephone: N/A
Last EDR Contact: 12/09/2020
Next Scheduled EDR Contact: 03/29/2021
Data Release Frequency: No Update Planned

HMS LOS ANGELES: HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 10/19/2020
Date Data Arrived at EDR: 10/20/2020
Date Made Active in Reports: 01/12/2021
Number of Days to Update: 84

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 01/04/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Semi-Annually

LF LOS ANGELES: List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 10/09/2020
Date Data Arrived at EDR: 10/09/2020
Date Made Active in Reports: 12/29/2020
Number of Days to Update: 81

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 01/12/2021
Next Scheduled EDR Contact: 04/26/2021
Data Release Frequency: Varies

LF LOS ANGELES CITY: City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 12/31/2019
Date Data Arrived at EDR: 08/17/2020
Date Made Active in Reports: 11/05/2020
Number of Days to Update: 80

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 01/11/2021
Next Scheduled EDR Contact: 04/26/2021
Data Release Frequency: Varies

LOS ANGELES AST: Active & Inactive AST Inventory
A listing of active & inactive above ground petroleum storage tank site locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58
Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 12/18/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Varies

LOS ANGELES CO LF METHANE: Methane Producing Landfills
This data was created on April 30, 2012 to represent known disposal sites in Los Angeles County that may produce and emanate methane gas. The shapefile contains disposal sites within Los Angeles County that once accepted degradable refuse material. Information used to create this data was extracted from a landfill survey performed by County Engineers (Major Waste System Map, 1973) as well as historical records from CalRecycle, Regional Water Quality Control Board, and Los Angeles County Department of Public Health

Date of Government Version: 04/30/2012
Date Data Arrived at EDR: 04/17/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 42
Source: Los Angeles County Department of Public Works
Telephone: 626-458-6973
Last EDR Contact: 01/15/2021
Next Scheduled EDR Contact: 04/26/2021
Data Release Frequency: No Update Planned

LOS ANGELES HM: Active & Inactive Hazardous Materials Inventory
A listing of active & inactive hazardous materials facility locations, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58
Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 12/18/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Varies

LOS ANGELES UST: Active & Inactive UST Inventory
A listing of active & inactive underground storage tank site locations and underground storage tank historical sites, located in the City of Los Angeles.

Date of Government Version: 06/01/2019
Date Data Arrived at EDR: 06/25/2019
Date Made Active in Reports: 08/22/2019
Number of Days to Update: 58
Source: Los Angeles Fire Department
Telephone: 213-978-3800
Last EDR Contact: 12/18/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Varies

SITE MIT LOS ANGELES: Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 07/20/2020
Date Data Arrived at EDR: 10/09/2020
Date Made Active in Reports: 12/29/2020
Number of Days to Update: 81
Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 01/12/2021
Next Scheduled EDR Contact: 04/26/2021
Data Release Frequency: Annually

UST EL SEGUNDO: City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 04/19/2017
Date Made Active in Reports: 05/10/2017
Number of Days to Update: 21
Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 10/07/2020
Next Scheduled EDR Contact: 01/25/2021
Data Release Frequency: No Update Planned

UST LONG BEACH: City of Long Beach Underground Storage Tank
Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 04/22/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/27/2019
Number of Days to Update: 65

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

UST TORRANCE: City of Torrance Underground Storage Tank
Underground storage tank sites located in the city of Torrance.

Date of Government Version: 09/11/2020
Date Data Arrived at EDR: 10/07/2020
Date Made Active in Reports: 12/23/2020
Number of Days to Update: 77

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA MADERA: CUPA Facility List
A listing of sites included in the county's Certified Unified Program Agency database. California's Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 08/10/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/23/2020
Number of Days to Update: 72

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 11/11/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Varies

MARIN COUNTY:

UST MARIN: Underground Storage Tank Sites
Currently permitted USTs in Marin County.

Date of Government Version: 09/26/2018
Date Data Arrived at EDR: 10/04/2018
Date Made Active in Reports: 11/02/2018
Number of Days to Update: 29

Source: Public Works Department Waste Management
Telephone: 415-473-6647
Last EDR Contact: 12/21/2020
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA MERCED: CUPA Facility List
CUPA facility list.

Date of Government Version: 07/28/2020
Date Data Arrived at EDR: 07/30/2020
Date Made Active in Reports: 07/31/2020
Number of Days to Update: 1

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 11/11/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Varies

MONO COUNTY:

CUPA MONO: CUPA Facility List
CUPA Facility List

Date of Government Version: 08/20/2020
Date Data Arrived at EDR: 08/24/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 77

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 11/15/2020
Next Scheduled EDR Contact: 03/08/3021
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA MONTEREY: CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 07/13/2020
Date Data Arrived at EDR: 07/15/2020
Date Made Active in Reports: 07/31/2020
Number of Days to Update: 16

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 12/21/2020
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Varies

NAPA COUNTY:

LUST NAPA: Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 01/09/2017
Date Data Arrived at EDR: 01/11/2017
Date Made Active in Reports: 03/02/2017
Number of Days to Update: 50

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/16/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: No Update Planned

UST NAPA: Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 09/05/2019
Date Data Arrived at EDR: 09/09/2019
Date Made Active in Reports: 10/31/2019
Number of Days to Update: 52

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 11/16/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA NEVADA: CUPA Facility List
CUPA facility list.

Date of Government Version: 10/26/2020
Date Data Arrived at EDR: 10/28/2020
Date Made Active in Reports: 01/15/2021
Number of Days to Update: 79

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 01/25/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Varies

ORANGE COUNTY:

IND_SITE ORANGE: List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 09/01/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 82

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/02/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Annually

LUST ORANGE: List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 09/01/2020
Date Data Arrived at EDR: 11/06/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 81

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/02/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Quarterly

UST ORANGE: List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 09/01/2020
Date Data Arrived at EDR: 11/03/2020
Date Made Active in Reports: 01/21/2021
Number of Days to Update: 79

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 11/03/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Quarterly

PLACER COUNTY:

MS PLACER: Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 11/24/2020
Date Data Arrived at EDR: 11/24/2020
Date Made Active in Reports: 11/25/2020
Number of Days to Update: 1

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 11/23/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Semi-Annually

PLUMAS COUNTY:

CUPA PLUMAS: CUPA Facility List
Plumas County CUPA Program facilities.

Date of Government Version: 03/31/2019
Date Data Arrived at EDR: 04/23/2019
Date Made Active in Reports: 06/26/2019
Number of Days to Update: 64

Source: Plumas County Environmental Health
Telephone: 530-283-6355
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

RIVERSIDE COUNTY:

LUST RIVERSIDE: Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 10/06/2020
Date Data Arrived at EDR: 10/07/2020
Date Made Active in Reports: 11/03/2020
Number of Days to Update: 27

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/09/2020
Next Scheduled EDR Contact: 03/29/2021
Data Release Frequency: Quarterly

UST RIVERSIDE: Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 10/06/2020
Date Data Arrived at EDR: 10/07/2020
Date Made Active in Reports: 11/03/2020
Number of Days to Update: 27
Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 12/09/2020
Next Scheduled EDR Contact: 03/29/2021
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

CS SACRAMENTO: Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 02/18/2020
Date Data Arrived at EDR: 03/31/2020
Date Made Active in Reports: 06/15/2020
Number of Days to Update: 76
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 12/30/2020
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Quarterly

ML SACRAMENTO: Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 02/24/2020
Date Data Arrived at EDR: 03/31/2020
Date Made Active in Reports: 06/17/2020
Number of Days to Update: 78
Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 12/30/2020
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: Quarterly

SAN BENITO COUNTY:

CUPA SAN BENITO: CUPA Facility List
Cupa facility list

Date of Government Version: 10/28/2020
Date Data Arrived at EDR: 10/30/2020
Date Made Active in Reports: 01/15/2021
Number of Days to Update: 77
Source: San Benito County Environmental Health
Telephone: N/A
Last EDR Contact: 10/28/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Varies

SAN BERNARDINO COUNTY:

PERMITS SAN BERNARDINO: Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 08/04/2020
Date Data Arrived at EDR: 08/05/2020
Date Made Active in Reports: 10/26/2020
Number of Days to Update: 82
Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 10/28/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

HMMD SAN DIEGO: Hazardous Materials Management Division Database

The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 08/31/2020
Date Data Arrived at EDR: 08/31/2020
Date Made Active in Reports: 11/23/2020
Number of Days to Update: 84

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 12/01/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Quarterly

LF SAN DIEGO: Solid Waste Facilities

San Diego County Solid Waste Facilities.

Date of Government Version: 04/18/2018
Date Data Arrived at EDR: 04/24/2018
Date Made Active in Reports: 06/19/2018
Number of Days to Update: 56

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

SAN DIEGO CO LOP: Local Oversight Program Listing

A listing of all LOP release sites that are or were under the County of San Diego's jurisdiction. Included are closed or transferred cases, open cases, and cases that did not have a case type indicated. The cases without a case type are mostly complaints; however, some of them could be LOP cases.

Date of Government Version: 07/14/2020
Date Data Arrived at EDR: 07/16/2020
Date Made Active in Reports: 09/29/2020
Number of Days to Update: 75

Source: Department of Environmental Health
Telephone: 858-505-6874
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

SAN DIEGO CO SAM: Environmental Case Listing

The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 11/23/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

CUPA SAN FRANCISCO CO: CUPA Facility Listing

Cupa facilities

Date of Government Version: 11/05/2020
Date Data Arrived at EDR: 11/06/2020
Date Made Active in Reports: 01/27/2021
Number of Days to Update: 82

Source: San Francisco County Department of Environmental Health
Telephone: 415-252-3896
Last EDR Contact: 10/28/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Varies

LUST SAN FRANCISCO: Local Oversite Facilities

A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 10/28/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: No Update Planned

UST SAN FRANCISCO: Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/05/2020
Date Data Arrived at EDR: 11/06/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 81

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 10/28/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

UST SAN JOAQUIN: San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/22/2018
Date Data Arrived at EDR: 06/26/2018
Date Made Active in Reports: 07/11/2018
Number of Days to Update: 15

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 12/09/2020
Next Scheduled EDR Contact: 03/29/2021
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA SAN LUIS OBISPO: CUPA Facility List
Cupa Facility List.

Date of Government Version: 07/27/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/26/2020
Number of Days to Update: 75

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 11/11/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Varies

SAN MATEO COUNTY:

BI SAN MATEO: Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 02/20/2020
Date Data Arrived at EDR: 02/20/2020
Date Made Active in Reports: 04/24/2020
Number of Days to Update: 64

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 12/11/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Annually

LUST SAN MATEO: Fuel Leak List
A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 03/29/2019
Date Data Arrived at EDR: 03/29/2019
Date Made Active in Reports: 05/29/2019
Number of Days to Update: 61

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 12/01/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA SANTA BARBARA: CUPA Facility Listing
CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 11/11/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: No Update Planned

SANTA CLARA COUNTY:

CUPA SANTA CLARA: Cupa Facility List
Cupa facility list

Date of Government Version: 08/20/2020
Date Data Arrived at EDR: 08/20/2020
Date Made Active in Reports: 11/09/2020
Number of Days to Update: 81

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 11/11/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Varies

HIST LUST SANTA CLARA: HIST LUST - Fuel Leak Site Activity Report
A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LUST SANTA CLARA: LOP Listing
A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 03/03/2014
Date Data Arrived at EDR: 03/05/2014
Date Made Active in Reports: 03/18/2014
Number of Days to Update: 13

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 11/16/2020
Next Scheduled EDR Contact: 03/08/2021
Data Release Frequency: No Update Planned

SAN JOSE HAZMAT: Hazardous Material Facilities
Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 11/03/2020
Date Data Arrived at EDR: 11/05/2020
Date Made Active in Reports: 01/26/2021
Number of Days to Update: 82

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 10/28/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA SANTA CRUZ: CUPA Facility List
CUPA facility listing.

Date of Government Version: 01/21/2017
Date Data Arrived at EDR: 02/22/2017
Date Made Active in Reports: 05/23/2017
Number of Days to Update: 90

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 11/11/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA SHASTA: CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/15/2017
Date Data Arrived at EDR: 06/19/2017
Date Made Active in Reports: 08/09/2017
Number of Days to Update: 51

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 11/11/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Varies

SOLANO COUNTY:

LUST SOLANO: Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/04/2019
Date Data Arrived at EDR: 06/06/2019
Date Made Active in Reports: 08/13/2019
Number of Days to Update: 68

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 06/03/2019
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Quarterly

UST SOLANO: Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 08/25/2020
Date Data Arrived at EDR: 08/26/2020
Date Made Active in Reports: 09/16/2020
Number of Days to Update: 21

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 12/03/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Quarterly

SONOMA COUNTY:

CUPA SONOMA: Cupa Facility List
Cupa Facility list

Date of Government Version: 12/15/2020
Date Data Arrived at EDR: 12/16/2020
Date Made Active in Reports: 12/23/2020
Number of Days to Update: 7

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 12/15/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Varies

LUST SONOMA: Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 09/18/2020
Date Data Arrived at EDR: 09/22/2020
Date Made Active in Reports: 12/14/2020
Number of Days to Update: 83

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 12/15/2020
Next Scheduled EDR Contact: 04/05/2021
Data Release Frequency: Quarterly

STANISLAUS COUNTY:

CUPA STANISLAUS: CUPA Facility List
Cupa facility list

Date of Government Version: 10/01/2020
Date Data Arrived at EDR: 10/06/2020
Date Made Active in Reports: 12/22/2020
Number of Days to Update: 77

Source: Stanislaus County Department of Ennvironmental Protection
Telephone: 209-525-6751
Last EDR Contact: 01/11/2021
Next Scheduled EDR Contact: 04/26/2021
Data Release Frequency: Varies

SUTTER COUNTY:

UST SUTTER: Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 08/25/2020
Date Data Arrived at EDR: 08/26/2020
Date Made Active in Reports: 11/17/2020
Number of Days to Update: 83

Source: Sutter County Environmental Health Services
Telephone: 530-822-7500
Last EDR Contact: 11/23/2020
Next Scheduled EDR Contact: 03/15/2021
Data Release Frequency: Semi-Annually

TEHAMA COUNTY:

CUPA TEHAMA: CUPA Facility List
Cupa facilities

Date of Government Version: 08/11/2020
Date Data Arrived at EDR: 08/12/2020
Date Made Active in Reports: 10/26/2020
Number of Days to Update: 75

Source: Tehama County Department of Environmental Health
Telephone: 530-527-8020
Last EDR Contact: 11/11/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Varies

TRINITY COUNTY:

CUPA TRINITY: CUPA Facility List
Cupa facility list

Date of Government Version: 10/14/2020
Date Data Arrived at EDR: 10/15/2020
Date Made Active in Reports: 01/05/2021
Number of Days to Update: 82

Source: Department of Toxic Substances Control
Telephone: 760-352-0381
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

TULARE COUNTY:

CUPA TULARE: CUPA Facility List
Cupa program facilities

Date of Government Version: 10/30/2020
Date Data Arrived at EDR: 11/03/2020
Date Made Active in Reports: 01/20/2021
Number of Days to Update: 78

Source: Tulare County Environmental Health Services Division
Telephone: 559-624-7400
Last EDR Contact: 10/28/2020
Next Scheduled EDR Contact: 02/15/2021
Data Release Frequency: Varies

TUOLUMNE COUNTY:

CUPA TUOLUMNE: CUPA Facility List
Cupa facility list

Date of Government Version: 04/23/2018
Date Data Arrived at EDR: 04/25/2018
Date Made Active in Reports: 06/25/2018
Number of Days to Update: 61

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Varies

VENTURA COUNTY:

BWT VENTURA: Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 09/28/2020
Date Data Arrived at EDR: 10/22/2020
Date Made Active in Reports: 01/12/2021
Number of Days to Update: 82
Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 01/19/2021
Next Scheduled EDR Contact: 05/02/2021
Data Release Frequency: Quarterly

LF VENTURA: Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/21/2020
Next Scheduled EDR Contact: 04/12/2021
Data Release Frequency: No Update Planned

LUST VENTURA: Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 11/05/2020
Next Scheduled EDR Contact: 02/22/2021
Data Release Frequency: No Update Planned

MED WASTE VENTURA: Medical Waste Program List
To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 09/28/2020
Date Data Arrived at EDR: 10/22/2020
Date Made Active in Reports: 01/12/2021
Number of Days to Update: 82
Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 01/20/2021
Next Scheduled EDR Contact: 05/03/2021
Data Release Frequency: Quarterly

UST VENTURA: Underground Tank Closed Sites List
Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 08/26/2020
Date Data Arrived at EDR: 09/08/2020
Date Made Active in Reports: 12/01/2020
Number of Days to Update: 84
Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 12/08/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Quarterly

YOLO COUNTY:

UST YOLO: Underground Storage Tank Comprehensive Facility Report
Underground storage tank sites located in Yolo county.

Date of Government Version: 12/21/2020
Date Data Arrived at EDR: 12/23/2020
Date Made Active in Reports: 01/04/2021
Number of Days to Update: 12
Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 12/20/2020
Next Scheduled EDR Contact: 04/11/2021
Data Release Frequency: Annually

YUBA COUNTY:

CUPA YUBA: CUPA Facility List
CUPA facility listing for Yuba County.

Date of Government Version: 08/06/2020
Date Data Arrived at EDR: 08/07/2020
Date Made Active in Reports: 10/26/2020
Number of Days to Update: 80

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 01/25/2021
Next Scheduled EDR Contact: 05/10/2021
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data
Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 08/10/2020
Date Data Arrived at EDR: 10/20/2020
Date Made Active in Reports: 11/02/2020
Number of Days to Update: 13

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 11/09/2020
Next Scheduled EDR Contact: 02/22/2021
Data Release Frequency: No Update Planned

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 04/10/2019
Date Made Active in Reports: 05/16/2019
Number of Days to Update: 36

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 01/08/2021
Next Scheduled EDR Contact: 04/19/2021
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 01/01/2019
Date Data Arrived at EDR: 04/29/2020
Date Made Active in Reports: 07/10/2020
Number of Days to Update: 72

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 10/30/2020
Next Scheduled EDR Contact: 02/08/2021
Data Release Frequency: Quarterly

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 06/30/2018
Date Data Arrived at EDR: 07/19/2019
Date Made Active in Reports: 09/10/2019
Number of Days to Update: 53

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 01/11/2021
Next Scheduled EDR Contact: 04/26/2021
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2018
Date Data Arrived at EDR: 10/02/2019
Date Made Active in Reports: 12/10/2019
Number of Days to Update: 69

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 11/11/2020
Next Scheduled EDR Contact: 03/01/2021
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 05/31/2018
Date Data Arrived at EDR: 06/19/2019
Date Made Active in Reports: 09/03/2019
Number of Days to Update: 76

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 12/03/2020
Next Scheduled EDR Contact: 03/22/2021
Data Release Frequency: Annually

Oil/Gas Pipelines
Source: Endeavor Business Media
Petroleum Bundle (Crude Oil, Refined Products, Petrochemicals, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)) N = Natural Gas Bundle (Natural Gas, Gas Liquids (LPG/NGL), and Specialty Gases (Miscellaneous)). This map includes information copyrighted by Endeavor Business Media. This information is provided on a best effort basis and Endeavor Business Media does not guarantee its accuracy nor warrant its fitness for any particular purpose. Such information has been reprinted with the permission of Endeavor Business Media.

Electric Power Transmission Line Data
Source: Endeavor Business Media
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Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

STREET AND ADDRESS INFORMATION

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GEOCHECK ®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

NORTH IRIS
2085 N IRIS LN
ESCONDIDO, CA 92026

TARGET PROPERTY COORDINATES

Latitude (North):	33.155541 - 33° 9' 19.95''
Longitude (West):	117.09478 - 117° 5' 41.21''
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	491161.4
UTM Y (Meters):	3668342.8
Elevation:	715 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	5640948 VALLEY CENTER, CA
Version Date:	2012

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principle investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

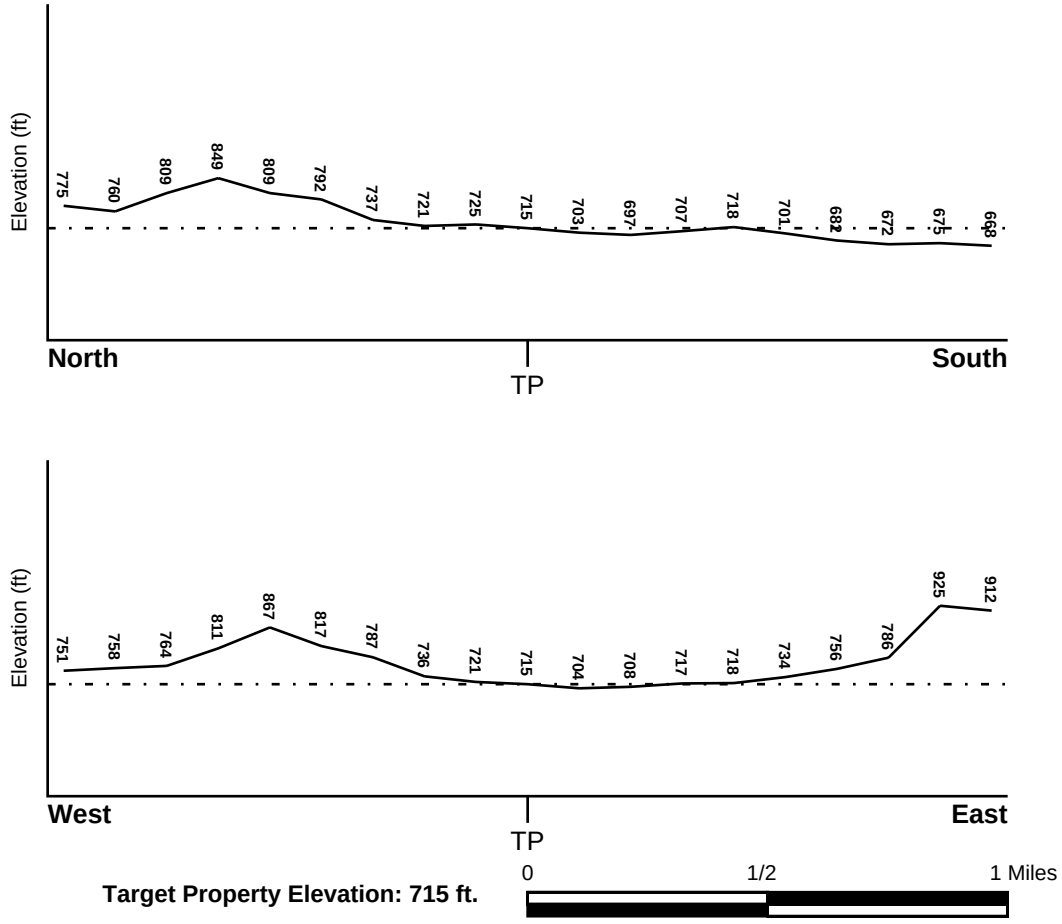
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General SE

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Flood Plain Panel at Target Property	FEMA Source Type
06073C0813G	FEMA FIRM Flood data

Additional Panels in search area:	FEMA Source Type
06073C0811G	FEMA FIRM Flood data
06073C0812G	FEMA FIRM Flood data
06073C0814G	FEMA FIRM Flood data

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
VALLEY CENTER	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
Not Reported		

* ©1996 Site−specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

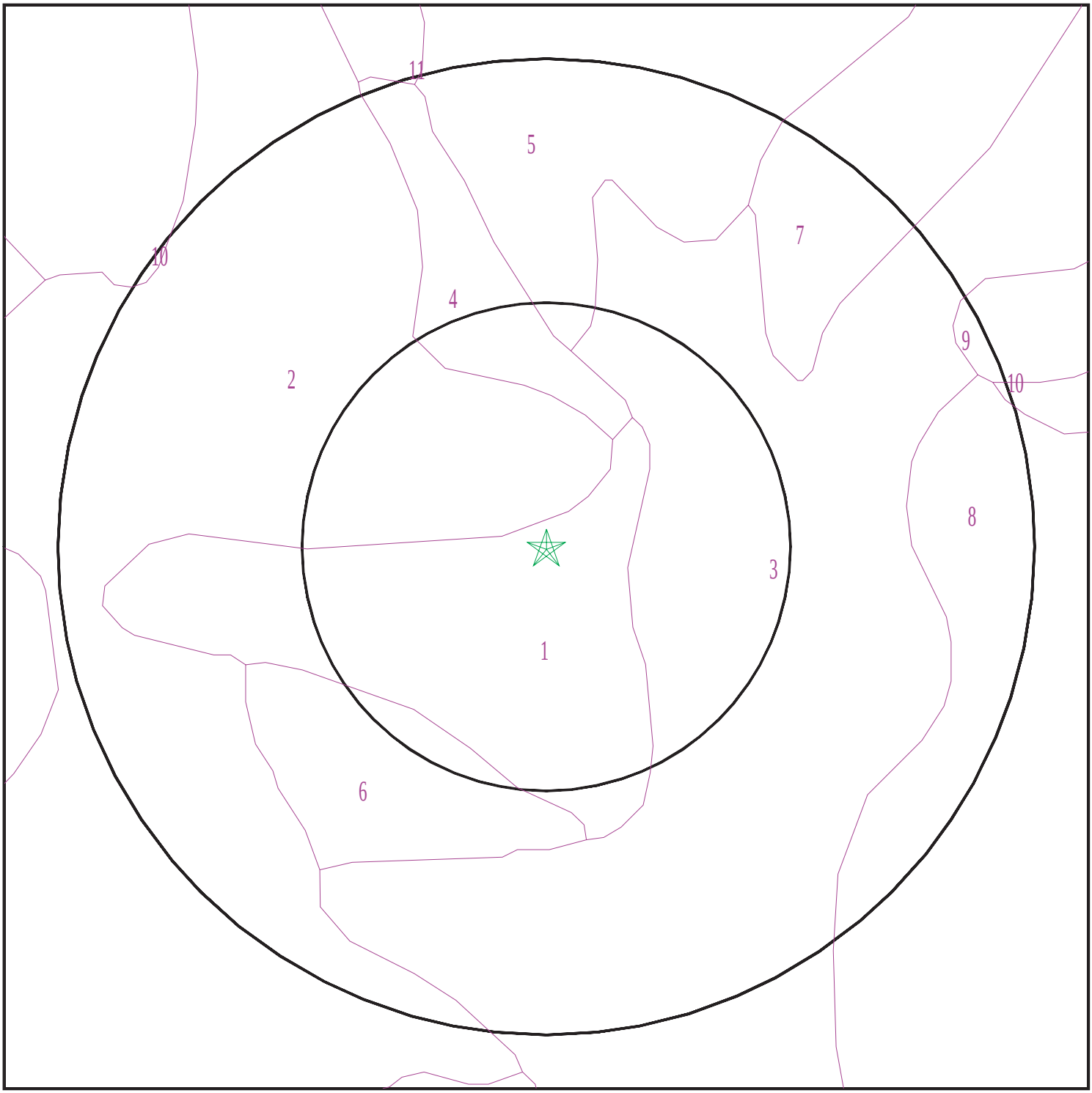
Era:	Mesozoic
System:	Lower Jurassic and Upper Triassic
Series:	Lower Mesozoic
Code:	lMze *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Eugeosynclinal Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 6348594.2s



SITE NAME:	North Iris	CLIENT:	Geocon Env. Consultants, Inc.
ADDRESS:	2085 N Iris Ln Escondido CA 92026	CONTACT:	Cole Mikesell
LAT/LONG:	33.155541 / 117.09478	INQUIRY #:	6348594.2s
		DATE:	January 28, 2021 6:37 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: PLACENTIA

Soil Surface Texture: sandy loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	12 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 8.4 Min: 7.9
2	12 inches	33 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 8.4 Min: 7.9

Soil Map ID: 2

Soil Component Name: ESCONDIDO

Soil Surface Texture: very fine sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 74 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
2	5 inches	29 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
3	29 inches	33 inches	unweathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:

Soil Map ID: 3

Soil Component Name: VISALIA

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 6.5 Min: 6.1
2	11 inches	40 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 6.5 Min: 6.1
3	40 inches	59 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 6.5 Min: 6.1

Soil Map ID: 4

Soil Component Name: ESCONDIDO

Soil Surface Texture: very fine sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 86 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
2	7 inches	33 inches	silt loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
3	33 inches	38 inches	unweathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:

Soil Map ID: 5

Soil Component Name: PLACENTIA

Soil Surface Texture: sandy loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	12 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 7.9
2	12 inches	33 inches	sandy clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 7.9
3	33 inches	62 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 0.42 Min: 0.01	Max: 8.4 Min: 7.9

Soil Map ID: 6

Soil Component Name: LAS POSAS

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	3 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
2	3 inches	33 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
3	33 inches	37 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:

Soil Map ID: 7

Soil Component Name: PLACENTIA

Soil Surface Texture: sandy loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 8.4 Min: 7.9
2	9 inches	31 inches	sandy clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 8.4 Min: 7.9
3	31 inches	62 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 8.4 Min: 7.9

Soil Map ID: 8

Soil Component Name: RAMONA

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	16 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 7.3 Min: 6.6
2	16 inches	59 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 7.3 Min: 6.6
3	59 inches	74 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 7.3 Min: 6.6

Soil Map ID: 9

Soil Component Name: FALLBROOK

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	1 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
2	1 inches	24 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
3	24 inches	27 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
4	27 inches	31 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:

Soil Map ID: 10

Soil Component Name: FALLBROOK

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
2	5 inches	11 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
3	11 inches	27 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
4	27 inches	46 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
5	46 inches	51 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:

Soil Map ID: 11

Soil Component Name: PLACENTIA

Soil Surface Texture: sandy loam

Hydrologic Group: Class D - Very slow infiltration rates. Soils are clayey, have a high water table, or are shallow to an impervious layer.

Soil Drainage Class: Moderately well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: High

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 8.4 Min: 7.9
2	9 inches	31 inches	clay	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 8.4 Min: 7.9
3	31 inches	62 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), Lean Clay	Max: 0.42 Min: 0.01	Max: 8.4 Min: 7.9

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	USGS40000130352	1/8 - 1/4 Mile ENE
C8	USGS40000130353	1/2 - 1 Mile ENE
C10	USGS40000130354	1/2 - 1 Mile ENE

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

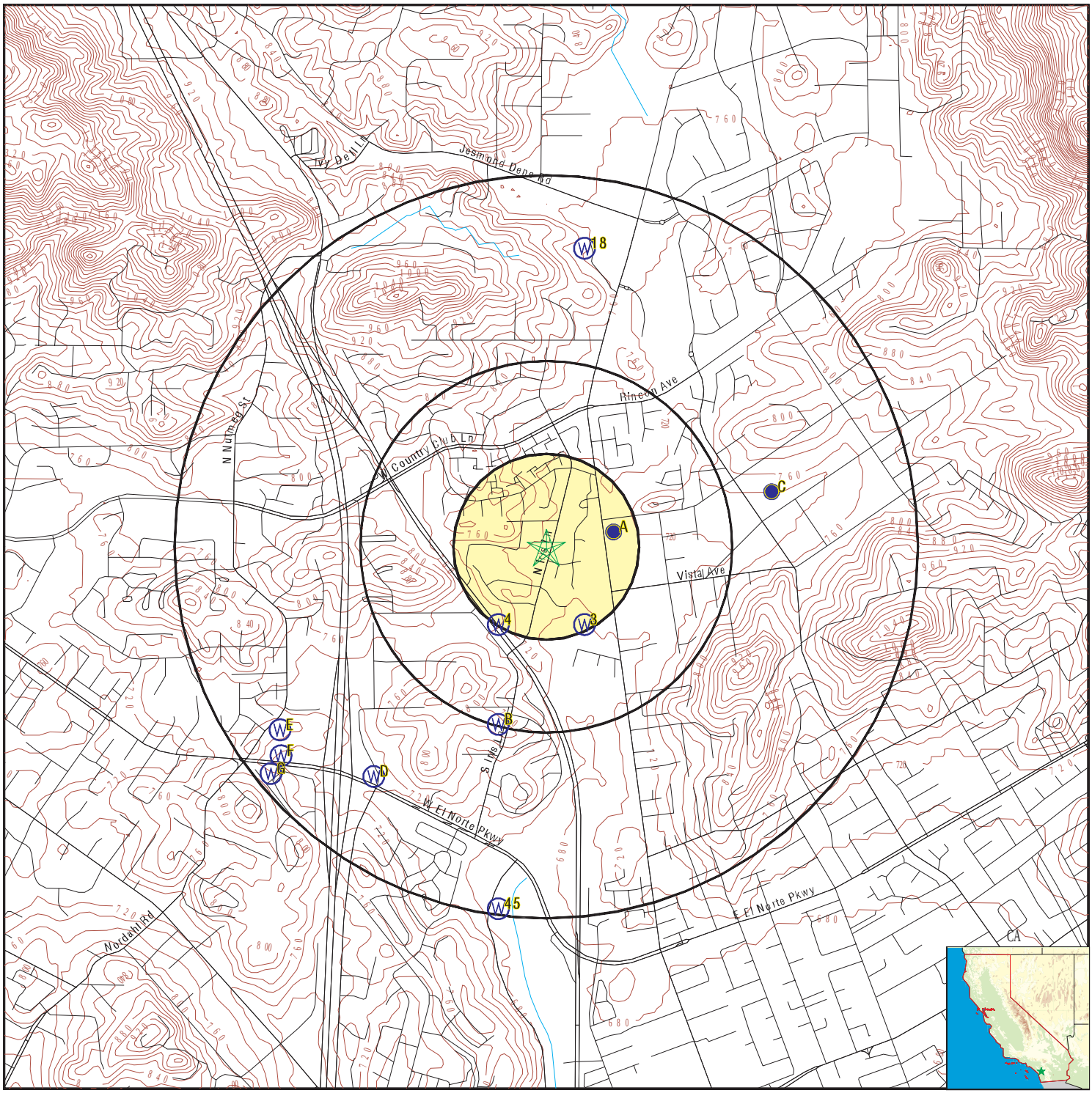
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A2	CAUSGSN00010721	1/8 - 1/4 Mile ENE
3	CADWR0000021340	1/8 - 1/4 Mile SSE
4	CADWR0000004045	1/8 - 1/4 Mile SSW
B5	CADWR0000003758	1/4 - 1/2 Mile SSW
B6	CADWR0000030323	1/4 - 1/2 Mile SSW
C7	CADWR8000000827	1/2 - 1 Mile ENE
C9	CADWR0000002354	1/2 - 1 Mile ENE
C11	CAUSGSN00010276	1/2 - 1 Mile ENE
D12	CAEDF0000119094	1/2 - 1 Mile SW
D13	CAEDF0000100099	1/2 - 1 Mile SW
D14	CAEDF0000116950	1/2 - 1 Mile SW
D15	CAEDF0000126287	1/2 - 1 Mile SW
D16	CAEDF0000119024	1/2 - 1 Mile SW
D17	CAEDF0000015590	1/2 - 1 Mile SW
18	CADWR0000034316	1/2 - 1 Mile North
E19	CAEDF0000018032	1/2 - 1 Mile WSW
E20	CAEDF0000135616	1/2 - 1 Mile SW
E21	CAEDF0000075848	1/2 - 1 Mile WSW
F22	CAEDF0000068659	1/2 - 1 Mile SW
E23	CAEDF0000097174	1/2 - 1 Mile SW
E24	CAEDF0000005063	1/2 - 1 Mile SW
E25	CAEDF0000001328	1/2 - 1 Mile SW
F26	CAEDF0000077811	1/2 - 1 Mile SW
E27	CAEDF0000040921	1/2 - 1 Mile SW
E28	CAEDF0000141574	1/2 - 1 Mile WSW
F29	CAEDF0000140957	1/2 - 1 Mile SW
F30	CAEDF0000009729	1/2 - 1 Mile SW
F31	CAEDF0000109665	1/2 - 1 Mile SW
F32	CAEDF0000073923	1/2 - 1 Mile SW
F33	CAEDF0000115366	1/2 - 1 Mile SW
F34	CAEDF0000067615	1/2 - 1 Mile SW
F35	CAEDF0000142502	1/2 - 1 Mile SW
F36	CAEDF0000099649	1/2 - 1 Mile SW
F37	CAEDF0000043336	1/2 - 1 Mile SW
F38	CAEDF0000052554	1/2 - 1 Mile SW
F39	CAEDF0000078782	1/2 - 1 Mile SW
G40	CAEDF0000055993	1/2 - 1 Mile SW
G41	CAEDF0000011944	1/2 - 1 Mile SW
G42	CAEDF0000051460	1/2 - 1 Mile SW
G43	CAEDF0000107750	1/2 - 1 Mile SW
G44	CAEDF0000121850	1/2 - 1 Mile SW
45	CADWR0000023727	1/2 - 1 Mile South

PHYSICAL SETTING SOURCE MAP - 6348594.2s



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- GI Indeterminate Groundwater Flow at Location
- GV Groundwater Flow Varies at Location
- HD Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME:	North Iris	CLIENT:	Geocon Env. Consultants, Inc.
ADDRESS:	2085 N Iris Ln Escondido CA 92026	CONTACT:	Cole Mikesell
LAT/LONG:	33.155541 / 117.09478	INQUIRY #:	6348594.2s
		DATE:	January 28, 2021 6:37 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

A1
ENE
1/8 - 1/4 Mile
Lower

FED USGS **USGS40000130352**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	012S002W04Q001S	Type:	Well
Description:	Not Reported	HUC:	18070303
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Other aquifers	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	Not Reported
Well Depth:	Not Reported	Well Depth Units:	Not Reported
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

---

A2
ENE
1/8 - 1/4 Mile
Lower

CA WELLS **CAUSGSN00010721**

Well ID:	USGS-330922117052701	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-330922117052701	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-330922117052701&store_num=		
GeoTracker Data:	Not Reported		

3
SSE
1/8 - 1/4 Mile
Lower

CA WELLS **CADWR0000021340**

Well ID:	12S02W04Q001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	12S02W04Q001S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=12S02W04Q001S&store_num=		
GeoTracker Data:	Not Reported		

4
SSW
1/8 - 1/4 Mile
Higher

CA WELLS **CADWR0000004045**

Well ID:	12S02W04P003S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	12S02W04P003S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=12S02W04P003S&store_num=		
GeoTracker Data:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

B5
SSW
1/4 - 1/2 Mile
Higher

CA WELLS **CADWR0000003758**

Well ID:	12S02W09C002S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	12S02W09C002S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=12S02W09C002S&store_num=		
GeoTracker Data:	Not Reported		

B6
SSW
1/4 - 1/2 Mile
Higher

CA WELLS **CADWR0000030323**

Well ID:	12S02W09C003S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	12S02W09C003S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=12S02W09C003S&store_num=		
GeoTracker Data:	Not Reported		

C7
ENE
1/2 - 1 Mile
Higher

CA WELLS **CADWR8000000827**

State Well #:	12S02W03M001S	Station ID:	14029
Well Name:	Not Reported	Well Use:	Unknown
Well Type:	Unknown	Well Depth:	0
Basin Name:	Not Reported	Well Completion Rpt #:	Not Reported

C8
ENE
1/2 - 1 Mile
Higher

FED USGS **USGS40000130353**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	012S002W04J001S	Type:	Well
Description:	Not Reported	HUC:	18070303
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Other aquifers	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	Not Reported
Well Depth:	Not Reported	Well Depth Units:	Not Reported
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

C9
ENE
1/2 - 1 Mile
Higher

CA WELLS **CADWR0000002354**

Well ID:	12S02W03M001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	12S02W03M001S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=12S02W03M001S&store_num=		
GeoTracker Data:	Not Reported		

C10
ENE
1/2 - 1 Mile
Higher

FED USGS **USGS40000130354**

Organization ID:	USGS-CA		
Organization Name:	USGS California Water Science Center		
Monitor Location:	012S002W03M001S	Type:	Well
Description:	Not Reported	HUC:	18070303
Drainage Area:	Not Reported	Drainage Area Units:	Not Reported
Contrib Drainage Area:	Not Reported	Contrib Drainage Area Unts:	Not Reported
Aquifer:	Other aquifers	Formation Type:	Not Reported
Aquifer Type:	Not Reported	Construction Date:	Not Reported
Well Depth:	72	Well Depth Units:	ft
Well Hole Depth:	Not Reported	Well Hole Depth Units:	Not Reported

Ground water levels,Number of Measurements:	1	Level reading date:	1987-05-05
Feet below surface:	2	Feet to sea level:	Not Reported
Note:	Other conditions existed that would affect the measured water level.		

C11
ENE
1/2 - 1 Mile
Higher

CA WELLS **CAUSGSN00010276**

Well ID:	USGS-330928117045901	Well Type:	UNK
Source:	United States Geological Survey		
Other Name:	USGS-330928117045901	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=USGSNEW&samp_date=&global_id=&assigned_name=USGS-330928117045901&store_num=		
GeoTracker Data:	Not Reported		

D12
SW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000119094**

Well ID:	T0607302509-MW-7	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-7
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0607302509&assigned_name=MW-7&store_num=		

GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0607302509&assigned_name=MW-7

D13
SW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000100099**

Well ID: T0607302509-DD-5
Well Type: MONITORING
Source: EDF
Other Name: DD-5
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0607302509&assigned_name=DD-5&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0607302509&assigned_name=DD-5

D14
SW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000116950**

Well ID: T0607302509-MW-6
Well Type: MONITORING
Source: EDF
Other Name: MW-6
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0607302509&assigned_name=MW-6&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0607302509&assigned_name=MW-6

D15
SW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000126287**

Well ID: T0607302509-DD-4
Well Type: MONITORING
Source: EDF
Other Name: DD-4
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0607302509&assigned_name=DD-4&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0607302509&assigned_name=DD-4

D16
SW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000119024**

Well ID: T0607302509-MW-2
Well Type: MONITORING
Source: EDF
Other Name: MW-2
GAMA PFAS Testing: Not Reported
Groundwater Quality Data: https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0607302509&assigned_name=MW-2&store_num=
GeoTracker Data: https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0607302509&assigned_name=MW-2

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

D17
SW
1/2 - 1 Mile
Lower

CA WELLS **CAEDF0000015590**

Well ID:	T0607302509-MW-5	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-5
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0607302509&assigned_name=MW-5&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0607302509&assigned_name=MW-5		

18
North
1/2 - 1 Mile
Higher

CA WELLS **CADWR0000034316**

Well ID:	11S02W33Q001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	11S02W33Q001S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=11S02W33Q001S&store_num=		
GeoTracker Data:	Not Reported		

E19
WSW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000018032**

Well ID:	T10000005890-MW-9T	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-9T
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T10000005890&assigned_name=MW-9T&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T10000005890&assigned_name=MW-9T		

E20
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000135616**

Well ID:	T10000005890-MW-3T	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-3T
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T10000005890&assigned_name=MW-3T&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T10000005890&assigned_name=MW-3T		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

E21
WSW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000075848**

Well ID:	T10000005890-MW-5T	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-5T
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T10000005890&assigned_name=MW-5T&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T10000005890&assigned_name=MW-5T		

F22
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000068659**

Well ID:	T0619778483-MW-8	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-8
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0619778483&assigned_name=MW-8&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0619778483&assigned_name=MW-8		

E23
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000097174**

Well ID:	T10000005890-MW-2T	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-2T
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T10000005890&assigned_name=MW-2T&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T10000005890&assigned_name=MW-2T		

E24
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000005063**

Well ID:	T10000005890-MW-4T	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-4T
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T10000005890&assigned_name=MW-4T&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T10000005890&assigned_name=MW-4T		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

E25
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000001328**

Well ID:	T10000005890-MW-1T	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-1T
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T10000005890&assigned_name=MW-1T&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T10000005890&assigned_name=MW-1T		

F26
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000077811**

Well ID:	T0619778483-MW-3	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-3
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0619778483&assigned_name=MW-3&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0619778483&assigned_name=MW-3		

E27
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000040921**

Well ID:	T10000005890-MW-10T	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-10T
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T10000005890&assigned_name=MW-10T&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T10000005890&assigned_name=MW-10T		

E28
WSW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000141574**

Well ID:	T10000005890-MW-8T	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-8T
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T10000005890&assigned_name=MW-8T&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T10000005890&assigned_name=MW-8T		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

F29
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000140957**

Well ID:	T0619778483-MW-7	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-7
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0619778483&assigned_name=MW-7&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0619778483&assigned_name=MW-7		

F30
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000009729**

Well ID:	T0619778483-MW-1	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-1
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0619778483&assigned_name=MW-1&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0619778483&assigned_name=MW-1		

F31
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000109665**

Well ID:	T10000000299-MW-9	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-9
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T10000000299&assigned_name=MW-9&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T10000000299&assigned_name=MW-9		

F32
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000073923**

Well ID:	T0619778483-MW-6	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-6
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0619778483&assigned_name=MW-6&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0619778483&assigned_name=MW-6		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

F33
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000115366**

Well ID:	T0619778483-MW-5	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-5
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0619778483&assigned_name=MW-5&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0619778483&assigned_name=MW-5		

F34
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000067615**

Well ID:	T0619778483-MW-2	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-2
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0619778483&assigned_name=MW-2&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0619778483&assigned_name=MW-2		

F35
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000142502**

Well ID:	T10000005890-MW-6T	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-6T
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T10000005890&assigned_name=MW-6T&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T10000005890&assigned_name=MW-6T		

F36
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000099649**

Well ID:	T0619778483-MW-4	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-4
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T0619778483&assigned_name=MW-4&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T0619778483&assigned_name=MW-4		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

F37
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000043336**

Well ID:	T10000000299-MW-8	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-8
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T10000000299&assigned_name=MW-8&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T10000000299&assigned_name=MW-8		

F38
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000052554**

Well ID:	T10000000299-MW-5	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-5
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T10000000299&assigned_name=MW-5&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T10000000299&assigned_name=MW-5		

F39
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000078782**

Well ID:	T10000000299-MW-7	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-7
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T10000000299&assigned_name=MW-7&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T10000000299&assigned_name=MW-7		

G40
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000055993**

Well ID:	T10000000299-MW-4	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-4
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T10000000299&assigned_name=MW-4&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T10000000299&assigned_name=MW-4		

Map ID
Direction
Distance
Elevation | Database | EDR ID Number

G41
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000011944**

Well ID:	T10000000299-MW-3	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-3
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T10000000299&assigned_name=MW-3&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T10000000299&assigned_name=MW-3		

G42
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000051460**

Well ID:	T10000000299-MW-6	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-6
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T10000000299&assigned_name=MW-6&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T10000000299&assigned_name=MW-6		

G43
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000107750**

Well ID:	T10000000299-MW-2	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-2
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T10000000299&assigned_name=MW-2&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T10000000299&assigned_name=MW-2		

G44
SW
1/2 - 1 Mile
Higher

CA WELLS **CAEDF0000121850**

Well ID:	T10000000299-MW-1	Well Type:	MONITORING
Source:	EDF	Other Name:	MW-1
GAMA PFAS Testing:	Not Reported		
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=EDF&samp_date=&global_id=T10000000299&assigned_name=MW-1&store_num=		
GeoTracker Data:	https://geotracker.waterboards.ca.gov/profile_report.asp?cmd=MWEDFResults&global_id=T10000000299&assigned_name=MW-1		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

Database	EDR ID Number
CA WELLS	**CADWR0000023727**

45
South
1/2 - 1 Mile
Lower

Well ID:	12S02W09L001S	Well Type:	UNK
Source:	Department of Water Resources		
Other Name:	12S02W09L001S	GAMA PFAS Testing:	Not Reported
Groundwater Quality Data:	https://gamagroundwater.waterboards.ca.gov/gama/gamamap/public/GamaDataDisplay.asp?dataset=DWR&samp_date=&global_id=&assigned_name=12S02W09L001S&store_num=		
GeoTracker Data:	Not Reported		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92026	22	1

Federal EPA Radon Zone for SAN DIEGO County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 92026

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.400 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Current USGS 7.5 Minute Topographic Map
Source: U.S. Geological Survey

HYDROLOGIC INFORMATION

Flood Zone Data: This data was obtained from the Federal Emergency Management Agency (FEMA). It depicts 100-year and 500-year flood zones as defined by FEMA. It includes the National Flood Hazard Layer (NFHL) which incorporates Flood Insurance Rate Map (FIRM) data and Q3 data from FEMA in areas not covered by NFHL.
Source: FEMA
Telephone: 877-336-2627
Date of Government Version: 2003, 2015

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002, 2005 and 2010 from the U.S. Fish and Wildlife Service.

State Wetlands Data: Wetland Inventory
Source: Department of Fish and Wildlife
Telephone: 916-445-0411

HYDROGEOLOGIC INFORMATION

AQUIFLOW^{R} Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Service (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Service, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

OTHER STATE DATABASE INFORMATION

Groundwater Ambient Monitoring & Assessment Program
State Water Resources Control Board
Telephone: 916-341-5577
The GAMA Program is Californias comprehensive groundwater quality monitoring program. GAMA collects data by testing the untreated, raw water in different types of wells for naturally-occurring and man-made chemicals. The GAMA data includes Domestic, Monitoring and Municipal well types from the following sources, Department of Water Resources, Department of Heath Services, EDF, Agricultural Lands, Lawrence Livermore National Laboratory, Department of Pesticide Regulation, United States Geological Survey, Groundwater Ambient Monitoring and Assessment Program and Local Groundwater Projects.

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Public Health
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

California Oil and Gas Well Locations
Source: Dept of Conservation, Geologic Energy Management Division
Telephone: 916-323-1779
Oil and Gas well locations in the state.

California Earthquake Fault Lines
Source: California Division of Mines and Geology
The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

RADON

State Database: CA Radon
Source: Department of Public Health
Telephone: 916-210-8558
Radon Database for California

PHYSICAL SETTING SOURCE RECORDS SEARCHED

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

STREET AND ADDRESS INFORMATION

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APPENDIX D

North Iris

2085 N Iris Ln

Escondido, CA 92026

Inquiry Number: 6348594.8

January 29, 2021

The EDR Aerial Photo Decade Package

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Aerial Photo Decade Package

01/29/21

Site Name:

North Iris
2085 N Iris Ln
Escondido, CA 92026
EDR Inquiry # 6348594.8

Client Name:

Geocon Env. Consultants, Inc.
6960 Flanders Drive
San Diego, CA 92121-0000
Contact: Cole Mikesell

Environmental Data Resources, Inc. (EDR) Aerial Photo Decade Package is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's professional researchers provide digitally reproduced historical aerial photographs, and when available, provide one photo per decade.

Search Results:

Year	Scale	Details	Source
2016	1"=500'	Flight Year: 2016	USDA/NAIP
2012	1"=500'	Flight Year: 2012	USDA/NAIP
2009	1"=500'	Flight Year: 2009	USDA/NAIP
2005	1"=500'	Flight Year: 2005	USDA/NAIP
2002	1"=500'	Acquisition Date: January 01, 2002	USGS/DOQQ
1996	1"=500'	Acquisition Date: January 01, 1996	USGS/DOQQ
1995	1"=500'	Acquisition Date: January 01, 1995	USGS/DOQQ
1989	1"=500'	Flight Date: August 15, 1989	USDA
1985	1"=500'	Flight Date: February 24, 1985	USDA
1979	1"=500'	Flight Date: January 27, 1979	EDR Proprietary Landiscor
1970	1"=500'	Flight Date: March 06, 1970	EDR Proprietary Landiscor
1967	1"=500'	Flight Date: May 07, 1967	USGS
1964	1"=500'	Flight Date: April 09, 1964	USDA
1953	1"=500'	Flight Date: April 14, 1953	USDA
1946	1"=500'	Flight Date: December 30, 1946	USGS
1939	1"=500'	Flight Date: April 30, 1939	USDA

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INQUIRY #: 6348594.8
YEAR: 2016
= 500'
N
EDR



INQUIRY #: 6348594.8

YEAR: 2012

= 500'

N

EDR


INQUIRY #: 6348594.8
YEAR: 2009
= 500'
N
EDR


INQUIRY #: 6348594.8
YEAR: 2005
= 500'
N
EDR


INQUIRY #: 6348594.8
YEAR: 2002
= 500'
N
EDR


INQUIRY #: 6348594.8
YEAR: 1996
= 500'
N
EDR


INQUIRY #: 6348594.8
YEAR: 1995
= 500'
N
EDR


INQUIRY #: 6348594.8
YEAR: 1989
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INQUIRY #: 6348594.8
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= 500'
N
EDR


INQUIRY #: 6348594.8
YEAR: 1970
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EDR


INQUIRY #: 6348594.8
YEAR: 1967
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N
EDR


INQUIRY #: 6348594.8
YEAR: 1964
= 500'
N
EDR


INQUIRY #: 6348594.8
YEAR: 1953
= 500'
N
EDR


INQUIRY #: 6348594.8
YEAR: 1946
= 500'
N
EDR


INQUIRY #: 6348594.8
YEAR: 1939
= 500'
N
EDR

APPENDIX E

North Iris
2085 N Iris Ln
Escondido, CA 92026

Inquiry Number: 6348594.4
January 28, 2021

EDR Historical Topo Map Report

with QuadMatch™

6 Armstrong Road, 4th floor
Shelton, CT 06484
Toll Free: 800.352.0050
www.edrnet.com

EDR Historical Topo Map Report

01/28/21

Site Name:

North Iris
2085 N Iris Ln
Escondido, CA 92026
EDR Inquiry # 6348594.4

Client Name:

Geocon Env. Consultants, Inc.
6960 Flanders Drive
San Diego, CA 92121-0000
Contact: Cole Mikesell

EDR Topographic Map Library has been searched by EDR and maps covering the target property location as provided by Geocon Env. Consultants, Inc. were identified for the years listed below. EDR's Historical Topo Map Report is designed to assist professionals in evaluating potential liability on a target property resulting from past activities. EDRs Historical Topo Map Report includes a search of a collection of public and private color historical topographic maps, dating back to the late 1800s.

Search Results:

P.O.# G2670-62-02

Project: North Iris

Coordinates:

Latitude:	33.155541 33° 9' 20" North
Longitude:	-117.09478 -117° 5' 41" West
UTM Zone:	Zone 11 North
UTM X Meters:	491161.61
UTM Y Meters:	3668534.45
Elevation:	715.46' above sea level

Maps Provided:

2012
1996
1975
1968
1949
1948
1947
1901
1893

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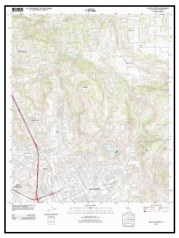
Topo Sheet Key

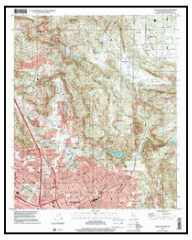
This EDR Topo Map Report is based upon the following USGS topographic map sheets.

2012 Source Sheets



Valley Center
2012
7.5-minute, 24000

1996 Source Sheets



Valley Center
1996
7.5-minute, 24000
Aerial Photo Revised 1996

1975 Source Sheets



Valley Center
1975
7.5-minute, 24000
Aerial Photo Revised 1975

1968 Source Sheets



Valley Center
1968
7.5-minute, 24000
Aerial Photo Revised 1967

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

1949 Source Sheets



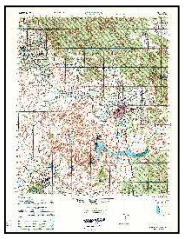
Valley Center
1949
7.5-minute, 24000
Aerial Photo Revised 1947

1948 Source Sheets



Valley Center
1948
7.5-minute, 24000
Aerial Photo Revised 1947

1947 Source Sheets



ESCONDIDO
1947
15-minute, 50000

1901 Source Sheets



Escondido
1901
15-minute, 62500

Topo Sheet Key

This EDR Topo Map Report is based upon the following USGS topographic map sheets.

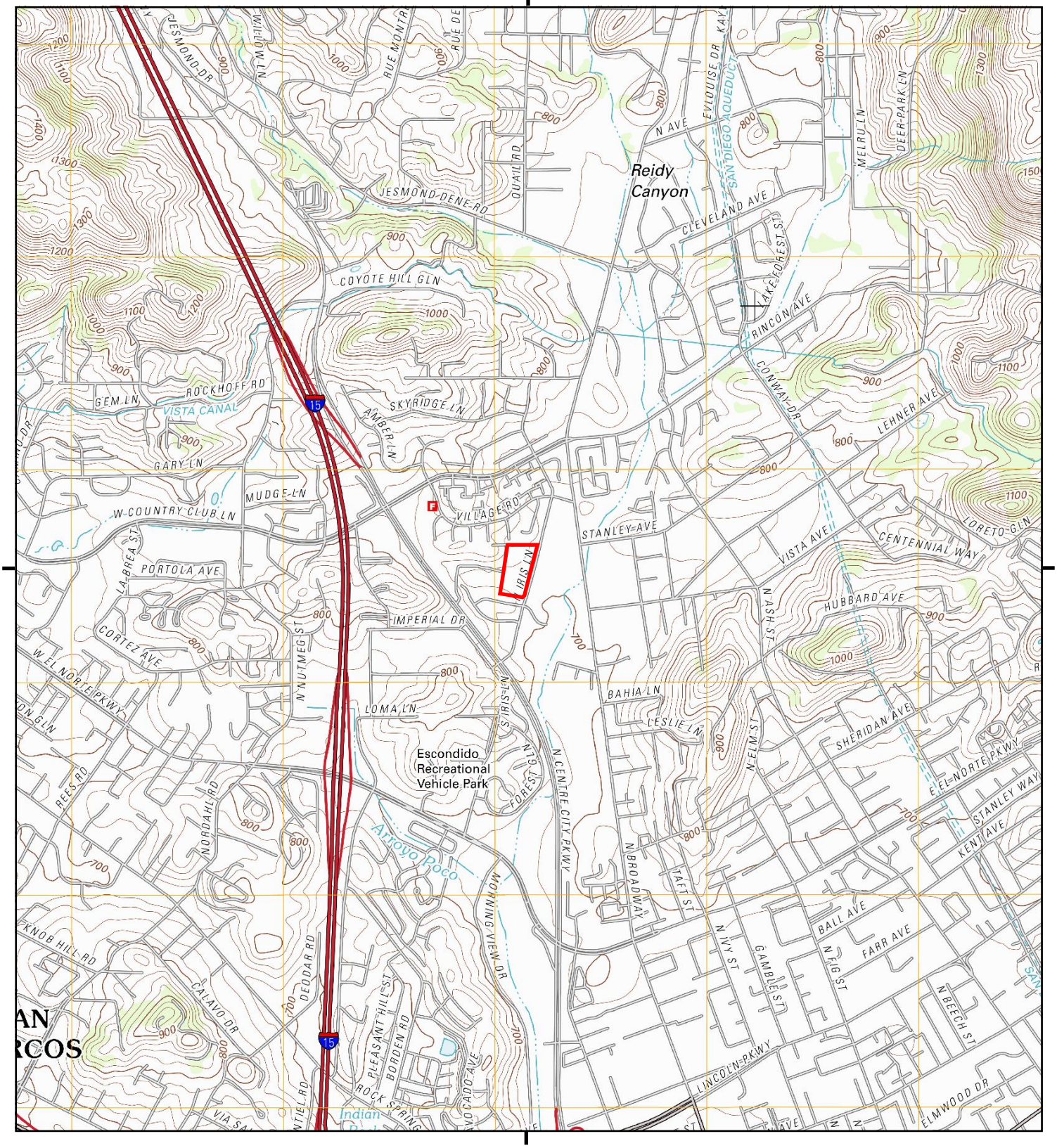
1893 Source Sheets



Escondido
1893
15-minute, 62500

Historical Topo Map

2012



This report includes information from the following map sheet(s).

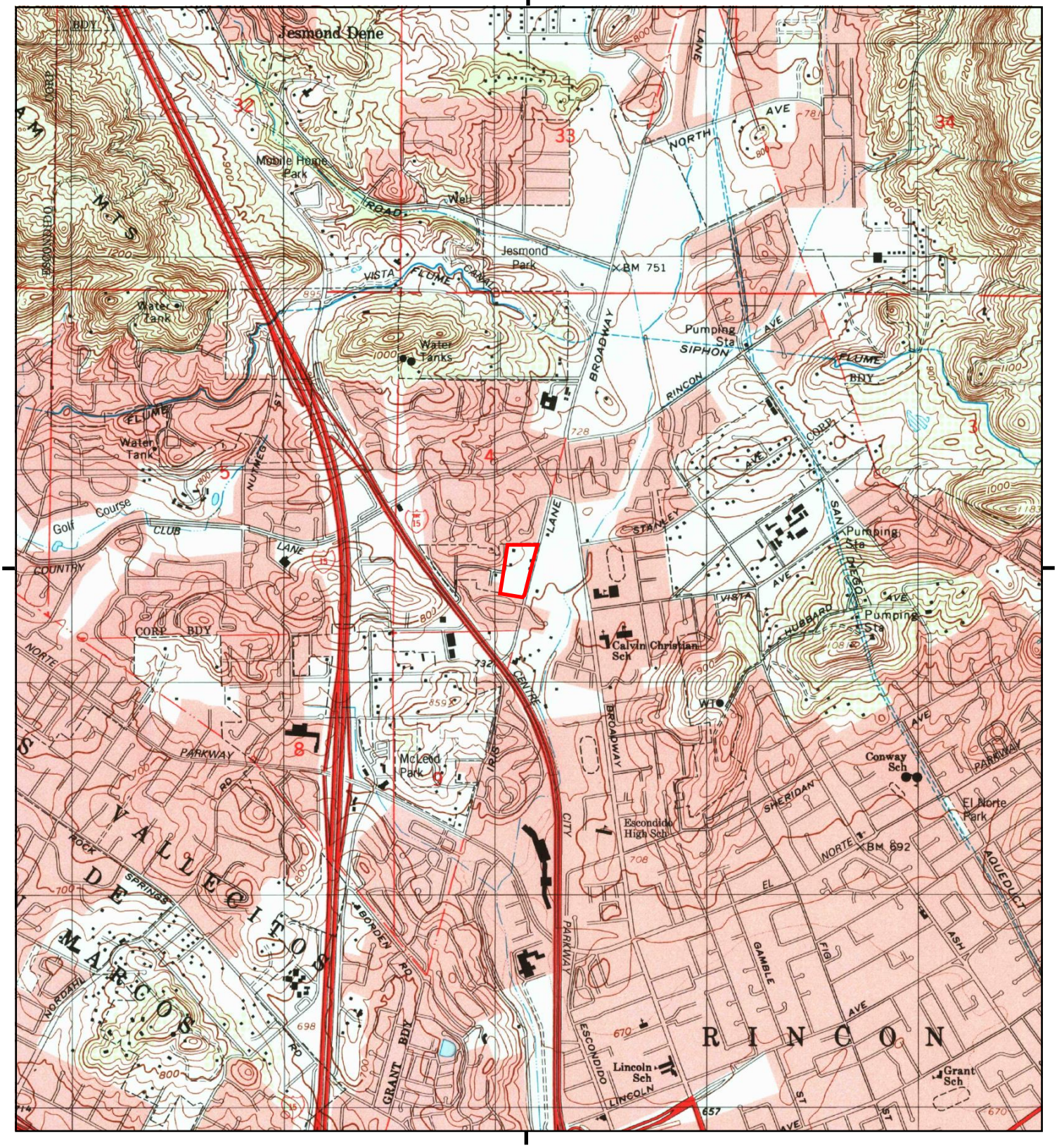
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Valley Center, 2012, 7.5-minute

SITE NAME: North Iris
ADDRESS: 2085 N Iris Ln
Escondido, CA 92026
CLIENT: Geocon Env. Consultants, Inc.

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

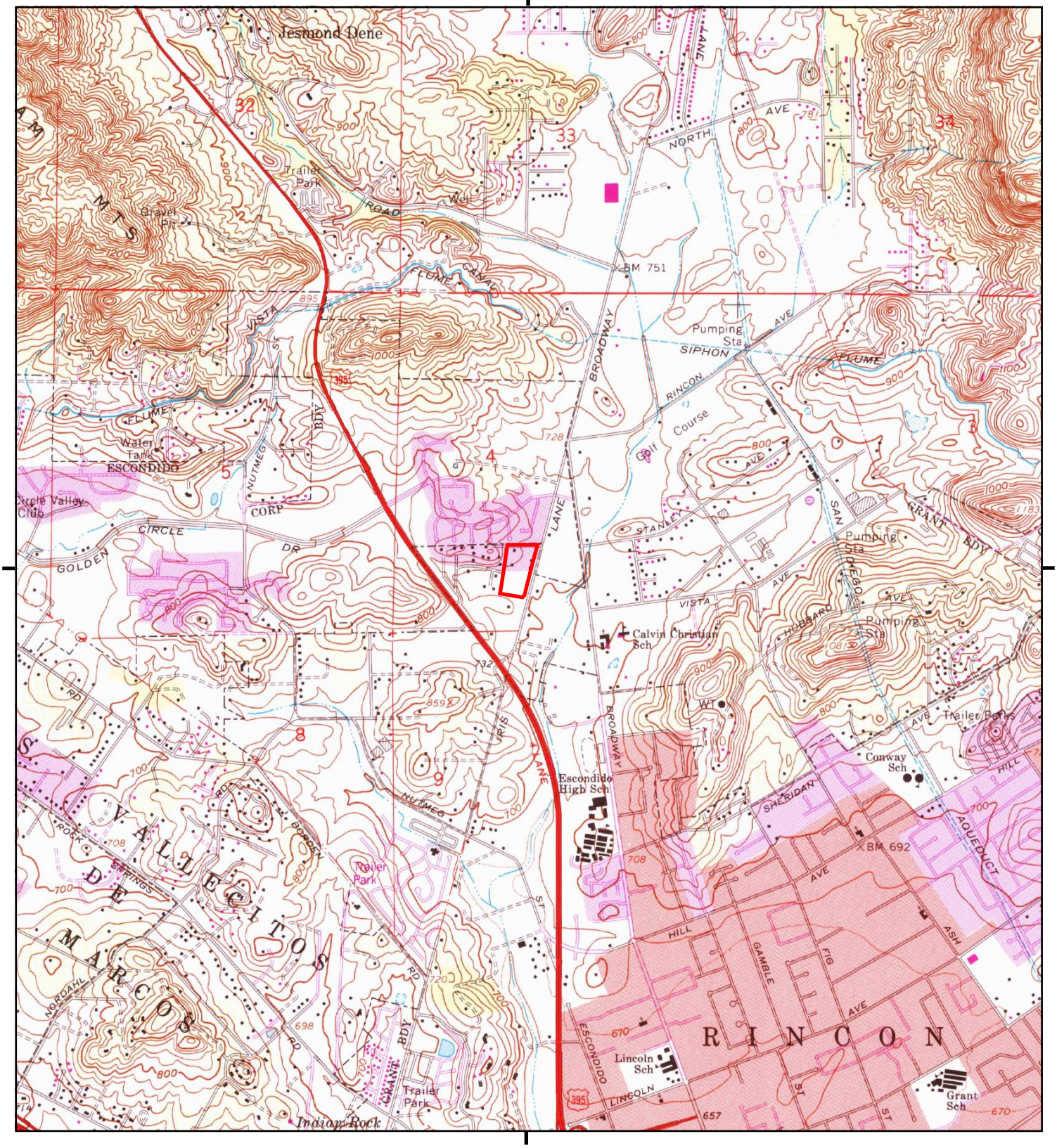
TP, Valley Center, 1996, 7.5-minute

SITE NAME: North Iris
ADDRESS: 2085 N Iris Ln
Escondido, CA 92026
CLIENT: Geocon Env. Consultants, Inc.

N

Historical Topo Map

1975



This report includes information from the following map sheet(s).

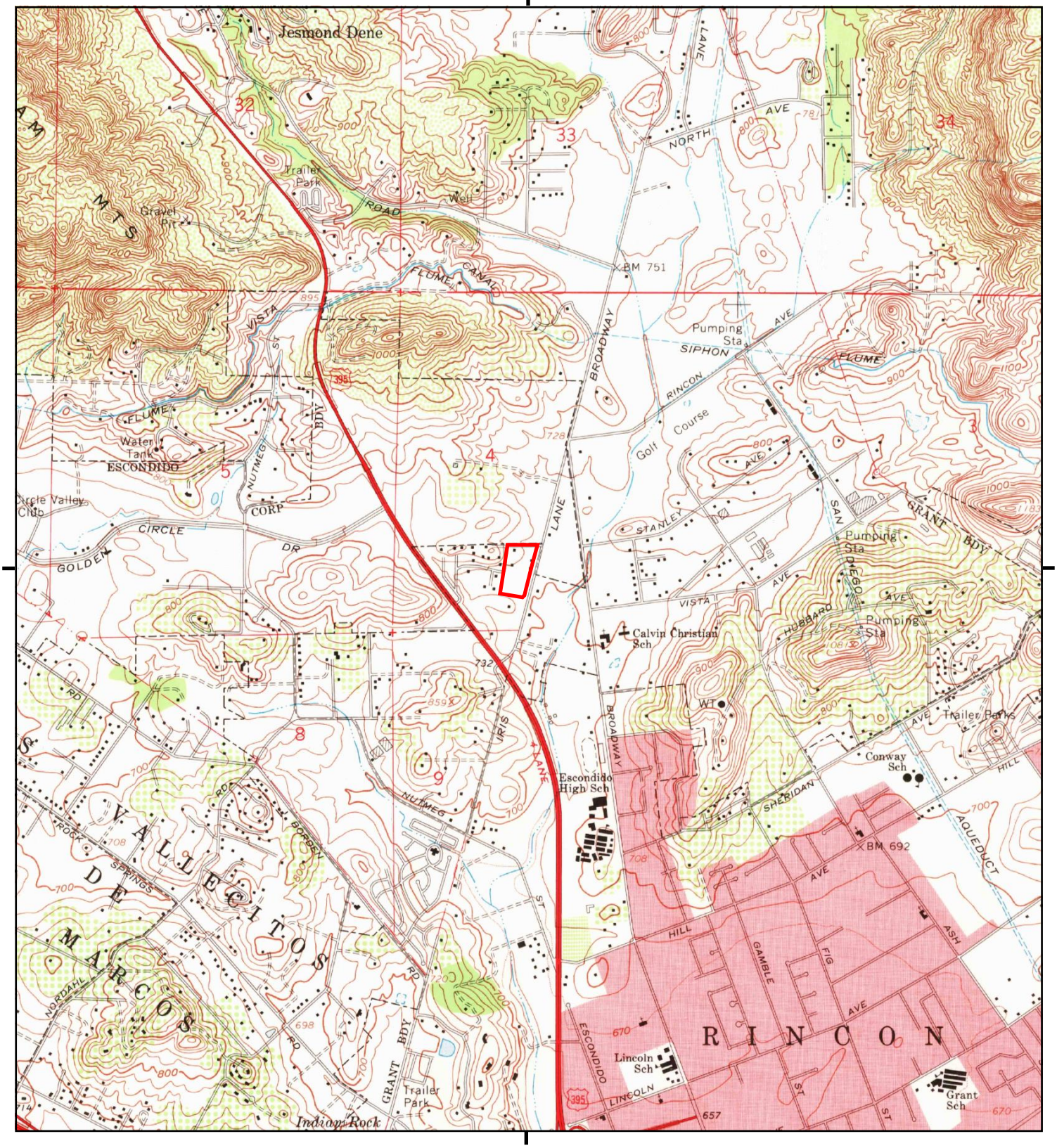
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Valley Center, 1975, 7.5-minute

SITE NAME: North Iris
ADDRESS: 2085 N Iris Ln
Escondido, CA 92026
CLIENT: Geocon Env. Consultants, Inc.

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

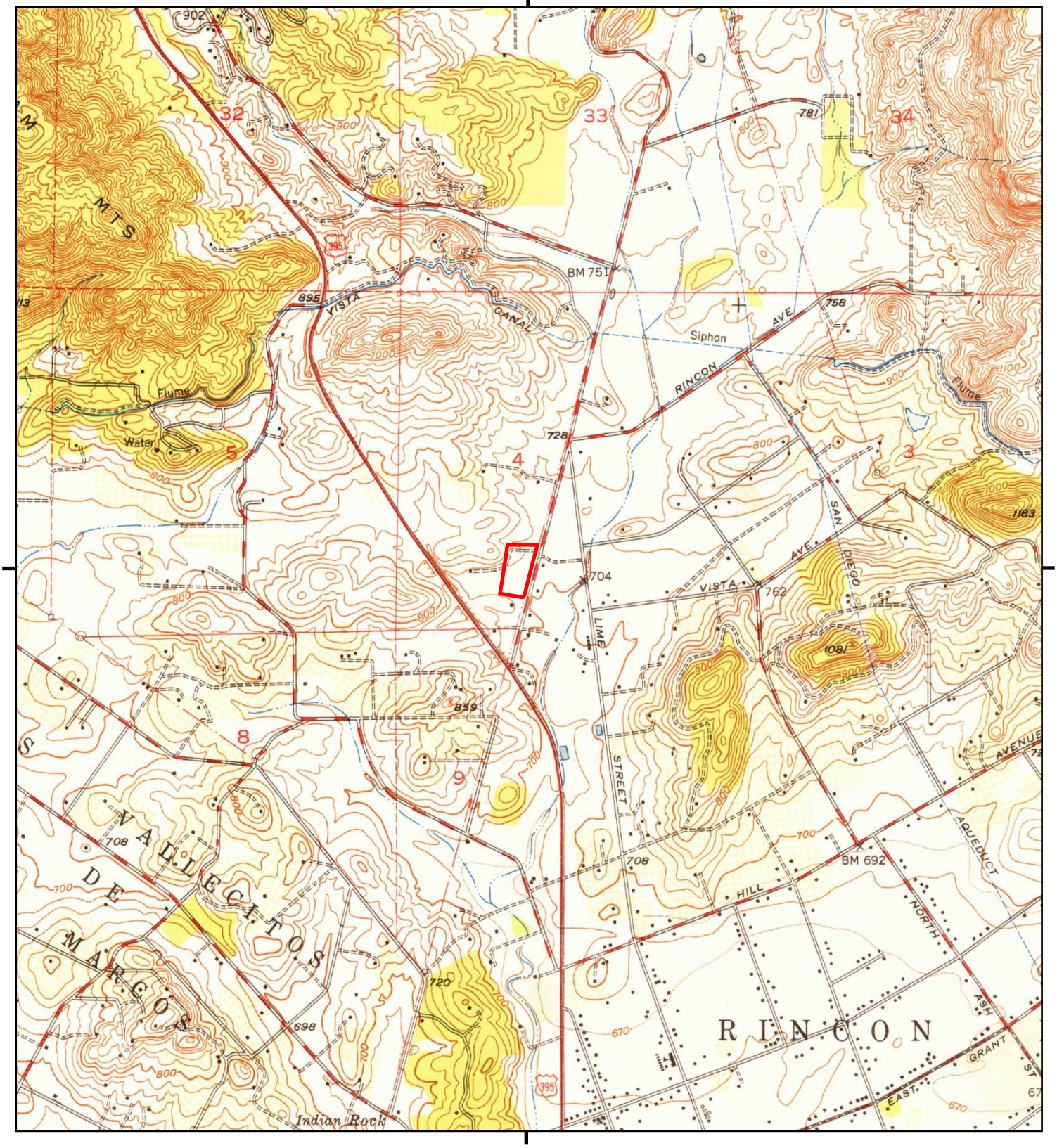
TP, Valley Center, 1968, 7.5-minute

SITE NAME: North Iris
ADDRESS: 2085 N Iris Ln
Escondido, CA 92026
CLIENT: Geocon Env. Consultants, Inc.

N

Historical Topo Map

1949



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

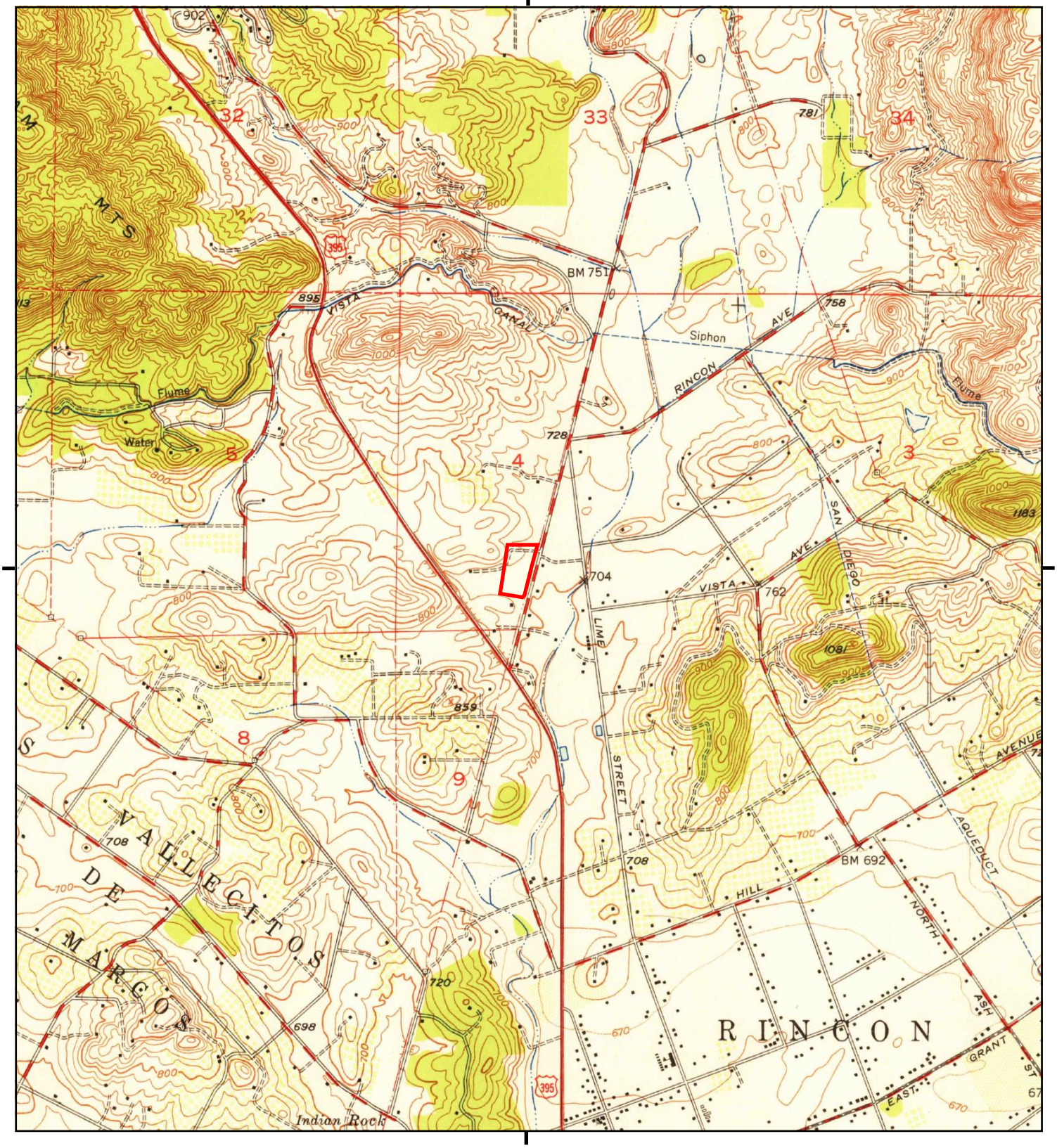
TP, Valley Center, 1949, 7.5-minute

SITE NAME: North Iris
ADDRESS: 2085 N Iris Ln
Escondido, CA 92026
CLIENT: Geocon Env. Consultants, Inc.

N

Historical Topo Map

1948



This report includes information from the following map sheet(s).

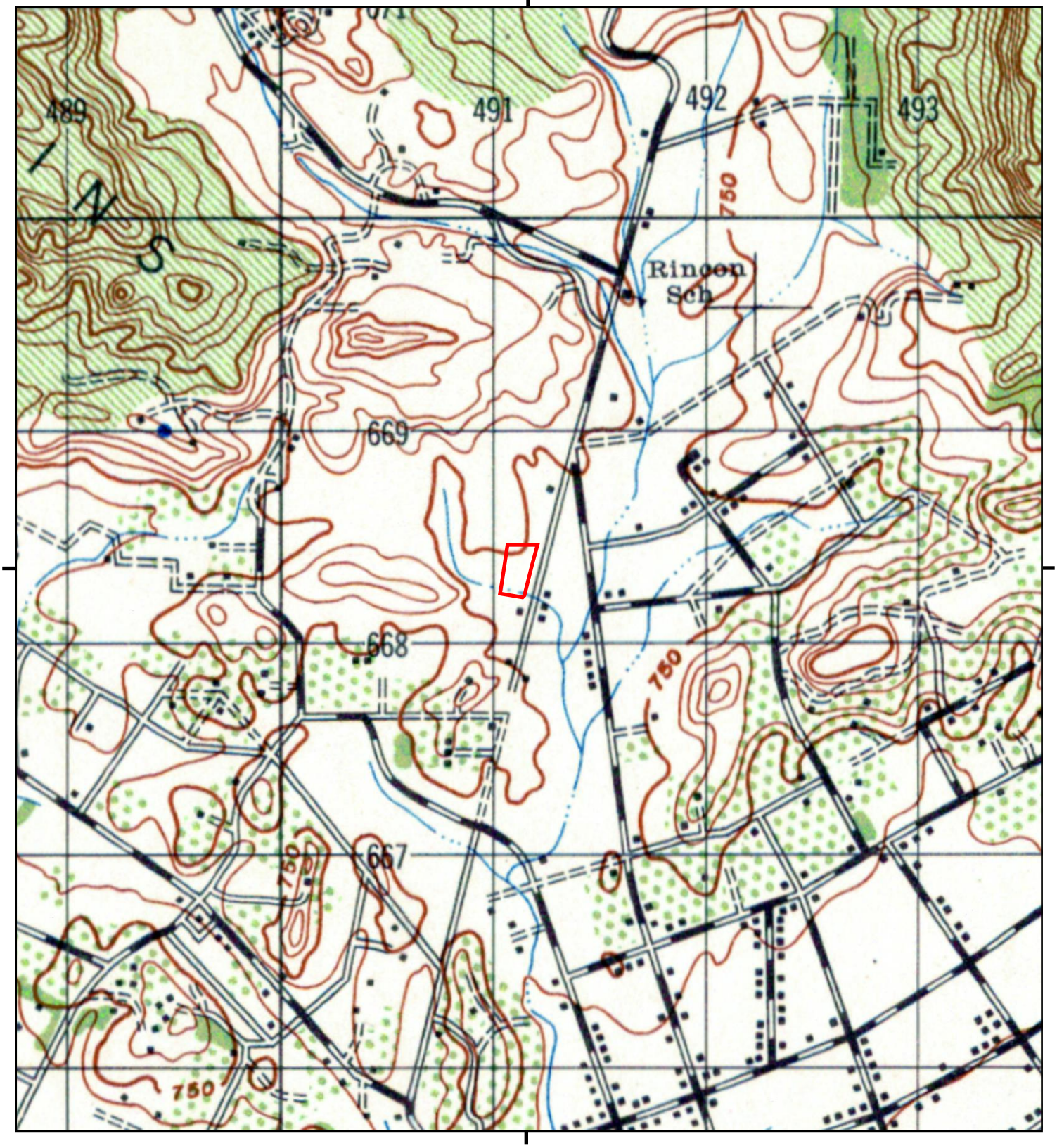
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Valley Center, 1948, 7.5-minute

SITE NAME: North Iris
ADDRESS: 2085 N Iris Ln
Escondido, CA 92026
CLIENT: Geocon Env. Consultants, Inc.

N



This report includes information from the following map sheet(s).

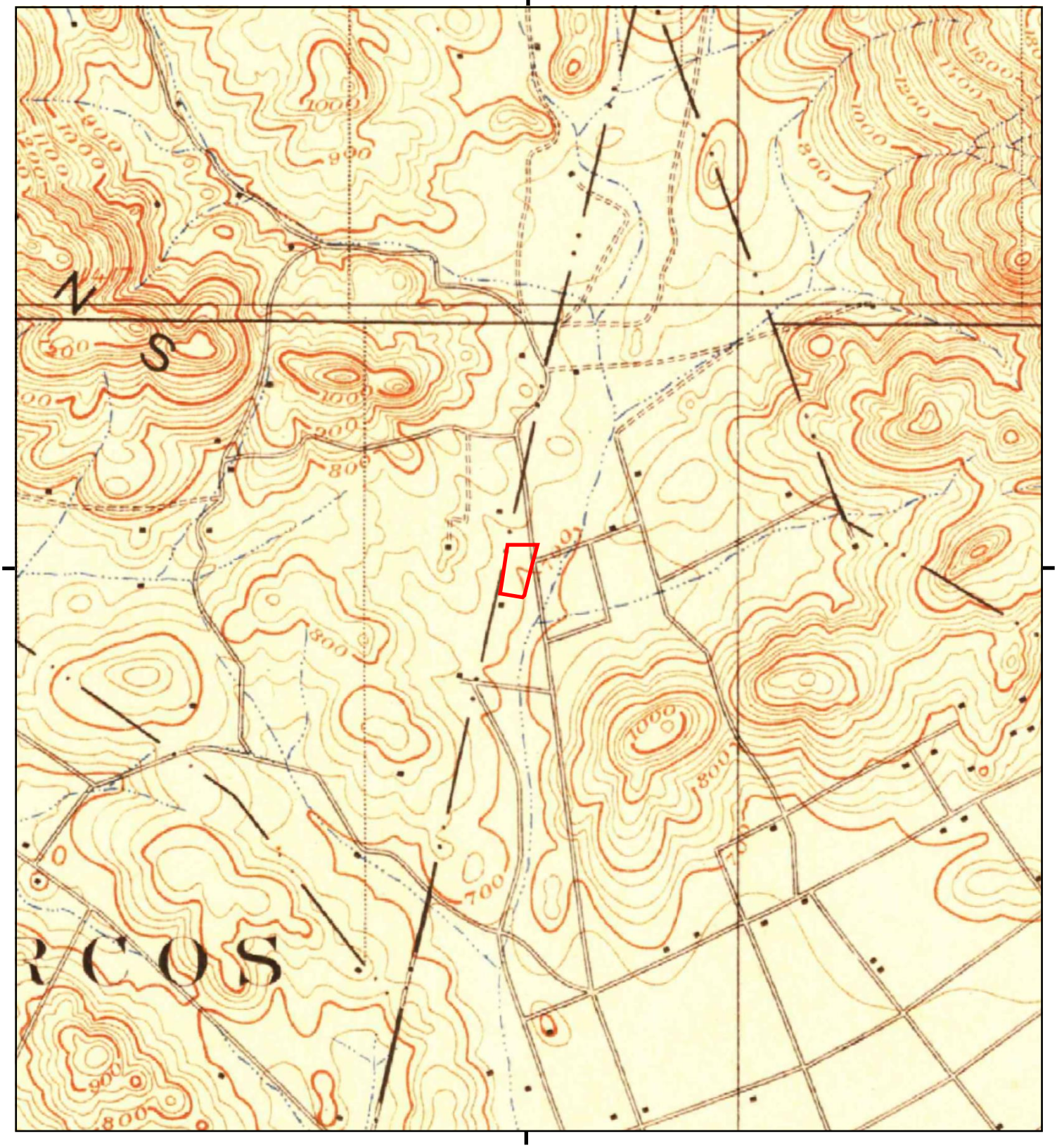
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, ESCONDIDO, 1947, 15-minute

SITE NAME: North Iris
ADDRESS: 2085 N Iris Ln
Escondido, CA 92026
CLIENT: Geocon Env. Consultants, Inc.

N



This report includes information from the following map sheet(s).

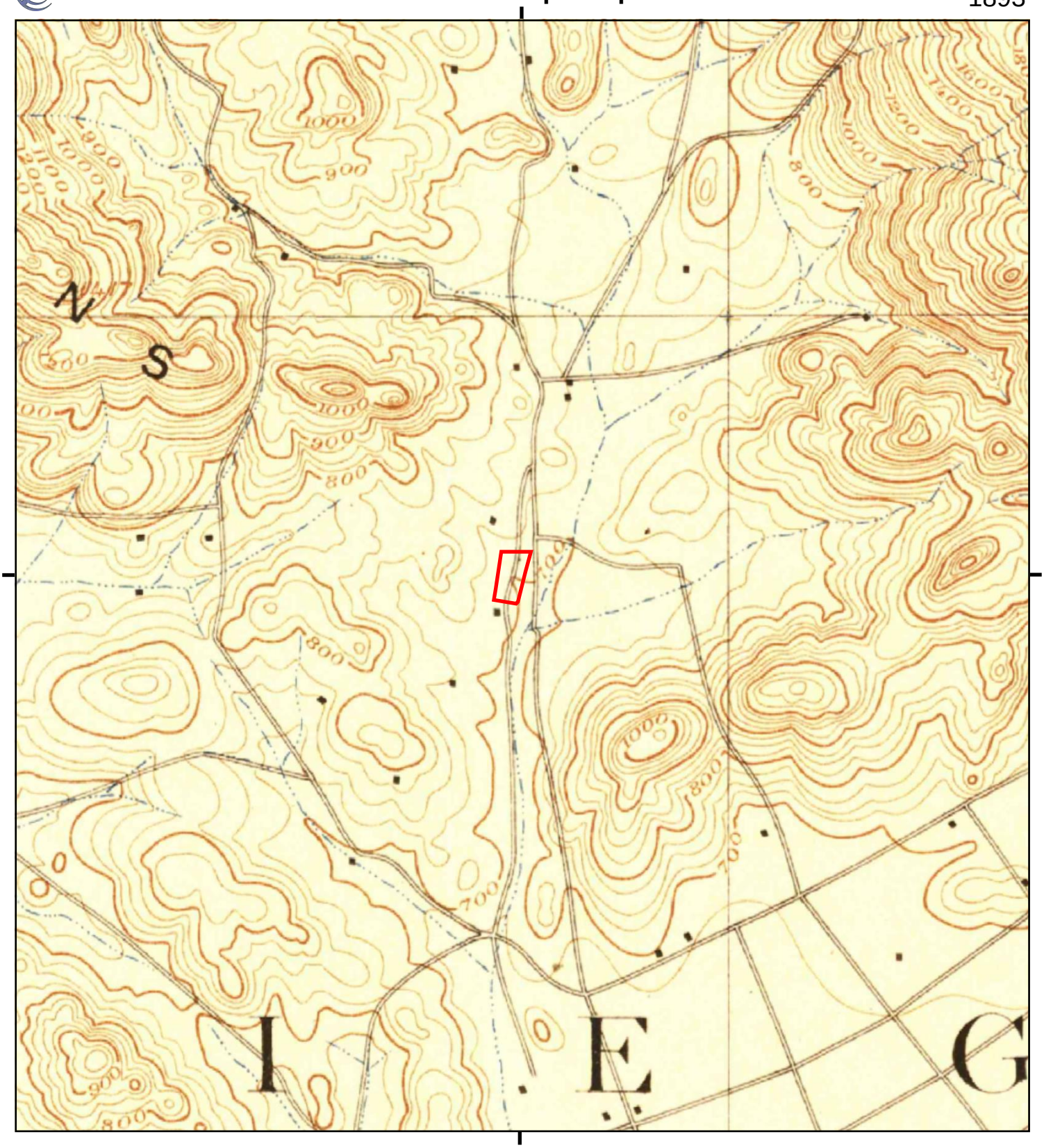
0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Escondido, 1901, 15-minute

SITE NAME: North Iris
ADDRESS: 2085 N Iris Ln
Escondido, CA 92026
CLIENT: Geocon Env. Consultants, Inc.

N



This report includes information from the following map sheet(s).

0 Miles 0.25 0.5 1 1.5

NW N NE
W E
SW S SE

TP, Escondido, 1893, 15-minute

SITE NAME: North Iris
ADDRESS: 2085 N Iris Ln
Escondido, CA 92026
CLIENT: Geocon Env. Consultants, Inc.

N

APPENDIX F

North Iris
2085 N Iris Ln
Escondido, CA 92026

Inquiry Number: 6348594.5
January 29, 2021

The EDR-City Directory Abstract

Environmental Data Resources Inc

6 Armstrong Road
Shelton, CT 06484
800.352.0050
www.edrnet.com

TABLE OF CONTENTS

SECTION

Executive Summary

Findings

City Directory Images

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Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

DESCRIPTION

Environmental Data Resources, Inc.'s (EDR) City Directory Abstract is a screening tool designed to assist environmental professionals in evaluating potential liability on a target property resulting from past activities. EDR's City Directory Abstract includes a search and abstract of available city directory data. For each address, the directory lists the name of the corresponding occupant at five year intervals.

Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1903 through 2017. This report compiles information gathered in this review by geocoding the latitude and longitude of properties identified and gathering information about properties within 660 feet of the target property.

A summary of the information obtained is provided in the text of this report.

RECORD SOURCES

EDR's Digital Archive combines historical directory listings from sources such as Cole Information and Dun & Bradstreet. These standard sources of property information complement and enhance each other to provide a more comprehensive report.

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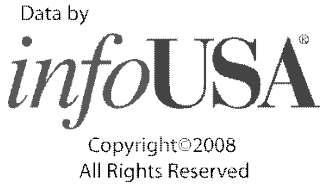

RESEARCH SUMMARY

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

Year	Source	TP	Adjoining	Text Abstract	Source Image
2017	Cole Information Services	-	X	X	-
2014	Cole Information Services	X	X	X	-
2009	Cole Information Services	X	X	X	-
2006	Haines Company, Inc.	-	X	X	X
	Haines Company, Inc.	X	X	X	X
2004	Cole Information Services	X	X	X	-
2000	Haines Company, Inc.	-	X	X	-
	Haines Company, Inc.	X	X	X	-
1999	Cole Information Services	X	X	X	-
1995	PACIFIC BELL WHITE PAGES	-	X	X	-
1994	Cole Information Services	X	X	X	-
1992	PACIFIC BELL WHITE PAGES	-	-	-	-

EXECUTIVE SUMMARY

Year	Source	TP	Adjoining	Text Abstract	Source Image
1991	PACIFIC BELL WHITE PAGES	-	X	X	-
	PACIFIC BELL WHITE PAGES	X	X	X	-
1989	Pacific Bell	-	-	-	-
1985	PACIFIC BELL WHITE PAGES	-	X	X	-
	PACIFIC BELL WHITE PAGES	X	X	X	-
1984	R. L. Polk & Co.	-	-	-	-
1980	Pacific Telephone	-	X	X	-
	Pacific Telephone	X	X	X	-
1976	Luskey Blue Book	-	X	X	-
	Luskey Blue Book	X	X	X	-
1975	R. L. Polk Co.	-	-	-	-
1971	Community Directory Co.	-	X	X	-
1970	John M. Ducy	-	-	-	-
1966	R. L. Polk Co.	-	-	-	-
1965	Luskey Brothers Co., Inc.	-	-	-	-
1962	Community Directory Co.	-	-	-	-
1961	R. L. Polk & Co.	-	-	-	-
1960	The Pacific Telephone Telegraph Co.	-	-	-	-
1956	R. L. Polk & Co.	-	-	-	-
1955	R. L. Polk & Co.	-	-	-	-
1952	R. L. Polk & Co. of California	-	-	-	-
1950	The Pacific Telephone & Telegraph Co.	-	-	-	-
1948	San Diego Directory Co.	-	-	-	-
1945	San Diego Directory Co.	-	-	-	-
1943	San Diego Directory Co.	-	-	-	-
1940	San Diego Directory Co.	-	-	-	-
1938	San Diego Directory Co.	-	-	-	-
1933	San Diego Directory Co.	-	-	-	-
1927	San Diego Directory Co.	-	-	-	-
1921	San Diego Directory Co. Inc.	-	-	-	-
1907	San Diego Directory Co.	-	-	-	-
1903	San Diego Directory Co.	-	-	-	-

RECORD SOURCES

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Data by



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FINDINGS

TARGET PROPERTY INFORMATION

ADDRESS

2085 N Iris Ln
Escondido, CA 92026

FINDINGS DETAIL

Target Property research detail.

IRIS LN N

2085 IRIS LN N

Year	*Uses*	*Source*
2000	XXXX	Haines Company, Inc.

N IRIS LN

2085 N IRIS LN

Year	*Uses*	*Source*	
2014	JOHN PRICE	Cole Information Services	
2009	OCCUPANT UNKNOWN	Cole Information Services	
2006	XXXX	Haines Company, Inc.	Image pg. A1
2004	OCCUPANT UNKNOWN	Cole Information Services	
1999	OCCUPANT UNKNOWN	Cole Information Services	
1994	BEALS, JENNIE A	Cole Information Services	
1991	Beals J A	PACIFIC BELL WHITE PAGES	
	Beals S	PACIFIC BELL WHITE PAGES	
1985	BEALS J A	PACIFIC BELL WHITE PAGES	
1980	Beals J A	Pacific Telephone	
1976	Beals JA	Luskey Blue Book	
	Rockwood Warren	Luskey Blue Book	

FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

BROADWAY N

2077 BROADWAY N

Year	Uses	Source
1980	Porter Jack	Pacific Telephone

2107 BROADWAY N

Year	Uses	Source
1980	Di Stefano Bros	Pacific Telephone

BROADWAY ST N

2088 BROADWAY ST N

Year	Uses	Source
2000	BRUEMMER Richard	Haines Company, Inc.

2089 BROADWAY ST N

Year	Uses	Source
2000	EKBERG Helen	Haines Company, Inc.

2097 BROADWAY ST N

Year	Uses	Source
2000	XXXX	Haines Company, Inc.

2107 BROADWAY ST N

Year	Uses	Source
2000	XXXX	Haines Company, Inc.

COUNTRY PI LSC

2141 COUNTRY PI LSC

Year	Uses	Source
1976	Widick Richard	Luskey Blue Book

FINDINGS

COUNTRY PL

2102 COUNTRY PL

Year	Uses	Source	
2017	JIMMIE OWENS	Cole Information Services	
2014	KRISTAN DYER	Cole Information Services	
2009	JEANNIE ALLEN	Cole Information Services	
2006	XXXX	Haines Company, Inc.	Image pg. A2
2004	JEANNIE ALLEN	Cole Information Services	
2000	ATCKISON Bruce	Haines Company, Inc.	
1999	JEANNIE ALLEN	Cole Information Services	
1991	Klingler Elmer W & Verla	PACIFIC BELL WHITE PAGES	
1985	STEPHENS G M	PACIFIC BELL WHITE PAGES	
1980	Stephens G M	Pacific Telephone	
1976	Kasdan Shelly Real Estate	Luskey Blue Book	
	Kasdan Shelley B	Luskey Blue Book	

2104 COUNTRY PL

Year	Uses	Source	
2017	DANIELLE MCDONALD	Cole Information Services	
2014	RICHARD REVILLA	Cole Information Services	
2009	SEAN BOSTON	Cole Information Services	
2006	XXXX	Haines Company, Inc.	Image pg. A2
2004	OCCUPANT UNKNOWN	Cole Information Services	
2000	ANNELER Wasdyke	Haines Company, Inc.	
1999	SEAN BOSTON	Cole Information Services	

2108 COUNTRY PL

Year	Uses	Source
2017	SHERYL RINGEL	Cole Information Services
2014	SHERYL RINGEL	Cole Information Services
2009	SHERYL RINGEL	Cole Information Services
2004	SHERYL RINGEL	Cole Information Services
1999	SHERYL RINGEL	Cole Information Services
1985	REISS DAN & DENISE	PACIFIC BELL WHITE PAGES

2110 COUNTRY PL

Year	Uses	Source
2017	ROYCE RHEINHART	Cole Information Services
2014	ROYCE RHEINHART	Cole Information Services

FINDINGS

Year	Uses	Source	
2009	OCCUPANT UNKNOWN	Cole Information Services	
2006	DEWINDT David	Haines Company, Inc.	Image pg. A2
2004	OCCUPANT UNKNOWN	Cole Information Services	
2000	DEWINDT David	Haines Company, Inc.	
	DEWINDT Diane	Haines Company, Inc.	
1999	OCCUPANT UNKNOWN	Cole Information Services	
1985	SMITH EDW R	PACIFIC BELL WHITE PAGES	
1980	Smith Edw R	Pacific Telephone	
1976	Smith Edward R	Luskey Blue Book	

2114 COUNTRY PL

Year	Uses	Source	
2017	JENNIF YORK	Cole Information Services	
2014	OCCUPANT UNKNOWN	Cole Information Services	
2009	OCCUPANT UNKNOWN	Cole Information Services	
2006	SMITH Larry	Haines Company, Inc.	Image pg. A2
2004	LARRY SMITH	Cole Information Services	
2000	SMITH Larry	Haines Company, Inc.	
1999	OCCUPANT UNKNOWN	Cole Information Services	
1995	SMITH KIERSTEN	PACIFIC BELL WHITE PAGES	
1994	SMITH, LARRY	Cole Information Services	
1991	Smith Larry	PACIFIC BELL WHITE PAGES	
1985	SMITH LARRY	PACIFIC BELL WHITE PAGES	
1980	Nolen Larry & Karen	Pacific Telephone	
1976	Hirsch Georgia	Luskey Blue Book	

2116 COUNTRY PL

Year	Uses	Source	
2017	GAUDENCIO DIEGO	Cole Information Services	
2014	OCCUPANT UNKNOWN	Cole Information Services	
2009	BRIAN GAMBERG	Cole Information Services	
	BPG ELECTRICAL CONSULTANTS	Cole Information Services	
2006	GAMBERG Brian	Haines Company, Inc.	Image pg. A2
2000	XXXX	Haines Company, Inc.	
1999	BRIAN GAMBERG	Cole Information Services	
	OCCUPANT UNKNOWN	Cole Information Services	
1994	SIGURDSON, HAROLD	Cole Information Services	
1991	Sigurdson James P	PACIFIC BELL WHITE PAGES	
	Sigurdson Harold & Patricia	PACIFIC BELL WHITE PAGES	

FINDINGS

Year	Uses	Source	
1985	SIGURDSON HAROLD & PATRICIA	PACIFIC BELL WHITE PAGES	
1980	Madden Donn L	Pacific Telephone	
1976	Sands William H Jr	Luskey Blue Book	

2120 COUNTRY PL

Year	Uses	Source	
2017	ROBERT ROSE	Cole Information Services	
2014	ROBERT ROSE	Cole Information Services	
2009	ROBERT ROSE	Cole Information Services	
2006	ROSE Susan	Haines Company, Inc.	Image pg. A2
2004	OCCUPANT UNKNOWN	Cole Information Services	
2000	KLOENNE Robt C	Haines Company, Inc.	
1999	ROBERT ROSE	Cole Information Services	
1995	KLOENNE ROBT C	PACIFIC BELL WHITE PAGES	
1994	KLOENNE, ROBERT C	Cole Information Services	
1991	Kloenne Robt C	PACIFIC BELL WHITE PAGES	
1980	Kloenne Robt C	Pacific Telephone	
1976	Shunk George F	Luskey Blue Book	

2121 COUNTRY PL

Year	Uses	Source	
2017	DENNIS ENGSTROM	Cole Information Services	
2014	DENNIS ENGSTROM	Cole Information Services	
2009	DENNIS ENGSTROM	Cole Information Services	
2006	ENGSTROM Betsy	Haines Company, Inc.	Image pg. A2
2004	OCCUPANT UNKNOWN	Cole Information Services	
2000	ENGSTROM Dennis	Haines Company, Inc.	
1999	DENNIS ENGSTROM	Cole Information Services	
1991	i Harvey Clair	PACIFIC BELL WHITE PAGES	
1985	HARVEY CLAIR	PACIFIC BELL WHITE PAGES	
1980	Harvey Clair	Pacific Telephone	
1976	Harvey Clair	Luskey Blue Book	

2122 COUNTRY PL

Year	Uses	Source	
2017	LISA UMLAUF	Cole Information Services	
2014	GRANT SINES	Cole Information Services	
2006	MONTES Jose	Haines Company, Inc.	Image pg. A2
2000	MERCURIO Richard	Haines Company, Inc.	

FINDINGS

Year	Uses	Source	
1999	OCCUPANT UNKNOWN	Cole Information Services	

2125 COUNTRY PL

Year	Uses	Source	
2017	ROBERT LEIERITZ	Cole Information Services	
2014	LANA TUNNELL	Cole Information Services	
2009	NORMAN WAELCHLI	Cole Information Services	
2006	KEENER Donna	Haines Company, Inc.	Image pg. A2
	KEENER James	Haines Company, Inc.	Image pg. A2
2004	JAMES KEENER	Cole Information Services	
2000	KEENER James L	Haines Company, Inc.	
	KEENER Donna I	Haines Company, Inc.	
1999	NORMAN WAELCHLI	Cole Information Services	
1985	BROWN JUNE S	PACIFIC BELL WHITE PAGES	
1980	Kivett Donna I	Pacific Telephone	

2126 COUNTRY PL

Year	Uses	Source	
2017	CHARLOTTE NELSON	Cole Information Services	
2014	CHARLOTTE NELSON	Cole Information Services	
2009	CHARLOTTE NELSON	Cole Information Services	
2006	XXXX	Haines Company, Inc.	Image pg. A2
2004	CHARLOTTE NELSON	Cole Information Services	
2000	NELSON Charlotte	Haines Company, Inc.	
1999	OCCUPANT UNKNOWN	Cole Information Services	
	CHARLOTTE NELSON	Cole Information Services	
1985	NELSON SPENCER V	PACIFIC BELL WHITE PAGES	
1980	Nelson Spencer V	Pacific Telephone	
1976	Kossmani PA	Luskey Blue Book	
	Nelson Spencer V	Luskey Blue Book	

2128 COUNTRY PL

Year	Uses	Source	
2017	RONALD ELLIOTT	Cole Information Services	
2014	RONALD ELLIOTT	Cole Information Services	
2009	RONALD ELLIOTT	Cole Information Services	
2006	ELLIOTT Ronald	Haines Company, Inc.	Image pg. A2
2004	RONALD ELLIOTT	Cole Information Services	
2000	ELLIOTT Ronald	Haines Company, Inc.	

FINDINGS

Year	Uses	Source	
1999	RONALD ELLIOTT	Cole Information Services	
1991	Childs Craig & Joyce.....	PACIFIC BELL WHITE PAGES	
	Childs Clarence R	PACIFIC BELL WHITE PAGES	
	Childs Darren J	PACIFIC BELL WHITE PAGES	
1985	CHILDS CLARENCE R	PACIFIC BELL WHITE PAGES	
1980	Childs Clarence R	Pacific Telephone	
1976	Childs Clarence R	Luskey Blue Book	

2131 COUNTRY PL

Year	Uses	Source	
2017	DIRK RITTINGHAUS	Cole Information Services	
2014	DIRK RITTINGHAUS	Cole Information Services	
2009	SAMAREH JAFARIEH	Cole Information Services	
2006	MARSHALL Thomas	Haines Company, Inc.	Image pg. A2
2004	TIMOTHY REILEY	Cole Information Services	
2000	POTTER Robert	Haines Company, Inc.	
1999	SAMAREH JAFARIEH	Cole Information Services	
	OCCUPANT UNKNOWN	Cole Information Services	

2132 COUNTRY PL

Year	Uses	Source	
2017	SCOTT KUNDINGER	Cole Information Services	
2014	SCOTT KUNDINGER	Cole Information Services	
2009	SCOTT KUNDINGER	Cole Information Services	
2006	KUNDINGER Scott	Haines Company, Inc.	Image pg. A2
2004	SALVATORE PETRONI	Cole Information Services	
2000	JONES Alan	Haines Company, Inc.	
1999	SCOTT KUNDINGER	Cole Information Services	
	OCCUPANT UNKNOWN	Cole Information Services	
1995	JONES MORGAN T	PACIFIC BELL WHITE PAGES	
1994	JONES, NORMAN F	Cole Information Services	
1991	Jones Norman F	PACIFIC BELL WHITE PAGES	
1985	JONES NORMAN F	PACIFIC BELL WHITE PAGES	
1980	Jones Norman F	Pacific Telephone	
1976	Jones Norman	Luskey Blue Book	

2134 COUNTRY PL

Year	Uses	Source
2017	DAVID PINSON	Cole Information Services

FINDINGS

Year	Uses	Source	
2014	DAVID PINSON	Cole Information Services	
2009	JOEL MALDONADO	Cole Information Services	
2006	MALDONADO Joel	Haines Company, Inc.	Image pg. A2
	GARCIA Jaime G	Haines Company, Inc.	Image pg. A2
2004	OCCUPANT UNKNOWN	Cole Information Services	
2000	BARRY David	Haines Company, Inc.	
1999	JOEL MALDONADO	Cole Information Services	
1985	MASTERS D	PACIFIC BELL WHITE PAGES	
1980	Hayes Cindy	Pacific Telephone	
	Hayes Ronald M	Pacific Telephone	

2135 COUNTRY PL

Year	Uses	Source	
2017	SEAN COON	Cole Information Services	
2014	JANET COON	Cole Information Services	
2009	DARLENE COON	Cole Information Services	
2006	XXXX	Haines Company, Inc.	Image pg. A2
2004	DARLENE COON	Cole Information Services	
2000	XXXX	Haines Company, Inc.	
1999	OCCUPANT UNKNOWN	Cole Information Services	
	DARLENE COON	Cole Information Services	
1994	COON, KENNETH K	Cole Information Services	
1991	Coon Kenneth K	PACIFIC BELL WHITE PAGES	
1980	Coon Kenneth K	Pacific Telephone	

2138 COUNTRY PL

Year	Uses	Source	
2017	ANDREW SERAFINI	Cole Information Services	
2014	OCCUPANT UNKNOWN	Cole Information Services	
2009	PHILIP DEFALCO	Cole Information Services	
2006	MCCUE Edward	Haines Company, Inc.	Image pg. A2
2004	PHILIP DEFALCO	Cole Information Services	
2000	MCCUE Edward	Haines Company, Inc.	
1999	PHILIP DEFALCO	Cole Information Services	
1995	MCCUE BROCK & WENDY	PACIFIC BELL WHITE PAGES	
1994	MCCUE, EDWARD	Cole Information Services	
1991	Mc Cue Edw	PACIFIC BELL WHITE PAGES	
	Mc Cue HDavey	PACIFIC BELL WHITE PAGES	
1985	BRACKEN GARY & JULIE	PACIFIC BELL WHITE PAGES	

FINDINGS

Year	Uses	Source	
1980	Bracken Gary &Julie	Pacific Telephone	
1976	Paul RM	Luskey Blue Book	

2140 COUNTRY PL

Year	Uses	Source	
2017	CARMEN PEREZ	Cole Information Services	
2014	ALICIA CURTIS	Cole Information Services	
2009	JAKE PARCHMAN	Cole Information Services	
2006	PALMER Michael	Haines Company, Inc.	Image pg. A2
2004	MICHAEL PALMER	Cole Information Services	
2000	RUSH Chris	Haines Company, Inc.	
1999	JAKE PARCHMAN	Cole Information Services	
1980	De Rosa J	Pacific Telephone	
1976	Shaw R	Luskey Blue Book	

2141 COUNTRY PL

Year	Uses	Source	
2017	WILLIAM REA	Cole Information Services	
2014	WILLIAM REA	Cole Information Services	
2009	WILLIAM REA	Cole Information Services	
2006	REA William	Haines Company, Inc.	Image pg. A2
	ACADEME VIDEO PRODUCTIONS	Haines Company, Inc.	Image pg. A2
2004	OCCUPANT UNKNOWN	Cole Information Services	
	BLUE SKY MEDIA PRODUCTIONS	Cole Information Services	
	BLUE SKY MEDIA PRODUCTIONS	Cole Information Services	
	ACADEME VIDEO PRODUCTIONS	Cole Information Services	
2000	RAE William	Haines Company, Inc.	
1999	WILLIAM REA	Cole Information Services	
	OCCUPANT UNKNOWN	Cole Information Services	
1995	WOLFE AMIR	PACIFIC BELL WHITE PAGES	
1980	Shain Geo L	Pacific Telephone	

2143 COUNTRY PL

Year	Uses	Source	
2017	ERIK RODRIGUEZ	Cole Information Services	
2014	ANDREA BOARDMAN	Cole Information Services	
2009	ANDREA BOARDMAN	Cole Information Services	
2006	BOARDMAN Andrea M	Haines Company, Inc.	Image pg. A2
2004	ANDREA BOARDMAN	Cole Information Services	

FINDINGS

Year	Uses	Source	
2000	CUNNINGHAM Jerald	Haines Company, Inc.	
1999	OCCUPANT UNKNOWN	Cole Information Services	
	ANDREA BOARDMAN	Cole Information Services	
1980	Shafer S L	Pacific Telephone	
1976	Yett Robert A	Luskey Blue Book	

2144 COUNTRY PL

Year	Uses	Source	
2014	OCCUPANT UNKNOWN	Cole Information Services	
2009	MICHAEL MCMULLEN	Cole Information Services	
2006	MCMULLEN Michael	Haines Company, Inc.	Image pg. A2
2000	UTTERBERGGU Gwen	Haines Company, Inc.	
1999	MICHAEL MCMULLEN	Cole Information Services	
1994	KILDARE, RUTH	Cole Information Services	
1991	Kildare RM	PACIFIC BELL WHITE PAGES	
	Kildare R F	PACIFIC BELL WHITE PAGES	
1985	MONROE JOHN R	PACIFIC BELL WHITE PAGES	
1980	Monroe John R	Pacific Telephone	
1976	Monroe John R	Luskey Blue Book	

2145 COUNTRY PL

Year	Uses	Source	
2017	ROBERT WALKER	Cole Information Services	
2014	ROBERT WALKER	Cole Information Services	
2009	ROBERT WALKER	Cole Information Services	
2006	WALKER Robert	Haines Company, Inc.	Image pg. A2
2004	ROBERT WALKER	Cole Information Services	
2000	WALKER Robert	Haines Company, Inc.	
1999	ROBERT WALKER	Cole Information Services	
1985	STREET JEFFREY A	PACIFIC BELL WHITE PAGES	

2146 COUNTRY PL

Year	Uses	Source
2017	EDWARD DECOURCEY	Cole Information Services
2014	EDWARD DECOURCEY	Cole Information Services
2009	EDWARD DECOURCEY	Cole Information Services
2004	EDWARD DECOURCEY	Cole Information Services
2000	DECOURCEY Edward	Haines Company, Inc.
1999	EDWARD DECOURCEY	Cole Information Services

FINDINGS

2147 COUNTRY PL

Year	Uses	Source	
2017	M LEAP	Cole Information Services	
2014	M LEAP	Cole Information Services	
2006	LEAP M J	Haines Company, Inc.	Image pg. A2
2004	MARY LEAP	Cole Information Services	
2000	LEAP M J	Haines Company, Inc.	
1991	Leap M J	PACIFIC BELL WHITE PAGES	
1985	JACOBS M J	PACIFIC BELL WHITE PAGES	

2150 COUNTRY PL

Year	Uses	Source	
2017	L LOCKWOOD	Cole Information Services	
2014	L LOCKWOOD	Cole Information Services	
2006	AZNEER Allan	Haines Company, Inc.	Image pg. A2
2004	TEMPLETON ENGINEERING INC	Cole Information Services	
2000	AZNEER Allan	Haines Company, Inc.	
1980	Quintrall Jas	Pacific Telephone	
1976	Quintrall James	Luskey Blue Book	

2151 COUNTRY PL

Year	Uses	Source	
2017	HENRIK EK	Cole Information Services	
2014	CHUCK BRYANT	Cole Information Services	
2009	CHUCK BRYANT	Cole Information Services	
2006	BRYANT Chuck	Haines Company, Inc.	Image pg. A2
2004	CHUCK BRYANT	Cole Information Services	
2000	BRYANT Chuck	Haines Company, Inc.	
1999	CHUCK BRYANT	Cole Information Services	
1994	BRYANT, CHUCK	Cole Information Services	
1985	YAVANIAN KELLYA	PACIFIC BELL WHITE PAGES	
1980	Yavanian Douglas A	Pacific Telephone	
1976	Yavanian Douglas A	Luskey Blue Book	

2152 COUNTRY PL

Year	Uses	Source	
2017	MICHAEL PARVIN	Cole Information Services	
2014	MICHAEL PARVIN	Cole Information Services	
2009	MICHAEL PARVIN	Cole Information Services	
2006	PARVIN Michael	Haines Company, Inc.	Image pg. A2

FINDINGS

Year	Uses	Source	
2004	JAMES COOPER	Cole Information Services	
2000	COOPER Ethelyne J	Haines Company, Inc.	
1999	MICHAEL PARVIN	Cole Information Services	
1991	Roberts Mildred M	PACIFIC BELL WHITE PAGES	
1985	ROBERTS MILDRED M	PACIFIC BELL WHITE PAGES	
1980	Roberts Thos E & Mildred M	Pacific Telephone	
1976	Psinka William C	Luskey Blue Book	

2153 COUNTRY PL

Year	Uses	Source	
2017	KATHLEEN KRAUSE	Cole Information Services	
2014	KATHLEEN KRAUSE	Cole Information Services	
2009	KATHLEEN MCCORD	Cole Information Services	
2006	XXXX	Haines Company, Inc.	Image pg. A2
2000	MCCORD Kathleen	Haines Company, Inc.	
1999	KATHLEEN MCCORD	Cole Information Services	
	OCCUPANT UNKNOWN	Cole Information Services	

2156 COUNTRY PL

Year	Uses	Source	
2017	NEIL PAGE	Cole Information Services	
2014	OCCUPANT UNKNOWN	Cole Information Services	
2009	NEIL PAGE	Cole Information Services	
2006	PAGE Neil	Haines Company, Inc.	Image pg. A2
2004	NEIL PAGE	Cole Information Services	
2000	PAGE Neil	Haines Company, Inc.	
1999	NEIL PAGE	Cole Information Services	
	OCCUPANT UNKNOWN	Cole Information Services	
1995	RUSSELL JAMES CATTY	PACIFIC BELL WHITE PAGES	
1994	RUSSELL, JESSIE	Cole Information Services	
1991	Russell Jessie	PACIFIC BELL WHITE PAGES	
1985	RUSSELL JESSIE	PACIFIC BELL WHITE PAGES	
1976	Russell Jessie G	Luskey Blue Book	

2157 COUNTRY PL

Year	Uses	Source	
2014	ESTHER MORALES	Cole Information Services	
2009	KAREN GARCIA	Cole Information Services	
2006	MORALES Esther	Haines Company, Inc.	Image pg. A2

FINDINGS

Year	Uses	Source	
2004	CHARLOTTE NELSON	Cole Information Services	
2000	GONZALEZ Hector	Haines Company, Inc.	
1999	KAREN GARCIA	Cole Information Services	
1994	GIBSON, KAY D	Cole Information Services	
1985	GIBSON K D	PACIFIC BELL WHITE PAGES	
1980	Gibson K D	Pacific Telephone	

2158 COUNTRY PL

Year	Uses	Source	
2017	SHELLA CORREA	Cole Information Services	
2014	MARIA SALAZAR	Cole Information Services	
2009	JOEL HOOLIHAN	Cole Information Services	
2006	HOOLIHAN Joel	Haines Company, Inc.	Image pg. A2
2004	JOEL HOOLIHAN	Cole Information Services	
2000	XXXX	Haines Company, Inc.	
1999	JOEL HOOLIHAN	Cole Information Services	
1991	Borer Arthur R	PACIFIC BELL WHITE PAGES	
1985	BORER ARTHUR R	PACIFIC BELL WHITE PAGES	
1980	Borer Arthur R	Pacific Telephone	

2159 COUNTRY PL

Year	Uses	Source	
2017	ALEXANDER RODRIGUEZ	Cole Information Services	
2014	ALEXANDER RODRIGUEZ	Cole Information Services	
2009	ALEXANDER RODRIGUEZ	Cole Information Services	
2006	XXXX	Haines Company, Inc.	Image pg. A2
2004	FLORENCE SPANKOVICH	Cole Information Services	
2000	SPANKOVICH F	Haines Company, Inc.	
1999	OCCUPANT UNKNOWN	Cole Information Services	
	ALEXANDER RODRIGUEZ	Cole Information Services	
1994	SPANKOVICH, F	Cole Information Services	
1980	Spankovich Florence	Pacific Telephone	

2162 COUNTRY PL

Year	Uses	Source	
2017	TANYA LOPEZ	Cole Information Services	
2014	ALEJANDRO LOPEZ	Cole Information Services	
2009	ALEJANDRO LOPEZ	Cole Information Services	
2006	LOPEZ Jose	Haines Company, Inc.	Image pg. A2

FINDINGS

Year	Uses	Source	
2004	MIRYAM DELAROSA	Cole Information Services	
2000	EVANS Eric R	Haines Company, Inc.	
1999	ALEJANDRO LOPEZ	Cole Information Services	
1995	SNYDER HOWARD	PACIFIC BELL WHITE PAGES	
1991	Snyder Dave	PACIFIC BELL WHITE PAGES	
	Snyder Darren & Denise	PACIFIC BELL WHITE PAGES	
	Snyder Danica	PACIFIC BELL WHITE PAGES	
	Snyder DA	PACIFIC BELL WHITE PAGES	
1985	SNYDER D A	PACIFIC BELL WHITE PAGES	
1980	Snyder D A	Pacific Telephone	
1976	Snyder DA	Luskey Blue Book	

2164 COUNTRY PL

Year	Uses	Source	
2017	DIANE DUNLAVEY	Cole Information Services	
2014	DIANE DUNLAVEY	Cole Information Services	
2009	DAVE DUNLAVEY	Cole Information Services	
2006	DUNLAVEY D L	Haines Company, Inc.	Image pg. A2
2004	DAVE DUNLAVEY	Cole Information Services	
2000	DUNLAVEY D L	Haines Company, Inc.	
1999	DAVE DUNLAVEY	Cole Information Services	
1995	DUNLAVEY DL	PACIFIC BELL WHITE PAGES	
1994	DUNLAVEY, DIANE L	Cole Information Services	
1991	Dunlavey D L	PACIFIC BELL WHITE PAGES	
1985	DUNLAVEY D L	PACIFIC BELL WHITE PAGES	
1976	Bunker Hal	Luskey Blue Book	

2168 COUNTRY PL

Year	Uses	Source	
2017	CHARLES CLEVELAND	Cole Information Services	
2014	OCCUPANT UNKNOWN	Cole Information Services	
2009	MICHELE BROWN	Cole Information Services	
2006	BROWN Michele	Haines Company, Inc.	Image pg. A2
2004	OCCUPANT UNKNOWN	Cole Information Services	
2000	HAMNER James	Haines Company, Inc.	
1999	MICHELE BROWN	Cole Information Services	
1980	Zelssler Douglas C	Pacific Telephone	
	Servpro Of Escondido	Pacific Telephone	

FINDINGS

2170 COUNTRY PL

Year	Uses	Source	
2017	CATHERINE DAY	Cole Information Services	
2014	CATHERINE DAY	Cole Information Services	
2009	CATHERINE DAY	Cole Information Services	
2006	DAY Catherine	Haines Company, Inc.	Image pg. A2
2004	CATHERINE DAY	Cole Information Services	
	SANTAS COALS	Cole Information Services	
2000	DAY Catherine	Haines Company, Inc.	
1999	CATHERINE DAY	Cole Information Services	

IRIS LN N

2039 IRIS LN N

Year	Uses	Source
2000	SWANSON Jas G	Haines Company, Inc.

2047 IRIS LN N

Year	Uses	Source
2000	XXXX	Haines Company, Inc.

2089 IRIS LN N

Year	Uses	Source
2000	PRICE Richard	Haines Company, Inc.
	PRICE Shirley	Haines Company, Inc.

IRIS WAY

100 IRIS WAY

Year	Uses	Source
1991	Scritsmier Al & Florence I	PACIFIC BELL WHITE PAGES

N BROADWAY

2074 N BROADWAY

Year	Uses	Source
1999	OCCUPANT UNKNOWN	Cole Information Services

2077 N BROADWAY

Year	Uses	Source
1991	Paulle Michael C	PACIFIC BELL WHITE PAGES
	Paulin B A	PACIFIC BELL WHITE PAGES

FINDINGS

2085 N BROADWAY

Year	Uses	Source	
1976	Light John	Luskey Blue Book	

2098 N BROADWAY

Year	Uses	Source	
1976	Harris BB	Luskey Blue Book	

2107 N BROADWAY

Year	Uses	Source	
1976	DiStefano Brothers	Luskey Blue Book	
1971	Di Stefano Bros h	Community Directory Co.	

2125 N BROADWAY

Year	Uses	Source	
1991	Duarte Antonio	PACIFIC BELL WHITE PAGES	

N BROADWAY ST

2088 N BROADWAY ST

Year	Uses	Source	
2006	BRUEMMER Richard	Haines Company, Inc.	Image pg. A3

2089 N BROADWAY ST

Year	Uses	Source	
2006	SOLIS Pablo	Haines Company, Inc.	Image pg. A3

N IRIS LN

187 N IRIS LN

Year	Uses	Source	
1976	Ooley Robert	Luskey Blue Book	

2039 N IRIS LN

Year	Uses	Source	
2017	FRANCES SWANSON	Cole Information Services	
2014	FRANCES SWANSON	Cole Information Services	
2009	FRANCES SWANSON	Cole Information Services	
2006	SWANSON Jim	Haines Company, Inc.	Image pg. A1
2004	JAMES SWANSON	Cole Information Services	
1999	FRANCES SWANSON	Cole Information Services	
1995	SWANSON DONALD P	PACIFIC BELL WHITE PAGES	

FINDINGS

Year	Uses	Source	
1994	SWANSON, JAMES G	Cole Information Services	
1991	Swanson John	PACIFIC BELL WHITE PAGES	
	Swanson Joel R.....	PACIFIC BELL WHITE PAGES	
	Swanson Jas G	PACIFIC BELL WHITE PAGES	
1985	SWANSON JAS G	PACIFIC BELL WHITE PAGES	
1980	Swanson Jas G	Pacific Telephone	

2047 N IRIS LN

Year	Uses	Source	
2017	ROBERT WALKER	Cole Information Services	
2014	ROBERT WALKER	Cole Information Services	
2009	ROBERT WALKER	Cole Information Services	
2006	XXXX	Haines Company, Inc.	Image pg. A1
2004	DEBRA WALKER	Cole Information Services	
1999	OCCUPANT UNKNOWN	Cole Information Services	
	ROBERT WALKER	Cole Information Services	
1991	Zickefoose Frances Mrs	PACIFIC BELL WHITE PAGES	

2089 N IRIS LN

Year	Uses	Source	
2017	RICHARD PRICE	Cole Information Services	
2014	OCCUPANT UNKNOWN	Cole Information Services	
2009	JOHN PRICE	Cole Information Services	
2006	PRICE Richard	Haines Company, Inc.	Image pg. A1
2004	OCCUPANT UNKNOWN	Cole Information Services	
1999	JOHN PRICE	Cole Information Services	
1995	PRISCILLA	PACIFIC BELL WHITE PAGES	
1991	Price Richard & Shirley	PACIFIC BELL WHITE PAGES	
1985	PRICE RICHARD & SHIRLEY	PACIFIC BELL WHITE PAGES	

2110 N IRIS LN

Year	Uses	Source
2017	ELLEN LAWLER	Cole Information Services
2014	ELLEN LAWLER	Cole Information Services
2009	ELIZABETH CHARLERIE	Cole Information Services
2004	ELIZABETH CHARLERIE	Cole Information Services
1999	ELIZABETH CHARLERIE	Cole Information Services
1994	CHARLERIE, E	Cole Information Services

FINDINGS

2114 N IRIS LN

Year	Uses	Source	
1999	OCCUPANT UNKNOWN	Cole Information Services	

2120 N IRIS LN

Year	Uses	Source	
2017	MAURICE MILLER	Cole Information Services	
2014	OCCUPANT UNKNOWN	Cole Information Services	
2009	MAURICE MILLER	Cole Information Services	
2004	PEDRO YANEZ	Cole Information Services	
	A PASSION FOR GARDENING	Cole Information Services	
1999	MAURICE MILLER	Cole Information Services	
1994	SMITH, HUBERT E	Cole Information Services	

ROBIN HILL LN

401 ROBIN HILL LN

Year	Uses	Source	
2017	ESTEBAN ZACARIAS	Cole Information Services	
2014	CARL MURRAY	Cole Information Services	
2009	CARL MURRAY	Cole Information Services	
2006	MURRAY Carl B	Haines Company, Inc.	Image pg. A4
2004	CARL MURRAY	Cole Information Services	
1999	CARL MURRAY	Cole Information Services	
1991	Thompson Robert W	PACIFIC BELL WHITE PAGES	
	Reynolds David	PACIFIC BELL WHITE PAGES	
	Reynolds Daniel	PACIFIC BELL WHITE PAGES	
	Reynolds Daniel G	PACIFIC BELL WHITE PAGES	

402 ROBIN HILL LN

Year	Uses	Source	
2017	DENNIS WOODS	Cole Information Services	
2014	DENNIS WOODS	Cole Information Services	
2009	OCCUPANT UNKNOWN	Cole Information Services	
2006	WOODS Gayle	Haines Company, Inc.	Image pg. A4
2004	OCCUPANT UNKNOWN	Cole Information Services	
1999	OCCUPANT UNKNOWN	Cole Information Services	

410 ROBIN HILL LN

Year	Uses	Source	
2017	ROSA VALDIVIA	Cole Information Services	

FINDINGS

Year	Uses	Source	
2014	ROSA BALDIVIA	Cole Information Services	
2009	OCCUPANT UNKNOWN	Cole Information Services	
2006	KRULEVICH George	Haines Company, Inc.	Image pg. A4
2004	STEVE LARRABEE	Cole Information Services	
1999	OCCUPANT UNKNOWN	Cole Information Services	
1985	HOPKINS A E	PACIFIC BELL WHITE PAGES	

414 ROBIN HILL LN

Year	Uses	Source	
2017	ALLEN SCHERTZER	Cole Information Services	
2014	ALLEN SCHERTZER	Cole Information Services	
2009	ALLEN SCHERTZER	Cole Information Services	
2006	PONCE Rogelio	Haines Company, Inc.	Image pg. A4
	SOLER Lourdes	Haines Company, Inc.	Image pg. A4
2004	RAUL PONCE	Cole Information Services	
1999	ALLEN SCHERTZER	Cole Information Services	
	OCCUPANT UNKNOWN	Cole Information Services	
1995	HICKMAN BB	PACIFIC BELL WHITE PAGES	
1994	HICKMAN, GEORGE	Cole Information Services	
1991	Yost Harry W	PACIFIC BELL WHITE PAGES	
1985	YOST HARRY W	PACIFIC BELL WHITE PAGES	

430 ROBIN HILL LN

Year	Uses	Source	
2017	ROBERT OOLEY	Cole Information Services	
2014	JUDY FRIDONO-BENNETT	Cole Information Services	
2009	JUDY FRIDONO-BENNETT	Cole Information Services	
2006	OOLEY Robt	Haines Company, Inc.	Image pg. A4
2004	OCCUPANT UNKNOWN	Cole Information Services	
1999	JUDY FRIDONO-BENNETT	Cole Information Services	
1995	NORMAN & MARY	PACIFIC BELL WHITE PAGES	
1994	OOLEY, ROBERT	Cole Information Services	
1985	OOLEY ROBT	PACIFIC BELL WHITE PAGES	

444 ROBIN HILL LN

Year	Uses	Source
2017	HENRY RIVERA	Cole Information Services
2014	HENRY RIVERA	Cole Information Services
2009	HENRY RIVERA	Cole Information Services

FINDINGS

Year	Uses	Source	
2006	RIVERA Henry	Haines Company, Inc.	Image pg. A4
2004	OCCUPANT UNKNOWN	Cole Information Services	
1999	OCCUPANT UNKNOWN	Cole Information Services	
	HENRY RIVERA	Cole Information Services	
1994	FISHER, LANCE	Cole Information Services	
1991	Fisher Lance	PACIFIC BELL WHITE PAGES	
	Fisher Larry	PACIFIC BELL WHITE PAGES	
1985	JESTER KENNETH	PACIFIC BELL WHITE PAGES	
	JESTER LANDSCAPE SERVICE	PACIFIC BELL WHITE PAGES	

461 ROBIN HILL LN

Year	Uses	Source	
2017	NICKOLAS DELETTO	Cole Information Services	
2014	NICKOLAS DELETTO	Cole Information Services	
2009	DANIEL DELETTO	Cole Information Services	
	DE LETTOS FABRICATION	Cole Information Services	
2006	DELETTO Daniel N	Haines Company, Inc.	Image pg. A4
2004	DANIEL DELETTO	Cole Information Services	
1999	DANIEL DELETTO	Cole Information Services	
1995	DELETTO DANIEL N	PACIFIC BELL WHITE PAGES	
1994	DELETTO, DANIEL N	Cole Information Services	

467 ROBIN HILL LN

Year	Uses	Source	
2017	HEATHER LAY	Cole Information Services	
2014	RUDY RAMIREZ	Cole Information Services	
2009	PRO AIR	Cole Information Services	
	RICHARD MACDONALD	Cole Information Services	
2006	MACDONALD Richard	Haines Company, Inc.	Image pg. A4
2004	RICHARD MACDONALD	Cole Information Services	
1999	RICHARD MACDONALD	Cole Information Services	
1994	NIELSEN, JAMES E	Cole Information Services	
1985	NIELSEN JAS E	PACIFIC BELL WHITE PAGES	
	NIELSEN JAS E	PACIFIC BELL WHITE PAGES	
1976	Nielsen James E	Luskey Blue Book	

471 ROBIN HILL LN

Year	Uses	Source
2017	PAUL ANDERBERG	Cole Information Services

Year	Uses	Source	
2014	PAUL ANDERBERG	Cole Information Services	
2009	PAUL ANDERBERG	Cole Information Services	
2006	ANDERBERG Janine	Haines Company, Inc.	Image pg. A4
2004	PAUL ANDERBERG	Cole Information Services	
1999	PAUL ANDERBERG	Cole Information Services	

473 ROBIN HILL LN

Year	Uses	Source	
2017	FIDEL MARRON	Cole Information Services	
2014	FIDEL MARRON	Cole Information Services	
2009	FIDEL MARRON	Cole Information Services	
2006	RODRIGUEZ Anna	Haines Company, Inc.	Image pg. A4
	MARRON Fidel	Haines Company, Inc.	Image pg. A4
2004	ROY RODRIGUEZ	Cole Information Services	
1999	OCCUPANT UNKNOWN	Cole Information Services	
	FIDEL MARRON	Cole Information Services	

ROBINHILL LN

401 ROBINHILL LN

Year	Uses	Source
2000	MURRAY Carl	Haines Company, Inc.

402 ROBINHILL LN

Year	Uses	Source
2000	WOODS Dennis	Haines Company, Inc.

410 ROBINHILL LN

Year	Uses	Source
2000	KRULEVICH George	Haines Company, Inc.
1980	Hopkins A E A	Pacific Telephone

414 ROBINHILL LN

Year	Uses	Source
2000	PONCE Raul	Haines Company, Inc.

430 ROBINHILL LN

Year	Uses	Source
2000	OOLEY Robt	Haines Company, Inc.
1980	Ooley Robt	Pacific Telephone

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444 ROBINHILL LN

Year	Uses	Source
2000	FISHER Lance	Haines Company, Inc.
1980	Jester Kenneth	Pacific Telephone

461 ROBINHILL LN

Year	Uses	Source
2000	DELETTO Daniel N	Haines Company, Inc.

467 ROBINHILL LN

Year	Uses	Source
2000	MACDONALD Richard	Haines Company, Inc.
1980	Nielsen Jas E	Pacific Telephone
	Bayes D	Pacific Telephone

471 ROBINHILL LN

Year	Uses	Source
2000	ANDERBERG Janine	Haines Company, Inc.

473 ROBINHILL LN

Year	Uses	Source
2000	HEDRICK Shawn	Haines Company, Inc.
1980	Wilkins J &Susan	Pacific Telephone

ROBINHTILL LN

430 ROBINHTILL LN

Year	Uses	Source
1991	Ooley Robt	PACIFIC BELL WHITE PAGES

STANLEY AVE

108 STANLEY AVE

Year	Uses	Source
1976	Garrison Tom H	Luskey Blue Book

WOODBURY PL

2101 WOODBURY PL

Year	Uses	Source
2014	OCCUPANT UNKNOWN	Cole Information Services
2009	JERET ROGERS	Cole Information Services

FINDINGS

Year	Uses	Source	
2006	ROGERS Jeret	Haines Company, Inc.	Image pg. A5
2004	OCCUPANT UNKNOWN	Cole Information Services	
2000	DITERS Janelle	Haines Company, Inc.	
	KOPP Bernard S	Haines Company, Inc.	
1999	JERET ROGERS	Cole Information Services	

2102 WOODBURY PL

Year	Uses	Source	
2017	OLGA DEWITT	Cole Information Services	
2009	RYAN DEWITT	Cole Information Services	
2006	DEWITT Gary	Haines Company, Inc.	Image pg. A5
2004	RYAN DEWITT	Cole Information Services	
2000	SHEARIN Evelyn	Haines Company, Inc.	
1999	RYAN DEWITT	Cole Information Services	
	OCCUPANT UNKNOWN	Cole Information Services	
1985	SHEARIN JOE J	PACIFIC BELL WHITE PAGES	
1976	Shearin Joe J	Luskey Blue Book	

2107 WOODBURY PL

Year	Uses	Source	
2017	JASON WOMACK	Cole Information Services	
2014	JASON WOMACK	Cole Information Services	
2009	OCCUPANT UNKNOWN	Cole Information Services	
2006	BREWER Mark	Haines Company, Inc.	Image pg. A5
2004	MARK BREWER	Cole Information Services	
2000	BREWER B	Haines Company, Inc.	
	BREWER Mark	Haines Company, Inc.	
1999	OCCUPANT UNKNOWN	Cole Information Services	
1995	B & MARK	PACIFIC BELL WHITE PAGES	
1994	BREWER, BETTY J	Cole Information Services	
1991	Brewer B &Mark	PACIFIC BELL WHITE PAGES	
1985	BREWER B & MARK	PACIFIC BELL WHITE PAGES	
1976	Cooney John P	Luskey Blue Book	

2108 WOODBURY PL

Year	Uses	Source	
2017	JOERG GRASSER	Cole Information Services	
2014	JOERG GRASSER	Cole Information Services	
2006	GRASSER Joerg	Haines Company, Inc.	Image pg. A5

FINDINGS

Year	Uses	Source	
2004	MICHAEL FERGERSON	Cole Information Services	
2000	GIBSON Kay	Haines Company, Inc.	
1980	Vance Geo	Pacific Telephone	

2114 WOODBURY PL

Year	Uses	Source	
2017	GEORGE SCHUSTER	Cole Information Services	
2014	CHRISTOPHER BATLEY	Cole Information Services	
2009	CASSANDRA OSSOWSKI	Cole Information Services	
1999	CASSANDRA OSSOWSKI	Cole Information Services	
	OCCUPANT UNKNOWN	Cole Information Services	

2115 WOODBURY PL

Year	Uses	Source	
2017	TONY MCLEAN	Cole Information Services	
2014	TONY MCLEAN	Cole Information Services	
2009	TONY MCLEAN	Cole Information Services	
2006	MCLEAN Hollie	Haines Company, Inc.	Image pg. A5
2004	WILLIAM LAWLESS	Cole Information Services	
2000	BETTS R	Haines Company, Inc.	
1999	TONY MCLEAN	Cole Information Services	
1991	Allen Gary & Mona	PACIFIC BELL WHITE PAGES	
1985	ELIAS L W	PACIFIC BELL WHITE PAGES	
1976	Parker Joyce A	Luskey Blue Book	

2120 WOODBURY PL

Year	Uses	Source	
2017	JONATHAN ENGLES	Cole Information Services	
2014	JONATHAN ENGLES	Cole Information Services	
2009	JOHN ENGLES	Cole Information Services	
2006	ENGLES Carolina	Haines Company, Inc.	Image pg. A5
2004	TIMOTHY NEWBERN	Cole Information Services	
2000	BARG Marjorie V	Haines Company, Inc.	
1999	JOHN ENGLES	Cole Information Services	
1994	BARG, C A	Cole Information Services	
1991	Barg MV	PACIFIC BELL WHITE PAGES	
	Barg C A	PACIFIC BELL WHITE PAGES	
1985	BARG M V	PACIFIC BELL WHITE PAGES	
	BARG C A	PACIFIC BELL WHITE PAGES	

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Year	Uses	Source	
1976	Challman Stephen C	Luskey Blue Book	

2121 WOODBURY PL

Year	Uses	Source	
2014	LAURA JANSON	Cole Information Services	
2009	DOUGLAS EISBERG	Cole Information Services	
2004	DOUGLAS EISBERG	Cole Information Services	
2000	EISBERG Douglas	Haines Company, Inc.	
1999	DOUGLAS EISBERG	Cole Information Services	
1991	Gibson Roger W	PACIFIC BELL WHITE PAGES	
1980	Donatelli Carlos	Pacific Telephone	
1976	Piva Robert F	Luskey Blue Book	

2126 WOODBURY PL

Year	Uses	Source	
2017	SOOJAYHINDRA KANHYE	Cole Information Services	
2014	DIONNE GALACE	Cole Information Services	
	JUSTICE LONDON	Cole Information Services	
2009	CASEY SKRIVSETH	Cole Information Services	
2006	MONAHAN Tiana	Haines Company, Inc.	Image pg. A5
2000	LUNN Rose	Haines Company, Inc.	
1999	CASEY SKRIVSETH	Cole Information Services	
1976	Lunn Rose	Luskey Blue Book	
	Lyons James P	Luskey Blue Book	

2127 WOODBURY PL

Year	Uses	Source	
2017	VICTOR ORTEGA	Cole Information Services	
2014	VICTOR ORTEGA	Cole Information Services	
2009	OCCUPANT UNKNOWN	Cole Information Services	
2006	XXXX	Haines Company, Inc.	Image pg. A5
2004	NASTASHA PONTBRIAND	Cole Information Services	
2000	HINRICHS Ronald W	Haines Company, Inc.	
1999	OCCUPANT UNKNOWN	Cole Information Services	
1995	HAZEL C	PACIFIC BELL WHITE PAGES	
1994	HINRICHS, RONALD W	Cole Information Services	
1991	Hinrichs Ronald W	PACIFIC BELL WHITE PAGES	
1985	HINRICHS RONALD W	PACIFIC BELL WHITE PAGES	

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2134 WOODBURY PL

Year	Uses	Source	
2017	FRANCISCO TRUJILLO	Cole Information Services	
2014	JUSTIN COOPER	Cole Information Services	
2009	CHANCE MENDIVIL	Cole Information Services	
2006	BALLINGER Bill	Haines Company, Inc.	Image pg. A5
2004	NANETTE NEMETH	Cole Information Services	
2000	CHAMBERS Beverly	Haines Company, Inc.	
1999	OCCUPANT UNKNOWN	Cole Information Services	
	CHANCE MENDIVIL	Cole Information Services	
1995	FRANK AM	PACIFIC BELL WHITE PAGES	
1994	FRANK, ANTHONY M	Cole Information Services	
1991	Dri Fas Co	PACIFIC BELL WHITE PAGES	
1985	BESSTER PAULA	PACIFIC BELL WHITE PAGES	
1976	LaCour Gladys	Luskey Blue Book	
	L& W Prlntory Inc	Luskey Blue Book	

2135 WOODBURY PL

Year	Uses	Source	
2017	MICHAEL BAGSTAD	Cole Information Services	
2014	MICHAEL BAGSTAD	Cole Information Services	
2009	OCCUPANT UNKNOWN	Cole Information Services	
2006	BAGSTAD Michael	Haines Company, Inc.	Image pg. A5
2004	OCCUPANT UNKNOWN	Cole Information Services	
2000	BAGSTAD Michael	Haines Company, Inc.	
1999	OCCUPANT UNKNOWN	Cole Information Services	
1991	Fish L	PACIFIC BELL WHITE PAGES	
1980	Bagstad Michael 0D	Pacific Telephone	

2140 WOODBURY PL

Year	Uses	Source	
2017	DOMINIC VITRANO	Cole Information Services	
2014	DOMINIC VITRANO	Cole Information Services	
2009	DOMINIC VITRANO	Cole Information Services	
2006	ROUSE Timothy	Haines Company, Inc.	Image pg. A5
2004	OCCUPANT UNKNOWN	Cole Information Services	
2000	ROUSE Williams	Haines Company, Inc.	
1999	OCCUPANT UNKNOWN	Cole Information Services	
	DOMINIC VITRANO	Cole Information Services	
1995	RONALD W	PACIFIC BELL WHITE PAGES	

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Year	Uses	Source	
1994	ROUSE, W T	Cole Information Services	
1991	Roush Bill & Cindy	PACIFIC BELL WHITE PAGES	
	Roust BJ	PACIFIC BELL WHITE PAGES	
	Rouse W T	PACIFIC BELL WHITE PAGES	
1985	ROUSE W T	PACIFIC BELL WHITE PAGES	
1980	Rouse W T	Pacific Telephone	

2141 WOODBURY PL

Year	Uses	Source	
2017	RYAN INGRAM	Cole Information Services	
2014	RYAN INGRAM	Cole Information Services	
2009	MARCIAL AGUIAR	Cole Information Services	
2006	HARRISON Georgie	Haines Company, Inc.	Image pg. A5
2004	GEORGIE HARRISON	Cole Information Services	
2000	CAWLEY Nancy	Haines Company, Inc.	
1999	OCCUPANT UNKNOWN	Cole Information Services	
	MARCIAL AGUIAR	Cole Information Services	
1995	MCLAUGHLIN DOUG	PACIFIC BELL WHITE PAGES	
1994	MCLAUGHLIN, GERALD E	Cole Information Services	
1991	Mc Laughlin Gregory P.....	PACIFIC BELL WHITE PAGES	
	Mc Laughlin Graig	PACIFIC BELL WHITE PAGES	
	Mc Laughlin Gerald E	PACIFIC BELL WHITE PAGES	
1985	RADIO A L	PACIFIC BELL WHITE PAGES	
1980	Mc Naughton Brian A M	Pacific Telephone	
1976	McNaughton Brian	Luskey Blue Book	

2144 WOODBURY PL

Year	Uses	Source	
2017	BRIAN BAUMAN	Cole Information Services	
2014	ROBERT BAUMAN	Cole Information Services	
2009	ROBERT BAUMAN	Cole Information Services	
2006	BAUMAN Jan R	Haines Company, Inc.	Image pg. A5
2004	ROBERT BAUMAN	Cole Information Services	
2000	BAUMAN Jan R	Haines Company, Inc.	
1999	ROBERT BAUMAN	Cole Information Services	
1995	BAUMAN CS	PACIFIC BELL WHITE PAGES	
1994	BAUMAN, JAN R	Cole Information Services	
1985	BERHMAN JOHN P	PACIFIC BELL WHITE PAGES	
1980	Berhman John P P	Pacific Telephone	

FINDINGS

Year	Uses	Source
1976	Berhman John P	Luskey Blue Book

2147 WOODBURY PL

Year	Uses	Source
2017	NICK GILLIAND	Cole Information Services
2014	JENNIFER WALDVOGEL	Cole Information Services
2009	JENNIFER WALDVOGEL	Cole Information Services
2004	RENATE RADTKE	Cole Information Services
2000	GILLIAND Michael	Haines Company, Inc.
1999	OCCUPANT UNKNOWN	Cole Information Services
	JENNIFER WALDVOGEL	Cole Information Services
1985	SCHUMACHER DON L	PACIFIC BELL WHITE PAGES
1980	Liatsos John	Pacific Telephone
1976	Laing John F	Luskey Blue Book

2148 WOODBURY PL

Year	Uses	Source	
2017	JEFFREY STRICKLAND	Cole Information Services	
2014	OCCUPANT UNKNOWN	Cole Information Services	
2009	JAMES STRICKLAND	Cole Information Services	
2006	STRICKLAND Jas W	Haines Company, Inc.	Image pg. A5
2004	JAMES STRICKLAND	Cole Information Services	
2000	STRICKLAND Jas W	Haines Company, Inc.	
1999	JAMES STRICKLAND	Cole Information Services	
1995	STRICKLAND CHARLES	PACIFIC BELL WHITE PAGES	
1994	STRICKLAND, JAMES W	Cole Information Services	
1991	Strickland K	PACIFIC BELL WHITE PAGES	
	Strickland Kelli	PACIFIC BELL WHITE PAGES	
	Strick and Keiji	PACIFIC BELL WHITE PAGES	
	Strickland Jas W	PACIFIC BELL WHITE PAGES	
1985	STRICKLAND JAS W	PACIFIC BELL WHITE PAGES	
1976	Strickland W Jr	Luskey Blue Book	

2151 WOODBURY PL

Year	Uses	Source
1995	BRISTLIN KENNETH	PACIFIC BELL WHITE PAGES

2154 WOODBURY PL

Year	Uses	Source
2014	KEITH MCNEELY	Cole Information Services

FINDINGS

Year	Uses	Source	
2009	WADE JOSEY	Cole Information Services	
2006	JOSEY Wade A	Haines Company, Inc.	Image pg. A5
2004	OCCUPANT UNKNOWN	Cole Information Services	
2000	PITTS W	Haines Company, Inc.	
1999	WADE JOSEY	Cole Information Services	
1994	BRISTLIN, KENNETH	Cole Information Services	
1991	Bristlin Kenneth	PACIFIC BELL WHITE PAGES	
1985	BRISTLIN KENNETH	PACIFIC BELL WHITE PAGES	
1980	Mc Cormack Myra J	Pacific Telephone	

FINDINGS

ADJOINING PROPERTY: ADDRESSES NOT IDENTIFIED IN RESEARCH SOURCE

The following Adjoining Property addresses were researched for this report, and the addresses were not identified in research source.

Address Researched	Address Not Identified in Research Source
100 IRIS WAY	2017, 2014, 2009, 2006, 2004, 2000, 1999, 1995, 1994, 1992, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
108 STANLEY AVE	2017, 2014, 2009, 2006, 2004, 2000, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
187 N IRIS LN	2017, 2014, 2009, 2006, 2004, 2000, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2039 IRIS LN N	2017, 2014, 2009, 2006, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2039 N IRIS LN	2017, 2014, 2009, 2004, 2000, 1999, 1994, 1992, 1989, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2039 N IRIS LN	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2047 IRIS LN N	2017, 2014, 2009, 2006, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2047 N IRIS LN	2017, 2014, 2009, 2004, 2000, 1999, 1995, 1994, 1992, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2047 N IRIS LN	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2074 N BROADWAY	2017, 2014, 2009, 2006, 2004, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2077 BROADWAY N	2017, 2014, 2009, 2006, 2004, 2000, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2077 N BROADWAY	2017, 2014, 2009, 2006, 2004, 2000, 1999, 1995, 1994, 1992, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2085 N BROADWAY	2017, 2014, 2009, 2006, 2004, 2000, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2088 BROADWAY ST N	2017, 2014, 2009, 2006, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2088 N BROADWAY ST	2017, 2014, 2009, 2004, 2000, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903

FINDINGS

Address Researched	Address Not Identified in Research Source
2089 BROADWAY ST N	2017, 2014, 2009, 2006, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2089 IRIS LN N	2017, 2014, 2009, 2006, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2089 N BROADWAY ST	2017, 2014, 2009, 2004, 2000, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2089 N IRIS LN	2017, 2014, 2009, 2004, 2000, 1999, 1994, 1992, 1989, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2089 N IRIS LN	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2097 BROADWAY ST N	2017, 2014, 2009, 2006, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2098 N BROADWAY	2017, 2014, 2009, 2006, 2004, 2000, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2101 WOODBURY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2101 WOODBURY PL	2017, 2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2102 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1989, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2102 COUNTRY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2102 WOODBURY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1984, 1980, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2102 WOODBURY PL	2014, 2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2104 COUNTRY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2104 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2107 BROADWAY N	2017, 2014, 2009, 2006, 2004, 2000, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2107 BROADWAY ST N	2017, 2014, 2009, 2006, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903

FINDINGS

Address Researched	Address Not Identified in Research Source
2107 N BROADWAY	2017, 2014, 2009, 2006, 2004, 2000, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1975, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2107 WOODBURY PL	2017, 2014, 2009, 2004, 1999, 1994, 1992, 1989, 1984, 1980, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2107 WOODBURY PL	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2108 COUNTRY PL	2017, 2014, 2009, 2006, 2004, 2000, 1999, 1995, 1994, 1992, 1991, 1989, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2108 COUNTRY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2108 WOODBURY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2108 WOODBURY PL	2009, 2006, 2000, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2110 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2110 COUNTRY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2110 N IRIS LN	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2114 COUNTRY PL	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2114 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1994, 1992, 1989, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2114 N IRIS LN	2017, 2014, 2009, 2006, 2004, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2114 WOODBURY PL	2006, 2004, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2115 WOODBURY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2115 WOODBURY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1989, 1984, 1980, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2116 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1989, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903

FINDINGS

Address Researched	Address Not Identified in Research Source
2116 COUNTRY PL	2006, 2004, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2120 COUNTRY PL	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2120 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1994, 1992, 1989, 1985, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2120 N IRIS LN	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2120 WOODBURY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1989, 1984, 1980, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2120 WOODBURY PL	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2121 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1989, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2121 COUNTRY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2121 WOODBURY PL	2017, 2014, 2009, 2006, 2004, 1999, 1995, 1994, 1992, 1989, 1985, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2121 WOODBURY PL	2017, 2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2122 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2122 COUNTRY PL	2009, 2006, 2004, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2125 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2125 COUNTRY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2125 N BROADWAY	2017, 2014, 2009, 2006, 2004, 2000, 1999, 1995, 1994, 1992, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2126 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2126 COUNTRY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903

FINDINGS

Address Researched	Address Not Identified in Research Source
2126 WOODBURY PL	2006, 2004, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2126 WOODBURY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2127 WOODBURY PL	2017, 2014, 2009, 2004, 1999, 1994, 1992, 1989, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2127 WOODBURY PL	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2128 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1989, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2128 COUNTRY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2131 COUNTRY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2131 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2132 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1994, 1992, 1989, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2132 COUNTRY PL	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2134 COUNTRY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2134 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2134 WOODBURY PL	2017, 2014, 2009, 2004, 1999, 1994, 1992, 1989, 1984, 1980, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2134 WOODBURY PL	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2135 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1989, 1985, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2135 COUNTRY PL	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2135 WOODBURY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1989, 1985, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903

FINDINGS

Address Researched	Address Not Identified in Research Source
2135 WOODBURY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2138 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1994, 1992, 1989, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2138 COUNTRY PL	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2140 COUNTRY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2140 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2140 WOODBURY PL	2017, 2014, 2009, 2004, 1999, 1994, 1992, 1989, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2140 WOODBURY PL	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2141 COUNTRY PI LSC	2017, 2014, 2009, 2006, 2004, 2000, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2141 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1994, 1992, 1991, 1989, 1985, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2141 COUNTRY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2141 WOODBURY PL	2017, 2014, 2009, 2004, 1999, 1994, 1992, 1989, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2141 WOODBURY PL	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2143 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2143 COUNTRY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2144 COUNTRY PL	2017, 2006, 2004, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2144 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1989, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2144 WOODBURY PL	2017, 2014, 2009, 2004, 1999, 1994, 1992, 1991, 1989, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903

FINDINGS

Address Researched	Address Not Identified in Research Source
2144 WOODBURY PL	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2145 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2145 COUNTRY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2146 COUNTRY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2146 COUNTRY PL	2017, 2014, 2009, 2006, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2147 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1989, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2147 COUNTRY PL	2009, 2006, 2000, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2147 WOODBURY PL	2017, 2014, 2009, 2006, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2147 WOODBURY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2148 WOODBURY PL	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2148 WOODBURY PL	2017, 2014, 2009, 2004, 1999, 1994, 1992, 1989, 1984, 1980, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2150 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2150 COUNTRY PL	2009, 2006, 2000, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2151 COUNTRY PL	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2151 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2151 WOODBURY PL	2017, 2014, 2009, 2006, 2004, 2000, 1999, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2152 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1989, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903

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Address Researched	Address Not Identified in Research Source
2152 COUNTRY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2153 COUNTRY PL	2006, 2004, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2153 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2154 WOODBURY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1989, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2154 WOODBURY PL	2017, 2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2156 COUNTRY PL	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2156 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1994, 1992, 1989, 1984, 1980, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2157 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2157 COUNTRY PL	2017, 2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2158 COUNTRY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2158 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1989, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2159 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2159 COUNTRY PL	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2162 COUNTRY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2162 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1994, 1992, 1989, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2164 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1994, 1992, 1989, 1984, 1980, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2164 COUNTRY PL	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903

FINDINGS

Address Researched	Address Not Identified in Research Source
2168 COUNTRY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2168 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2170 COUNTRY PL	2017, 2014, 2009, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2170 COUNTRY PL	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
401 ROBIN HILL LN	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
401 ROBIN HILL LN	2017, 2014, 2009, 2004, 2000, 1999, 1995, 1994, 1992, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
401 ROBINHILL LN	2017, 2014, 2009, 2006, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
402 ROBIN HILL LN	2017, 2014, 2009, 2004, 2000, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
402 ROBIN HILL LN	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
402 ROBINHILL LN	2017, 2014, 2009, 2006, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
410 ROBIN HILL LN	2017, 2014, 2009, 2004, 2000, 1999, 1995, 1994, 1992, 1991, 1989, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
410 ROBIN HILL LN	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
410 ROBINHILL LN	2017, 2014, 2009, 2006, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
414 ROBIN HILL LN	2017, 2014, 2009, 2004, 2000, 1999, 1994, 1992, 1989, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
414 ROBIN HILL LN	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
414 ROBINHILL LN	2017, 2014, 2009, 2006, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
430 ROBIN HILL LN	2017, 2014, 2009, 2004, 2000, 1999, 1994, 1992, 1991, 1989, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903

FINDINGS

Address Researched	Address Not Identified in Research Source
430 ROBIN HILL LN	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
430 ROBINHILL LN	2017, 2014, 2009, 2006, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
430 ROBINHTILL LN	2017, 2014, 2009, 2006, 2004, 2000, 1999, 1995, 1994, 1992, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
444 ROBIN HILL LN	2017, 2014, 2009, 2004, 2000, 1999, 1995, 1994, 1992, 1989, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
444 ROBIN HILL LN	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
444 ROBINHILL LN	2017, 2014, 2009, 2006, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
461 ROBIN HILL LN	2017, 2014, 2009, 2004, 2000, 1999, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
461 ROBIN HILL LN	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
461 ROBINHILL LN	2017, 2014, 2009, 2006, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
467 ROBIN HILL LN	2017, 2014, 2009, 2004, 2000, 1999, 1995, 1994, 1992, 1991, 1989, 1984, 1980, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
467 ROBIN HILL LN	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
467 ROBINHILL LN	2017, 2014, 2009, 2006, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
471 ROBIN HILL LN	2017, 2014, 2009, 2004, 2000, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
471 ROBIN HILL LN	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
471 ROBINHILL LN	2017, 2014, 2009, 2006, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
473 ROBIN HILL LN	2017, 2014, 2009, 2004, 2000, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
473 ROBIN HILL LN	2006, 2000, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903

FINDINGS

Address Researched	Address Not Identified in Research Source
473 ROBINHILL LN	2017, 2014, 2009, 2006, 2004, 1999, 1995, 1994, 1992, 1991, 1989, 1985, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903

TARGET PROPERTY: ADDRESS NOT IDENTIFIED IN RESEARCH SOURCE

The following Target Property addresses were researched for this report, and the addresses were not identified in the research source.

Address Researched	Address Not Identified in Research Source
2085 N Iris Ln	2017, 1995, 1992, 1989, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903

Source Page Images Appendix

N IRIS LN 2006

IPAVA DR 92064 POWAY

WEALTH CODE 5.5

X PUTNEY RD
13934 ● PYNCHON Kristina 858-679-2072 4
13946 ● BOWMAN Rex OO +6
13947 ● SCHMIT Gerald OO 3
13957 XXXX OO
13958 ROCK Marvin E 858-748-1284
13973 CLYNCKE Cdr Donald 858-748-1371
13976 ● PACKER Graham 858-748-9277 3
13982 ● REYES Manolito OO 0
13985 ● CLARK Carl 858-679-2314 3

X TIERRA BONITA RD
14004 ● MANOS Manny 858-391-2755 4
14005 ● CHMIELINSKI Andrew OO 8
14011 ● WILLIAMS Lee OO 4
14017 ● ADAMS Harry R 858-748-2284
14023 XXXX OO

X SAVAGE WAY
14107 ● MENDOZA Robert OO 2
14112 ● FUSSELL C OO 0
14113 ● HASCHKE Dieter OO 4
14118 ● MCMINN John OO 1
14119 ● DIBELKA James OO 4
14124 ● BURLEY Burt 858-679-0323⊕ 1
14125 ● WILSON Robert OO 0

X TERRILEE DR
14201 ● LAWSON David 858-391-1575 4
14207 ● CARLSON Steven OO 0
14215 XXXX OO

X MARK STEVENS RD
14222 ● MARINO John OO 1
14223 ● VAUGHN C 858-513-1043 0
● VAUGHN M 858-513-1043 0
14248 ● WIGHTMAN Neal OO 9
14274 ● MIRADOR Armando B 858-748-7906 1
14298 ISRAEL David 858-883-2740 +6

X SUNRISE CANYON RD
14358 ● NELSON Kathy 858-748-5297 1
14395 ● SHORE Pandora OO 2
14415 ● SOFFER Henry OO 0

X DONART DR
14445 ● BAUSERFELD Steven 858-748-0033 3

X MOUNTAIN VIEW CT
14452 ● GUASTAFERRO Mark 858-748-4767 3
14462 ● HASHIM Robert 858-679-1507 2
14465 ● GONSALVES Gary OO 0

★ 0 BUS 37 RES 2 NEW

IRELAND LN 92129 SAN DIEGO

WEALTH CODE 8

X SUNDANCE AVE
13103 ● MCBREARTY Bernadette OO 2
13109 ● SLAVEY Robert 858-484-6075 4
13112 ● TOMPKINS Maurice OO 4
13115 ● NGUYEN Tuan OO 8
13121 ● BYRNE Michael OO +6
13127 ● SAUCEDA Oscar 858-538-3596 4
13133 ● LOPEZ Hernan 858-538-2369 0

X DUFRESNE PL
13136 ● HENNEN Marcus OO 8
13139 ● BACALSKI A OO 4
CONYNGHAM Sean 858-484-8925 4
13142 ● FUJII J S 858-484-7584
13145 FRANKS Larry 858-484-7213 3
● NUHAILY Ahmed OO 2
13148 ● KIM Young 858-780-2561 4
PASCASIO Rhonda 858-780-9099 +6
13151 ● FERRELL William 858-484-2022 0
13154 XXXX OO
13157 ○ SOROCHAN Walter D 858-484-5544 4
13160 ● HEFFEL Lloyd OO 0
WARD Kimberly 858-538-0924 +6
13163 ● PRUTZMAN Thomas OO 8
13166 ● HOLLY David 858-780-9713 0
13169 ● XIE Guoxin 858-538-6582 2
13172 XXXX OO
13175 ● YOUNG L 858-780-9966 2
● YOUNG P 858-780-9966 2
13178 ● FERNANDEZ Hoberto OO 2
SMYTH Alexander 858-484-1170 +6
13181 ● BATE Thomas 858-484-3836 4
13184 ● SZE James OO 9
13187 ● BATES Richard G 858-484-6069
13190 ● DIGENAN Donald OO 0

X DUFRESNE WAY
13193 ● FARIBORZI Sirous OO 3
13199 ● AUBRY Anthony OO 1
13205 ● PAMOLERAS Francisca OO 4
13211 ● OFRECIO Manuel OO 0
13217 ● LOPER Robert E 858-484-1732 0
13222 ● COHEN Stuart OO +6
13223 ● GORIAL Issam OO 1
13226 ● NGUYEN Henry OO 2
PHAN Danh 858-538-4640 4
13229 ● PERRY George 858-538-2385 8
13235 ● LOUDAT Chas 858-484-7733

X SEDORUS ST

★ 0 BUS 43 RES 5 NEW

IRENE RD 92057 OCEANSIDE

WEALTH CODE 4

X OMAR CT
652 ● CULVER Richard OO 0
656 ● BARRIOS Veronica OO 2
PEREZ Catalina 760-967-1398 +6
660 ● SAWYER Lilialeah OO 4
664 ● ANDERSON Rebbecca OO 8
668 LANE G 760-967-4783 +6
LANE L 760-967-4783 +6
● SATTERWHITE Linda OO 8
672 ● WALLER Mercedes 760-433-8942 8
676 ● ALMEIDA John OO 0

X LEON ST

★ 0 BUS 10 RES 3 NEW

IRIS CT 92011 CARLSBAD

X DAISY AVE
1011 SMITH Dallas 760-438-1790
1013 ● HINKLEY Michael OO 0
1015 PATTERSON Leroy 760-438-2391
1017 ● BROWN Don 760-438-8360 1
1019 ● BASS Robert OO 1
1021 ● ALLEN Robert OO 0
1022 ● VALLEJO M 760-438-1274 8
1023 ● DIAZ Robert 760-918-0774 4
1025 ● DRENTEA Mario OO 9
1026 ● GREER Douglas OO ⊕ 0
1027 ● CORONADO Mario OO 0
1029 ● LUKE Michael P 760-929-0142 2
1030 ● CHILLAR Ram OO 0
1032 MOORE K E 760-438-0911

★ 0 BUS 14 RES 0 NEW

IRIS LN (02) 92064 POWAY

WEALTH CODE 6

X PARADISE DR
14030 ● STROMMER Scott OO +6
14040 ● PEELLE Justin OO 2
14045 ● MERKLEY Scott 858-748-3580 3
14060 ● THOMAS G 858-486-0957 4
● THOMAS N 858-486-0957 4

X DONART DR

★ 0 BUS 5 RES 1 NEW

N IRIS LN 92026 ESCONDIDO

WEALTH CODE 5.9

X CENTRE CITY PKY
1828 JOAO Harry D 760-739-1248 1
OSTROM Sydney H 760-737-6719 4
1880 XXXX OO
1920 ★ RINCON DEL DBLO MUNI WTR DIST 760-745-5522 4
1932 XXXX OO
1944 ★ DEVEREUX 760-233-0951 2
● JAOUDI Daniel OO 0
1956 ● ZENOVIC Terry 760-740-6049 +6

X ELKHORN LN
1966 ● NOEL Paul OO 1

X CHEYENNE LN
1976 ● FERRETT Simon 760-745-1256 4
2039 SWANSON Jim 760-745-8237
2047 XXXX OO
2085 XXXX OO
2089 PRICE Richard 760-745-8420

X VILLAGE RD
2110 ● CHARLERIE Elizabeth 760-743-3584
2120 ● MILLER Maurice V 760-737-0021 4
2130 ● PULIDO Justo OO 0
2140 ● ASHTON Patterson OO +6
WINANS K 760-746-4801

X DOGWOOD PL
2150 ● WULFF Sterling OO 2
2160 ● MASON Robert OO 3

X COUNTRY CLUB LN
2220 ● CHAVEZ Rafael OO 0

X BOLERORIDGE PL
2230 ● VELAZQUEZ Jose OO 4
2240 ● BORONDA Katherine OO 8
2241 ● EHRLICH Scott OO 0
WALTER Joseph 760-739-1850 9
WALTER Joseph 760-746-4173 9
2250 ● BECKES Rodger 760-738-0998 0
2251 ● ZENOVIC D 760-480-4795 4

X EASTRIDGE LN
2310 ● THURBER Dale 760-233-1493 3
2320 ● TODD John OO 3
2321 ● CRUZ Pedro OO 4
2330 ● MARTIN Victoria OO 9
2331 ● MCMILLAN Thomas OO +6
2340 ● JOHNSON Dennis E Rev 760-480-9591 3
2344 XXXX OO
2348 ● WHITE Martha OO 4

X SKYRIDGE LN
2352 XXXX OO
2356 ● POWER James OO 0
2360 ● PARKHURST Wesley 760-745-3589
2361 ○ DAVIS Meredith 760-781-4266 0
2364 ● PARKER Jim 760-432-0412
2365 ● PAZ Diego OO 4
VALLIN A 760-233-9827 4
2368 ● DOMINGUEZ Edward OO 4
2369 XXXX OO
2372 SMITH Randy 760-489-5903
2373 ● REGIS Noemi 760-747-0898 3
2376 XXXX OO
2377 ● WALKER Charlene OO 0
2380 ● LANDIS Diana OO 8
2381 ● TUREK William 760-746-8763 9
2384 SOMMER Richard 760-743-3213 4

★ 2 BUS 51 RES 3 NEW

S IRIS LN 92026 ESCONDIDO

WEALTH CODE 3

X W EL NORTE PKY
1620 XXXX OO
1649 ESCOBAR Galarza Oscar 760-741-6685 2
● JUNGMAN William OO 0
1671 ● BOREN Roberta OO 9
1711 ● ROMERO Hortensia OO 7
1715 ● ESPINO Biyado OO 1
1717 ● SIMON Douglas 760-480-6681 2
1719 ● JOERIN George OO 8
1731 BUTLER Simone 760-741-2807 4
1745 ● POOL Rob 760-746-6441 4
1747 ● CARNETT Brian 760-743-2672
1749 ● RICHARD Zosima OO 4
1755 ● TERRAZAS Emma OO 0
1785 ● PETERS Jhame OO 4
1791 ● LAURITZEN Andrew OO 2
1797 ● OKEL James OO 0
1799 ● ADAMS Lawrence OO ⊕ 0
1811 ● HEATON Michael OO 4
1815 ● THOREN Stella OO 4
1829 ● SNADDEN John OO 0

X RANCHO DE ORO RD
1841 ● GIORDANO Arthur OO 8
1849 ● YTREUS David OO 4
1851 ● SCHEMPP Leonard 760-743-3247
1853 ● CAMPOS Luis OO 0
1873 ★ JEHOVAH'S WITNESSES ASMBLY HLL 760-741-7494

X IMPERIAL DR

★ 1 BUS 24 RES 0 NEW

IRIS WAY 92027 ESCONDIDO

WEALTH CODE 6

1770 MARTINEZ Silvia 760-745-0895 +6
MIGUEL Esteban 760-884-0440 +6
PEREZ Francisca 760-735-9702 +6
● SANCHEZ Obet 760-745-0603 4
1771 ● MAYES Richard 760-746-6544 4
1780 ● HOWLEY Timothy OO 4
1781 ● HENRY David OO 8
1790 ● ROGERS Leonard OO 0
1791 ● ELIAS Kamal 760-747-8430 3

X DONALD WAY
1801 ● FLOREANI Lorenzo 760-739-1519
1810 ● PAGNOTTA Samuel OO 8
1811 ★ SCHMITT A E PASTOR 760-746-3800 4

X DAISY ST
1820 XXXX OO
1825 ● FOX Judith K 760-746-3962
1830 ● BOLZ Mike 760-489-9285 0
1835 ● GALLEGO Henry OO 7
1840 GUY Del 760-747-8554
1850 ● GARCIA Meregildo OO 0
LAZARO Jose 760-480-2221 4

X ERICA ST
1860 STERNER Robt H 760-747-8878
1870 ● AVILA Nicolas 760-480-1764 3
1890 ● CONEJO Jose 760-489-6484 2
1894 ● COFFMAN Kenneth OO 2

X FERN ST
1898 ★ A R RESTORATION INC 760-749-8870 4
★ A R RESTORATION INC 760-432-8778 4
★ A R RESTORATION INC 760-751-0898 4
● DELVALLE Cesar OO 8
1900 LOPEZ Jose A 760-738-3807 4
● ROMANILLO Luis A 760-738-9157 3
1910 MARIN Therese 760-740-2506 4
● TORRES Therese OO 4
1920 ● FOSTER M 760-489-9450 9
1930 ● NORTHROP Tim 760-432-9551 2
● NORTHROP Timothy 760-746-1456 2

X GOLDENROD ST
1940 ● TREJO Rafael OO +6
1950 ● GALLEGOS Santiago OO 3
1960 ● FILIPOVICH Ratko OO ⊕ 9
1970 ● CASTRO Ramiro OO 4
ORTEGA Maira E 760-480-6843 2
ROMERO Martina 760-432-0394 4
VASQUEZ Francisco 760-480-2435 4

X N MIDWAY DR

★ 4 BUS 37 RES 4 NEW

IRISDALE CT 92024 ENCINITAS

WEALTH CODE 4

1902 ● DECELLES Alice OO 0
1916 ○ RIPLEY Ione E 760-634-3530 2
1930 ○ POLESE Carolyn 760-942-0260 2
1944 ● WILSON James OO 4
1958 ● FOOTE Leroy H 760-753-2817 8
1972 XXXX OO
1986 ● SALAZAR Edward 760-943-0218 1

X WILLOWSPRING DR S

★ 0 BUS 7 RES 0 NEW

IRON DR 92083 VISTA

WEALTH CODE 2

X BRONZE WAY
226 ● VETTESE Angelo OO +6
228 SPENCE Natalie 760-758-9999 +6

X DIAMOND WAY
230 CRUZ Ignacio D 760-643-0653 +6
240 . . . . . APARTMENTS
BUTLER Jason 760-631-2066 +6
HOEY Kristal 760-940-6243 +6
MINER Michael 760-643-1536 4
PEREZ Eduardo 760-639-1297 +6
16 PHILLIPS Kathie 760-945-9228 4
11 READ Daniel 760-631-0949 4
6 WILLIAMS Hugh 760-630-1177
240 . . . .
250 ● VIDAURRI Gloria 760-724-3988
● VIDAURRI Gloria 760-643-1944

X COPPER DR

★ 0 BUS 12 RES 6 NEW

IRON HORSE CT 92078 SAN MARCOS

WEALTH CODE 7

901 ● RAMIREZ Olivo OO +6
904 ● MCADOO Daniel OO 2
905 ● WALKER John 760-744-8999 9
908 ● CABALLERO Karol OO 2
909 ● WALDRON Paul OO 2
912 ● DAHL Ryan OO 4
913 ● FREEBERG Roger OO 4

X BUCKHORN AVE

X IRON HORSE DR

★ 0 BUS 7 RES 1 NEW

IRON HORSE DR 92078 SAN MARCOS

WEALTH CODE 7

915 XXXX OO
916 ● VINCENT Judith OO 4
917 ● FRANKLIN-ORKIS Pamela OO 2

X BUCKHORN AVE

X IRON HORSE CT
918 RENTERIA Donna 760-744-9219 4
● ZEPEDA Caroline OO 4
923 ● THOMPSON Ethan OO 3
926 EASTON Dale 760-744-5427 4
● HA Vincent 760-752-1980 4
929 ● WALTER Patrick John 760-471-6345 3
930 ● MILLER Austin Kellie 760-891-0455 8
933 ● BIGGS Blake OO 3
941 RAINWATER Rita 760-744-2949 4
945 ● TANK Catherine 760-761-0874 4
947 ● VEY Jeffrey OO 2
948 ● LONGORIA Enrique 760-471-7117
950 ● KEEFE Maria 760-744-5835 0
951 ● SUEMNICK Boyd OO 2
954 ● BHAT Abhijit OO +6
957 ● NOCE David OO 2
960 XXXX OO
963 ● VALENZUELA Daniel OO 4
965 XXXX OO
968 ● QUIJADA Michael OO +6
STENERODDEN Leigh 760-591-4807 +6
973 ○ CHIFICI Gasper A 760-744-3991 1
976 ● GRANDINETTI John OO 2
977 ● HILL Michael W 760-510-9181 9
982 ● GARFINE Gary OO 4
VIALE L 760-744-7168 4
985 ● VANVELZER Craig 760-591-7625
988 ● FAULSTICH Arlus OO 2
991 ● BRADT Diane OO 2
993 ● FRIEDRICHS Sandy OO 2

X MENDOCINO DR

★ 0 BUS 33 RES 3 NEW

IRON MOUNTAIN DR 92064 POWAY

WEALTH CODE 7

16839 ● PENN Warren S 858-486-2614 4

X CRESTLINE DR
17008 ● STONE William OO 0
17036 ● JOHNSON Wendell 858-748-5244
17058 ● JOHNSON Alan 858-748-6830 2
17079 ● FACTOR Philip OO 4
17099 ● FADICH Fred OO 0
17105 ● MCKIBBIN William F 858-486-2186
17119 ● KNIGHT Christopher OO 1
17120 ● DATRICE James 858-748-7249
● DATRICE M James 858-679-1585
17215 ● BARBOUR James OO 8
17240 ● ENG Wanda OO 3
WADLEIGH Michael 858-679-8323 4
17242 BASOM Lawrence 858-748-2158
17261 ● LABELLE Mark OO +6
17305 ● THOMSON Scott OO 8
17345 XXXX OO
17360 ○ HOLLENBAUGH R A 858-748-3848

★ 0 BUS 18 RES 1 NEW

IRON SPRINGS PL (05) 92036 JULIAN

WEALTH CODE 5

X IRON SPRINGS WAY
97 ● GARNER Robert OO

★ 0 BUS 1 RES 0 NEW

IRON SPRINGS RD 92036 JULIAN

WEALTH CODE 4.4

16365 WILBURN Connie 760-765-2638 3
16424 ● KRTEK Bruce OO
16515 XXXX OO
16569 ● EVANS John OO
16686 ● SMITH Harold 760-765-1293 4
16690 THILKEN Richard 760-765-1578 3
16777 ● KELLOGG Paul OO
16820 ● DANIELS Barbara OO 4
16837 ○ FITZ D A 760-765-1533
○ FITZ M J 760-765-1533
16900 ● ZOELLER Jane OO 8
16926 XXXX OO
16932 ● NEFF William OO 4
16938 ● HOLZMAN Martin OO 0
16952 ● SCHWEIKERT Carl OO 0
17009 ● LEDEZMA Eliseo OO 4
VELASCO Hernan 760-765-1587 +6
17034 XXXX OO
17041 XXXX OO
17080 ● DINSMORE Barbara 760-765-3756 4

X IRON SPRINGS WAY
17099 ● STRIBLING Eugene OO 1
17106 XXXX OO
17123 ● NILSEN Odd OO 4
17130 ● REEL Janellyn OO 4
17134 ● NAIR Steven OO 1

X OAK WAY
17150 ○ SPIELMAN Thomas 760-765-3918 1
17151 ● MUIR Roger OO 0
17155 ● MENDENHALL Lonnie OO 0
17162 ● SCHWEND Tom OO 4
17170 NIEBLA Alva 760-765-2062 4
17209 ARNOLD Dennis 760-765-2887 4
17215 ● WISE Dean OO 4
17240 ● MILLER Derek OO 3
17264 ● DARNELL Gary OO +6
SOUTHCOTT David L 760-765-2054

X FENDERS RD
17307 ● RAPUE Dolores OO 0

X CREEK RD
17327 XXXX OO
17336 ● HOWELL Eugene OO +6
17340 ● DARNELL Gary OO +6

X HARRISON PARK RD

★ 0 BUS 39 RES 4 NEW

IRON SPRINGS WAY (02) 92036 JULIAN

WEALTH CODE 5

X IRON SPRINGS RD

X IRON SPRINGS PL
35212 ● MCKINNON Maureen OO 3
35215 ● VILE Daniel OO 3

★ 0 BUS 2 RES 0 NEW

IRON VIEW ROW 92128 SAN DIEGO

WEALTH CODE 8

12109 ● SLUTSKIY Igor OO 9
12117 ● GOSS Jack K 858-487-7558
12118 ● BOWDEN Christopher OO 4
12125 DARROW Coleen 858-592-4123 4
12126 SURDEZ Vincent 858-673-8401
12134 ● PANUSOPONE Krit OO 4
12141 ● HAIKALIS Susan OO 4
12142 ● ZACK Marjorie 858-487-1894 1
12149 ● SONDOOZI Tarane OO 0
12150 XXXX OO
12157 ● CHRISTOFFERSON Sharon OO 8
12158 ● BROWN Sabine OO 4
12165 XXXX OO
12166 ● HARTIG G R 858-487-7222
12174 ● SWANSEN James OO 0
12190 XXXX OO
12198 XXXX OO

★ 0 BUS 17 RES 0 NEW

IRONBARK WAY 92064 POWAY

WEALTH CODE 7

X WOODCREEK RD
13218 ● KING Dannie OO 8
13219 ● NEVARES Ernest OO 8
13234 ● GUNNELL D 858-668-0728 3
13235 XXXX OO
13250 XXXX OO

★ 0 BUS 5 RES 0 NEW

IRONGATE LN 92126 SAN DIEGO

WEALTH CODE 7

9206 BALAI Raymond 858-586-7917 4
9207 ● VO Vung OO 0
9212 ● GALLAMOZA J 858-547-8465 2
9213 ● MOHARIR Vishnu OO 8
9218 ● TAM Richard OO 0
9219 ● RICHARDS Claude OO 8
9224 ● MOUA Cha OO 0
9227 ○ PAYAD Mercedes 858-566-9352 7
9230 ● LASTRELLA Tony OO 0
SANCHEZ Russ 858-271-4967 4
9233 ● LIMCAOCO Ben OO 2
9238 ● TA Kiet 858-527-0841 4
9239 ● PASHA Jamal OO 3
9245 ● OLSCHANOWSKY Roman 858-547-9706 4
9248 ● TOM Suey OO 8
9250 XXXX OO
9251 ● LIONAR Darwin 858-578-9735 9
9256 ● GUIANG Ricardo OO 8
9257 ● PHANAKHON Deanna 858-271-1197 9
9262 ● DEXTER Robert 858-566-5079 8
9263 ● NGUYEN Huong OO 2
9268 ● DANG Qua OO 1
LE Hoa 858-271-1768 1
9269 ● SHIRK James OO 2
9272 ● MORGAN Barbara 858-549-0238 8
9278 ● CHHIT John OO 8

X KITE HILL LN

★ 0 BUS 26 RES 0 NEW

IRONSTONE CT 92065 RAMONA

WEALTH CODE 8

16606 ● CROWE Jackie OO 4
16612 ● MEZA Irene OO 4
16616 ● REBITZ Kenneth 760-788-8763⊕ 9
16638 ● KEALY Becky 760-788-1904 3
16660 ● CARTER N OO 0

X OBSIDIAN DR

★ 0 BUS 5 RES 0 NEW

IRONWOOD CT 92131 SAN DIEGO

WEALTH CODE 8

X IRONWOOD RD
9948 ● CHENELLE Karlon OO 0
9958 XXXX OO
9968 ● TOOMEY Brian 858-693-4104 4
9977 KRUGER Victor 858-586-7091 4
● ORMSBY Ralph OO 0
9978 TOLISHES Robert 858-547-4652 +6
9987 ● MORRIS Donald OO 0
9988 ● MCVEY Tom 858-586-1856 4

★ 0 BUS 8 RES 1 NEW

IRONWOOD PL 92056 OCEANSIDE

WEALTH CODE 6

3340 XXXX OO
3348 GARBER Robert A 760-433-4410⊕
3352 ● MASEK Cody 760-433-6008 +6
3356 ● SCHROEDER Raymond OO 1
3360 SWANEY John P 760-439-3086
3364 ● APONTE Jose OO 3

★ 0 BUS 6 RES 1 NEW

IRONWOOD PL 92131 SAN DIEGO

WEALTH CODE 8

9902 XXXX OO
9912 ● MAXWELL Duane OO 4
9922 ● NICKLES John C 858-566-0931
9927 SIGLER Brian 858-566-1360
9932 ● HALL Joan OO 3

X IRONWOOD RD

★ 0 BUS 5 RES 0 NEW

IRONWOOD RD 92131 SAN DIEGO

WEALTH CODE 8

X SCRIPPS RANCH BLVD
10808 ● WARES Lee 858-695-1931 0
10811 DAUGHERTY Sonia 858-689-1005 3
● SANDSMARK David OO 3
10828 ● WINETROUT C OO 0
10831 ● DAVIS Mark C 858-695-1048 1
PANYARD-DAVIS Jan 858-695-1048 1

X WALDGROVE PL
10881 ● VENDITTI A 858-831-0218 4
● VENDITTI J 858-831-0218 4

X TUDOR ST
10910 ○ TAMBURINE S E 858-537-9878 2
10922 ● WARNER Gary OO 0
10929 ● KING Alan J 858-536-9372
10934 ★ CRES INSURANCE 858-566-0278 4
10946 ● JERLOW Brian OO 1
10957 JOHNS Melissa Ann 858-527-1741 4
● SCOTT David OO 4
10958 ● GASS Arnold P 858-271-6427
● GASS Corey 858-271-6328

X COURTYARD DR
10970 ● COHEN Jack V 858-271-6496 8
● COHEN Jack V 858-566-1905 8
10971 ● ZIAEIDOOSTAN Nasser OO 4
10982 ● CARY John OO 0
10985 ● WELLS Elizabeth OO 9
10994 ● DESAI Mehendra OO 0
10997 ● CRAFT Robt G 858-271-1232
11004 LAMBERT L L 858-271-7829
11012 ● SALENDER Warren OO ⊕ 9
11020 ● DIAMOND Joanne OO 0
11028 ● HINCK Larry S 858-549-2786
11036 ● JOHN James OO 2
11041 ● RIDDLE Chris OO ⊕ 0
11047 ● DEEGAN Walter OO 3

X BOURBON CT
11059 ● CRIDER Scott OO 4
11081 ● JACOBSON Karl OO 4
11091 ● BLAIR Calvin OO 0
11105 ● SEVIMLI Eren OO 3
11106 XXXX OO
11115 XXXX OO
11118 ● MCCHRISTIAN Michael OO 0
11130 ● KOOB Timothy J 858-549-9067
11142 ● STIVERS Karen OO 0

X CORRIDOR ST
11154 ○ WONG Douglas 858-689-0881 9
11166 XXXX OO
11178 LENOIR V T 858-693-1377

X DICHONDRA PL

X DICHONDRA CT

X IRONWOOD CT
11228 ● KOGLER Robert OO 0
11240 XXXX OO

X TRIBUNA AVE
11252 ● MCCARTNEY Karyn 858-578-0316 9
11264 ● PFLIMLIN Janice OO 0
11288 COPIC K 858-566-0979

X IRONWOOD PL
11304 MORSHEDIAN Amir H 858-578-5298
11312 ● DARNELL David OO 4
11313 ● KNIGHT Laurence OO 9
11320 ● EBERT Douglas F 858-566-5699
11321 ● FORREST Jeffrey OO 4
11329 ● TUCKER Kenneth OO 9
11336 ● SLAVICEK Ronald 858-695-0774
11337 ● SPENCER Christine 858-880-3004 4
11344 ● DELACRUZ Archibald OO 9
11345 ● MAYE Michael OO 4
11352 ● KNUDSEN Rosemarie OO 4
11353 ● FELIX Michael Mary 858-695-8944 2
11360 XXXX OO
11361 XXXX OO
11368 ● FRAZZINI Marco OO 0
11369 ● RAY Robert OO 0
STEPHEN Michael 858-586-1557 4
11372 ○ NICHOLS Wendy 858-271-8261 2
11373 KHOO Guoiai 858-566-5255 4
LEW Val 858-586-0802 +6
● SHANMUGALINGAM Dhayalan OO 4
11380 ● SAMPLE Dwane OO 9
11381 ● VANNOY Bradford OO 9
11388 ● AINSWORTH John 858-566-0263
11389 ○ COOPER Jane K 858-271-5237 1

X RED CEDAR DR

★ 1 BUS 72 RES 1 NEW

IROQUOIS AVE 92117 SAN DIEGO

WEALTH CODE 5

X IROQUOIS WAY
4601 ● HILL Theodore B 619-276-5890 3
4604 ROACH Martha 619-276-0801 4
4610 ● ADKINS Paul OO 8
4616 ● AUVAA Pueata OO +6
4622 HOLDY Paul 619-326-5683 2
KRAFT Julie 619-275-6655 +6
4623 ● NELSON Jeffrey OO 1
4628 XXXX OO
4629 ● CROPPO Kevin OO 2
4633 ● HARSHMAN Carolyn OO 4
4636 WU Arnold 619-275-5749
4639 BERNER Gerald 619-276-1883 3
4650 ● PETERSON Milton E 619-276-4768

X KAIBAB CT
4704 ● COOMER Jennifer OO 8
4710 ● ESPOSITO Steve 619-276-3434 3
4711 XXXX OO
4713 XXXX OO
4716 ● MORGAN Brett OO 4
4717 ● THWEATT Harry OO 4
4719 THWEATT Harry 619-275-3756 4
4722 DOI Frank I 619-276-2677
4723 XXXX OO
4728 ADAM P 619-275-2696
● DAIBER Tamara OO 3
● GAUGHEN Robert OO 3
L ● OBRIEN Kevin OO 3
O'BRIEN Kevin C 619-275-2396 4
K RIVERS N 619-275-1125
C ● ROBERTSON Miho 619-276-4237 1
● YEAGER Michelle OO 3
4730 ● DIAZ Darin OO 3
P ● MCKENNA Jason 619-275-5122 4
4731 ESTERLY Elisabeth B 619-276-6532 3
4732 ● NELSON Paul OO 1
● VANSKIKE Suzanne OO 8
4733 XXXX OO
4740 ● BECKNER Deborah OO 4
● HILL Donald OO 3
● JAIN Rajeev 619-275-4223 3
● RYAN Patricia OO 3
● VANFLEET Julie 619-276-0080 2
4741 XXXX OO
4743 XXXX OO
4804 ● HENDERSON Richd Jr 619-276-6141
4805 ● BELLUSCIO Eleanor OO 0
4807 ○ GREENWELL Azucena 619-275-1843 0
4810 XXXX OO
4815 RATLIFF Deborah 619-276-4316 4
4816 XXXX OO
4818 XXXX OO
4821 ● ROBIN Mitchell OO 2
4822 ○ SAYRE Ruth E 619-276-4108 9
4823 XXXX OO
4827 ESLINGER Ricki 619-276-4619 +6
4828 ● SAFONOFF Vladimir OO 4
4833 ● FURNICE Dale 619-276-4873
4834 ● TAYLOR Traci OO 4
4835 FURNICE Ruth A 619-275-0658
4839 HOWELL Tammy L 619-276-0980 2
● MORRIS Dennis OO 8
4840 XXXX OO
4845 GANTAR Denise 619-276-4180 2
POLLOCK George 619-275-4845 4

⊕=DO NOT MAIL

TP **Adjoining** **Source**

- ✓ Haines Company, Inc.

COUNTRY PL 2006

3423 ● GOLDSMITH Jerry OO 1
3445 WIMER Gordon T 760-767-5047
3456 ● LUCKMAN Stephen OO 4
3476 KANNE Frank J 760-767-3563
3496 ● STOLTZ Robert OO
3515 HUMPHREYS Thomas P 760-767-4784
3526 STEMNOCK Tom 760-767-3603

X BORREGO SPRINGS RD

X CARILLO RD
4047 ● MEIER Albert OO 4

X SWINGING V RD

X SAN RAFAEL RD
4115 ● WILSON Mike 760-767-4997 3

X EL TEJON RD
4118 FORT Laird 760-767-0161 0
4135 ● RIVERA Santiago 760-767-5949
4161 ● RODRIGUEZ Jennifer OO 2

X RUNNING M RD
NO # ★ ST RICHARDS CATH CH OF BRRGO 760-767-5701

★ 3 BUS 52 RES 4 NEW

COUNTRY CREEK RD 92064 POWAY

WEALTH CODE 6

13850 ● ROBERTS Osborne OO 4
VIGAY Rheia 858-668-0897 +6
13851 ● FELDMAN Edward OO 0
13858 ● HOWSE Donna OO 9
MILANI Juliene 858-486-3774 4
13859 ● DOHENY Edward OO 4
13866 ● YU Chihyuan OO 0
13873 ● KUKLOK Kierian OO 4
13874 ● JOHNSON Deron OO 4
13882 ● FAUCHER John OO 4
13890 ● NELSON R 858-748-5363
13895 ● MURRAY T Jr 858-486-3348 4
13896 ● SCHNEEKLUTH Curk 858-679-1288 7

X SURREY DR
13904 ● CRAFTS Karen OO +6
13912 ● GLADHEIM Z 858-679-1711 4
13915 ● BAKER John OO 4
13920 XXXX OO
13923 ● STEVENS Bruce J 858-486-4819 0
13928 ● DONALSON Rick OO 8
13931 ● LAPATING Edward 858-486-1909
13936 ● AL-NASSER Farouk OO 4
PARADOWSKI James 858-486-3170 4
13939 ● RELYEA Kevin OO +6
13944 ● SWAISGOOD Mark OO 4
13947 AMES William 858-679-9613 4
13952 ● LOPEZ Armida OO 8
13955 ● MANLEY Michael OO 8
13960 ● NELSON Brent OO +6
13963 ● RYBERG Jeffrey OO 4
13968 XXXX OO
13971 ● NATHANIEL John OO 8
13976 ● SMITH Jocelyn 858-679-9536 4
13979 ● GUNTHER Gary OO 8

X TIERRA BONITA RD
13984 ASBURY Earle 858-486-2139

★ 0 BUS 34 RES 4 NEW

COUNTRY CREEK RD 92069 SAN MARCOS

WEALTH CODE 5

X BUENA CREEK RD
2230 ● JEFFREY William OO 0

X SPRING CREEK RD
2245 XXXX OO
2247 ★ AMPOL NURSERY 760-471-2526
● ORRUNGROJ Ampol OO 0
2253 FILKINS Paul 760-744-8827
2267 ● SHUTTLEWORTH Carol OO 0
2288 ● CONTRERAS Maria 760-744-6135 4

★ 1 BUS 6 RES 0 NEW

COUNTRY DAY RD 92064 POWAY

WEALTH CODE 8

X BLUE SAGE RD
16036 MENTO Steven J 858-673-5385
16052 ● LEONARD Barry 858-673-2052 4
16068 ● FELBER Janet OO 0
16085 ● MANDELL Elizabeth OO 4

X MORNING AIR RD
16110 ● LIPSCOMB Anthony OO 4
16125 DELOSSANTOS Harry S 858-618-5534 +6
16126 ● HIGSON Dale 858-673-9013 1
16157 ● PRIOR Lawrence OO 8
16170 ● MCMENAMIN James D 3D 858-673-9574
● MCMENAMIN James D 3D 858-673-1196

X TWISTED BRANCH RD
16202 XXXX OO
16219 ● ENGEL Richard OO 8
16220 ○ SNIDER Beatrice 858-451-8804
16237 ● FOURNIER Thomas 858-592-9612 0
16238 XXXX OO
16255 XXXX OO
16256 XXXX OO
16273 ● NEWMAN Kaz A Dmd 858-673-0706 1
16274 ● KIM Jong Kyoon 858-451-3553 0

X HORIZON CT
16291 XXXX OO

X WINDPIPER RD
16312 ● LUCEY William OO +6
16327 ● HICKISH Helen OO +6
16330 KIELEY C L 858-673-4171
KIELEY J J 858-673-4171
16345 ● SCHNEIDER Dave OO 0
16348 ● LASKER Bruce OO 0

★ 0 BUS 26 RES 3 NEW

COUNTRY ESTATES DR 92084 VISTA

WEALTH CODE 7

X VISTA GRANDE PL
1201 ● MORALES David OO 0
1202 ● MUNGER Ronald OO 1
1203 ● DO Tom OO 8

1204 ● HALVORSEN Patrick 760-726-5257 0
1205 ● QUATTRONE David 760-631-0403
1206 ● BRYANT Richard R 760-724-1582⊕ 0

★ 0 BUS 6 RES 0 NEW

COUNTRY GARDEN LN 92069 SAN MARCOS

WEALTH CODE 5

X JONI LN
211 ● RICHARD Gregory OO 1
216 ● EVANS Greg OO ⊕ 0
235 ● BISHOP Robert OO 4
259 XXXX OO
261 XXXX OO
263 XXXX OO
281 MCMILLAN Troy 760-744-7639

X GIST RD

★ 0 BUS 7 RES 0 NEW

COUNTRY GLEN RD 92028 FALLBROOK

WEALTH CODE 7

X SADDLE CREEK RD
2 ● PETTERSEN Eric OO 8
4 ● PHILLIPS Robert E 760-723-4420
● PHILLIPS Robert E 760-723-5123
5 WALL Richard 760-723-3313
6 XXXX OO
8 ● THORNTON Steven OO 3
10 GOEDIKE Shirley 760-451-1285 0
11 XXXX OO
13 ● DUNDAS Jack OO ⊕ 4
HAGENBUCH Ella Jean 760-731-7698 +6
15 ● MORELLI Frank OO 4

X GATEVIEW DR
20 ● WEBSTER E 760-723-0130 4
24 ● ARMSTRONG William OO 9
25 ● BRAUNAGEL Justin OO 4
26 ● ADAIR D W 760-723-9720
28 ● PESTOLIS Thomas OO 3
30 XXXX OO

★ 0 BUS 17 RES 1 NEW

COUNTRY GROVE LN 92024 ENCINITAS

WEALTH CODE 8

1903 CAINE R J 760-944-9018⊕
1904 AULISIO R 760-753-7234
1907 ● KEY Teresa OO 4
1908 ● JORDAN Anne 760-943-6801⊕ 8
1911 ● GAMARRA Jaime OO 0
SOLER Margoth 760-942-2915 4
1912 ● HOLT Christine OO 8
1915 ● REYNA Rolondo 760-753-7912 0
1916 ● MORT Ernest 760-632-0995 8
1919 XXXX OO
1920 XXXX OO
1923 ● KENNERSON John OO 0
1924 XXXX OO
1935 ● ROLLS Michael OO 4
1939 ● CILLIS Philip OO 0
1943 ● GRAEBER Carole 760-632-0876 8
★ GRAEBER CONTRUCTION 760-632-6326 8
1947 ● PLUTA Greg 760-635-9084 2
1951 ● MATSUMOTO Janet OO 8
1961 ● MOORE Madeline OO 0
1965 ● WEISENBERGER T 760-753-3366
1973 ● NOLL Susan OO 0
1977 ● POSTMA Lee OO 2
1981 ● DEGUCHI Emi OO 4
1982 ● TENORIO Rene OO 4

X SKYKNOLL WAY
1985 ● LAZERSON Joshua 760-634-1167 7
● LAZERSON N 760-634-2741 7
1986 ● ROWAN Michael OO
1989 XXXX OO
1993 ● LUVERA Paul OO 4
YANIK Joseph 760-633-3093 2
1994 ● ANSON Michelle OO 1
1998 ● BRYSON Michelle 760-633-4410 2

X CLEAR VALLEY RD

★ 1 BUS 32 RES 0 NEW

COUNTRY HILL RD 92064 POWAY

WEALTH CODE 9

X ORCHARD VIEW DR
15121 ● TOLIVER William 858-513-1570 1
15131 ● TEAL Thomas OO 4
15140 ● BOONE Stephanie 858-486-6362 8
★ HOME RUN RECRUITING 858-486-1301 +6
15151 ● LUNI Chris OO +6
15164 ● HUDSON Robert OO 0

★ 1 BUS 5 RES 2 NEW

COUNTRY LN 92025 ESCONDIDO

WEALTH CODE 4.2

X E 17TH AVE
1710 ● PALU Monte 760-743-4075
1720 ● TAKEDA Juanita OO 8
1730 ● ERCK Gerald G 760-743-4668
1731 ● LANIER Richard OO 4
1742 ● PETERSON Marcus OO 0
1751 ● MCCUE Keith OO 2
1761 ● BONNER Gary 760-745-4740 3
1764 SHELBY Josephine 760-745-3356
1775 XXXX OO
1776 ● ELIAS Daniel S 760-432-0246 +6
1777 ● ARAMBULA Sandra OO 4
DIAZ Luis 760-741-7937 4
1790 ● HELMING Douglas 760-743-0314
1801 DEAN Madeline 760-745-9247 4
● REQUILMAN Sheryl OO +6
1804 ● PENA Carlos 760-739-9581 0
1812 ● DANIELS John 760-746-7431
1828 ANTHONY Jay 760-743-7796 4
● HEINEMAN D OO 4
1831 ● DUMMER Eric OO 0
1836 ● NUNNINK Phillip 760-745-3101
1839 ● STARR Robert OO 0
1845 ● DOBBINS Kelly 760-432-8927⊕ 3
1846 ● JOHNSON Jeremy OO 4
1855 ● GUTIERREZ Cesar OO 2

1856 ● GAGNON Lloyd OO 0

X ELDORADO DR

★ 0 BUS 26 RES 2 NEW

COUNTRY MEADOW LN 92025 ESCONDIDO

WEALTH CODE 8

X SAN PASQUAL RD
3625 ● OTTER Johan OO 1
3645 ● BAIRD Joyce 760-743-6069 4

X PRINCE ST
3657 ● MLADENIK Elizabeth 760-233-2903 0
3662 ● CORE Michael OO 4

X GROVE CANYON RD

★ 0 BUS 4 RES 0 NEW

COUNTRY OAKS LN 92082 VALLEY CENTER

WEALTH CODE 6

X WOODS VALLEY RD
26901 ● DEJOURNETT Gary R 760-749-3903
26950 ● JONES Craig OO 2

★ 0 BUS 2 RES 0 NEW

COUNTRY PL 92026 ESCONDIDO

WEALTH CODE 4

2102 XXXX OO
2104 XXXX OO
2110 DEWINDT David 760-740-1149 7
2114 ● SMITH Larry 760-741-9195
2116 ● GAMBERG Brian OO 1
2120 ● ROSE Susan OO 0
2121 ● ENGSTROM Betsy OO 8
2122 ● MONTES Jose OO 2
2125 ● KEENER Donna 760-480-8404 0
● KEENER James 760-743-6032 0
2126 XXXX OO
2128 ● ELLIOTT Ronald OO 8
2131 ● MARSHALL Thomas OO 7
2132 ● KUNDINGER Scott OO 4
2134 GARCIA Jaime G 760-735-5824 +6
● MALDONADO Joel OO 4
2135 XXXX OO
2138 ● MCCUE Edward OO 0
2140 ● PALMER Michael OO 4
2141 ★ ACADEME VIDEO PRODUCTIONS 760-747-8489 3
● REA William OO 1
2143 ● BOARDMAN Andrea M 760-737-9697⊕ 2
2144 ● MCMULLEN Michael OO 4
2145 ● WALKER Robert OO 8
2147 LEAP M J 760-743-4864
2150 ● AZNEER Allan OO 0
2151 ● BRYANT Chuck 760-743-4138
2152 ● PARVIN Michael OO 4
2153 XXXX OO
2156 ● PAGE Neil OO 0
2157 ● MORALES Esther OO 4
2158 ● HOOLIHAN Joel OO 3
2159 XXXX OO
2162 ● LOPEZ Jose OO 4
2164 DUNLAVEY D L 760-743-8970
2168 ● BROWN Michele OO +6
2170 ● DAY Catherine OO ⊕ 0

X VILLAGE RD

★ 1 BUS 36 RES 2 NEW

COUNTRY RD 92028 FALLBROOK

WEALTH CODE 8

X CANONITA DR
2222 ● MORRIS Rick OO 0
2255 ● MOORE Jess OO 4
3360 WRAY David 760-731-1280 +6
3378 XXXX OO
3385 STEVENSON Kerry H 760-451-0050 4
3418 ● CICCHILLO Edward OO
3443 ● SHERIDAN Lew OO
3488 ● LINDSAY Dan OO 7

★ 0 BUS 8 RES 1 NEW

COUNTRY RD (03) 92082 VALLEY CENTER

WEALTH CODE 5

12448 ● ULLE K 760-749-0068⊕ 3
12490 XXXX OO
12548 ● DAVIS Terrence OO 4
12590 ★ SUNCOUNTRY LANDSCAPE 760-749-2631 +6
● WADE David 760-749-7905 4

X MESA CREST RD

★ 1 BUS 4 RES 1 NEW

COUNTRY ROSE CIR 92024 ENCINITAS

WEALTH CODE 8

3202 ● COSTELLO James OO 4
3203 ● BARMAK Mark 858-759-0724 0
3225 ● ZIEGLER Thomas 858-759-5805 4
3238 DISKIN Dawn 858-759-0233
WHIRRY Dawn 858-759-0233 4
3250 ★ IPANEMA 858-759-5013 4
3262 ● DOWNES C 858-759-0230 0
● DOWNES C 858-759-0184 0
● DOWNES J 858-759-0184 0
● DOWNES J 858-759-0230 0
3314 ○ CALDWELL David G 858-759-1750 9
3334 LAMPL Josh 858-759-9349⊕ +6
3335 ● DUFFY J Keith 858-756-6985 9
3364 ● GUERENA Michael OO 4
3365 ● MONTGOMERY Arthur OO 0

X WESTERN SPRINGS RD

★ 1 BUS 14 RES 1 NEW

COUNTRY SQUIRE 92081 VISTA

1700 XXXX OO
1733 ● HOLLYWOOD Brett OO 0

1734 ● SMITH Gregory OO 0
1740 SCARANO Stephen 760-598-9406 4
1746 ● VOIGHT Richard 760-727-3645
1752 ● SHEA C 760-599-3820 1
● SHEA Richard 760-599-3820 1
1758 ● DOROTHY Louise OO 4
1764 ● SALTZ Gayle 760-599-1219 9
1770 ● TAGHDIRI Ramin OO 0
1776 MURPHY Patrick G 760-727-4991
1782 XXXX OO

X COUNTRYSIDE DR

★ 0 BUS 12 RES 0 NEW

COUNTRY TER (04) 92065 RAMONA

WEALTH CODE 4

X STOCKHALPER LN

X POPLAR ST
594 ● HUFF Robert OO 0
598 ● GAGNON James A 760-787-0472 3

★ 0 BUS 2 RES 0 NEW

COUNTRY VIEW GLN 92026 ESCONDIDO

WEALTH CODE 5

2303 ● FUQUA Larry OO 0
2307 ● HEIMER Scott OO 2
2311 ● QUACH Boi OO 0
2315 XXXX OO
2319 ● HINKEL Richard OO 8
2325 ● WOOD Dawn 760-744-1166 0
● WOOD Dawn 760-744-1467 0
2331 ● LENKER Roger OO 8
2339 ● ROONEY John OO 0
2345 ● JEHLEN Larry OO 8
2353 ● BORRELLI Nicolas OO 7
2361 ● BRANDT David C 760-471-1506 2
2367 ● HA Binh OO 4
2373 ● DEMENT Earl OO 9
2379 ● LYNN Howard OO 8
2385 ● TARBET Elizabeth OO 4
2391 ● HARTE Paul OO 9
2397 ● ZAPATA Guadalupe OO 0
2403 ● BURBA Michael OO 4
2409 ● RIEDNER Renate E 760-744-3010
2415 ● KOVACEVIC Rade OO 0
2421 ● TAYLOR Russell OO 3
2427 DAVID Griffith 760-752-7727 3
● HE Thomas OO 0
2430 ● LEUTHE Andrew OO 8
2433 ● KIM Tae OO 4
TAESOO Kim 760-891-0393 4
2439 ● CASTANEDA Arnold OO 2
2445 ● WHITE Thomas OO 8
2451 ● WARN Lawrence OO ⊕ 0
2457 ● DAVID Enrico OO 4
2463 ● MILLS Michelle 760-510-3835 1
2466 ● COLBERT James OO 0
2469 ● HAARZ Harold OO +6
2470 ● KREUTEL Brandon OO 2
2475 ● DOEBLER B 760-591-3532 8
● DOEBLER S 760-591-3532 8
2476 ● BARRETT Kevin OO 8
2481 ★ CONTRERAS RELIGIOUS ARTICLES 760-471-9978 3
2482 SPERFSLAGE Joleen 760-591-4902 4
2486 ● LEAHY Mary OO 8
2489 ● HAHN Charles 760-798-4233 2
2490 ● FOX James OO 4
2508 ● KAHN Michael OO ⊕ 4
2512 ● BATES Terry L 760-591-4667
● BATES Terry L 760-591-9072

★ 1 BUS 45 RES 1 NEW

COUNTRY VILLA RD 92065 RAMONA

WEALTH CODE 7

23604 ● CROWLEY Michael OO 4
23606 ● RITTER Edward OO 4
TEACHOUT Jennifer 760-789-1980 +6
23607 CUFFY Briant 760-789-4527 +6
● VALENCIA Thomas OO 9
23608 ROBERTS Gordon 760-789-8384
23609 ○ WYATT Ben 760-788-5452 2
23610 ● MORROW Donald Sr 760-789-2765
● MORROW Donald Sr 760-789-5942
23611 ● MCFARLAND Tracey OO 0
23612 ● BOWEN Larry OO 0
23613 ● BAINES A 760-788-6308 1
23615 ● FOREST Barbara OO 4
TERRY P J 760-788-1814 8
23619 ● DENNIS Tammie 760-788-5998 +6
23620 ● FLEISCHMAN Robt A 760-789-0559 7
23622 ● CHINTALA Mark OO +6
23623 ○ FINK Warren 760-789-8674 4
23624 KOHL Gene 760-788-5778⊕
23625 ● WEAVER Robert OO 4
23627 ● CAMREN Gary OO 4
23631 ● WASHCER Matt 760-789-1154 4
23633 ● FOX Penelope OO 0
23635 ○ CORMIER Kathy R 760-789-6991 4
23637 PRESLEY John G 760-789-3303
23639 ● FRECKELTON James OO 4
23643 ○ HAGEN Debbie 760-788-4875 3
23645 XXXX OO
23647 XXXX OO
23650 ● SELBY John R 760-788-4990 0
23651 ● BOTTOMLEY Bridget OO 3
23652 ● TYBURSKI Michele OO 2
23653 ● FRAZEE Nancy 760-788-6342 9
23654 ○ WILSON Sharlene 760-788-0081 4
23655 XXXX OO
23656 ● RICO Edward OO 4
23657 GALL R C 760-789-7477
23658 ● ALLEN Anngelia OO +6
23659 ○ POWERS Sue 760-789-0087 4
23662 ● BLAKEY Tabitha 760-788-9291 4
23663 ● BAREFOOT Barry OO 9
23664 ● NELSON Billy G 760-789-6713
● NELSON Billy G 760-787-9261
23665 XXXX OO
23666 ● HUNT Stephen OO 3
23667 ● BRENNAN Walter J 760-788-0367
23668 ● STILLWELL Linda OO 2
23669 XXXX OO
23671 ● CARPENTER Gerald L 760-789-5652
23675 ● NIHART Jamie OO 3
23677 XXXX OO
23679 XXXX OO
23681 ● HALL Frederick R 760-789-8989 3
23683 HEARN Derek 760-440-9294 +6
23687 XXXX OO
23689 XXXX OO
23691 ○ FONTAINE Laura D 760-788-8308 4

X SAN VICENTE RD

★ 0 BUS 57 RES 6 NEW

COUNTRYHAVEN CT 92024 ENCINITAS

WEALTH CODE 7

X COUNTRYHAVEN RD
2002 ● EMERY Delite OO 0
2004 XXXX OO
2006 ● HAEREITI Kare 760-632-5697 4
2008 ● KIESEL Nancy OO 9
★ NANCY'S BAIL BONDS 760-436-2369 4
2011 ○ THOMPSON Matthew J 760-944-5176 0
2013 ● BARRON Sheldon 760-942-8140 9
2015 ● SCHULTE Chris 760-943-6663 4
2017 ● GALVAN-PADRON Manuel OO +6
2018 ● ZITTEL Jeffrey OO 8
2020 ● ULASZEK Deborah OO 8
2022 XXXX OO
2023 ● PANDEY Sanjay 760-632-1673 0
2024 ● MAXWELL Alyssa OO 4
2025 ● BULLOCK Lauren OO +6
2027 ● CAMPBELL Stephen OO 4
2029 ● MAES Robert OO 4

★ 1 BUS 16 RES 2 NEW

COUNTRYHAVEN RD 92024 ENCINITAS

WEALTH CODE 7

X VILLAGE WOOD RD
107 ● MOFFETT Michael OO 8
108 ● WOODBURY Lynn OO 3
116 ● ROBERTS Steven OO 9
119 ● SCHACHER Jim J 760-944-8523
124 ● SCHMITT Roger OO 4
WOOD Nigel 760-944-3995 4
125 ● HUTCHINGS Jonathon OO 8
132 BJELLA Donni 760-436-6006
133 ● FRIEDMAN Matthew OO 3
140 ● KLEINER Jonas OO 4
141 ● WILCOX Bradley 760-944-5530
148 ● BOWMAN Barbara OO 4
149 XXXX OO
156 XXXX OO

X SHADOW GROVE WAY
161 ● GREGORY Robert C 760-942-2627 3
164 XXXX OO
167 ● PEREZ Luis OO 4
172 ● DOWDY R 760-943-6377 3
173 ● ALPERS Robert OO 4

X PARK DALE LN
175 XXXX OO
177 ● NAIMON Kari OO 2
179 ● ROMNES Paul 760-944-9634 4
181 ● DECHAMPLAIN Jeff 760-753-2675 4
183 ● WRIGHT Greg OO 3
185 ● CORONA Michael 760-436-0706 0
187 ● BADT Carole OO 4
DIPIETRO Michael 760-942-4276 4
189 XXXX OO
203 ○ TANSEY J Alden 760-942-3727

X COUNTRYWOOD LN
204 ● MOBLEY Jennifer OO 0
205 CONNERS Angie 760-942-7286 4
● STOCK Robert OO 0
206 ● AFSAHI Samuel OO 2
RIGBY Paul 760-753-2720 +6
207 ● ZNAMIROWSKI Jay OO 4
208 XXXX OO
209 XXXX OO
210 ○ SHILLING Stephen A 760-634-8418 3
211 ● VACCARO Jeffrey OO 4
213 ● ARYA Ashwani OO 3
HEALY Macaela 760-942-7433 +6
214 ● RUBBO Vickie OO 4
215 ● SHORE Stuart OO 3
216 ● CULLEY Brian OO ⊕ 9
217 XXXX OO
218 ● BROCK Patricia OO 0
219 ● WALTER Despina OO 4
221 ● LOCASTRO Mary OO 0
222 ● WHITING Jim 760-944-4530 8
223 ● LIPARIDIS Maria 760-632-0820
225 ● RAMOS Maria 760-943-1503 4
226 WAGNER Nancy 760-942-1329 +6
227 ● CONROY Raquel 760-753-8289 0
228 ● CAMARILLO Denise OO 4
CARVER Katherine M 760-633-4832 2
229 ● BASSETT Denise OO 4
231 XXXX OO
232 ● HEDGES Tracy OO 2
233 ○ LOCHNER Frederick 760-942-4495
234 SYMONS Sharon 760-632-9924
● WELLS Judson OO 0
235 ● WALKER Heidi OO 0
236 ● ROACH Steven OO 0
237 ● MIRR Gary OO 0
238 ● LICON Henry OO 8
239 ● KAIL Thomas OO 0
240 SICKINGER Tracy 760-635-8659 3
● WRIGHT Bruce OO 0
241 ● SOEHL Philip 760-632-9185 9
242 ● SANGER Kerwin OO 9
243 ● CAMPBELL Donald OO 3
244 ○ MOORE Jaynel E 760-436-5600 4
245 ● GARCIA Gilbert OO 4
RAMIREZ Herminia 760-479-0342 4
246 ● SLAMA Danny J 760-479-2468
● SLAMA June 760-944-9096
247 HILL Cathryn 760-942-4113 +6
● KIS Mary OO 4
249 ● CLARK Patrick OO 0
261 ● COREY M E 760-944-0860
262 ● LANTHORNE Russell OO 4
263 ● HARLESS Judy OO 9
264 ● MIHALY B 760-943-1653 2
265 ● AINSWORTH Larry OO 4
WIRICKBOWMAN Jessica C 760-479-2414 4
266 ● SMITH James OO 0
267 ● STILES Patricia 760-634-4965 3
268 ● CASPER Greg 760-753-1888 1
270 ● MCDUFFIE Timothy OO 2
271 ● LEIBEE Chantal OO 0
272 XXXX OO
273 ● WARD John 760-943-1303 8
274 ○ HALLOCK Lucy Tate 760-634-2004 2
275 ● ROBISON H 760-942-6757 3
276 ○ DEVAULT Leigh 760-479-9719 4
277 ● COLLINS Patrick OO 0
279 ● POGELER Cheri OO 4
280 ● ROBERTS David OO 3
282 ● APPEL James 760-635-0235 0
283 ● GLENER Doug Beth 760-942-9667 3
284 ● MEREDITH James OO 9
285 XXXX OO
286 ● CAMPBELL Gregory OO 4
287 ● GREGORY Scott OO 9
288 ● BERNARDO Joaquin OO 4
NAVA-COLIN Ana Maria 760-635-0760 +6
289 ● ALVAREZ Olga OO 8
MOORMAN John D 760-944-9796 +6

290 ● WILSON Ian OO 9
291 ● CORTEZ Catarino OO 0
292 ○ HEIDENHOFER Roland 760-436-6443 3
293 ● WINKELMANN Fred OO 2
294 ● NICKLAS Gary OO 4
295 ● MORELAND Robert OO 0
297 ● SHACKLEY Katharine 760-753-8589 2
299 ● HART Janet 760-634-3439 0

X COUNTRYHAVEN CT

★ 0 BUS 116 RES 6 NEW

COUNTRYSIDE DR 92081 VISTA

X S MELROSE DR
1601 MAZZEO Maria 760-597-0326 4
● NAVARRO Ben OO 4

X COUNTRYSIDE PL
1612 ● DAVIS Reginald OO 1
1618 ● CORTMYER Mary OO 0
1619 ● BRIELMAIER Thomas OO 4
1621 ● ONEILL John OO 4
O'NEILL John 760-727-4435 7
1624 ● LEWIS J R 760-727-3464
1625 ● HAYES Beau OO 0
1630 ● CURTIS John 760-598-1650 3
1631 ● LOMELINO Gary 760-727-5609 1
1636 ● TUNCO David OO 1
1637 ● WHITEHEAD David OO 8
1642 ● MCWHINNEY Douglas OO 2
1643 ● MAI Micole 760-599-8927 8
1649 ● HUFF Kim OO 4
MAZAKAS Todd 760-727-5622 4
1655 ● EVANS Cindy OO 4
1656 XXXX OO
1659 ● NEFF Roger OO 4
1665 ○ JOHNSON Andrea D 760-599-0801 3
1671 ● BUSSETT Gary OO 0
1672 ● OGDEN Barry 760-727-8285
1677 ● MCGOVERN Terry OO 0
1678 ● OMITT Steven OO 0
1681 ● SERVAIS Joseph OO 1
1684 ● MILLER Jas C 760-597-9785 2
1685 ● OLIVER Benjamin OO 0
1686 ● DRURY William 760-727-1265 +6
1687 ● JABLONSKI Robert 760-734-6506 0
1690 ● THRIDANDAM Hareesh 760-598-1789 9
1696 ● WESTON Todd OO 2
1698 ● GELOW Scott 760-598-5686
1702 ● GRAY David OO 8
SELECT Business Services 760-598-0966 4
1703 ● MEANS Edward 760-597-9826 4
1708 ● MORRISON Ricahrd D 760-734-6802 4
1709 ● FREITAS Maurice OO 3
1714 ● HERNANDEZ Hector OO 3
LUIS Nicolas 760-727-0219 3
RAMIREZ Leticia 760-599-8861 4
1715 ● HORNE Richard OO 9
1720 ● RASSOULI Faramarz 760-598-8722 3
1721 ● ANTHONY Mark OO 8
1727 ● CURRY Justin OO 3
1728 ● TALLMAN Thomas P 760-734-6966 8
1734 MACHINA Peter 760-598-9468
1739 ● BRAITHWAITE Thomas OO 8
1745 ○ SELDY William 760-598-8275 0
1751 ● DORENDORF Uwe 760-727-4921 8
1757 ● MITCHELL Brett OO 8

X CLUB HEIGHTS LN
1763 ● SCHEIE Tom OO 8
1769 ● BUMGARDNER Teddy OO 8
1775 ● LERNER Bruce OO 2
1781 ● YOO Mu OO 4
1787 ● GUBA John OO 0

★ 0 BUS 56 RES 1 NEW

COUNTRYSIDE PL 92081 VISTA

1710 KOPA Andrew 760-598-1469
1711 ● HULL Alfred OO ⊕ 4
1716 ● ESTOPARE Hector 760-727-7546
1717 XXXX OO
1722 EHRLER Davis 760-597-2965 +6
● MARX Aaron OO 4
1723 ● FERRIS Rodney OO 0
1728 ★ JACOBSSEN & ASSOCIATES 760-599-3998 8
● JACOBSSEN Donn OO 0
1729 XXXX OO

X COUNTRYSIDE DR

★ 1 BUS 9 RES 1 NEW

COUNTRYVIEW LN 92081 VISTA

X GOLFCREST PL
1452 ● VOSS Thomas E 760-727-7531 0
1454 ● KUMAMOTO Masahiro 760-598-8224⊕ 4
PERRY Bond 760-598-8224⊕ 4
1456 ● JUNGERHELD A OO 0
1458 ● DUNN Stephen OO 4
1462 ● DILLINGER K 760-598-5183
● DILLINGER R 760-598-5183
1466 MICHEAL Misel 760-599-3819 4
● MISEL Michael OO 1
1470 ● BULLINGTON Garry OO 4
1472 XIAO Flora 760-598-9770 4
1476 ● NELSON Margaret OO 4
1478 ● KARPOWICZ Walter OO 8
1480 ● JALOMA J 760-734-6862 +6
1482 ● PALMER Christopher OO ⊕ 4
1484 ● ENZWEILER Gregory OO 9
RAMIREZ James 760-599-1296 +6
1486 ● SHAFFER Teresa OO 1

★ 0 BUS 18 RES 2 NEW

COUNTRYWOOD CT 92024 ENCINITAS

WEALTH CODE 7

X COUNTRYWOOD LN
2002 ● BRIGHT Robert OO 9
LEE Kang 760-635-3598 4
2005 ● DUNCAN David OO 4
2006 ● VELASQUEZ Jesse G 760-753-4799
2007 ● GHOSH Jayant OO 0
2008 ● HANLON Greg 760-753-4970 4
2009 XXXX OO
2011 ● CORNISH Randall OO 2
2012 ● RUIZ Teresa OO 1
2014 ● CALI Kathleen OO 1
2015 ● RIVERA Frank OO 9
2016 ● BURTON Kenneth OO 0
2017 BLANCHARD Danielle 760-634-2016 4
● RYAN Jaime OO 4
2018 ● WHITE Jason OO 4
2019 ● BILLMAN Wesly OO 4

⊕=DO NOT MAIL

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TP	Adjoining	Source
-	✓	Haines Company, Inc.

N BROADWAY ST 2006

BIRCH Bryan 760-738-8562 3
157 CASTANEDA David 760-781-5641 4
CRUCES Alejandro 760-294-3516 +6
FRANCO Elvira 760-294-0653 +6
FRERRICK Danielle 760-738-6281 +6
GUSTINE Megan 760-745-7131 4
241 HARPER Colin 760-735-5996 4
HUDAK Donald 760-294-1254 +6
JOHNSON Stephen 760-746-0087 +6
LOPEZ Jessica 760-741-1373 +6
232 MAHLSTADT Mark 760-489-1283 +6
MURRAY J 760-871-4581 2
131 PENROD Jeffery 760-746-3156 4
RAYA K 760-738-6970 +6
REYES Jim 760-739-8273 +6
★RIVER VILLAGE APTS 760-432-6699
ROBERTS Kenya 760-743-1170 +6
ROMERO Gabriela 760-740-9391 4
TORRES Antonio 760-489-7124 +6
TORRES Mayra Fabiola 760-743-1689 +6
VARGAS Raquel 760-747-2124 +6
WALSH Kim 760-738-9965 4
WICKSTRAND Shan 760-839-5977 +6
WILSON Tommy 760-743-1360 4
ZARATEPAZ Marcos 760-738-4715 4
1845 . . . .
1864 ★ESCONDO UNITED REFORMED CHURCH 760-745-1679 4
1868 ★CALVIN CHRISTIAN GRADE SCHOOL 760-489-1159 9
★CALVIN CHRISTIAN PRESCHOOL 760-520-8431 9
2000 ★CALVIN CHRISTIAN HIGH SCHOOL 760-489-6430
★CALVIN CHRISTIAN HIGH SCHOOL 760-489-1159
2038 ★KATHEISER LANDSCAPE 760-480-9083 4
2088 ● BRUEMMER Richard OO 8
2089 ● SOLIS Pablo OO 3

X VILLAGE RD
2250 . . . . . SUNDANCE MBL HM PK
ALLRED Wallace 760-746-7263 +6
★AMICORP PROPERTIES 760-741-1911
ANDERSON Donald L 760-745-7051 9
BENSON Helen 760-747-3404 4
BEUKELMAN John 760-743-1298 9
BIERMAN D Ed 760-480-8969 3
CAMBRON Robt 760-743-5562
CARUSO Anthony 760-740-0733 0
CASPERSEN Curt F 760-747-0098 +6
CASPERSEN Jean 760-740-0685 +6
CLARKE G 760-432-6527 4
COCHRANE Jack 760-745-9812 4
EASTMAN John S 760-741-8908
FENNELL J C 760-747-7851 3
FENNELL Robert A 760-747-3310 3
FICARA Rose 760-747-7424
GIST Robt E 760-743-8628
HARALSON K 760-233-2056 3
JOHNSTON Barbara 760-746-2272 3
KELLEY Edmond E 760-432-0167 +6
KOUTSKY Jerry 760-743-5749
LAFLEUR Richard S 760-480-0891 +6
LANDIN Harold R 760-741-5687
LARY Franklin 760-291-1442 2
LEWIN Jane 760-746-8028
LIVERMORE B 760-738-9641 4
LIVERMORE S 760-738-9641 4
MEIER Joseph F 760-233-2173 1
MORRIS E L 760-746-0558
NGUYEN Lien Vu 760-796-7716 4
PALMER Richard 760-747-1542 3
PARKER Lillian 760-480-0614 4
PHILLIPS Claire 760-489-5208
POLLARD Marcine 760-740-2486
REEVES Coy A 760-741-3188
REIDY Warren 760-747-6568 4
RHOADS Donald 760-738-6172 3
RYAN Keith 760-746-9093
SCHNEIDER Geo M 760-747-5325
SHIPE John 760-839-5653 +6
SMITH Romaine V 760-743-8976
SPINELLI Richard 760-746-1257 +6
SPINELLI Richard 760-746-1207 +6
STROUT George A 760-745-4437 1
★SUNDANCE MBL HM PK 760-741-1911
TESTA Ernest J 760-741-6816 4
THIESSEN Dan G 760-747-3678
WACHTER Jerald 760-747-8602
WAITS Bobbie 760-741-2547 4
WALKER Warren H Pat 760-747-7030 5
WATERS Ron 760-432-9301 3
WATTSON Chris 760-432-8066 3
WEAVER Kenneth J 760-746-7801
WEED Frank 760-741-1756 4
WHITE Herbert 760-743-5108 4
WILEY Larry 760-741-3095 +6
2250 . . . .

X COUNTRY CLUB LN

X RINCON AVE
2300 ★REIDY CREEK GOLF COURSE 760-740-2450 4
2301 ★ESCONDO SC NORTH BROADWAY SC 760-432-2479
★NORTH BROADWAY SCHL 760-432-2479
2317 VONSEGGERN Henry 760-745-2778
2335 CHRISTENSON Bruce E 760-745-3674
2401 ★ESCONDO AMERICAN LITTLE LEAGUE 760-741-6082 7
2419 ● HOOPER Jacquelyn 760-745-5234 4
2421 ● KLUG Robert 760-489-2730 4
2423 ● GERONIMO Angelito OO 8
2425 ● VANOSTAEYEN Karl 760-745-8483 8
2427 ● WHITAKER Chance OO 4

X CLEVELAND AVE

X JESMOND DENE RD

X NORTH AVE
2965 ● GLADKOFF Oleg 760-743-5442 0
2983 ● PORRAS Juan OO 0

X SYLVAN LN
3010 ● PETERSON Michael OO 7
3011 ● ESTELLE Bryan OO 1
3013 ● SMITH Edward 760-489-8282 3
3015 ● PEREZ Orlando 760-738-2023 3
3020 ● HICKS Thomas OO +6
3021 ● DOBIESZ Catherine OO 0
3023 ● BINGHAM C 760-746-5605
3025 ● WHYSONG Rovert OO 4
3026 ● KERR Richard H 760-747-5457
3030 o COX Liscom A 760-747-3109 3
3034 ● WILSON Todd OO +6
3038 ● JASPER Matt 760-747-0473 1
3040 ● KLOSKA John OO 0
3065 ● THOMPSON Alan V 760-743-0059
3066 ● KING Matthew OO 4
3075 ● KIKALAYE Ahmad OO 0
3085 ● HUGHES Christina OO 4

X RYAN WAY
3130 FEHLINGS Shelley 760-839-0064 +6
3162 XXXX OO
3165 XXXX OO
3171 ● CUMMINGS William 760-747-3231
3214 STARK Carisa 760-747-1906 +6
● STEINBAUM Richard 760-746-2341 4
3216 BIERY J 760-739-0613 0
BIERY Jay 760-741-5337 0
● BOWLES Mariann OO 9
★SIGNS BY MER 760-745-3010
3225 ● MITCHELL Allen OO 8
3245 XXXX OO
3275 CADWELL Richard L 760-743-6538
26130 ★ORANGE COUNTY NURSERY INC 760-743-6111
26319 ● BRYANT Lane OO 0
26327 ● MURPHY Raymond OO 4
26339 o EASTMAN Glen 760-746-1909 1
26347 ● SALAS Chama OO 4
26355 ● HERMES Justin OO 4
WATSON George 760-480-8464 4
26363 ● SPITERI Charles OO 4
26373 o MACKIE Al 760-741-5020 0
26385 ● SOUSA Luiz 760-743-1261 2

X ARCO DR
26419 XXXX OO
26429 ● SIMEROTH Jesse OO 8
26439 ● CULLEN Harry OO 8
26447 ● MENGES Hannah OO 4
VANDERWOUDE Joel 760-781-1335 3
26515 ● THOMPSON Todd OO 8
26519 ● VREEKEN Gerrit OO 1
26525 ● CHERKIN Ronald OO 8
26535 ● MAISONNEUVE Gerald OO 4
26549 ● SULLIVAN S 760-745-5994 0
26555 ● BURNS Judy OO 0

X NESMITH DR
26617 XXXX OO
26625 FRICKER Claire 760-737-0384 4
26633 ● JARBOE Donald OO 0
26645 ★ZACHRY'S 760-747-3820 3
26653 ● WUKADINOVICH Robin OO 0

X REIDY CANYON TRL
26661 ● MITCHELL George 760-738-8281 3
26703 ● IVINS Carmen OO 4
26706 BARTHEL Rick 760-746-9348 4
● PULIDO Joe 760-738-2629
26708 ● URAN Leon OO 8
26710 ● BEVERLY Connie 760-233-1192 3
26714 ● SAFFIOTE M 760-796-4353 2
26718 ● CURIEL Ignacio 760-839-2264 4
26720 ● WATSON Bruce OO 0
26721 XXXX OO
26724 ● RAMER Michael 760-747-5644
26730 ● DICK William OO 8
26732 ● FERRER Saul 760-743-2355
26740 ★WINDMILL NURSERY 760-741-3204
26745 ● WHITE Charles OO 8
26747 ● THOMAS Stephen OO 8
26752 ● RAMIREZ Miguel 760-741-6934
● RAMIREZ Miguel 760-489-4879
● RAMIREZ-RABAGO Marisa 760-745-1467
26753 XXXX OO
26758 ● RAMIREZ Miguel OO 4
26777 XXXX OO
26799 XXXX OO
26842 ● WALDORF Louise 760-749-7983
26846 XXXX OO

X REIDY CANYON PL
26855 FOSTMA Ronald 760-749-0759
26860 FRANKLIN Oliver 760-749-2466
RAMIREZ Jesse 760-749-8894 3
26861 o HAUSER M 760-749-0956 1
o HAUSER S 760-749-0956 1

X COUGAR PASS RD

X BACHELOR LN
26890 AGUILAR A 760-751-8918 +6
SALAZAR Rachel 760-749-6388 4
26891 BRUEMMER Richard 760-749-8239 +6
26893 XXXX OO
26895 ● HARRIS Chas Sumner 760-749-2751
26896 ● BOSWORTH Berlin 760-751-8439
● BOSWORTH Floyd E 760-749-2870
26933 ● GUNN Judy 760-749-7129 1
★GUNN'S LANDSCAPING 760-749-2457 0
★GUNN'S LANDSCAPING 760-749-2884 0
26937 CORREA Francisco N 760-749-6141 2
● GARCIA Jose OO 4
26948 ★MOUNTAIN MDW MSHRMS 760-749-1201
26961 ● DECASAS Reginaldo OO 4
HERNANDEZ Emilio 760-749-2317 +6
26974 ★TRI STEEL 760-749-4147 1
26976 MCFADDEN John D 760-749-2477
26980 DIAZRAMIREZ Justino 760-749-7784 8
REDIFER Rene 760-751-1045 4
REDIFER Rene 760-751-9139 4
26990 ● JESSE Stephen OO 2
27003 ● HOLLWEG Lorraine OO 4
27018 XXXX OO
27021 ★VAN NHUNG 760-751-2437 1
27032 ● OSORIO Benito OO 4
RAMOS Osorio Benito 760-751-4171 4
27064 ● PEIRANO Grant J 760-749-2913
● PEIRANO Grant J 760-751-2918
27065 ● CARROZZO Alfred OO 3
27116 ● WHITE Heide OO 3
27118 ● PHILLIPS Clay OO 4
27120 ● STRAKON Robert OO 8
27122 XXXX OO
27200 ★EVERGREEN NURSERY 760-751-5010 0
MONZON Javier 760-751-7489 4
NUNEZ A 760-749-8250 4
27440 DENIZ Victor 760-751-0596 4
★ 66 BUS 752 RES 152 NEW

S BROADWAY 92025 ESCONDIDO

WEALTH CODE 3.2

X W GRAND AVE
103 ★DOART 760-743-5273
113 ★NEW BARBER SHOP 760-432-0712 9
131 ★H JOHNSON FURNITURE 760-746-8844 +6
★JOHNSON H FURNITURE 760-746-8844 2
146 ★ASUNSION PAINTING 760-434-1905 +6
★ATLAS SALES 858-558-2400 4
★DALTON BOB 760-726-1000 3
★SOLID ROCK DESIGNS 760-788-2345 +6
★WESTRN HORIZONS CONTRUCTION CO 760-789-6978 +6

X E 2ND AVE

X W 2ND AVE
210 ★SCHAEFFER S DDS INC 760-747-4411
220 ★SKAY JACQUELINE M ATTORNEY 760-745-7576⊕ 8
★THE LAW OFC CLAIRE SHAUGHNESS 760-745-7867 3
225 ★ALHISER-COMER MORTUARY 760-745-2162

X W 3RD AVE

X E 3RD AVE
336 HAAS Ann 760-741-8693 4
HAAS Anne 760-294-8565 4
HAAS Anne 760-741-8020 4
342 ★BLANEY VERNON L DDS 760-745-4241

X E 4TH AVE

X W 4TH AVE
420 ★DRIVER ALLNT INS SV INC ESCND 760-740-2040 1
★ROBERT F DRIVER CO 760-740-2040 3
440 ★CHRISTIAN SCN CHRCHS&RDNG RMS 760-745-4040

X W 5TH AVE

X E 5TH AVE
504 ★ROTHERMEL CRAIG A CPA 760-747-0446 4
525 ● HAIRGROVE Eric OO 3
529 ● MAVALANKAR Anil OO 4
540 GALLEGOS Graciela E 760-233-9534 3
HERNANDEZ Victoria 760-737-7413 +6

X E 6TH AVE

X W 6TH AVE
622 XXXX OO
630 HILL Gina 760-796-4559 4
● MOYLE Jane OO 2
637 XXXX OO

X E 7TH AVE

X W 7TH AVE
705 ● DUNPHY James OO 8
FELKER Laura 760-839-0527 9
710 BREITENFELD C L 760-233-2794 2
721 ● LOPEZ Gabet OO 1
730 STURK Stephen 760-747-3465 9
● VECCHIONE Glen OO 0
735 ● LEE Phyllis OO 4
★RELIABLE LENDING 760-746-4290 +6
736 ● DELAFUENTE Bill 760-747-4614
745 ● OSBORNE Bob 760-746-2853

X W 8TH AVE
828 MOIR Douglas 760-741-1479
831 ● BROXHOLME Patricia OO 4

X KHAYYAM RD

X W 9TH AVE

X E 9TH AVE
902 ● TRAVIS Doreen OO 1

X W 10TH AVE

X E 10TH AVE
1002 ● BEAUGRAND Karen OO 0
1015 ● MOELLER Linda OO 4
1032 ● GIELCZYK Mary Louise 760-746-8443 9
1036 ● ESPARZA Elizabeth OO 0
1040 ● ANDERSON Jennie OO 8
1045 XXXX OO

X W 11TH AVE

X E 11TH AVE
1103 ● GONZALEZ Guillermo OO 0
1130 FUENTES Jose M 760-233-3831 +6
1160 ★ST MARYS CATH CH 760-745-1611
★ST VINCENT DE PAUL OF ESCONDO 760-480-0575 4

X E 13TH AVE

X W 13TH AVE
1303 ● TREVINO April OO 4
1309 ● RUIZ Valentina 760-735-5720 7
1311 SALDIVAR Raymundo 760-291-0458 +6
1323 ● RUIZ Gilberto OO 0
VERDAD Rosario 760-291-1338 +6
1337 ● ANGELES Alonso 760-747-4628 2
1342 ● AMBRIZ Salvador 760-294-2142 0
● AMBRIZ Salvador 760-432-0976 0
1349 ● KOLB Timothy OO 9
1353 ● FERRER Nicacio 760-746-0994

X E 14TH AVE
1405 ● MARTINEZ Palemon OO 0
1409 ● GONZALEZ Lilia 760-294-3518 0
1413 XXXX OO
1415 ADAMS Mildred 760-747-4610 +6
CORTEZ Melecia G 760-746-8912
1417 XXXX OO
1422 ● RUEDAS Victor 760-743-8159 4
1432 ● PALMER Manuela OO 8
1433 ● AMBRIZ Salvador Jr 760-294-2079 3
1436 ● PALMER Manuela OO 3
ROMERO Nellie R 760-480-0210 4
1440 ● ALEGRE Ramon P 760-741-6601
1441 ● MENDOZA Maria 760-739-1015 4

X E 15TH AVE

X W 15TH AVE

X E VERMONT AVE
1912 ● CHARLES Ramon OO 0
TANNY Valencia 760-233-5676 4
1915 XXXX OO
1917 SADDLER Alma 760-294-5852 4
1924 ● DUARTE Eduardo OO 2
FLORES Gelacio 760-741-0448 4
1925 ● PAARMAN Roger OO 0
1926 ● RODRIGUEZ Alfonso OO 1
1935 ● LINNER Nicholas OO 0
1936 XXXX OO
1939 KENNEY Steven M 760-741-1662
● LINNER Nicholas OO 0
1941 BELL William C Jr 760-294-8425 +6
CONTRERAS Gilberto 760-737-0734 4
1942 XXXX OO
1944 DIAZ Lorena 760-739-9395 +6
★ 21 BUS 70 RES 12 NEW

BROADWAY PL 92025 ESCONDIDO

WEALTH CODE 3

X W 13TH AVE
1311 ● ESQUIVEL Salvador OO 0
1324 ★PAGE BOY CLEANERS 760-745-1939 +6
1327 ● JUAREZ Mary 760-746-8712
1328 ● LOOP John OO 3
1330 ● LEMPENAU Michael OO 8
1335 ● LEGG Michael OO 8
1341 BANDA Mary C 760-745-2119
1349 ● CARMICHAEL Patrick OO 8
1350 ● WILLIAMS Alan OO 0
1405 ● WARNER Richard OO 8
1408 ● GARCIA Israel OO 4
1411 ● ADAMS Tammy OO 0
1416 ● LOPEZ Leonardo 760-741-6938 1
1421 ● GARCIA Jorge OO +6
JAIME E 760-739-9301 2
1424 ● ADON Maria OO 4
HERNANDEZ Rafael 760-294-5810 4
1429 ● TURK Betty Lou 760-745-0129
1432 ● LUCE Shirley OO 3
1440 ● HAWK Brandon OO 8

X W 15TH AVE
★ 1 BUS 19 RES 2 NEW

BRODEA LN 92028 FALLBROOK

WEALTH CODE 6

X SAGE RD
4326 ● MOTT Steven OO 3
4412 ● RAMSEY James OO 4
4417 ● DRONENBURG Ernest OO 4
★ 0 BUS 3 RES 0 NEW

BRODIAEA WAY 92037 LA JOLLA

WEALTH CODE 9

X ROMERO DR
7318 XXXX OO
7319 ELDER M H 858-459-4591 1
7330 XXXX OO
7331 o OWENS Robert K 858-454-1266
7344 XXXX OO
7350 ● HEGEMIER Gilbert OO 7
7351 POOLE Michael 858-454-7032

X ENCELIA DR
★ 0 BUS 7 RES 0 NEW

BRODRICK ST 92054 OCEANSIDE

WEALTH CODE 1

X BLOOM ST
100 XXXX OO
102 RHODA Roland 760-430-8247 0
110 MCINTYRE Carl J 760-430-2270 4
111 XXXX OO
112 ARIAS Eduardo 760-430-4143 +6
114 GRAVES Jimmy 760-430-2507 +6
116 XXXX OO
118 XXXX OO
120 GALINDO Delma 760-430-0755 4
122 BLYZNUIK Nicole 760-430-7255 +6
124 HUBLE Amanda 760-430-7960 +6
128 XXXX OO
129 BAIRD Nicole 760-430-8499 3
130 XXXX OO
131 XXXX OO
132 XXXX OO
133 WILLIAMSON-THO Kandis D 760-430-5042 4
134 DUNCAN Alan 760-430-0988 4
143 KNIPPER William 760-430-0481 4
144 CLINGAN James 760-430-5004 +6
145 JONES Roshon L 760-430-4347 4
★ 0 BUS 21 RES 5 NEW

BROGUE CT 92081 VISTA

X DUNDEE WAY
1505 HENRY Corinne 760-598-9856 4
● THOMAS Michael OO 2
1506 ● LOPEZ Vicente OO 3
1509 ● FRECHETTE Tony OO 8
★ 0 BUS 4 RES 0 NEW

BROKEN ARROW LN (97) 92028 FALLBROOK

WEALTH CODE 6

1402 LANDENBERGER Michael 760-731-9101 4
1405 ● NAERBO Ove OO 0
1406 o JAVIER Nancy 760-728-2813 7
1414 ● MARTINEZ Miguel OO 0
1440 SCIUMBATO Pietro 760-723-9830 4
1470 ● BRANDT Melvin OO 0

X S STAGE COACH LN
★ 0 BUS 6 RES 0 NEW

BROKEN ARROW RD 92004 BORREGO SPRINGS

WEALTH CODE 1

X BARREL DR
3007 ● ANDERSON James OO 0
3060 ● NICHOLS Dennis 760-767-5672 4

X RIATA DR
3068 ● DAVIS Patrick 760-767-4218 3
3071 ● TOWNSEND Homer OO 0
3076 ● THERIAULT Robert 760-767-3312
3086 ● DAVIS Greg OO +6
3095 ● RODRIGUEZ Adolfo 760-767-4360 3

X TILTING T DR
3120 ● ROLLINS George OO 0
3141 ● NOURSE Benjamin 760-767-9906 3
3150 ● KEELEY Helen Putman 760-767-3155 8
3166 VANSICKLE Lisa 760-767-0377 4
VANSICKLE Mike 760-767-0377 4
3175 ● LARSON Lucy 760-767-0965 0

X BABY TURTLE DR
3178 ● MOUTON Ramon 760-767-4390 7
3205 MOORAD Bruce 760-767-5250 2
3211 ● ENGELKE James OO 3
3245 ● BOGARDT Richard OO 0
3250 ● VOSS Michael OO +6
3261 ● BENNETT Charles L 760-767-4761 2
3266 ● BOYSEN Bernadine OO 3
3275 DAY-WHITE Ann 760-767-1125 4
3292 o DECKER Phillip A 760-767-3205 7

X BAR O DR
3334 PHILLIPS Robert L 760-767-3334 4
3355 ● ASCHE Adam OO 4
3361 MILLER Saul L 760-767-5496 2
3363 ● MILLER Saul OO 3
3386 SPACEK Jacquelyn J 760-767-4913 4

X SLASH M RD
3423 ● LINDEMANN James 760-767-4270 4
3424 ● MCCAGUE Kelly M 760-767-3048 3
3441 ● KNAAK Manfred OO 0
3457 ● BERGER Richard 760-767-4762
3477 BEAVER Wm 760-767-3847
● CRAMPTON Gail OO +6

X WAGON RD
★ 0 BUS 33 RES 3 NEW

BROKEN BOW CT 92127 SAN DIEGO

WEALTH CODE 9

X RANCHO BERNARDO RD
17002 ● ROHLING Jeff 858-618-1951 0
● ROHLING Jeff J 858-485-5508 0
17010 o MUELLER Glen 858-485-8810 2
o MUELLER Loretta 858-485-8810 2
17011 PERKINSON Nancy 858-487-4446 +6
17023 ● SONG Lawrence OO 2
17035 ● SCOTT Wm H 858-487-3668 0
17040 o MCCANN Hal 858-451-6981 4
17050 ● CAVANAUGH John OO ⊕ 4
17059 ● WALKER Charles OO 3
17071 ● PETROV Chris 858-487-4509 1
17080 ● GEHA Nabih OO 2
17083 ● WATTS Brian OO 3
17090 ● VORA Rohak 858-676-1150 9
17095 ● DSOUZA Henry OO 4
★ 0 BUS 15 RES 1 NEW

BROKEN CINCH TRL 92036 JULIAN

WEALTH CODE 1

X GREAT SANDY TRL
7507 ELLIS Dorothy 760-765-3765 3
7521 ● STORMONT William 760-765-1950 0
7543 ● WALKER Charles Lynn 760-765-2738 9
7555 ● MCKINNON Grub 760-765-1869 2
● MCKINNON Grub 760-765-3194 2

X LUCKY DEVIL TRL
★ 0 BUS 5 RES 0 NEW

BROKEN HITCH RD 92056 OCEANSIDE

WEALTH CODE 4.3

X TEMPLE HEIGHTS DR
1328 ● SMITH Robert OO 0
1336 ● RODRIGUEZ Frank OO 3
1339 ● HOVELN Marie 760-945-8477 0
1340 ● ROSS Richard OO 4
1344 XXXX OO
1347 ● IBARRA Martin OO 8
1348 ● SCHEUERLEIN Renee 760-940-9336
1352 ● CAIN James OO 8
1355 ● KLINE Lawrence 760-945-6707 8
1356 XXXX OO
1360 HOPKINS Scott D 760-631-7049 7
● KARR Andrew OO 0
1361 ● SENKOW Michel OO 0
1364 ● ADAMS Daniel OO 2
1368 ● MINO Michael OO 0
1369 ● WILLIAMS Patrick 760-295-4747 3
1375 ● PETERSEN Thomas OO 0
1376 XXXX OO
1380 ● KRATZER Marc OO 4
1383 MCCORKLE Dorothy A 760-726-2429 +6
● PINK Robert OO 4
1384 ● LAUE John OO 0
1388 WILSON D E 760-758-8042
1391 GRAHAM Lloyd H 760-758-5667
1392 ● GOVONI Edward OO 4
1396 ● SHECKELLS Richard OO 4
1397 ● CONSEDINE William OO 4
1406 ● FERNANDEZ Felix OO 3
1410 ● MONTOYA Salvador OO 8
1414 ● KENNEDY Zachary OO 4
1418 ● GARCIA Ignacio OO 4
1422 ● BEENE David OO 8
1426 ● TELLES Miguel OO 0
1430 ● DION Mitchell OO 0
NELSON Micheal 760-806-9885 4

X BRIAR RIDGE RD
1434 ● PENDLETON Gregory OO 1
1438 ● LADDERBUSH Douglas OO 9
1442 ● OCKERT Al OO 0
1446 ● DOMBROSKE Allen 760-630-4774 2

X CEDAR RIDGE PL
1454 ● ROLDAN Fernando 760-630-8658
● ROLDAN Fernando 760-806-6549
1458 ● KING Dean OO 8
1462 RIVERA Sara 760-643-6010 +6
RIVERA Sara 760-643-6011 +6

X WINDFALL TER
1466 NEWHOUSE Leticia 760-630-6362
● STEVENS Thomas OO 4
1470 ● NOUR Fred OO 0
1478 ● KRATZER Craig OO 0

X MOUNTAIN MEADOW DR
1486 ● EVANS Anna OO 2
1490 ● SEMPLE Margot OO 0
1491 ● LEWIS David J 760-758-3597
1494 ● RUSNAK Robert OO +6
1495 ● LETARTE Diane OO ⊕ 4
1498 ● GOLDSCHMIDT Catherine OO 0

X HAVENWOOD DR
★ 0 BUS 54 RES 4 NEW

BROKEN OAK LN 92036 JULIAN

WEALTH CODE 5

X ENGINEERS RD
34355 ● RUZICH Christian OO 4
34385 ● RUZICH Thomas J 760-765-1210
★ 0 BUS 2 RES 0 NEW

BROKEN ROCK RD 92078 SAN MARCOS

X S RANCHO SANTA FE R
1706 ● MOSQUEDA Guadalupe OO 4

X BLUESAGE DR
1726 ● TERRIQUEZ Lori 760-727-5918
1734 ● FREEMAN Bob 760-598-5966 2
1742 XXXX OO
1750 ● GOAN Joan OO 4

X LAKE RIDGE DR
★ 0 BUS 5 RES 0 NEW

BROME CT 92011 CARLSBAD

X ALDOPHIA DR
1610 ● HALE Thomas 760-438-9169 7
1611 XXXX OO
1612 ● SANDILLO Anne OO 0
1613 ● HENRY Molly OO 4
★ 0 BUS 4 RES 0 NEW

BROME WAY 92129 SAN DIEGO

WEALTH CODE 7

X VERVAIN ST
12905 JEON Y 858-484-9234
● ROACH Jay OO 3
12918 ● PARKER Barry OO ⊕ 0
12919 ● COBARRUBIA Mark OO ⊕ 4
12928 ● THOMASON Frankie OO 8
12929 ● DAVIS Gary OO ⊕ 2
12938 ● SUHAIL Saad OO +6
12939 ● MARES Marco 858-538-0120 +6

X PIPILO ST
12952 ● YUAN Jason 858-780-2719 4
12960 ● GESHAN Leonard OO 0
12961 ● SPINELLI Thomas OO 8
12966 CHEN Elly 858-780-8887 4
● TOAN Van OO 4
12967 ● STEINMAN Lai OO 0
12972 ● BLACK Erik OO 4
12973 ● TRAN Vance OO 4
12978 RAVENSCROFT Angela 858-538-4923 4
● WANG Ming OO 0
12979 ● CRUZ Gerry OO 9
LAGASCA Rene 858-538-5628 4
12984 ● HO Khiet 858-780-0943 4
12985 ● VARGAS A OO 1
12989 ● FARROKHI Farrokh OO 9
12990 ● AGPAOA Aurelio R 858-538-1578
12993 ● EISENMANN Charles OO +6
12996 ● MCGOWAN James OO 3
12997 ● SAMIA Hermenegildo OO 0
★ 0 BUS 27 RES 3 NEW

BROMEGRASS CT 92064 POWAY

WEALTH CODE 9

15835 ● THEAD William OO 8

X DEERGRASS CT
15864 ● FASSBENDER Charles OO 0
15895 ● HOMES Randolph OO +6

X LAKE POWAY RD
★ 0 BUS 3 RES 1 NEW

BROMFIELD AVE 92122 SAN DIEGO

WEALTH CODE 8

X COZZENS ST
4302 GRITZNER Michael L 858-452-8058
4303 ● DUBIN Dan 858-453-9259
4310 ● HAYNES-PITTS Hiram OO 4
4313 o COWELL Randall W 858-622-9662 9
4318 ANDREWS Jocelyn 858-457-3612
NAKANO Al 858-625-9065 4
4321 ● LAZERSON C 858-558-8850 3
4326 o INMAN Scott 858-455-5206 8
4329 ● LANG Heidi OO 4
4334 FULCHER Ann 858-452-2623 4
FULCHER Mark 858-452-8531 4
4337 ● COULSON Robert OO 9
4342 ★GALVAN MAI G DO 858-455-6885 4
4345 GOUFFRANT Cecile 858-450-0540 8
NAGY Alexander 858-458-0854 9
4350 ● TIEDEMANN E G 858-453-6770
4353 XXXX OO
4358 VIKANDER Earl E 858-453-4289
4361 BRUNO Anthony 858-453-0711
4366 ADAMS John H 858-453-0729
4369 VANLEER Ann 858-452-7497 4
VANLEER Ann 858-452-7419 4
● WILKINSON James OO +6

X DIRAC ST
★ 1 BUS 22 RES 1 NEW

⊕=DO NOT MAIL

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ROBIN HILL LN 2006

3269 ● SESSANO Andre OO 1
3271 XXXX OO
★ 0 BUS 43 RES 5 NEW

ROBERTO RIO RD
92064 POWAY

WEALTH CODE 9

X TWIN PEAKS RD
14601 ● HARKOUS Ali OO 4
14602 ● BAKER Bryce 858-486-4184 8
14607 ● HORNE Darrel 858-679- 1310e 4
14610 ● STEINELL Michael OO 4

X RIO CT
14618 ● COBB Steven OO 9

X SEGUNDO CT
14621 ● NEILSON Archie OO 2
14625 ● HUTCHINGS Jeffery OO 1
RICHARDS Lisa 858-486- 2241 1
14627 ● ADAMEK Wayne 858-679- 7725
14634 ● RAY James OO 8
14642 ● WALKER Thomas OO 3
14704 ● MASUR Daniels 858-748- 5662
14712 ● HUNT G Wayne 858-748- 0452
14720 ● ODONNELL Maureen OO 4
14726 ● SNOWBERGER Arnold 3D 858-748- 4818
14739 ● FORSYTHE John OO 0

X LOS NIETOS AVE
14744 XXXX OO
14760 ● MAY Bruce 858-679- 1379
14768 ● WOERNER Warren C 858-748- 4348

X EL DOLORA WAY
★ 0 BUS 19 RES 0 NEW

ROBERTO WAY 92064
POWAY

WEALTH CODE 8

X POMERADO RD
12602 NOBLE Chester Jr 858-748- 1742

X AMSO ST
12610 ● KRAFTON Robert OO 4
12618 ● CHARP Kenneth OO 4
12626 ● HEBERT W A 858-486- 1278e
12634 ● HEATH Shaun OO 8
12642 ● MADRID-DUMO Maria 858-679- 8374 0

X HESTA ST
12650 ● DELEON Rose M 858-748- 1290
12658 ● DOMINGUEZ Alejandro 858-679- 8525 3
12674 ● RUDGERS David 858-748- 0733

X JENELL ST
12704 ● SONNER Patrick OO +6
12712 ● CHIEM Klen OO 4
12720 ● ALLEN Marc OO 0

X LUIS ST
12728 ● GARCIA Clifford 858-486- 3198
12731 ● MALHI Nadeem OO 4
12739 ● REYES Divino OO 0
12739 ● EVANS William OO 0
12744 ● POST Howard OO 4
12747 ● BAYNE Shari OO 2
12752 ● GUTIERREZ Hector OO 3
12757 ● BISAILLON John OO +6
12758 ● BISAILLON John OO 4
★ 0 BUS 21 RES 2 NEW

ROBERTS PL 92029
ESCONDIDO

WEALTH CODE 7

X HAMILTON LN
2064 ● CLARKE James OO 0
2065 ● DAILEY J 760-486- 6949 9
2074 ● STARK Mark OO 4
2075 ● THOMAS Anthony OO ⊕ 9
2084 ● BLACK David 760-743- 9956
2085 ● STALKER Gary OO 4
2094 ● OLOUGHLIN Thomas OO 9
O'LOUGHLIN Tom 760-747- 1066 +6
O'LOUGHLIN Tom 760-747- 1157 +6
2095 ● ECKEY Peter W 760-747- 5883 3
WELCH-ECKEY Catherine 760-747- 5883 +6
2099 XXXX OO
★ 0 BUS 12 RES 3 NEW

ROBERTSON DR 92025
ESCONDIDO

WEALTH CODE 3

X CHESTNUT ST
1055 ACUNA Teresa 760-839- 5689 +6
● OLEA Joel OO +6
1056 XXXX OO
1069 ● MILLER Thos Flynn 760-745- 5097
1061 AGUILAR Virginia 760-884- 0568 +6
● LOPEZ Maria OO 0
RAMIREZ Jorge 760-291- 1287 +6
1082 ● THOMSEN Alton OO 4
1064 ● HOANG Mary OO 3
1066 ● HARTVIGSEN James OO 0
1067 ● VALENTA Patrick OO 1
1068 ● STEUDTEL Wolfgang OO 9
1070 XXXX OO

X DEANA PL
1073 ● SMITH Daryl OO 1
1074 ● STANTON Alexander 760-489- 1490 4

X JARED PL
1078 ● POWERS Michael OO 0
1079 ● MACK Kevin OO 3
1080 SELSER C M 760-745- 9767
1081 ● COLE Franklin B 3D 760-745- 3145
1082 XXXX OO
1084 ● HEAPS Kevin 760-294- 1472 3
1085 HOFFMANN Erich 760-747- 2585
1086 MEDINA Raymundo 760-233- 3945 +6
● PEREZ-MEDINA Raymundo OO +6
1090 ● PERDUE Ronald OO 0
1092 RODRIGUEZ Rene 760-735- 2513 4
● WHALEY Christopher OO 4
1120 ● BIRCHALL Jefferson OO 1
1124 HERRMAN Nan 760-747- 6085 9
● WILLINGHAM Albert OO 4
1132 ● OCONNOR Evan OO 4
★ 0 BUS 31 RES 6 NEW

ROBERTSON ST 92065
RAMONA

WEALTH CODE 3

X PALA ST
1915 HILL Edna 760-789- 1784 4
1916 ● CRANDALL Thomas A Jr 760-757- 0536 4
1927 ● THELIN Joseph OO 4
1939 ● VALDEZ Moses OO 4
1946 GARCIA Isaac 760-789- 1552

X N LETTON ST

X LETTON ST
2031 ● MORTON Deborah M 760-789- 2144e 1
2039 ● RADZIK James OO 9
2045 ● TROIANO Vincent OO 0
2056 ● GARCIA Sue 760-788- 4554 9

X JULIAN ST
2106 ● EMINHIZER Russell 760-788- 0843
2111 ● AUST Donald OO 8
2132 ● PURECO Pedro OO 3
2135 ● GREER Robert L 760-788- 8073 4
2148 ● JAQUEZ Raul OO 3
2152 ● BARBER Peter OO 1

X N HUNTER ST

X TOUB ST
2242 ● VUE Ke 760-787- 5794 8
2245 ● PEARSON Matthew OO 4
2255 ● FIERRO Ernesto OO 1

X ROTANZI ST
2303 ● PARRISH Shawn OO 4
2325 ● RABON Joseph OO 1

X KALBAUGH ST

X S KALBAUGH ST
2417 ● GILLMORE Jason 760-788- 0469 4
2425 ● CHEATWOOD Randal OO 8
2431 ● MOBERG Alan 760-788- 8940 8

X WYNOLA ST
2511 ● AVEN Samuel OO +6
2522 ● WOOTEN Oscar 760-788- 7263 3
2525 ● MUSILLO Emanuel OO 0
★ SECURE CONCRETE PUMPING 760-789- 5993 4
2529 BOHN Jim 760-787- 9531 3
● STENNES Judy 760-789- 4799 2
2532 ● WAKEFIELD Kathy 760-788- 2087 2
● WAKEFIELD Robert 760-787- 0463 2
2542 ● SCHENCK Henry 760-789- 5543 7

X HOPE ST
2608 BRUGH David 760-789- 6339 4
● LINZIEY Carol OO 4
2616 STARK Peggy 760-789- 5660
2630 ● KEYSER Robin 760-789- 7484 0
2636 ● KEPHART David OO 9
2647 ● RODGERS Robert 760-788- 9345 3

X DURGIN ST
2706 ● COLER James OO 4
2707 HOUSEWORTH Ronald 760-440- 9700 4
● YOST Allison 760-789- 1551 3
2728 ● TERRY Joseph P 760-788- 2030
2761 BORMAN Denise 760-789- 0812 1
● CLERICO Robert OO 0
2762 ● OVEROSS Gary M 760-789- 7582 1

X SAWDAY ST
★ 1 BUS 44 RES 1 NEW

ROBIN CT 92078
SAN MARCOS

X QUAIL HILL DR
976 XXXX OO
978 ● DELEONE Charles OO 3
980 ● PHILLIPS Darryl L 760-744- 9782
981 ● SNYDER-GARCIA Stephanie OO 0
984 ● DEISO Michael OO 9
985 ● ROCHA Jose OO 4
SANTACRUZ Adriana 760-744- 7260 +6
986 ● TAYLOR Shawn 760-510- 8459 4
988 ● PAULSON Joel OO 1
989 ● JIMENEZ Jay 760-744- 1694 +6
990 ● GOMEZ Roger 760-752- 7052 4
995 ● BRAY Wayne OO 0
★ 0 BUS 12 RES 2 NEW

ROBIN HILL DR 92069
SAN MARCOS

WEALTH CODE 7

X ELM TREE LN
1020 ● GRAUL Anthony P 760-591- 0837 2
1026 CASTRO Jim 760-471- 2862
1030 ● GOLDEN Daniel OO 4
1036 ● SHAW Eric OO +6
1040 ● MARTIN Richard OO 4
1045 ● GRIGGS Steven OO 9
1055 ● RAGAN Michael E 760-744- 7549
● RAGAN Michael E 760-781- 3673
1060 PALHEGYI Sandor 760-744- 5049
1065 ● SCHNEIDER Lee OO 0
1075 PRIEST D R 760-744- 1419
★ 0 BUS 11 RES 1 NEW

ROBIN HILL LN 92026
ESCONDIDO

WEALTH CODE 4

X CENTRE CITY PKY
401 ● MURRAY Carl B 760- 480- 9009 2
402 ● WOODS Gayle OO 0
410 ● KRULEVICH George OO 0
414 ● PONCE Rogelio SOLER Lourdes 760-738- 4911 +6
430 OOLEY Robt 760-745- 2326
444 ● RIVERA Henry OO 1
461 ● DELETTO Daniel N 760-480- 7854
467 ● MACDONALD Richard OO 0
471 ● ANDERBERG Janine OO 8
473 ● MARRON Fidel RODRIGUEZ Anna 760-489- 8263 4
484 ● MARENTETTE Brent OO 0
507 ● SCHRYVER P 760-746- 9433 0
508 ● ANDREWS Charles OO 8
512 ● CHILDS Jas 760-746- 5782
516 ● CAMPO M R 760-741- 9467 3
518 ● PFEIFFER Dorothy 760-746- 2038
520 ● QUINN Jason OO 4
538 ● HERNANDEZ Ismael OO 0
LOPEZ Dora 760-737- 9155 4

545 ● MORAN Edward OO 3
574 ● TAVAREZ Hector OO 2
576 ● BARBANI Jeffrey OO 3
578 ● BELCASTRO Dan 760-432- 9432 7
580 ● GOFORTH Clayton OO 0
★ 0 BUS 26 RES 1 NEW

ROBIN LN 92057
OCEANSIDE

WEALTH CODE 1

X PHEASANT LN

X KILLDEER LN
280 OPPENBORN Lorna M 760-721- 8038 4
281 XXXX OO
282 XXXX OO
286 ● PETTI Melvin OO ⊕ 9
287 NELSON Beatrice H 760-722- 4781 2
288 XXXX OO
289 XXXX OO
290 PICKENS Stanley 760-433- 8467 4
291 WILLIAMS Donald R 760-721- 5324e 3
293 XXXX OO
294 BECK George 760-754- 9058 3
★ 0 BUS 11 RES 0 NEW

ROBIN PL 92011
CARLSBAD

X TANAGER DR
1681 ● LENT Erika 760-431- 9560 4
1684 ● NORRIS Sabra OO 2
1685 ● NOE Roger OO 0
1688 ● FIMBRES Charles OO 0
1689 ● HUNGERFORD G John 760-918- 9595 0
● HUNGERFORD John 760-929- 9240 0
1693 ● FATUZZO Rich 760-929- 0239 8
● FATUZZO Rich 760-931- 0534 8
1695 XXXX OO
1697 DIAZ David 760-438- 0070 8
● ZIEBA Cecilia OO 4
★ 0 BUS 11 RES 0 NEW

ROBIN PL 92084 VISTA

WEALTH CODE 7

X MONTE VISTA DR
1111 ● ANDERSEN Nathan B 760-727- 7753 9
1114 XXXX OO
1124 ● BENING Mary OO 0
1125 ● OCONNOR Chance OO 4
1134 XXXX OO
1135 JOYCE Brian Patrick 760-727- 8170
● RIGGS Diane OO 0
1144 ● HOGAN David OO 1
1145 ● TAYLOR Bruce OO +6
1152 ● POLLOCK Lauren OO 1
1153 ● TURNER Nancy OO 4
1161 KROWL Geo L 760-727- 1512
1162 ● HERMAN E J 760-727- 0664
1172 ● GARRAHY Sean OO 0
★ 0 BUS 14 RES 1 NEW

ROBINEA DR 92011
CARLSBAD

X PLUM TREE RD
6550 ● HATT David OO 4
6554 FAGENSTROM J 760-603- 9675 0
FAGENSTROM P 760-603- 9675 0
● JOHNSON Joanne OO 4
6555 ● PLASCH Mark E 760-431- 5389 4
● PLASCH Mark E 760-431- 5525 4
6558 ● STERN K 760-438- 4475 4
● STERN S 760-438- 4475 4
6559 ● HAYWARD James J 760-804- 9071 0
6562 ● AMBERLAIN Hollie OO 3
6563 ● BEAUCHAMP Robert OO 4
6566 ● LEWIS Robert OO 2
6567 XXXX OO
6570 ● LARRY Ronald 760-918- 6866 0
6571 ● GRIMM Randall D 760-918- 0257 0
● GRIMM Randall D 760-918- 0280 0
6574 JIANG Yun 760-431- 2962 4
● LI Changqing OO 3
6575 ● FENYO Robert OO 3
6576 XXXX OO
6579 ● MCNET Philippe 760-431- 8820e 9
6582 ● RUNNER Jeffrey OO 2
6583 ● WEAST Robert 760-804- 9119 9
6586 ● LAWLOR Michael 760-476- 9516 4
6587 BOELDT Mike 760-431- 8102 0
● FOSTER Robert M 760-804- 9606 0
6590 ● ELLERY M 760-931- 6986 3
6591 ● DUREN Lars 760-804- 1897 0
● DUREN Lars 760-931- 9867 0

X BELLEFLOWER RD
★ 0 BUS 29 RES 0 NEW

ROBINHOOD LN 92037
LA JOLLA

WEALTH CODE 9

8680 ● HAVILAND Elizabeth 858-455- 0579
8685 ● WELLER Barry 858-450- 3121
8690 ● BOYAJIAN Seia OO 0
8695 XXXX OO
8706 ● GINSBURG Philip J 858-535- 1524 9
8707 ● JOHNSON Arthur 858-453- 1496 4
8727 ● LAIKEN Stuart OO 9
8728 ● COHEN Jeremy 858-546- 3898
8740 ● GOODMAN Dennis OO 9
8745 ● WRIGHT Brent H 858-453- 4224
8750 SULLIVAN D K 858-453- 1326
8761 XXXX OO
8762 ● SILLMAN Larry R 858-452- 0168

X GLENBROOK WAY
8804 UTSCHIG R H 858-453- 0148
8811 BRODIO Beverly 858-453- 6879
8814 BONHAM Frank L 858-453- 1324
8819 ESPINOZA Steven OO 2
8824 ● OBRASKY James OO 4
RUDIN Talia 858-587- 0997 8
RUDIN Talia 858-587- 0607 8
8827 FRANKEL Theodore 858-453- 2154
8832 XXXX OO
8835 ● WU Z S 858-452- 0545 9
8844 PERRIN Chas L 858-453- 1848
8845 ● BROWN Zella 858-453- 3050 4
8854 XXXX OO
8865 ● BENGSTON Joel 858-456- 9995
8875 ● MONSHIZADEH Niloo OO 2
8880 ● CUNDIFF Gary 858-636- 0493 4
8885 HULL Thos G 858-453- 0392
8890 ● BLAKE Julia OO 0

8895 LARSON Theodore J 858-453- 2693

X CLIFFRIDGE AVE
★ 0 BUS 32 RES 0 NEW

ROBINHOOD LN (04)
92084 VISTA

3722 XXXX OO
3777 ● HILL Gary OO 1
3811 TOWNSEND P T 760-727- 0447 4
3823 ● GUTCHO Lawrence ORTIZ Antonio 760-597- 0445 +6
STEWARD Chris 760-598- 2930 +6
3883 ● MCEWAN Mark OO 9
★ MCEWAN MARK C GRADING CONTR 760-727- 4692 4
★ 1 BUS 7 RES 2 NEW

ROBINHOOD RD 92084
VISTA

WEALTH CODE 3.3

1601 ● PELLETIER Nancy 760-598- 5104e 4
1605 ● CARPENTER Lisa 760-727- 7257 +6
1671 LOVEJOY P 760-727- 2999 9
● VOLLGRAFF Jim 760-727- 5800
1675 ● VOLLGRAFF Ted 760-727- 8002 9
★ VOLLGRAFF TED & ASSOCIATES 760-598- 9600 9
1730 ● WALKER Scott OO 1
1751 ● HAFFNER Heinz WEIBLE E 760-727- 3573 2
1759 ● CHASSANG Roland 760-734- 4871 4

X E ST
1844 ● BARROWS Elliot 760-632- 7758 1
● BARROWS Elliot 760-597- 0698 1
★ SOUTHRN CA COML RFNG 760-632- 9958 +6
1851 XXXX OO
1919 ● ARMAS Tony OO 0
1925 XXXX OO
1947 MCKEOWN Jas S 760-727- 0127
1951 ● GLEN Brian OO 3
1955 ● MEANS Gary 760-727- 4687 1
★ 2 BUS 17 RES 2 NEW

ROBINIA CT 92127
SAN DIEGO

WEALTH CODE 9

X MATINAL CIR
17776 ● MORRIS Megan 858-451- 1347 4
17777 ● BELCHER Michael OO 0
17786 ● DANGELO Thos J 858-451- 0263
17787 ● ELASHKIN Dinara 858-592- 1422 2
17796 ● SOKOLL Letitia OO 2
17797 ● OWEN Laurel 858-485- 9640 4
★ 0 BUS 6 RES 0 NEW

ROBINS NEST WAY
(03) 92127 SAN DIEGO

WEALTH CODE 9

16908 HAUCK Eric 858-451- 3395 +6
● IYER Ravi OO +6
● NGUYEN Minh OO 4
● TENTLER Irene OO 4
16916 ● ALEXANDER David OO 4
● HOLCOMB Monica OO 4
● ROOKS William OO 4
16926 ● MISSELER Rudolf OO +6
● PALELLA Toni OO
16936 ● BERTOCCHINI Joseph OO +6
● ROAQUIN Reggie 858-673- 0022 4
● SKALADA Benita OO 4
16939 ● DERVISHI Gezim 858-592- 2852 3
● DERVISHI Irini 858-592- 2852 3
SCHNEIDERWIND Tom 858-675- 9633 3
● VALENZUELA Barbara OO 4
16948 ● BARCLAY Ronda OO +6
● MOORTHY Praveen 858-613- 1047 4
● SIU Wai OO +6
16949 ● NELLOS Angelina OO 4
● PAPA Nora OO 4
16958 ● FEINSTEIN Bryan OO +6
● HOSKING K 858-487- 8481e 4
16959 ● BIRCHALL Adam L 858-487- 3634 3
● HA Katherine OO +6
● SHANMUGARAJU Raghuraj OO +6
16968 ● BODENDORF David OO 4
● BREWER Erica 858-521- 0882 +6
CAMPEN Kenneth S 858-673- 9779 +6
● PODKAZHURNIKOV Alex OO 2
16969 ● CHEN Lujiang OO 4
● DIXON Rachael 858-676- 3979e 4
● FRANCISCO Jim OO 4
16978 ● BRADLEY Dennis OO 4
● SHANNON Maria OO 4
● SUNDARAM Srikanth OO 4
16979 ● GAMEZ Zanel OO ⊕ 4
● MOBINI Darlush OO 4
● RAYE Jimmy 858-674- 4694 4
16988 ● CORBIN Linda OO 4
● KIM Dong OO 4
16989 ● RODGERS Sandra 858-481- 1994 3
● SCHULTE T J 858-395- 0607 4
● SNOW Mark OO +6
16998 ● AJJAMPURA Maithri 858-676- 6970 4
● HESTON Michael OO
● RAKOWSKI Daniel OO
● WILBUR Elizabeth OO
★ 0 BUS 48 RES 12 NEW

ROBINWOOD DR 92056
OCEANSIDE

WEALTH CODE 5

X RIO PLATA DR
904 ● WERNER Raymond B 760-724- 7393
908 ● SCURRY Herbert OO 0
912 ● JUAREZ Claudio OO +6
916 ● HOLLAND Matthew OO ⊕ 8
920 ● KNOTT Darrell OO 8

X ROSEWOOD DR

X MANDARIN DR
5203 ● DINWIDDIE Dale OO 0
5207 XXXX OO
5211 ● COSCA Richard OO +6
5212 ● LAROCCHIA Vito OO 0
5215 ● WILLIS Joseph R Jr 760-726- 9923

5216 ● ROBSON Richard OO 8

X HEATHERWOOD DR
5219 ● WILLIS Niko OO 0
5223 ● ROBERTSON Brian OO 2
5224 ● LUAN G OO 3
5227 ● TREVINO John OO 3
5228 XXXX OO
5231 ● MCREAKEN Darren OO 4
5232 ● TOMEO Todd OO 4
5235 ● SCHROPP Michael OO 0
5236 ● SU Tien Wei 760-630- 3890 8
5239 ● STONE Gordon OO 4
5240 ● MONTAND Allen OO 0
5241 ● CANEDO Richard OO 0
5243 ● JAMES Richard O 760-726- 7411e
5244 ● NEEDHAM Robert OO 8
5247 ● KOSLOSKI Frank 760-726- 9543
5249 ● KLIMEK John OO 8
5253 ● GARCIA Wally 760-940- 8381 3
5257 BODEMAN Paul T 760-724- 5724
5261 ● GAUGHRAN Bob 760-945- 7525e 8
5269 ● CARVER James R 760-726- 6758 0
5273 XXXX OO
5277 JAMES E 760-295- 9391 4
● ROBERTSON Edward OO 4
5281 ● GREENE Monica OO 4
5293 ● YORK Terry OO 0
5297 ● FRANCO Henry OO 0

X LARCHWOOD DR
★ 0 BUS 37 RES 2 NEW

ROBISON BLVD 92064
POWAY

WEALTH CODE 6

X POMERADO RD
12401 ● BOVE Kevin OO 4
12403 WILLIAMS John 858-748- 2494
12404 XXXX OO
12407 ● RADER D 858-748- 0892
12409 ● THOMPSON Mark OO 0
12410 ● PIGG William OO 4
12414 ● CRONIN Robert OO 3
12418 ● TOPOLOWSKI David D 858-748- 6053
12419 ● CIAVIRELLA Michael OO 4
12420 ● PARKS Zachary OO 1
12421 XXXX OO

X SCHALER DR
12426 NOHR Ralph 858-748- 2595 4

X FRAME CT
12429 ● ROMANO Louis 858-748- 5587
12433 XXXX OO
12437 DOHM Frank L 858-748- 1139
12440 ● ANDERSEN Everette O 858-486- 0254 9
12441 ● CARRERO N J 858-748- 3441
12444 ● KYDD Wayne OO 4
12445 ● KRAINOOK Jos L 858-748- 5962
12448 ● SCOTT Ernesto OO 4
12449 ● HALL Tamara OO 4
12450 ● CARROLL Kurt OO 4
12451 ● LUNT Dale OO 4

X TOBIASSON RD
12508 ● LEVVA Jose OO 4
MARTINEZ Martha 858-842- 1942 +6
12514 XXXX OO

X RIDGEDALE DR
12520 ● MARSH Theresa 858-748- 7549 0
12526 ● NAMMO Salim OO 8
12532 ● JAMES Gerald N 858-679- 6857
12538 ● ROSCOE Kevin OO 4
12544 ● WRIGHT Maurice OO 0
12604 ● SANCHEZ Juan OO 0
12609 . . . . . APARTMENTS
107 ● ABURISHEH Shaleb OO 3
110 AGBISIT Oneida D 858-679- 9416 1
206 ATKINSON Sally 858-748- 1052 4
● BANANAL Julita OO 3
212 ● BRAMBILA Rigoberto OO 4
● BREWER Isabelle 858-748- 0896
207 ● BROWN Chris 858-679- 2988 3
● CASTELLI Terence 858-486- 3623e 4
204 ● COVEY Austin OO 3
● COX James OO 4
● DOMINGUEZ Genaro OO +6
106 ● JENKINS Catherine OO +6
● KOHL Catherine OO 1
111 ● LE Ba Xuan 858-486- 3649
● PARRA Candelario OO 3
● PEREZ Juana OO 4
208 RISHER B A 858-748- 5468 9
● SOLIS Teresa OO +6
205 ● TORRICELLI Julie OO 3
● TURNER Daniel OO 4
● URENA Donald OO +6
● ZAMORA James OO 3
12609 . . . . . .
12610 XXXX OO
12618 ● KELLY Pauline OO 8
12622 ● DOMINGO Wilfredo LAYUG Loving E 858-679- 0860 +6
● SILVEIRA Donna OO 4
● DELASIERRA Wenzel OO 4
12640 ● GUZMAN Manuel 858-679- 7646 8
12643 . . . . . APARTMENTS
● ALVERNAZ Maureen OO 3
ANGUIANO Sergio 858-513- 2637 4
219 ● BROWN Edward OO 3
221 ● DAGRACA Maria OO 3
● DONG Ge OO 3
114 ● EDMUNDSON Norma 858-486- 3176
214 ● GUTIERREZ Michael OO 4
116 ● LACK Leroy C 858-513- 9114 1
216 ● JULIAN Joselito OO 4
122 ● KANTALA Jeanne OO 4
● KEITHLEY Nancy OO 3
● KO Kun OO 4
● LEE Linda OO +6
118 ● MCCUTCHEON Elizabeth 858-486- 0792
119 ● RIVERA Raul 858-513- 9385 3
● SANCHEZ Carlos OO 4
● TILTON Barbara OO 4
● TORRES Ivonne OO ⊕ 4
115 ● XIBILLE Jesus 858-486- 1011 9
12645 . . . . . .
12646 ● HUMPHRIES John OO 8
12652 RIVERA Jose 858-486- 4398 +6
● TAN Teresita OO 4
12658 ● MADRID Camille OO 0

X SILVER LAKE DR
12706 ● KAWAMOTO Jay OO 0
12712 RESURRECION Soverly 858-679- 2198 4
● SOWERS Resurrecion 858-748- 2723 2
12718 ● GADDIS Adam OO +6
12719 . . . . . APARTMENTS
CEDILLO Carmen 858-391- 9160 +6
22 DURON James 858-748- 2687 +6
13 ESTRADA Beverly 858-391- 9290 +6
24 HAILEY Mike 858-842- 1170 5
MARTINEZ Maria 858-679- 7319 +6
8 PETERSON Kelly 858-679- 6778 3

SIEGFRIED William 858-748- 1698 +6
12718 . . . . . .
12724 ● MENDOZA Maria OO +6
12730 ● BORDER Richard OO 8
12736 ● SARMIENTO Phil 858-486- 7819 2
12742 ● VASIL John OO 9
12745 . . . . . APARTMENTS
BAUTISTA Denver 858-842- 1908 +6
ESPINOZA Laura 858-668- 3420 +6
18 GEE Alan 858-748- 5786 +6
19 GOPEZ Ener 858-391- 0436 +6
IBARRA Jorel 858-679- 9174 +6
5 ROJAS Mario 858-748- 3879 +6
12745 . . . . . .
12748 ● POULSON Paul OO 0
12754 ● WINGATE Grant OO 4

X CARRIAGE RD
★ 0 BUS 107 RES 21 NEW

ROBLE PL 92009
CARLSBAD

WEALTH CODE 8

X LA DUELA LN
7911 BLACKBURN K 760-942- 5966 2
BLACKBURN W 760-942- 5966 2
7913 ● KUTNER Adrienne OO 3
7914 ● EDWARDS Gregory OO 4
7915 HARRISON Given H 760-438- 0119
● HARRISON Given H 760-533- 1227
7916 ● SCHMALTZ Christopher OO 9
7917 ● MOSKO R J 760-932- 8677
7918 ● GIBSON Colin 760-933- 1750 4
7919 ● NIBECKER Paul OO 0
★ 0 BUS 10 RES 0 NEW

ROBLE WAY 92128
SAN DIEGO

WEALTH CODE 8

X ABRA DR
17020 ● SCHNORR Raymond OO 3
17040 ● EVANS Margaret OO 0
17045 ● MILNE Graham OO 4
STANISLAWSKI Wojtech 858-592- 1576 +6
17050 ● WOOD Craig OO 9
★ 0 BUS 5 RES 1 NEW

ROBLEDA CT 92128
SAN DIEGO

WEALTH CODE 9

X BERNARDO TRAILS DR
18607 ● OGRADY James OO 4
18608 MCLAUGHLIN M S 858-485- 7008
18638 ● DELEONARDIS Anthony 858-521- 0655 4

X ROBLEDA CV
18647 ● GORDON Dennis OO 8
18667 FRANKS William J 858-487- 6254 4
18687 ● DIAMOND David OO +6
18688 ● WHITE Christopher OO 4
★ 0 BUS 7 RES 1 NEW

ROBLEDA CV 92128
SAN DIEGO

WEALTH CODE 9

12945 XXXX OO
12961 GIMBEL A G 858-485- 7077
12976 ● STALL David OO 8

X ROBLEDA CT
★ 0 BUS 3 RES 0 NEW

ROBLES LN 92082
VALLEY CENTER

WEALTH CODE 7

29603 BISSO Diane 760-749- 3001 4
● SKULTETY Mark OO 4
29609 ● AGUIRRE Maria 760-751- 8940 1
29748 ● DONAHUE Vicki OO 4
29810 XXXX OO
29812 SOTO Daniel 760-749- 8457
29836 ● HAHN Jeffrey OO 9
29840 ● STEARNS Brenda 760-749- 6035
29860 ● LUCAL Richard OO 0
29890 XXXX OO

X LILAC RD
★ 0 BUS 10 RES 0 NEW

ROBLES VERDE RD
92082 VALLEY CENTER

WEALTH CODE 7

29601 ● SCHULTZ Arthur Col 760-749- 8763 8
29626 ● KRESSER Cheryl 760-751- 4116 0
29650 ● DAN'S PERFORMANCE PARTS 760-751- 0718 4
● EMERY Daniel OO 3
29651 LUNA Miguel 760-751- 9671 8
● ROCHA Arnulfo 760-749- 1716 8
● ROCHA Arnulfo 760-751- 9542 6
29696 ● KRESSER Hermann OO 1
29738 ● SENGSTACKE Jon C 760-751- 0464 1
★ 1 BUS 8 RES 0 NEW

ROBLEY PL 92007
CARDIFF BY THE SEA

WEALTH CODE 6

X DEBANN RD
905 XXXX OO
911 ● MORRIS Kalon OO 0
914 ● EDGE ENTERPRISES 760-632- 9195 1
● MCPHEE Doug 760-942- 8253
917 ● BOVE Aaron OO 4
923 ● CONNOLLY Mike 760-944- 0894

X EDILEE DR
929 ● MALMBERG Vilma 760-634- 1907 4
935 ● CEROOS Theodore OO 0
941 ● QUINN D 760-634- 1060
944 MONREAL Manuel 760-942- 1482

WOODBURY PL 2006

13842 XXXX OO
13843 XXXX OO
13944 XXXX OO
13945 XXXX OO
13946 PROBST Jim Jr 858-679-5780 4
13947 TEAGARDEN Harold 858-486-0137
13948 XXXX OO
13949 ○ GUEVARA Madelina M 858-486-9256 9
13951 BRENNICK J 858-486-9431 4

X VIOLET DR

★ 0 BUS 21 RES 0 NEW

WISTERIA DR (99)
92056 OCEANSIDE

WEALTH CODE 5

X CANNON RD

5102 ● BENHOUHOU Reda OO 4
5106 ● ROOS Richard O 760-631- 8095 ○ 0
5110 ● RYAN Kathleen OO ○+6
5114 ● LYNCH Robert OO 1
5115 ● FIGLEY Jerry 760-941- 2055 4
5118 JOHNSON Tim 760-295- 9559 4

X AMERICE CT

5119 XXXX OO
5122 ● RICHARDS F C 760-726- 4615 2
5123 ● BROWN Gerald OO 1
5126 GILBERTSON Sidney 760-724- 5131 4
5127 ● MAH Lian 760-216- 6386 4
5130 XXXX OO
5131 ● BRITTEN Graham OO 9
5134 BROWN K 760-940- 0087 4
5135 ● WILCK Helmut C 760-643- 0902 1
5138 ● SCHOFIELD Richard OO 9
5139 ○ KOBAYAKAWA Ken 760-414- 3954 9
5142 XXXX OO
5143 ● PETERSON Vanessa 760-758- 0997 0
5146 ● COOPER Lori OO ⊕ 4
5147 ● EHRHART William OO 0
5150 ● FORMAN David 760-631- 0803 9
5151 ○ SISSON Joe 760-414- 9049 9
5154 ● STONG David 760-945- 1061 9
5155 ○ DUSINI Janet 760-633- 5509 9
5158 ● NEWFIELD Michael OO 0
5159 ● WEST Robert OO 9
5163 ● GISEL George 760-414- 9483 9
● GISEL George 760-414- 1983 9
5167 ● CASSAPAKIS Constantine 760-724- 7494 4
5171 ● HINKLE Stephen OO 9
5175 ● AUGER George 760-414- 1777 9
5179 ● DELPERDANG Harold OO 9

X MERTENSIA ST

★ 0 BUS 33 RES 1 NEW

WISTERIA DR (97)
92078 SAN MARCOS

WEALTH CODE 7

X CREEKNETTLE RD

873 ● FISCHER Tyson OO 4
874 ● EVANGELISTA Melani OO 4
875 ● BEST Jeff 760-744- 2221 3
876 XXXX OO
877 ● STAPLES Mark OO 4
878 ● KOSAKA Michael OO 4
879 ● HUMANN Daniel OO 4

★ 0 BUS 7 RES 0 NEW

WISTERIA GLN 92026
ESCONDIDO

WEALTH CODE 5

1618 SHIVA Abeddin 760-745- 1277 4
1622 ○ TARLING Albert E 760-432- 9399 ⊕ 2
1626 XXXX OO
1630 XXXX OO
1634 HALL Louis 760-738- 7471 3
1638 GIBSON Robert 760-432- 9792 4
1642 DRAKE Clifford L 760-740- 1777 4
1650 JACKSON J D 760-745- 8581 8
WALTZ B A 760-745- 8581 8
1651 ★ HERMANN HAROLD W MD 760-735- 2498 0
1655 XXXX OO
1659 XXXX OO

★ 1 BUS 11 RES 0 NEW

WISTERIA WAY 92011
CARLSBAD

X DAISY AVE

7101 ● MCKEON David OO 0
7103 ● GORMAN Patrick 760-476- 9743 4
7105 ● MCGREGOR John OO ⊕ 6
7106 ● PETREY F OO 8
7107 EDELL Margaret 760-438- 4215
7109 DESAI Rushikesh V 760-438- 3675

X JASMINE CT

7202 XXXX OO
7203 ● HASHIM George OO 6
7204 ● YASUKOCHI Sakae OO ○+6
7205 ● WEIMER Harold H 760-438- 2249 4
7207 HABIB Thomas 760-931- 9332
7208 ● TURNER Carl OO 4
7209 ● GIBSON M 760-930- 0410
7210 ● ESCALLE Roger OO 4
7211 ● CASTNER James OO 0
MANOS Nancy 760-603- 8588 3
7212 BISSON Clarence R 760-438- 2623
7213 ● GEISBERT Lauren OO 4
7214 ZOMARAS Geo C 760-438- 8920
7215 CARPENTER Richard 760-438- 2366
7216 XXXX OO
7217 ● MOSES Dennis OO 0
7218 ● QUINCE Joseph OO 8
7220 ● EULITT Dave 760-918- 0667 2
7221 ● MASON Elbert OO 0
7223 ● SCHULTZ Mark W 760-431- 8550
7224 OAKES Raymond H 760-438- 2080
7225 ● SCOTT Edward 760-918- 6732 0
7227 HANLY Thomas F 760-438- 5462 +6

★ 0 BUS 29 RES 3 NEW

WITCH CREEK MOUNTAIN RD (99)
92065 RAMONA

WEALTH CODE 8

X SCENIC VIEW RD

27540 ★ BT CONTROLS 760-788- 8302 9

★ 1 BUS 0 RES 0 NEW

WITHAM RD 92024
ENCINITAS

WEALTH CODE 8

X ELMBRANCH DR

104 ● WIDGERY Martyn 760-436- 0613 4
115 SPIEGEL Wm H 760-753- 3696
120 ● FITZPATRICK Daniel OO 4
125 ● BOELMAN Menno OO 4
128 ● GRANT John OO 0
133 ● NICHOLS Kristin 760-943- 9701 ⊕ 2
136 ● WEINZIERL Mike 760-943- 1001 9
144 HOCKER John F 760-753- 7194
147 XXXX OO
152 ● OESTERLE Andrew 760-436- 3171 3
153 ● ZAVORA Rudolph OO 0
160 BEINER Robt J 760-436- 1160
161 ● KALWICK David J 760-632- 7950 1
169 SLEEPER Richard 760-753- 1715
169 HANSFORD Paul G 760-942- 1576
200 ● NUNEZ Susan 760-632- 8913 2
201 ● OHAGAN Michael OO 4
O'HAGAN Michael 760-753- 7623 7
208 ● FLAMMANG Dennis C 760-436- 8853 ⊕
209 ● ARTEAGA Tawnya 760-943- 8544 2
215 BYRD Virginia D 760-436- 3994
● CARDWELL Reed OO 2
216 ● MORRIS Ian 760-633- 1537 7
221 ★ FLYNN AMBER 760-479- 2357 2
● POLO John OO 4
222 ● PAVICH Bill 760-632- 1934 4
227 ● FISHER C J 760-753- 7817
● FISHER Lynn 760-753- 7817
228 XXXX OO
233 ● MIDDLETON Rick 760-944- 3922 4
234 ● HADDEN Terrance 760-436- 0786 4
240 DELMAESTRO Richard 760-632- 2525 5
● MCELDOWNEY George OO 4
246 ● KELLY Lois OO 8
252 ● HAGER Donald 760-944- 9941 3
255 ● WARD Viki OO 8

X CREST DR

★ 1 BUS 35 RES 0 NEW

WITT PL 92064 POWAY

WEALTH CODE 7

X FRAME RD

12444 ● MARSHALL Amanda OO 3
12445 HALLIN Helen 858-748- 3592
12450 ● JOHNSTON Carter OO 4
SLAGAL Mary 858-668- 2848 +6
12451 GIBSON Geo H J 858-748- 3846
12456 ● SESMA Danny OO ⊕ 0
12457 ● NAJERA Raymond OO 8
12463 JONES John H 858-748- 3845

★ 0 BUS 8 RES 1 NEW

WITT RD 92064 POWAY

WEALTH CODE 6

X CROSSROCK RD

12202 ● HAZARD Thomas OO 3
12208 ● RATH Scott OO 9
12209 ● SCHOON Robert OO 2
12214 ● BOBO Kelly OO 4
12215 ● OCONNOR Daniel OO 4
12220 ● MILOSCH Joseph OO 9
12221 ● SNOW Joan 858-748- 2059
12226 ● BRINKLEY David OO ⊕ 9
12227 XXXX OO
12232 CRONE Bobbi 858-748- 3742
12233 ● BARLOW J J 858-748- 7123
★ SUNRISE ENERGY FRDS 858-748- 1810
12238 ● OWENS James OO
12239 XXXX OO
12244 ● HILL Theodore OO 1
12245 ● KAPITZKE Peter 858-486- 9111
12250 ● FREMONT Michael OO 9
12251 ● FLECK Ann 858-883- 2250 4
● FLECK Aron 858-883- 2251 4
12306 ● SCOGGINS T L 858-486- 8302 ⊕ 8
12307 WINGATE Delores 858-748- 3366
12312 ★ CLARK MICHAEL 858-679- 4624 2
● CLARK Michael P 858-679- 4697 1
12317 ● SCHWARTZ Cary OO 3
12321 XXXX OO
12324 ● GAFFORD Wayne OO 3
NELSON Charles 858-679- 6515 4
12325 ● KRISSMAN Scott OO 4
12330 ROEHR Charles E 858-679- 7787
12331 NGAI Wellm 858-842- 2006 +6
● SWASEY James OO 0
12336 ● BRADLEY Thomas OO 8
12337 ● MILLER Kenneth OO 2

X HALPER RD

★ 2 BUS 31 RES 1 NEW

WIZARD WAY 92082
VALLEY CENTER

WEALTH CODE 6

X THE YELLOW BRICK RD

15026 XXXX OO
15030 XXXX OO
15034 MCFADDEN Sherry 760-749- 9937 4
15035 ● REILLY Kris 760-749- 2720
● REILLY Tom 760-749- 2720
15049 NELSON Mark 760-749- 0128 4
15056 ● LAURICHA Lance OO 0
15068 ● GERSHUFSKY Robert OO 4
15082 ● PASSARELLA Sherie OO 0
15084 XXXX OO
15094 BEASLEY Rosalind 760-749- 3534 9
● MURPHY Jeffrey 760-751- 0171 9

★ 0 BUS 12 RES 0 NEW

WOHLFORD ST 92056
OCEANSIDE

WEALTH CODE 5

X HOLLINS RD

5235 ● PAUL Columbus OO 0
5238 ● WRIGHT Brenda OO 8
5239 ● HALL Thomas 760-630- 3385 3
5243 XXXX OO
5246 ● REED Wally 760-945- 2951 +6
5247 ● EASTON Esther S 760-630- 3658 4
5250 ● HARVEY Barbara 760-945- 1185 8
● HARVEY Barbara 760-945- 9467 8
5251 ● VALERO Raul OO 8
5254 ● RUSSELL David 760-724- 0998 2
5262 ● RAYBURN David OO ○+6
ZOLD Layla 760-414- 1240 4
5266 ● WIDMARK Paul OO 4
5269 ● HITCHCOCK Timothy OO 0
5270 ● WIDMARK Paul OO ⊕ 8
5273 ● DUFFERT Hung OO 8
5274 ● BARTLESON Guy OO 9
5277 ● KENNEDY Michael OO 0
5278 ● URIBE Melissa OO 3
5281 ● SAES Samir OO 0
5282 ● RANDOLPH Allen OO ○+6
5286 ● SAVAGE Roger OO 1
5290 ● CROWELL Robert OO 0

★ 0 BUS 23 RES 3 NEW

WOLAHI RD 92036
JULIAN

WEALTH CODE 6

34335 XXXX OO
34337 XXXX OO
34349 ● ELMQUIST Ralph OO 0
34387 ● LEWIS William OO 4

★ 0 BUS 4 RES 0 NEW

WOLF POINT CT 92057
OCEANSIDE

WEALTH CODE 4

683 ● MUY Manida OO 2
694 XXXX OO
688 ● SPANGLER Allan OO 9
689 ● LAUBSCHER Leslie OO 4
692 ● PAYNE Roger OO 2
696 ● GALCZYNSKI James OO 8

X SILVER BLUFF DR

★ 0 BUS 6 RES 0 NEW

WOLFSTAR CT 92122
SAN DIEGO

WEALTH CODE 9

6105 ● JENSEN Thomas OO 0
6106 ● MAINS Wade OO 4
6111 XXXX OO
6117 AKRASCHLUTZ Rita 858-457- 1322 4
AKRA-SHULTZ Rita 858-452- 7510 4
● SCHULTZ Henriette OO 0
6122 ● OCLLARHOE Adrian OO 4
6126 ● YOUNGQUIST Robert OO 4
6129 ● MURRAY Bruce G 858-457- 7868
6135 ● GLENN Michelle OO ○+6
6136 ● SMALL Frank 858-558- 6589 0
6141 ● DRYDEN John OO 0
6146 ● ADAME Guillermo 858-622- 9978 2
6147 XXXX OO
6153 ● BERKE Jonathan OO 2
6156 ● MILLER Chuck 858-458- 1955
6161 ● SCHNEIDER Israel 858-455- 8456 0
6169 XXXX OO
6177 BUUM Miriam 858-457- 5645 4
● CASON William OO 0
6185 ○ COCHRANE Theodore Jr 858-458- 9998
6193 ● LJUNGQUIST Leif 858-538- 0503 2

X MAYNARD ST

★ 0 BUS 22 RES 1 NEW

WOLVERINE TER 92010
CARLSBAD

5444 ● MEGORDEN John OO 3
5445 ● NOVELLO Leo OO 3
5446 ● NRODMAND Mohammad OO 3
5452 ● HANSEN Carrie 760-930- 9154 3
5453 ● MAZZONE Richard 760-431- 0787 4
5456 XXXX OO
5457 ● ANTONEL Clay 760-602- 9658 3
5460 ● GRAVES Bryan Paige 760-602- 0498 3
5461 ● ZHANG Jian OO 3
5466 ● ALEXANDERSON Susan 760-930- 4036 4
5466 ● SILVERSTEIN Judy 760-603- 9992 2
5469 ● CHARAVEL Gerardo 760-431- 8817 3
5470 BILANGOZ Mitchell 760-603- 8722 4
● SILVERSTEIN Alan OO 4
5473 ● FLEMING Gregory OO 3
WAGONER Lisa D 760-438- 1027 4
5474 ● DO Viet OO ○+6
5476 ● HALLAS Donald OO ○+6
5482 ● KASKADE Jim OO 4
5486 SANCHEZ Meliza 760-603- 8426 4
● WHEATLEY Shannon OO ○+6
5490 ● KIM Debbie OO ⊕ 3

★ 0 BUS 22 RES 3 NEW

WOLVERINE WAY
92084 VISTA

WEALTH CODE 6

1743 ● POIRIER Michael OO 4
1747 ● FRAWLEY Bernadette OO 4
1751 ● FRONTERA Jeffery OO 1
1755 ● DORMAN Jeffrey OO 8
1759 ● MATHIAS Alan OO 1
1763 ● HESS Kenneth OO 8
1767 ● DIXON John OO ⊕ 4
1771 ● HURD Bruce OO 8
1775 ● ROSA Robert 760-940- 6390 ⊕ 2
1779 XXXX OO
1782 ● HARRIS Brady OO 1
1783 ● RUTLEDGE Brent 760-758- 5105
1786 ● LEPIRE Rick OO 8
1787 ● RITCH William OO 0
1791 ● STEVENSON Michael OO 4
1795 ● LUNA Robert OO 3

X BEVERLY DR

★ 0 BUS 16 RES 0 NEW

WOMACK LN 92028
FALLBROOK

WEALTH CODE 4

X OLD STAGE RD

312 ● JAMES Rex OO 0
324 ● CHAVARRIA Martin OO 8
333 ● SERRATO Jehova OO 8
336 ● PANIAGUA Gabriel 760-723- 0217
348 ● GUTIERREZ Hector OO 0
360 ● COVARRUBIAS Grasiano G 760-728- 5746
372 ELIAS Cabrera 760-728- 8347 4
● GONZALEZ Francisco 760-723- 8594 4
384 ● AGUIRRE Arturo OO ○+6
405 ● SANCHEZ Petra OO 8
409 ● VARELA Mauricio OO 8
415 ● VILLASENOR Daniel OO 4
419 BOJORQUEZ Hart W 760-728- 8674
427 ★ A & A GROVE SERVICE 760-728- 8752
● AVINA Jesus OO 4

X MANDARIN DR

517 ● MENDEZ Isidro OO 2
RAZO Isidro 760-723- 0396 +6
521 ● AVINA Jesus OO 1
523 LEVSTIK Everett 760-723- 3252 4
525 XXXX OO
537 ● CAMMELL Spencer OO 3
★ S & G SEPTIC SYSTEMS 760-728- 1744
538 ● CHESNEY Ron OO ○+6
542 ● WALKER Jon OO 4
545 ● PEREZ Humberto 760-723- 5922 0

★ 2 BUS 23 RES 3 NEW

WOMSI LN 92061
PAUMA VALLEY

WEALTH CODE 1

X WOMSI RD

15484 ● SMITH Lisa OO 4
15497 TAYLOR William D 760-742- 3883 4
15500 ● MONTALVO Suzanne 760-742- 1176 4

★ 0 BUS 3 RES 0 NEW

WOMSI RD 92061
PAUMA VALLEY

WEALTH CODE 1

108 MALOTT Ray 760-742- 1387 8
110 MOORE Paula Tte 760-742- 3532
112 ● FORKNER Ronald E 760-742- 0086 3
113 WILSON John H 760-742- 1823 8
137 ● WALLACE Donald 760-742- 3235
138 ● TAYLOR Gary OO 3
142 ● WASHBURN Catheryn OO 8
145 ● LUCAS Patrick OO 4
147 HARNEY David M 760-742- 3618
151 GLAVIANO Vince C 760-742- 4645
157 SHERMAN Finger 760-742- 3962
160 SHORTS Robt 760-742- 3579 4
162 HEGARDT Robert 760-742- 3091

X PAUMA VALLEY DR

X PAUMA HEIGHTS RD

32411 ● HANCOCK John OO 2
32416 ● RANES Doug 760-742- 0069 +6

X KICA CT

X WOMSI LN

32527 LOWE J G 760-742- 1105
32532 ● MCKINNEY Sarah OO 4
32543 ● BRAWNER James 760-742- 2489 4
32552 ● NOLAN Richard OO 4
32559 ● SHORTS Gary OO 0
32567 ● DEWITT Pamela OO 4

X TASPA CT

32602 JORDAN H James 760-742- 1111
32603 ● PETERSON Jeffrey OO 4
32621 ● JOYCE Michael OO +6
KRAINOCK Kathryn 760-742- 4492 +6
32626 TAYLOR Gary 760-742- 4412 4
32640 ● MCANDREWS Denise OO 4
32641 ● GLAVIANO Vincent OO 0
32651 ● WALDRON D D 760-742- 2354 4
32661 WATKINS Ronald 760-742- 1876 3

★ 0 BUS 30 RES 3 NEW

WONDERVIEW DR
92084 VISTA

WEALTH CODE 7

X ELEVADO RD

2007 ● GERARDO Arnold 760-758- 2863 9
● GERARDO Arnold 760-643- 1700 9
2021 MCAFEE Margie 760-726- 8764 4
MCAFEE Paul 760-726- 8764 4
2037 XXXX OO
2040 ● STORO James OO 4
2056 ● SHARP Richard OO 4

★ 0 BUS 7 RES 0 NEW

WONJU CIR 92054
OCEANSIDE

WEALTH CODE 1

X WONSAN DR

X CHOSIN CIR

100 STEPHENS Derick 760-385- 4812 +6
STEPHENS Kaoo 760-385- 4812 +6
101 XXXX OO
102 XXXX OO
103 VILLALOBOS Dulce 760-237- 6436 +6
104 KRISTI Parsons 760-385- 4514 4
105 XXXX OO
106 XXXX OO
107 DENENT Annie 760-585- 4302 +6
WRICK Samantha 760-237- 8756 +6
108 XXXX OO
109 PETERSEN Shanna 760-385- 5266 +6
110 XXXX OO
111 ABREU Carmen 760-385- 4697 +6
112 HOGAN Candice 760-237- 8819 +6
HORNSBY Terry 760-385- 4277 +6
113 VIEL Crusita 760-237- 6535 +6
114 XXXX OO
115 FOREMAN Jennifer 760-237- 8553 +6
116 BOATWRIGHT Tonya 760-237- 6349 +6
117 FERNANDEZ Jessica L 760-385- 5180 +6
119 BANKS V 760-385- 1944 4
126 SAMUELS Michael W 760-385- 5191 +6
209 JONES Justin 760-237- 6264 +6
211 XXXX OO
213 PENSON Charles 760-385- 1111 4
214 OLIVER Kristopher 760-385- 5004 +6
215 XXXX OO
216 XXXX OO
217 XXXX OO
218 HERRING Justin 760-237- 6340 4
219 TERRY April 760-237- 6890 +6
220 ARIAS S 760-385- 9764 +6
221 BROOKS Tamara 760-385- 5234 +6
222 XXXX OO
223 XXXX OO
225 POHL Hope 760-237- 6499 +6

★ 0 BUS 37 RES 20 NEW

WONSAN DR 92054
OCEANSIDE

WEALTH CODE 1

100 ★ HUNT BUILDING CO 760-385- 4535 4

X MARINE DR

X INCHON DR

101 TURNER Christina 760-385- 9605 +6
102 XXXX OO
103 OLSON Matthew 760-237- 6606 4
104 WILLIAMS Iris 760-385- 9535 +6
106 PINEIRO Yarla 760-385- 5122 +6
107 XXXX OO
108 SIDNYER Joshua 760-237- 6780 +6
110 CARPENTER Nathanie 760-385- 1353 +6
CARPENTER Shena 760-385- 1353 +6

X CHOSIN CIR

X WONJU CIR

201 XXXX OO
203 XXXX OO
204 ROBINSON Daniel 760-385- 4389 +6
205 COLEMAN Robert 760-385- 4315 +6
206 CRUZ Jesse L 760-385- 9796 +6
207 XXXX OO
208 XXXX OO
209 HERMAN Sonny 760-237- 6057 +6
210 TALLEY Angela 760-385- 9884 +6
213 GROSE Herbert 760-385- 5027 +6
214 XXXX OO
215 XXXX OO
217 XXXX OO
218 MONTEMAYOR Johnathon 760-237- 6321 +6
219 XXXX OO
220 BATT Justin 760-237- 6050 4
222 XXXX OO

★ 1 BUS 26 RES 13 NEW

WOOD DR 92024
ENCINITAS

WEALTH CODE 8

710 ● MANHEIMER John OO 3
RUSSELL John R 760-753- 0125 2
810 ● MCBAIN Gregory OO 4
815 ● GIBSON Kelly OO 4
818 ● JOH Tenshang OO 4
817 ● ASBAGH Gregory OO 0

X CAUDOR ST

★ 0 BUS 6 RES 0 NEW

WOOD ROCK LN 92065
RAMONA

WEALTH CODE 7

15901 ● CASTRO Alex OO 0
15905 ● SCHULTZ Robt E 760-788- 7719
● SCHULTZ Robt E 760-789- 4301
★ SITE CONSULTING SRV 760-788- 7833
15908 ● FRY Arnold OO 9
15909 ● JUDD Kenneth OO 4
15910 ● DUNN Marc 760-788- 1810 0
15913 ADAMS R F 760-789- 7540
● ADAMS R F 760-789- 7510
15917 ● KHOURY Margaret 760-788- 5828 8
15920 ● GRIFFIN Mark OO 3
15921 ● LEDBETTER William 760-789- 2614 8
15930 ● KEMPER Linda OO 2
15942 ● NEFF John OO +6
15956 ● CARSON Linda C 760-788- 7526
15966 ● FAGGART Sidney R 760-789- 5248

★ 1 BUS 15 RES 1 NEW

WOODACRE DR 92056
OCEANSIDE

WEALTH CODE 6

X VALLEY GLEN DR

2363 ● SCOTT Peggy 760-433- 0603
2365 ● BOND John OO 0
2367 XXXX OO
2369 ● PONCIROU Donald S 760-722- 7207 0
2373 LOKER K B 760-757- 3051
2376 ● LAWRENCE David OO 3
2377 ● WAISH Susan OO 1
2380 XXXX OO

★ 0 BUS 8 RES 0 NEW

WOODBINE PL 92054
OCEANSIDE

WEALTH CODE 7

1715 XXXX OO
1719 ● JOHNSON Burton OO 8
1720 ● PAVLOFF Kira OO 1
1723 ● RUDDECK F 760-439- 1766 0
1724 ● BLAIR Joseph M 760-439- 3416
1727 ● PAWLOWICZ Delphia 760-967- 9770 3
1728 ● PORTER Timothee OO 1
1731 HARRIS Carole 760-754- 9419 +6
● MCDONALD Cheyenne 760-754- 9475 +6
1732 CRAVETS A O 760-722- 8404 ⊕
1735 HERMAN Tim 760-231- 7311 4
● POOL George OO 0
1736 ● CUSICK David OO 4
1739 JAEB Amanda 760-231- 7043 +6
● PRATT Andrew OO 0
1743 ● BARDEEN Randall OO 1
1744 ● MILLER Steven OO 0
1747 ● TELLES Cecilia 760-433- 5662
1748 SMITH Joah G 760-439- 8934
1751 ● JARRETT David 760-438- 4115
1752 ● NAGHAND Charles OO 4
1755 ● PAOPAO Anthony 760-433- 7005
1756 ● GOSWAMI Subal OO 4
1759 HADLEY Karen 760-433- 8801 3
● HERMAN Karen OO 4
1760 BRATTON Dorothy 760-721- 1094 4
1763 ● HALVORSON Stephen OO 0
1764 ● CRASE Wallace OO 9
1767 ADAIR Cindi 760-231- 9454 4
1768 ● KOHLER Christopher OO 4
1771 ● NICKENS Brian 760-439- 1651
1772 GALEF J M 760-433- 6386
1775 XXXX OO
1776 XXXX OO
1779 ● WHITE Timothy OO 4
1783 ● AZEVEDO Anthony OO 8
1784 ● BEASTON Doris OO 4
1787 EATON Joann 760-721- 2162 +6
1788 ● FRANK Verna 760-757- 0646 4

X CASSIDY ST

1801 ● PARYS James OO 2
1806 ● CLYMER Bruce OO 0
1809 ● RICHTER Herbert OO 0
1812 ● MANNING James 760-721- 3653
1813 ● MAYER Richard OO 0
1816 XXXX OO

★ 0 BUS 45 RES 4 NEW

WOODBRIDGE RD
92026 ESCONDIDO

WEALTH CODE 7

X FOXFIRE PL

1704 GOOD Hugh Craig 760-747- 2524 4
1705 ● SANCHEZ Hector OO 3
1708 ● GROGAN Miriam OO 2
1709 ● MAYESKI Elfriede OO 3
1712 ● GRELL Richard OO 8

X BERNEY PL

1716 ● RANDLE Dan OO 8
1717 ● ANNSCHUTZ Robert OO 9

X BENNETT AVE

1720 ● MUEHL David OO 7
1721 XXXX OO
1724 ● MUEHL David OO 3
1725 ● CHARLTON Michael OO 0
1728 FARTHING Richard 760-489- 5345 4
● MUEHL David OO +6

X CHESHIRE WAY

★ 0 BUS 13 RES 1 NEW

WOODBROOK LN
92028 FALLBROOK

WEALTH CODE 6

X PEPPER TREE LN

1704 STOEWER O 760-728- 4190
STOEWER O M 760-723- 3069
1712 BULICK Melvin 760-723- 3498
1716 ● DOLLINS Edward OO 0
1720 ● SIMON Michael OO 1
1724 ● STANTON Richard OO 4
1732 LITCHFIELD Jaxine 760-728- 3716 4
1761 THOMPSON V L 760-723- 9794 +6
1765 ○ LEIMAN John M 760-728- 5074
1769 GOTTO R 760-723- 8541 4
1773 ● HALEY John OO 0
1781 XXXX OO
1789 XXXX OO
1793 ● LEE Mary OO 4
1797 ● MARTINEZ Richard TURNER David OO 4
760-731- 8372

X WOODTHRUSH LN

X WOODSTORK LN

1803 EBERHART C 760-728- 4511 2
1807 ● HAWLEY Chas C 760-728- 8896 8
1811 XXXX OO
1816 ● VANDERVEEN Eileen OO 8
1819 XXXX OO
1820 XXXX OO

★ 0 BUS 22 RES 1 NEW

WOODBURY CT 92010
CARLSBAD

X NEW HAVEN PL

2979 ● CONNORS Tom J 760-434- 7716 0
2981 ● KREMER Alex OO 0
2983 ● FUQUA Ruth OO 0
KEARNS Jeff 760-720- 3390 4
2984 ● WHITE Laura 760-434- 0051 4
2985 SHAW Cyd L 760-729- 0651 4
2986 ● TIRONA Gregory OO 3
2987 ● WESTFALL Judith OO 0
2988 ● REYES Maria OO 4
2989 ● ROBERTSON Curtis 760-434- 9420 1
2990 ● JOHNSON Louis OO 0

★ 0 BUS 11 RES 0 NEW

WOODBURY PL 92026
ESCONDIDO

WEALTH CODE 4

2101 ● ROGERS Jeret OO 8
2102 ● DEWITT Gary OO 2
2107 BREWER Mark 760-743- 5845
2108 ● GRASSER Joerg OO 4
2115 ● MCLEAN Hollie 760-839- 2312 1
2120 ● ENGLES Carolina OO 4
2128 MONAHAN Tiana 760-310- 0183 +6
2127 XXXX OO
2134 ● BALLINGER Bill OO 2
2135 ● BAGSTAD Michael OO 0
2140 ● ROUSE Timothy OO 0
2141 ● HARRISON Georgie OO 1
2144 ● BAUMAN Jan R 760-745- 7372
2148 ● STRICKLAND Jas W 760-741- 5938
2154 JOSEY Wade A 760-746- 4229 4

X VILLAGE RD

★ 0 BUS 15 RES 1 NEW

WOODCHUCK PT 92131
SAN DIEGO

WEALTH CODE 8

10405 ● CHRIST Jon 858-578- 6095
10409 CLARK Glen 858-695- 0944
CLARK Pat 858-695- 0944
10414 ● RIOS Linda OO 3
10415 ● SWANSON William OO 9
10423 ★ PRESIDIO CAPITAL CORPORATION 858-577- 0231 2
10424 MEAD Darrell 858-578- 8349
10433 ● PETTEY James OO 0
10434 XXXX OO
10443 ● COUGHLIN K 858-578- 4517 ⊕
● COUGHLIN T 858-578- 4517 ⊕
10454 ● GLASS Charles OO 0

★ 1 BUS 11 RES 0 NEW

Appendix J1
Drainage Report

PRELIMINARY DRAINAGE STUDY

North Iris Lane

Project ID: PHG20-0032

City of Escondido
County of San Diego

PREPARED FOR:

Hall Land Company, Inc.
740 Lomas Santa Fe Drive, Suite 204
Solana Beach, California 92075
(858) 481-3310

PREPARED BY:

SB&O INC.
PLANNING ENGINEERING SURVEYING
3990 Ruffin Road, Suite 120
San Diego, Ca. 92123
858-560-1141
858-560-8157 Fax

SB&O JOB NO. 75280.25



ALLEN L BUTCHER, PE C47107

April 25, 2022

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EXHIBITS

A. RATIONAL METHOD CALCULATIONS
B. RATIONAL METHOD HYDROGRAPHS
C. STORAGE INDICATION TABLES
D. DETENTION SUMMARY
E. BASIN ROUTINGS
F. OFF-SITE DRAINAGE & BYPASS STORM DRAIN

APPENDIX

SELECTED COUNTY OF SAN DIEGO HYDROLOGY MANUAL EXCERPTS

DRAINAGE MAPS

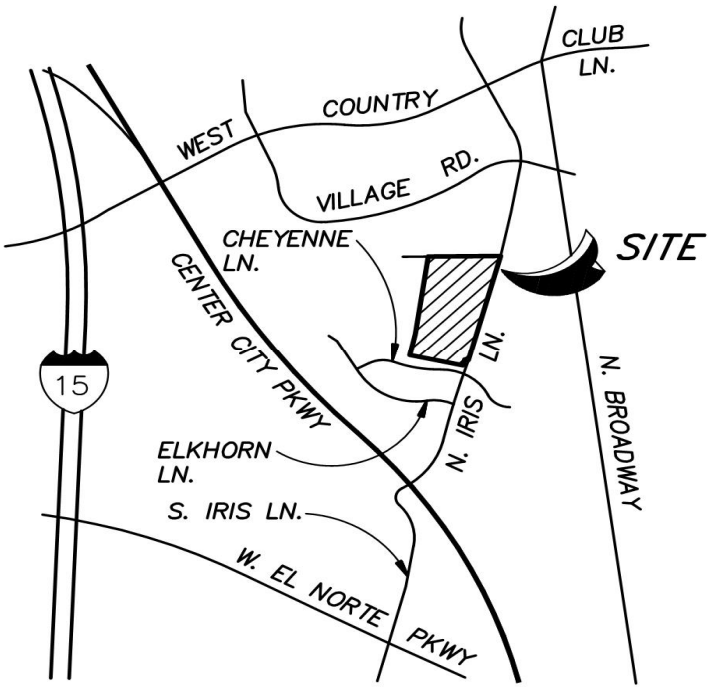
PRE-DEVELOPMENT ..... MAP POCKET #1
POST-DEVELOPMENT ..... MAP POCKET #2
OFF-SITE / UPSTREAM ..... MAP POCKET #3

1. Introduction

The scope of this preliminary report is limited to addressing the potential storm water impacts associated with the development of the site, in accordance with the San Diego County Hydrology Manual (June 2003) and the San Diego County Hydraulic Design Manual (September 2014). This report will provide estimates of the peak site discharges of storm water runoff generated pre- and post-development from the site for the 100-year storm events. Detailed hydrology and hydraulic calculations for the proposed storm drains system will be provided in the final report.

The project proposes to use combination facilities to provide treatment, HMP mitigation and peak flow attenuation. Details and calculations related to water quality treatment and HMP compliance are contained in a separate Storm Water Quality Management Plan (SWQMP) report for the project.

This project is considered a priority development project. The storm water treatment facility and hydromodification storage facility have been shown on the Proposed DMA Drainage Exhibit attached to this study. The total disturbed area is approximately 7.5 acres, necessitating a Storm Water Pollution Prevention Plan (SWPPP) for construction.



2. Declaration of Responsible Charge

DECLARATION OF RESPONSIBLE CHARGE:

I hereby declare that I am the Engineer of Work for this project, that I have exercised responsible charge over the design of the project as defined in Section 6703 of the Business and Professions Code, and that the design is consistent with the current standards.

I understand that the check of the project drawings and specification by the City of Escondido is confined to a review only and does not relieve me, as the Engineer of Work, of my responsibilities for project design.

Project Name: North Iris Lane
Project ID: PHG20-0032

EINGINEER OF WORK:

SB&O, Inc.
3990 Ruffin Road, Suite 120
San Diego, CA 92123
Phone: 858-560-1141



April 25, 2022

Allen L Butcher , PE C47107 Date

3. Existing Drainage Conditions

The property is within the northern portion of the City of Escondido community, located north of Highway 78, east of Interstate 15 and Centre City Parkway, and south of Country Club Lane. The site is on the west side of North Iris Lane, between Cheyenne Lane to the south, and Robin Hill Lane to the north.

The property is tributary to the Reidy Creek, located 700 feet east of North Iris Lane, which flows 3 miles south to Escondido Creek channel, and then westerly 15 miles to the San Elijo Lagoon, part of the Carlsbad Watershed (904).

Site drainage patterns are overland (5% to 8% range) from west to east, with the majority of the site runoff discharging to the southeastern corner of the site. Street slopes adjacent to the site range from 1.5% along North Iris to 5% (or more) on Robin Hill Lane. A shallow trapezoidal channel conveys runoff from the westerly off-site areas through the site, to the shallow box culvert under North Iris Lane. The northerly portion of the site drains northeasterly towards the intersection of Robin Hill and North Iris, which continues northerly, approximately 450', in the gutter toward a curb inlet and public storm drain (MS-4) which conveys flows southerly and easterly to Reidy Creek.

See Existing Drainage Exhibit in Map Pocket #1.

4. Post-Development Drainage Conditions

The project proposes multiple attached residential buildings, supported by private driveways, parking spaces and landscape areas. Proposed finished grades in the development areas are expected to be mild (0.5% to 1.0% range), with manufactured slopes along the perimeter. The drainage systems onsite will include a mix of overland, gutter and pipe flows directed to the site basins for treatment, HMP control and peak flow attenuation. These will occur in the north and the south portions of the site, with discharge locations maintaining the existing north / south split.

The project will complete the frontage improvements, resulting in additional paving widths, curb and gutter, and sidewalk.

See Proposed Drainage Exhibit in Map Pocket #2.

5. Hydrology

5.1 Design Criteria

The San Diego County Hydrology Manual (June 2003) and the San Diego County Hydraulic Design Manual (September 2014) were utilized to perform rational method hydrology calculations for 100-year storm events. (See Appendix for reference materials)

5.2 Soils

The hydrologic soil type is “C” in the northerly portion of the site, and type “D” in the southerly portion, with generally poor infiltration characteristics.

5.3 Runoff Coefficient C-Factor

According to Table 3-1 of the San Diego County Hydrology Manual, the relevant runoff coefficients (C-Factor) for the site are summarized below tables.

Conditions	% Impervious To	Runoff Coefficient Type C Soil	Runoff Coefficient Type D Soil
Off-site Areas	25%	----	0.48
Existing site	20% to 30%	0.42	0.46
Existing Site	20% to 30%	0.45	0.52
Street Improvements	90%	0.84	0.85
Proposed Site	70%	0.72	0.74

Runoff for individual drainage areas will be based upon specific imperviousness and soil type.

5.4 Adjusted 6-Hour Rainfall

Rainfall intensities are based upon the rainfall data from the County 6-Hour and 24-Hour Isopluvial maps as follows;

Storm	6-Hour Rainfall (in)	24-Hour Rainfall (in)	Ratio P6/P24	Adjusted P6 (in)
2-Year	1.6	2.5	64%	1.6
5-Year	1.95	3.5	56%	1.95
10-Year	2.35	3.9	60%	2.35
25-Year	2.8	5.1	55%	2.8
50-Year	2.95	6.0	49%	2.95
100-Year	3.5	7.0	50%	3.5

5.5 Rational Method Hydrology

Rational Method peak flows were estimated for the site according to Chapter 3 of the 2003 County Hydrology Manual. The flow (Q) in CFS is equal to the Area (A) multiplied by the Runoff Factor (C) multiplied by the Rainfall Intensity (I). The Intensity of the storm (I) is formulated as follows: I= [7.44(P6) (Tc^-0.645)]. Intensity calculations have a minimum 5-minute time of concentration.

The time of concentration (Tc) for Existing Basins were estimated using the initial time of concentration using the maximum initial flow length (100 feet) for an overland slope (6-8 minutes) according to Table 3-2, plus additional time for the remaining overland flow distance as follows.

Existing Drainage - Rational Method Hydrology Results					
Basin	*Location*	*Area*	*C*	*T_C*	*Q100 (cfs)*
E-3	*Robin Hill*	*0.462*	*0.69*	*6.43*	*2.75*
E-2	*North*	*0.981*	*0.45*	*6.64*	*3.39*
E-1	*South*	*6.436*	*0.46*	*11.70*	*15.78*
Total		*7.42*			*21.92*

Since the basins have differences in time of concentration, and flow paths to the same downstream location, no attempt was made to confluence the flows.

See Exhibit "**A**" for Rational Method calculations.

Runoff from the developed site will include a combination of overland flow, gutter flow, and pipe flow. For multifamily residential land uses, overland flow lengths are limited to a 50' to 65' range for slopes between 1.0% and 2%, which results in initial times of concentration of approximately 4-8 minute range. Additional overland flow length, gutter and pipe lengths may add additional time, as follows;

Post-Development Rational Method Hydrology Results (Not Attenuated)					
Basin	DMAs	Area	C	T_C	Q100 (cfs)
North Basin BMP-3	N-1	0.575	0.72	10.66	2.33
South Middle BMP-2	S-1	3.815	0.72	5.0	25.32
South Basin BMP-1	S-2	2.322	0.72	6.91	12.50
Totals		7.42			

See Exhibit "**A**" for Rational Method calculations.

6. Rational Method Hydrographs

The project proposes to use combination facilities at 3 locations to provide treatment, HMP mitigation and peak flow attenuation. These analyses require a runoff hydrograph to route through the facilities. In accordance with the County of San Diego Hydrology Manual, the Rational Method Hydrograph procedure was used to develop a time-based runoff series. The methodology assumes a simple triangular runoff hydrograph and is based upon the 6-hour rainfall total, and the Rational Method input variables. The methodology provides runoff values at time intervals equal to multiples of the time of concentration. Details related to the procedure to develop the hydrograph are provided in Chapter 6 of the County of San Diego Hydrology Manual (See Appendix).

Post-Development Rational Method Hydrology Results (Not Attenuated)					
Basin	Location	Area	C	T_C (min)	Q100 (cfs)
BMP-3	North	0.575	0.72	10	2.44
BMP-2	South-Mid	3.815	0.72	5	25.32
BMP-1	South	2.322	0.75	6	11.20

The resulting hydrographs are available in Exhibit "B". See Section 9 for attenuated flows.
Note: The Rational Method Hydrograph Procedure is based upon an integer number of minutes.

7. HMP / Attenuation

The basin volumes and low flow orifice was determined by the SWMM modeling for the project. The final surface basin depth and overflow was verified by the detention routing. The following basin data was used to model the attenuation effects by the basin for the 100-year storm events;

Basin 3 - North HMP/Detention Storage = 0.148 ac-ft.

Depth	Description	Dimension	Comment
0.0	Bottom of Basin	2,010 sf	
0.5	Low Flow Orifice	1.5" dia.	Subdrain
2.55	Gravel and Stone	40% Void	
4.05	Soil 18"	30% Void	
4.05	Floor of Basin	2,010 sf	
4.55	Basin Treatment Area	2,200 sf	6" Depth
5.05	Overflow (6"Deep)	2,200 sf	Grated Inlet
5.55	Top of Basin	2,580 sf	18" deep

Basin 2 – South Mid HMP/Detention Storage = 0.28 ac-ft.

Depth	Description	Dimension	Comment
0.0	Bottom of Basin	2,320 sf	
0.5	Low Flow Orifice	1.5" dia.	Subdrain
3.0	Gravel and Stone	40% Void	
4.5	Soil 18"	30% Void	
4.5	Floor of Basin	4,110 sf	
5.0	Basin Treatment Area	4,580 sf	6" Depth
5.0	Overflow (6" Deep)	4,580 sf	Grated Inlet
5.5	Top of Treatment	5,150 sf	12" deep
6.8	Top of Basin	5,720 sf	21.6" deep

Basin 1 – South HMP/Detention Storage = 0.195 ac-ft.

Depth	Description	Dimension	Comment
0.0	Bottom of Basin	2,590 sf	
0.50	Low Flow Orifice	1.5" dia.	Subdrain
1.6	Gravel and Stone	40% Void	
3.4	Soil 18" / Sand	30% Void	
3.4	Floor of Basin	2,590 sf	
3.9	Basin Treatment Area	3,180 sf	6" Depth
3.9	Overflow (6" Deep)	3,180 sf	Grated Inlet
4.4	Top of Treatment	3,628 sf	12" Deep
4.9	Top of Basin	4,076 sf	18" deep

8. Detention Analyses

The County of San Diego Hydraulic Manual Section 6 discusses detention routing using the Storage Indication or Modified-Puls Routing Method and is discussed in further detail in the National Engineering Handbook (NEH). The methodology is a time step accounting of Inflow, Outflow and Storage during the storm event. The methodology requires detailed incremental basin data (depth vs. storage and depth vs. outflow) to create a Storage Indication Outflow table. The SIO table allows for the two unknown but related terms (storage volume and outflow) to be combined into a single value.

The SIO tables were prepare using the SWMM modeling data for the 3 basins. The Storage Indication Outflow Tables for the basins are provided in Exhibit **"C".** These show the elevation and incremental depth, surface area. The void ratio, storage volumes, and total outflow is broken down by the individual control openings & weirs.

The 100-year, 6-hour hydrographs were routed through their respective basins to determine the peak outflow, maximum water depth, and required storage volume and are summarized below;

Location	Peak Inflow (cfs)	Peak Outflow (cfs)	Basin Infiltration (cfs)	Max Surface Depth (ft)	Volume Required (cf)	Surface Drain time (hrs.)
North (BMP-3)	2.44	0.12	.01	0.3	3,365	2.6
South/Mid (BMP-2)	25.32	11.14	.012	1.4	12,208	7.9
South (BMP-1)	11.20	7.97	.02	1.0	6,586	4.6
Total	38.96	19.23	0.04			

A Summary of the detention analyses are included in Exhibit **"D"**. Routing calculations and the Inflow, Outflow and Storage graphs for the basins are provided in Exhibit **"E".**

9. Site Discharge Summary

To assess potential impacts, the site discharge was revised to reflect the effects of the HMP/Detention facilities (reduced by the basin infiltration);

Condition	Q100 Peak Flow (cfs)	Q100 Peak Attenuated (cfs)
Proposed Development	38.96	19.19
Existing Condition	19.17	19.17
Net Change		+0.02

The 100-year post-development peak site discharge will be consistent with the existing conditions.

10. Off-site Drainage

The project is tributary to Reidy Creek (R), and is located on Tile 29 of the Drainage Master Plan, City of Escondido, November 1995, prepared by Masson & Associates, Inc.

The off-site drainage area upstream of the site is significant (approximately 113 acres) and includes runoff from the areas located northwest of the site. Tributary areas include properties along Centre City Parkway, and residential development and commercial properties on the north and south sides of County Club Lane.

(See Off-site Drainage Exhibit in Map Pocket 3).

Overland flow lengths are limited, with significant lengths in concrete ditches, street gutters, storm drains, and unlined channels. The hydrologically most remote point is at the ridgeline just south of the Centre City Parkway / Interstate 15 offramps ("E" Hill). Runoff flows westerly down the hillside to the drainage ditch along the east side of Centre City Parkway (northbound), to the greenbelt north of Country Club Lane. Flows are intercepted by a 48" storm drain, routed southerly to discharge at a headwall at the south end of the athletic fields. A shallow semi-improved drainage channel conveys flows southerly and easterly between the residential lots, private driveways, and the unpaved portions of Robin Hill Lane to the westerly boundary of the project.

The resulting flow length is greater than 1-mile, with an average slope of 6.4%. The time of concentration is estimated at 28.6 minutes (10 minutes initial plus 18.6 minutes travel). A runoff coefficient of 0.49 was selected due to the limited impervious area (25%). The 100-year peak flow is estimated at 162 cfs at the westerly project boundary.

(See Off-site Hydrology Calculations in Exhibit **F**).

11. Bypass Storm Drain

The westerly boundary includes a shallow low flow channel which is conveyed easterly through the site, then southerly along existing paving to the upstream end of the box culvert which passes under North Iris Lane. Flows are then conveyed easterly by the paved concrete channel located at the southern limits of Meadowbrook Village development to Reidy Creek (approximately 700 feet). Project grading will elevate the southerly portion of the site which will interrupt the off-site channel. A bypass storm drain system will intercept and direct these off-site flows through the site, avoiding the need to enlarge the post-development treatment and hydromodification systems. A concrete drainage ditch will also be constructed along the westerly boundary to intercept local flows and direct them to the bypass system, which begins at the western boundary to the existing box culvert undercrossing to the south side of the North Iris Lane. In addition to the upstream flows, site discharge and runoff from the project frontage and the neighborhood to the south (Cheyene Lane) will be tributary to the box culvert.

Bypass Hydrology Location	Node #	Area (ac)	Q100 (cfs)	Cumulative Q100 (cfs)
Upstream – West Boundary	1-2	113.4	161.8	161.8
Project Site		7.0	20.5	182.3
North Iris / Cheyene	3-5	8.7	14.3	196.6
Downstream RCB	6	129.1		196.6

The existing off-site channel includes s shallow low flow central section with wide, relatively flat overbank, or "floodplains" on either side. The channel was modeled using an opening channel flow calculator using an irregular shaped section based upon the ground line near the westerly project boundary. A range of n values was used across the section (0.040 in the channel and 0.10 in the overbank) with a bed slope of 2%. The resulting flow depth was

calculated at 2.7' with an average velocity of 2 fps. The corresponding water surface elevation is 708.5, with a top width of 125 feet.

Since the proposed bypass headwall will be less considerably less than 125 feet wide, consideration of the inlet conditions will be necessary to minimize upstream ponding. If the approach velocity is neglected, the hydraulic condition may be approximated using a culvert routine passing under a roadbed. A reinforced concrete box culvert (7 feet wide and 3 feet high) section will provide the hydraulic capacity required to convey the peak flow with minimal additional headwater depth. The water surface elevation upstream of the headwall is estimated at 708.4, which is consistent with the existing water surface (708.5). This will minimize impacts to the upstream properties.

A separate backwater analysis was prepared to confirm that the downstream conditions do not require excessive headwater at the upstream end. Based upon the preliminary analysis, the hydraulic grade at the headwater is 708.4, which is consistent with the existing upstream water surface (708.4).

See Exhibit "F" for Bypass Strom Drain & Backwater Calculations.

12. Conclusion

Based upon the site basin modeling and the flow comparison, the 100-year post-development peak flows will be consistent with the existing conditions.

The project bypass storm drain will intercept the upstream flows and convey through the site to the N Iris Lane box culvert, with minimal impact to the upstream conditions.

EXHIBIT A

RATIONAL METHOD CALCULATIONS
EXISTING & PROPOSED

E-1

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2014 Version 9.0

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 07/02/21

********* Hydrology Study Control Information **********

Program License Serial Number 6334

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.400
24 hour precipitation(inches) = 7.000
P6/P24 = 48.6%
San Diego hydrology manual 'C' values used

++
Process from Point/Station 3.000 to Point/Station 4.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[LOW DENSITY RESIDENTIAL]
(2.0 DU/A or Less)
Impervious value, Ai = 0.200
Sub-Area C Value = 0.460
Initial subarea total flow distance = 875.000(Ft.)
Highest elevation = 737.000(Ft.)
Lowest elevation = 701.300(Ft.)
Elevation difference = 35.700(Ft.) Slope = 4.080 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 4.08 %, in a development type of
2.0 DU/A or Less
In Accordance With Figure 3-3
Initial Area Time of Concentration = 7.21 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.4600)*(100.000^.5)/(4.080^(1/3)]= 7.21
The initial area total distance of 875.00 (Ft.) entered leaves a

remaining distance of 775.00 (Ft.)
Using Figure 3-4, the travel time for this distance is 4.49 minutes
for a distance of 775.00 (Ft.) and a slope of 4.08 %
with an elevation difference of 31.62(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)
= 4.490 Minutes
Tt=[(11.9*0.1468^3)/(31.62)]^.385= 4.49
Total initial area Ti = 7.21 minutes from Figure 3-3 formula plus
4.49 minutes from the Figure 3-4 formula = 11.70 minutes
Rainfall intensity (I) = 5.177(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.460
Subarea runoff = 15.327(CFS)
Total initial stream area = 6.436(Ac.)
End of computations, total study area = 6.436 (Ac.)

E-2

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2014 Version 9.0

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 07/02/21

********* Hydrology Study Control Information **********

Program License Serial Number 6334

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.400
24 hour precipitation(inches) = 7.000
P6/P24 = 48.6%
San Diego hydrology manual 'C' values used

++
Process from Point/Station 3.000 to Point/Station 5.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[LOW DENSITY RESIDENTIAL]
(2.9 DU/A or Less)
Impervious value, Ai = 0.250
Sub-Area C Value = 0.450
Initial subarea total flow distance = 444.000(Ft.)
Highest elevation = 737.000(Ft.)
Lowest elevation = 712.700(Ft.)
Elevation difference = 24.300(Ft.) Slope = 5.473 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 5.47 %, in a development type of
2.9 DU/A or Less
In Accordance With Figure 3-3
Initial Area Time of Concentration = 6.64 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.4500)*(100.000^.5)/(5.473^(1/3)]= 6.64
The initial area total distance of 444.00 (Ft.) entered leaves a

remaining distance of 344.00 (Ft.)
Using Figure 3-4, the travel time for this distance is 2.15 minutes
for a distance of 344.00 (Ft.) and a slope of 5.47 %
with an elevation difference of 18.83(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)
= 2.145 Minutes
Tt=[(11.9*0.0652^3)/(18.83)]^.385= 2.15
Total initial area Ti = 6.64 minutes from Figure 3-3 formula plus
2.15 minutes from the Figure 3-4 formula = 8.78 minutes
Rainfall intensity (I) = 6.228(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.450
Subarea runoff = 2.749(CFS)
Total initial stream area = 0.981(Ac.)
End of computations, total study area = 0.981 (Ac.)

E-3

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software, (c)1991-2014 Version 9.0

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 07/02/21

********* Hydrology Study Control Information **********

Program License Serial Number 6334

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.400
24 hour precipitation(inches) = 7.000
P6/P24 = 48.6%
San Diego hydrology manual 'C' values used

++
Process from Point/Station 6.000 to Point/Station 7.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[HIGH DENSITY RESIDENTIAL]
(24.0 DU/A or Less)
Impervious value, Ai = 0.650
Sub-Area C Value = 0.690
Initial subarea total flow distance = 460.000(Ft.)
Highest elevation = 736.000(Ft.)
Lowest elevation = 711.900(Ft.)
Elevation difference = 24.100(Ft.) Slope = 5.239 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 95.00 (Ft)
for the top area slope value of 5.24 %, in a development type of
24.0 DU/A or Less
In Accordance With Figure 3-3
Initial Area Time of Concentration = 4.14 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.6900)*(95.000^.5)/(5.239^(1/3)]= 4.14
The initial area total distance of 460.00 (Ft.) entered leaves a

remaining distance of 365.00 (Ft.)
Using Figure 3-4, the travel time for this distance is 2.28 minutes
for a distance of 365.00 (Ft.) and a slope of 5.24 %
with an elevation difference of 19.12(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)
= 2.284 Minutes
Tt=[(11.9*0.0691^3)/(19.12)]^.385= 2.28
Total initial area Ti = 4.14 minutes from Figure 3-3 formula plus
2.28 minutes from the Figure 3-4 formula = 6.43 minutes
Rainfall intensity (I) = 7.620(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.690
Subarea runoff = 2.429(CFS)
Total initial stream area = 0.462(Ac.)
End of computations, total study area = 0.462 (Ac.)

P-NORTH

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2014 Version 9.0

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 03/16/22

********* Hydrology Study Control Information **********

Program License Serial Number 6334

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.500
24 hour precipitation(inches) = 7.000
P6/P24 = 50.0%
San Diego hydrology manual 'C' values used

++
Process from Point/Station 101.000 to Point/Station 102.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[HIGH DENSITY RESIDENTIAL]
(24.0 DU/A or Less)
Impervious value, Ai = 0.650
Sub-Area C Value = 0.690
Initial subarea total flow distance = 34.000(Ft.)
Highest elevation = 718.200(Ft.)
Lowest elevation = 718.000(Ft.)
Elevation difference = 0.200(Ft.) Slope = 0.588 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 50.00 (Ft)
for the top area slope value of 0.59 %, in a development type of
24.0 DU/A or Less
In Accordance With Figure 3-3
Initial Area Time of Concentration = 6.23 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.6900)*(50.000^.5)/(0.588^(1/3)]= 6.23
Rainfall intensity (I) = 8.003(In/Hr) for a 100.0 year storm

```
Effective runoff coefficient used for area (Q=KCIA) is C = 0.690
Subarea runoff =       0.331(CFS)
Total initial stream area =        0.060(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      102.000 to Point/Station      103.000
**** IMPROVED CHANNEL TRAVEL TIME ****
------------------------------------------------------------------------------
Upstream point elevation =   718.000(Ft.)
Downstream point elevation =   716.100(Ft.)
Channel length thru subarea  =   301.000(Ft.)
Channel base width    =    2.000(Ft.)
Slope or 'Z' of left channel bank = 100.000
Slope or 'Z' of right channel bank = 100.000
Estimated mean flow rate at midpoint of channel =      1.363(CFS)
Manning's 'N'    = 0.015
Maximum depth of channel  =    0.500(Ft.)
Flow(q) thru subarea =      1.363(CFS)
Depth of flow =   0.100(Ft.), Average velocity =   1.133(Ft/s)
Channel flow top width =   22.028(Ft.)
Flow Velocity =    1.13(Ft/s)
Travel time  =    4.43 min.
Time of concentration =   10.66 min.
Critical depth =      0.094(Ft.)
 Adding area flow to channel
Rainfall intensity (I) =      5.660(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.720 given for subarea
Rainfall intensity =      5.660(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.717  CA =      0.412
Subarea runoff =      2.002(CFS) for      0.515(Ac.)
Total runoff =      2.333(CFS)   Total area =       0.575(Ac.)
Depth of flow =   0.125(Ft.), Average velocity =   1.297(Ft/s)
Critical depth =      0.118(Ft.)
End of computations, total study area =          0.575 (Ac.)
```

P-MID

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2014 Version 9.0

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 03/16/22

********* Hydrology Study Control Information **********

Program License Serial Number 6334

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.500
24 hour precipitation(inches) = 7.000
P6/P24 = 50.0%
San Diego hydrology manual 'C' values used

++
Process from Point/Station 201.000 to Point/Station 202.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 1.000
Decimal fraction soil group D = 0.000
[HIGH DENSITY RESIDENTIAL]
(24.0 DU/A or Less)
Impervious value, Ai = 0.650
Sub-Area C Value = 0.690
Initial subarea total flow distance = 127.000(Ft.)
Highest elevation = 737.500(Ft.)
Lowest elevation = 719.000(Ft.)
Elevation difference = 18.500(Ft.) Slope = 14.567 %
Top of Initial Area Slope adjusted by User to 14.600 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 100.00 (Ft)
for the top area slope value of 14.60 %, in a development type of
24.0 DU/A or Less
In Accordance With Figure 3-3
Initial Area Time of Concentration = 3.02 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.6900)*(100.000^.5)/(14.600^(1/3)]= 3.02

```
Calculated TC of    3.020 minutes is less than 5 minutes,
 resetting TC to 5.0 minutes for rainfall intensity calculations
Rainfall intensity (I) =      9.222(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.690
Subarea runoff =      0.318(CFS)
Total initial stream area =        0.050(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      202.000 to Point/Station      203.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   716.100(Ft.)
Downstream point/station elevation =   714.000(Ft.)
Pipe length  =   173.00(Ft.) Slope =   0.0121  Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     0.318(CFS)
Given pipe size =      8.00(In.)
Calculated individual pipe flow  =     0.318(CFS)
Normal flow depth in pipe =    2.66(In.)
Flow top width inside pipe =    7.54(In.)
Critical Depth =    3.14(In.)
Pipe flow velocity =      3.13(Ft/s)
Travel time through pipe =    0.92 min.
Time of concentration (TC) =     3.94 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      203.000 to Point/Station      204.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Calculated TC of    3.940 minutes is less than 5 minutes,
 resetting TC to 5.0 minutes for rainfall intensity calculations
Rainfall intensity (I) =      9.222(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.720 given for subarea
Time of concentration =     3.94 min.
Rainfall intensity =      9.222(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.718  CA =      0.526
Subarea runoff =      4.535(CFS) for      0.683(Ac.)
Total runoff =      4.853(CFS)   Total area =       0.733(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      203.000 to Point/Station      204.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Calculated TC of    3.940 minutes is less than 5 minutes,
 resetting TC to 5.0 minutes for rainfall intensity calculations
Rainfall intensity (I) =      9.222(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.720 given for subarea
Time of concentration =     3.94 min.
Rainfall intensity =      9.222(In/Hr) for a   100.0 year storm
```

```
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.718  CA =      0.569
Subarea runoff =      0.392(CFS) for      0.059(Ac.)
Total runoff =      5.245(CFS)   Total area =      0.792(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      203.000 to Point/Station      204.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   713.700(Ft.)
Downstream point/station elevation =   712.100(Ft.)
Pipe length  =   143.40(Ft.) Slope =   0.0112  Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     5.245(CFS)
Given pipe size =     12.00(In.)
NOTE: Normal flow is pressure flow in user selected pipe size.
The approximate hydraulic grade line above the pipe invert is
     2.545(Ft.)  at the headworks or inlet of the pipe(s)
 Pipe friction loss =      3.106(Ft.)
 Minor friction loss =      1.039(Ft.) K-factor =   1.50
Pipe flow velocity =      6.68(Ft/s)
Travel time through pipe =    0.36 min.
Time of concentration (TC) =     4.30 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      205.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Calculated TC of    4.298 minutes is less than 5 minutes,
 resetting TC to 5.0 minutes for rainfall intensity calculations
Rainfall intensity (I) =      9.222(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.720 given for subarea
Time of concentration =     4.30 min.
Rainfall intensity =      9.222(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.719  CA =      1.030
Subarea runoff =      4.249(CFS) for      0.640(Ac.)
Total runoff =      9.494(CFS)   Total area =      1.432(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      204.000 to Point/Station      205.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   711.800(Ft.)
Downstream point/station elevation =   710.000(Ft.)
Pipe length  =   136.10(Ft.) Slope =   0.0132  Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     9.494(CFS)
Given pipe size =     12.00(In.)
NOTE: Normal flow is pressure flow in user selected pipe size.
The approximate hydraulic grade line above the pipe invert is
```

```
    11.265(Ft.)  at the headworks or inlet of the pipe(s)
 Pipe friction loss =      9.661(Ft.)
 Minor friction loss =     3.403(Ft.)K-factor =   1.50
Pipe flow velocity =     12.09(Ft/s)
Travel time through pipe =    0.19 min.
Time of concentration (TC) =     4.49 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      205.000 to Point/Station      206.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Calculated TC of    4.486 minutes is less than 5 minutes,
 resetting TC to 5.0 minutes for rainfall intensity calculations
Rainfall intensity (I) =      9.222(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.720 given for subarea
Time of concentration =     4.49 min.
Rainfall intensity =      9.222(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.719  CA =      1.722
Subarea runoff =      6.387(CFS) for      0.962(Ac.)
Total runoff =     15.881(CFS)   Total area =       2.394(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      205.000 to Point/Station      206.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Calculated TC of    4.486 minutes is less than 5 minutes,
 resetting TC to 5.0 minutes for rainfall intensity calculations
Rainfall intensity (I) =      9.222(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.720 given for subarea
Time of concentration =     4.49 min.
Rainfall intensity =      9.222(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.720  CA =      2.161
Subarea runoff =      4.050(CFS) for      0.610(Ac.)
Total runoff =     19.931(CFS)   Total area =       3.004(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      205.000 to Point/Station      206.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Calculated TC of    4.486 minutes is less than 5 minutes,
 resetting TC to 5.0 minutes for rainfall intensity calculations
Rainfall intensity (I) =      9.222(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.720 given for subarea
Time of concentration =     4.49 min.
Rainfall intensity =      9.222(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.720  CA =      2.544
```

```
Subarea runoff =       3.526(CFS) for       0.531(Ac.)
Total runoff =      23.457(CFS)   Total area =       3.535(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      205.000 to Point/Station      206.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Calculated TC of     4.486 minutes is less than 5 minutes,
 resetting TC to 5.0 minutes for rainfall intensity calculations
Rainfall intensity (I) =       9.222(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.720 given for subarea
Time of concentration =      4.49 min.
Rainfall intensity =       9.222(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.720  CA =       2.745
Subarea runoff =       1.859(CFS) for       0.280(Ac.)
Total runoff =      25.316(CFS)   Total area =       3.815(Ac.)
End of computations, total study area =           3.815 (Ac.)
```

P-SOUTH

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2014 Version 9.0

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 03/16/22

********* Hydrology Study Control Information **********

Program License Serial Number 6334

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.500
24 hour precipitation(inches) = 7.000
P6/P24 = 50.0%
San Diego hydrology manual 'C' values used

++
Process from Point/Station 301.000 to Point/Station 302.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[HIGH DENSITY RESIDENTIAL]
(24.0 DU/A or Less)
Impervious value, Ai = 0.650
Sub-Area C Value = 0.710
Initial subarea total flow distance = 75.000(Ft.)
Highest elevation = 717.600(Ft.)
Lowest elevation = 715.200(Ft.)
Elevation difference = 2.400(Ft.) Slope = 3.200 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 90.00 (Ft)
for the top area slope value of 3.20 %, in a development type of
24.0 DU/A or Less
In Accordance With Figure 3-3
Initial Area Time of Concentration = 4.52 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.7100)*(90.000^.5)/(3.200^(1/3)]= 4.52
Calculated TC of 4.519 minutes is less than 5 minutes,

```
 resetting TC to 5.0 minutes for rainfall intensity calculations
Rainfall intensity (I) =      9.222(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.710
Subarea runoff =      0.373(CFS)
Total initial stream area =        0.057(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      302.000 to Point/Station      303.000
**** STREET FLOW TRAVEL TIME + SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Top of street segment elevation =   715.200(Ft.)
End of street segment elevation =   713.000(Ft.)
Length of street segment  =   171.000(Ft.)
Height of curb above gutter flowline  =    6.0(In.)
Width of half street (curb to crown)  =  12.000(Ft.)
Distance from crown to crossfall grade break  =  10.500(Ft.)
Slope from gutter to grade break (v/hz) =   0.020
Slope from grade break to crown (v/hz)  =   0.020
Street flow is on [2] side(s) of the street
Distance from curb to property line  =  10.000(Ft.)
Slope from curb to property line (v/hz) =   0.020
Gutter width =   1.500(Ft.)
Gutter hike from flowline =  1.500(In.)
 Manning's N in gutter =  0.0150
 Manning's N from gutter to grade break =  0.0150
 Manning's N from grade break to crown =  0.0150
Estimated mean flow rate at midpoint of street =      2.018(CFS)
Depth of flow =   0.227(Ft.), Average velocity =   1.985(Ft/s)
Streetflow hydraulics at midpoint of street travel:
Halfstreet flow width =   6.611(Ft.)
Flow velocity =   1.99(Ft/s)
Travel time =    1.44 min.     TC =    5.95  min.
 Adding area flow to street
Rainfall intensity (I) =      8.238(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.720 given for subarea
Rainfall intensity =      8.238(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.719  CA =      0.459
Subarea runoff =      3.407(CFS) for      0.581(Ac.)
Total runoff =      3.780(CFS)   Total area =       0.638(Ac.)
Street flow at end of street =      3.780(CFS)
Half street flow at end of street =      1.890(CFS)
Depth of flow =   0.269(Ft.), Average velocity =   2.291(Ft/s)
Flow width (from curb towards crown)=   8.680(Ft.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      303.000 to Point/Station      304.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   708.700(Ft.)
```

```
Downstream point/station elevation =   706.900(Ft.)
Pipe length  =   102.10(Ft.) Slope =   0.0176  Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     3.780(CFS)
Given pipe size =     12.00(In.)
Calculated individual pipe flow  =     3.780(CFS)
Normal flow depth in pipe =    8.11(In.)
Flow top width inside pipe =   11.23(In.)
Critical Depth =    9.93(In.)
Pipe flow velocity =      6.69(Ft/s)
Travel time through pipe =    0.25 min.
Time of concentration (TC) =     6.21 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      304.000 to Point/Station      305.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =   706.600(Ft.)
Downstream point/station elevation =   705.100(Ft.)
Pipe length  =   198.90(Ft.) Slope =   0.0075  Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =     3.780(CFS)
Given pipe size =     12.00(In.)
NOTE: Normal flow is pressure flow in user selected pipe size.
The approximate hydraulic grade line above the pipe invert is
     1.277(Ft.)  at the headworks or inlet of the pipe(s)
 Pipe friction loss =      2.238(Ft.)
 Minor friction loss =      0.539(Ft.)K-factor =   1.50
Pipe flow velocity =      4.81(Ft/s)
Travel time through pipe =    0.69 min.
Time of concentration (TC) =     6.90 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      305.000 to Point/Station      306.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity (I) =      7.493(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.720 given for subarea
Time of concentration =     6.90 min.
Rainfall intensity =      7.493(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.720  CA =      0.850
Subarea runoff =      2.588(CFS) for      0.543(Ac.)
Total runoff =      6.367(CFS)   Total area =       1.181(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      305.000 to Point/Station      306.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity (I) =      7.493(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.720 given for subarea
```

```
Time of concentration =      6.90 min.
Rainfall intensity =      7.493(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.720  CA =      1.404
Subarea runoff =      4.154(CFS) for      0.770(Ac.)
Total runoff =     10.521(CFS)   Total area =       1.951(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      305.000 to Point/Station      306.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity (I) =      7.493(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.720 given for subarea
Time of concentration =      6.90 min.
Rainfall intensity =      7.493(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.720  CA =      1.556
Subarea runoff =      1.138(CFS) for      0.211(Ac.)
Total runoff =     11.660(CFS)   Total area =       2.162(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      305.000 to Point/Station      306.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------------
Upstream point/station elevation =    704.800(Ft.)
Downstream point/station elevation =    704.500(Ft.)
Pipe length  =    10.70(Ft.) Slope =    0.0280  Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    11.660(CFS)
Given pipe size =     18.00(In.)
Calculated individual pipe flow  =    11.660(CFS)
Normal flow depth in pipe =    10.71(In.)
Flow top width inside pipe =    17.67(In.)
Critical Depth =    15.60(In.)
Pipe flow velocity =     10.64(Ft/s)
Travel time through pipe =    0.02 min.
Time of concentration (TC) =     6.91 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station      306.000 to Point/Station      307.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity (I) =      7.481(In/Hr) for a   100.0 year storm
User specified 'C' value of 0.720 given for subarea
Time of concentration =      6.91 min.
Rainfall intensity =      7.481(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.720  CA =      1.671
Subarea runoff =      0.844(CFS) for      0.160(Ac.)
Total runoff =     12.503(CFS)   Total area =       2.322(Ac.)
```

End of computations, total study area = 2.322 (Ac.)

EXHIBIT B

RATIONAL METHOD HYDROGRAPHS

North Iris Lane Preliminary Design 17-Mar-22 **10 Minute Hydrograph**

N-1 **Post Development Condition**

BMP-3

Rational Method Unit Hydrograph 6 hr Storm

45

County of San Diego Hydrology Manual - Chapter 6

Area	0.575	ac	P6	1.60	in	P24	3.50		
C	0.720		Storm	2	year				
Tc=	10.66							Q100=	2.44
Tc=	**10**	minutes	I2=	2.70	in/hr	7.44 P6 Tc ^-0.645			
Q2 =	1.12	cfs	I100=	5.90	in/hr				
Q100=	2.44	cfs				2,405		(15)	
N=	36	Number of Precipitation Blocks			Vol	2,390	1.15	0.62%	

North Iris Lane

360 17-Mar-22

Qn = 60 C A Pn/Tc

N-1

Pt(n) = 0.124 P6 (n Tc)^0.355

Pn = Pt(n) - Pt(n-1)

N	Pt(n)	Pn	Q(n)	Q(n)
1	0.45	0.45	1.116	1.116
2	0.57	0.13	0.311	0.311
3	0.66	0.09	0.221	0.221
4	0.73	0.07	0.177	0.177
5	0.80	0.06	0.151	0.151
6	0.85	0.05	0.132	0.132
7	0.90	0.05	0.119	0.119
8	0.94	0.04	0.108	0.108
9	0.98	0.04	0.100	0.100
10	1.02	0.04	0.093	0.093
11	1.05	0.04	0.087	0.087
12	1.09	0.03	0.082	0.082
13	1.12	0.03	0.078	0.078
14	1.15	0.03	0.074	0.074
15	1.18	0.03	0.071	0.071
16	1.20	0.03	0.068	0.068
17	1.23	0.03	0.065	0.065
18	1.25	0.03	0.063	0.063
19	1.28	0.02	0.060	0.060
20	1.30	0.02	0.058	0.058
21	1.32	0.02	0.056	0.056
22	1.35	0.02	0.055	0.055
23	1.37	0.02	0.053	0.053
24	1.39	0.02	0.052	0.052
25	1.41	0.02	0.050	0.050
26	1.43	0.02	0.049	0.049
27	1.45	0.02	0.048	0.048
28	1.47	0.02	0.047	0.047
29	1.48	0.02	0.046	0.046
30	1.50	0.02	0.045	0.045
31	1.52	0.02	0.044	0.044
32	1.54	0.02	0.043	0.043
33	1.55	0.02	0.042	0.042
34	1.57	0.02	0.041	0.041
35	1.59	0.02	0.040	0.040
36	1.60	0.02	0.040	0.040
37	1.62	0.02	0.039	0.000

N	Time (min)	Time (hrs)	Qn (cfs)
1	250	4.17	1.116
2	240	4.00	0.311
3	230	3.83	0.221
5	220	3.67	0.151
6	210	3.50	0.132
8	200	3.33	0.108
9	190	3.17	0.100
11	180	3.00	0.087
12	170	2.83	0.082
14	160	2.67	0.074
15	150	2.50	0.071
17	140	2.33	0.065
18	130	2.17	0.063
20	120	2.00	0.058
21	110	1.83	0.056
23	100	1.67	0.053
24	90	1.50	0.052
26	80	1.33	0.049
27	70	1.17	0.048
29	60	1.00	0.046
30	50	0.83	0.045
32	40	0.67	0.043
33	30	0.50	0.042
35	20	0.33	0.040
36	10	0.17	0.040
38	0	0.00	0.000

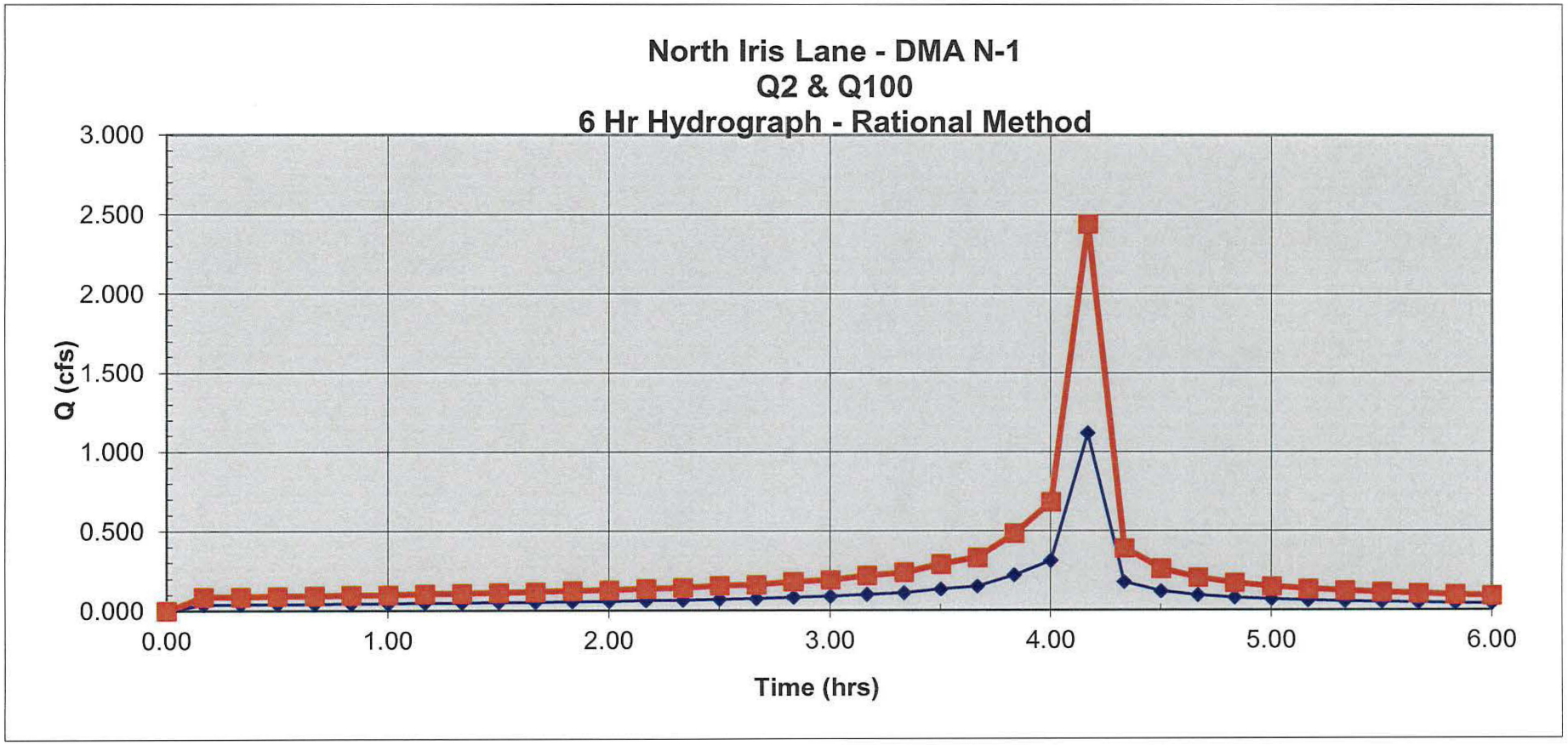
N	Time (min)	Time (hrs)	Qn (cfs)
4	260	4.33	0.000
7	270	4.50	0.119
10	280	4.67	0.093
13	290	4.83	0.078
16	300	5.00	0.068
19	310	5.17	0.060
22	320	5.33	0.055
25	330	5.50	0.050
28	340	5.67	0.047
31	350	5.83	0.044
34	360	6.00	0.041
37	370	6.17	0.000

North Iris Lane Preliminary Design 17-Mar-22

N-1

Post Development Hydrographs - 6 Hour Rational Method

N	Time (min)	Time (hrs)	2 Year Qn (cfs)	Vol (cf)	Time (hrs)	2 Q(n)	5 Q(n)	10 Q(n)	25 Q(n)	50 Q(n)	100 Q(n)
					Ratio X/2		1.219	1.469	1.750	1.844	2.188
					P6	1.6	1.95	2.35	2.8	2.95	3.5
					Pre-Deve	0.543	0.661	0.797	0.949	1.000	1.187
					Peak	1.116	1.360	1.639	1.953	2.058	2.441
					Return /Yr	**2**	**5**	**10**	**25**	**50**	**100**
	0	0.00	0.000	0	0.00	0.000	0.000	0.000	0.000	0.000	0.000
36	10	0.17	0.040	12	0.17	0.040	0.048	0.058	0.069	0.073	0.087
35	20	0.33	0.040	24	0.33	0.040	0.049	0.059	0.071	0.074	0.088
33	30	0.50	0.042	25	0.50	0.042	0.051	0.062	0.073	0.077	0.092
32	40	0.67	0.043	25	0.67	0.043	0.052	0.063	0.075	0.079	0.094
30	50	0.83	0.045	26	0.83	0.045	0.054	0.066	0.078	0.082	0.098
29	60	1.00	0.046	27	1.00	0.046	0.056	0.067	0.080	0.084	0.100
27	70	1.17	0.048	28	1.17	0.048	0.058	0.070	0.084	0.088	0.105
26	80	1.33	0.049	29	1.33	0.049	0.060	0.072	0.086	0.090	0.107
24	90	1.50	0.052	30	1.50	0.052	0.063	0.076	0.091	0.095	0.113
23	100	1.67	0.053	31	1.67	0.053	0.065	0.078	0.093	0.098	0.116
21	110	1.83	0.056	33	1.83	0.056	0.069	0.083	0.099	0.104	0.124
20	120	2.00	0.058	34	2.00	0.058	0.071	0.086	0.102	0.108	0.128
18	130	2.17	0.063	36	2.17	0.063	0.076	0.092	0.109	0.115	0.137
17	140	2.33	0.065	38	2.33	0.065	0.079	0.095	0.114	0.120	0.142
15	150	2.50	0.071	41	2.50	0.071	0.086	0.104	0.124	0.130	0.154
14	160	2.67	0.074	43	2.67	0.074	0.090	0.109	0.129	0.136	0.162
12	170	2.83	0.082	47	2.83	0.082	0.100	0.120	0.144	0.151	0.179
11	180	3.00	0.087	51	3.00	0.087	0.106	0.128	0.152	0.160	0.190
9	190	3.17	0.100	56	3.17	0.100	0.122	0.146	0.174	0.184	0.218
8	200	3.33	0.108	62	3.33	0.108	0.132	0.159	0.189	0.199	0.236
6	210	3.50	0.132	72	3.50	0.132	0.161	0.194	0.231	0.244	0.289
5	220	3.67	0.151	85	3.67	0.151	0.183	0.221	0.263	0.277	0.329
3	230	3.83	0.221	111	3.83	0.221	0.269	0.325	0.387	0.407	0.483
2	240	4.00	0.311	160	4.00	0.311	0.379	0.457	0.545	0.574	0.681
1	**250**	**4.17**	**1.116**	**428**	**4.17**	**1.116**	**1.360**	**1.639**	**1.953**	**2.058**	**2.441**
4	260	4.33	0.177	388	4.33	0.177	0.216	0.260	0.310	0.327	0.388
7	270	4.50	0.119	89	4.50	0.119	0.145	0.174	0.208	0.219	0.259
10	280	4.67	0.093	63	4.67	0.093	0.113	0.136	0.162	0.171	0.203
13	290	4.83	0.078	51	4.83	0.078	0.095	0.114	0.136	0.143	0.170
16	300	5.00	0.068	44	5.00	0.068	0.082	0.099	0.118	0.125	0.148
19	310	5.17	0.060	38	5.17	0.060	0.074	0.089	0.106	0.111	0.132
22	320	5.33	0.055	35	5.33	0.055	0.067	0.080	0.096	0.101	0.120
25	330	5.50	0.050	32	5.50	0.050	0.061	0.074	0.088	0.093	0.110
28	340	5.67	0.047	29	5.67	0.047	0.057	0.069	0.082	0.086	0.102
31	350	5.83	0.044	27	5.83	0.044	0.053	0.064	0.076	0.081	0.096
34	360	6.00	0.041	25	6.00	0.041	0.050	0.060	0.072	0.076	0.090
37	370	6.17	0.000	12	6.17	0.000	0.000	0.000	0.000	0.000	0.000


North Iris Lane - DMA N-1
Q2 & Q100
6 Hr Hydrograph - Rational Method
3.000
2.500
2.000
1.500
1.000
0.500
0.000
Q (cfs)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
Time (hrs)

North Iris Lane Preliminary Design 17-Mar-22 **6 Minute Hydrograph**

S-1 **Post Development Condition**

Basin 2 -Middle

Rational Method Unit Hydrograph 6 hr Storm

County of San Diego Hydrology Manual - Chapter 6

Area	2.322	ac	P6	1.60	in	P24	2.50		
C	0.720		Storm	2	year				
Tc=	6.91							Q100=	13.71
Tc=	**6**	minutes	I2=	3.75	in/hr	7.44 P6 Tc ^-0.645			
Q2 =	6.27	cfs	I100=	8.20	in/hr				
Q100=	13.71	cfs				9,710		(31)	
N=	60	Number of Precipitation Blocks			Vol	9,679	1.15	0.32%	

North Iris Lane Preliminary Design 17-Mar-22

S-1

Post Development Hydrographs - 6 Hour Rational Method

N	Time (min)	Time (hrs)	2 Year Qn (cfs)	Vol (cf)	Ratio X/2 P6 Pre-Deve Peak Return /Yr Time (hrs)	1.6 2.754 6.266 2 Q(n)	1.219 1.95 3.357 7.637 5 Q(n)	1.469 2.35 4.045 9.203 10 Q(n)	1.750 2.8 4.820 10.965 25 Q(n)	1.844 2.95 5.078 11.553 50 Q(n)	2.188 3.5 6.025 13.707 100 Q(n)
	0	0.00	0.000	0	0.00	0.000	0.000	0.000	0.000	0.000	0.000
60	6	0.10	0.159	29	0.10	0.159	0.194	0.234	0.279	0.294	0.349
59	12	0.20	0.161	58	0.20	0.161	0.196	0.237	0.282	0.297	0.353
57	18	0.30	0.165	59	0.30	0.165	0.201	0.242	0.289	0.304	0.361
56	24	0.40	0.167	60	0.40	0.167	0.203	0.245	0.292	0.308	0.365
54	30	0.50	0.171	61	0.50	0.171	0.208	0.251	0.299	0.315	0.374
53	36	0.60	0.173	62	0.60	0.173	0.211	0.254	0.303	0.319	0.378
51	42	0.70	0.177	63	0.70	0.177	0.216	0.260	0.310	0.327	0.388
50	48	0.80	0.180	64	0.80	0.180	0.219	0.264	0.314	0.331	0.393
48	54	0.90	0.184	66	0.90	0.184	0.225	0.271	0.323	0.340	0.403
47	60	1.00	0.187	67	1.00	0.187	0.228	0.275	0.327	0.345	0.409
45	66	1.10	0.192	68	1.10	0.192	0.234	0.282	0.337	0.355	0.421
44	72	1.20	0.195	70	1.20	0.195	0.238	0.287	0.342	0.360	0.427
42	78	1.30	0.201	71	1.30	0.201	0.245	0.295	0.352	0.371	0.440
41	84	1.40	0.204	73	1.40	0.204	0.249	0.300	0.358	0.377	0.447
39	90	1.50	0.211	75	1.50	0.211	0.257	0.310	0.370	0.389	0.462
38	96	1.60	0.215	77	1.60	0.215	0.262	0.315	0.376	0.396	0.470
36	102	1.70	0.222	79	1.70	0.222	0.271	0.327	0.389	0.410	0.487
35	108	1.80	0.227	81	1.80	0.227	0.276	0.333	0.397	0.418	0.496
33	114	1.90	0.236	83	1.90	0.236	0.287	0.346	0.412	0.434	0.515
32	120	2.00	0.240	86	2.00	0.240	0.293	0.353	0.421	0.443	0.526
30	126	2.10	0.251	88	2.10	0.251	0.306	0.368	0.439	0.462	0.548
29	132	2.20	0.256	91	2.20	0.256	0.312	0.377	0.449	0.473	0.561
27	138	2.30	0.269	95	2.30	0.269	0.327	0.395	0.470	0.495	0.588
26	144	2.40	0.275	98	2.40	0.275	0.336	0.405	0.482	0.508	0.603
24	**150**	**2.50**	**0.290**	**102**	**2.50**	**0.290**	**0.354**	**0.426**	**0.508**	**0.535**	**0.635**
23	156	2.60	0.299	106	2.60	0.299	0.364	0.439	0.523	0.551	0.653
21	162	2.70	0.317	111	2.70	0.317	0.386	0.466	0.555	0.585	0.694
20	168	2.80	0.327	116	2.80	0.327	0.399	0.481	0.573	0.604	0.716
18	174	2.90	0.351	122	2.90	0.351	0.428	0.516	0.615	0.647	0.768
17	180	3.00	0.365	129	3.00	0.365	0.445	0.536	0.638	0.673	0.798
15	186	3.10	0.396	137	3.10	0.396	0.483	0.582	0.694	0.731	0.867
14	192	3.20	0.415	146	3.20	0.415	0.506	0.610	0.727	0.766	0.908
12	198	3.30	0.460	158	3.30	0.460	0.561	0.676	0.806	0.849	1.007
11	204	3.40	0.488	171	3.40	0.488	0.595	0.717	0.855	0.900	1.068
9	210	3.50	0.560	189	3.50	0.560	0.682	0.822	0.980	1.032	1.224
8	216	3.60	0.607	210	3.60	0.607	0.740	0.891	1.062	1.119	1.328
6	222	3.70	0.742	243	3.70	0.742	0.904	1.090	1.298	1.368	1.623
5	228	3.80	0.845	286	3.80	0.845	1.030	1.241	1.479	1.558	1.848
3	234	3.90	1.241	375	3.90	1.241	1.512	1.822	2.171	2.287	2.714
2	240	4.00	1.748	538	4.00	1.748	2.130	2.567	3.059	3.223	3.824
1	246	4.10	6.266	1,443	4.10	6.266	7.637	9.203	10.965	11.553	13.707
4	252	4.20	0.995	1,307	4.20	0.995	1.213	1.462	1.741	1.835	2.177
7	258	4.30	0.666	299	4.30	0.666	0.811	0.978	1.165	1.228	1.456
10	264	4.40	0.521	214	4.40	0.521	0.635	0.765	0.912	0.960	1.140
13	270	4.50	0.436	172	4.50	0.436	0.532	0.641	0.764	0.805	0.954
16	276	4.60	0.380	147	4.60	0.380	0.463	0.558	0.665	0.700	0.831
19	282	4.70	0.339	129	4.70	0.339	0.413	0.498	0.593	0.625	0.741
22	288	4.80	0.307	116	4.80	0.307	0.375	0.452	0.538	0.567	0.673
25	294	4.90	0.283	106	4.90	0.283	0.344	0.415	0.495	0.521	0.618
28	300	5.00	0.262	98	5.00	0.262	0.320	0.385	0.459	0.484	0.574
31	306	5.10	0.245	91	5.10	0.245	0.299	0.360	0.429	0.452	0.537
34	312	5.20	0.231	86	5.20	0.231	0.282	0.339	0.404	0.426	0.505
37	318	5.30	0.219	81	5.30	0.219	0.266	0.321	0.382	0.403	0.478
40	324	5.40	0.208	77	5.40	0.208	0.253	0.305	0.363	0.383	0.454
43	330	5.50	0.198	73	5.50	0.198	0.241	0.291	0.347	0.365	0.433
46	336	5.60	0.190	70	5.60	0.190	0.231	0.278	0.332	0.350	0.415
49	342	5.70	0.182	67	5.70	0.182	0.222	0.267	0.318	0.335	0.398
52	348	5.80	0.175	64	5.80	0.175	0.213	0.257	0.306	0.323	0.383
55	354	5.90	0.169	62	5.90	0.169	0.206	0.248	0.295	0.311	0.369
58	360	6.00	0.163	60	6.00	0.163	0.199	0.239	0.285	0.301	0.357
61	366	6.10	0.000	29	6.10	0.000	0.000	0.000	0.000	0.000	0.000

North Iris Lane Preliminary Design 17-Mar-22 **6 Minute Hydrograph**

S-2 **Post Development Condition**

BMP-1 (South)

Rational Method Unit Hydrograph 6 hr Storm

County of San Diego Hydrology Manual - Chapter 6

Area	2.322	ac	P6	1.60	in	P24	2.50		
C	0.720		Storm	2	year				
Tc=	6.91							Q100=	13.71
Tc=	**6**	minutes	I2=	3.75	in/hr	7.44 P6 Tc ^-0.645			
Q2 =	6.27	cfs	I100=	8.20	in/hr				
Q100=	13.71	cfs				9,710		(31)	
N=	60	Number of Precipitation Blocks			Vol	9,679	1.15	0.32%	

North Iris Lane

360 17-Mar-22

Qn = 60 C A Pn/Tc

S-2

Pt(n) = 0.124 P6 (n Tc)^0.355

Pn = Pt(n) - Pt(n-1)

N	Pt(n)	Pn	Q(n)	Q(n)
1	0.37	0.37	6.266	6.266
2	0.48	0.10	1.748	1.748
3	0.55	0.07	1.241	1.241
4	0.61	0.06	0.995	0.995
5	0.66	0.05	0.845	0.845
6	0.71	0.04	0.742	0.742
7	0.75	0.04	0.666	0.666
8	0.78	0.04	0.607	0.607
9	0.82	0.03	0.560	0.560
10	0.85	0.03	0.521	0.521
11	0.88	0.03	0.488	0.488
12	0.91	0.03	0.460	0.460
13	0.93	0.03	0.436	0.436
14	0.96	0.02	0.415	0.415
15	0.98	0.02	0.396	0.396
16	1.00	0.02	0.380	0.380
17	1.02	0.02	0.365	0.365
18	1.05	0.02	0.351	0.351
19	1.07	0.02	0.339	0.339
20	1.09	0.02	0.327	0.327
21	1.10	0.02	0.317	0.317
22	1.12	0.02	0.307	0.307
23	1.14	0.02	0.299	0.299
24	1.16	0.02	0.290	0.290
25	1.18	0.02	0.283	0.283
26	1.19	0.02	0.275	0.275
27	1.21	0.02	0.269	0.269
28	1.22	0.02	0.262	0.262
29	1.24	0.02	0.256	0.256
30	1.25	0.01	0.251	0.251
31	1.27	0.01	0.245	0.245
32	1.28	0.01	0.240	0.240
33	1.30	0.01	0.236	0.236
34	1.31	0.01	0.231	0.231
35	1.32	0.01	0.227	0.227
36	1.34	0.01	0.222	0.222
37	1.35	0.01	0.219	0.219
38	1.36	0.01	0.215	0.215
39	1.38	0.01	0.211	0.211
40	1.39	0.01	0.208	0.208
41	1.40	0.01	0.204	0.204
42	1.41	0.01	0.201	0.201
43	1.42	0.01	0.198	0.198
44	1.44	0.01	0.195	0.195
45	1.45	0.01	0.192	0.192
46	1.46	0.01	0.190	0.190
47	1.47	0.01	0.187	0.187
48	1.48	0.01	0.184	0.184
49	1.49	0.01	0.182	0.182
50	1.50	0.01	0.180	0.180
51	1.51	0.01	0.177	0.177
52	1.52	0.01	0.175	0.175
53	1.53	0.01	0.173	0.173
54	1.54	0.01	0.171	0.171
55	1.55	0.01	0.169	0.169
56	1.56	0.01	0.167	0.167
57	1.57	0.01	0.165	0.165
58	1.58	0.01	0.163	0.163
59	1.59	0.01	0.161	0.161
60	1.60	0.01	0.159	0.159
61	1.61	0.01	0.158	0.000

N	Time (min)	Time (hrs)	Qn (cfs)
1	246	4.10	6.266
2	240	4.00	1.748
3	234	3.90	1.241
5	228	3.80	0.845
6	222	3.70	0.742
8	216	3.60	0.607
9	210	3.50	0.560
11	204	3.40	0.488
12	198	3.30	0.460
14	192	3.20	0.415
15	186	3.10	0.396
17	180	3.00	0.365
18	174	2.90	0.351
20	168	2.80	0.327
21	162	2.70	0.317
23	156	2.60	0.299
24	150	2.50	0.290
26	144	2.40	0.275
27	138	2.30	0.269
29	132	2.20	0.256
30	126	2.10	0.251
32	120	2.00	0.240
33	114	1.90	0.236
35	108	1.80	0.227
36	102	1.70	0.222
38	96	1.60	0.215
39	90	1.50	0.211
41	84	1.40	0.204
42	78	1.30	0.201
44	72	1.20	0.195
45	66	1.10	0.192
47	60	1.00	0.187
48	54	0.90	0.184
50	48	0.80	0.180
51	42	0.70	0.177
53	36	0.60	0.173
54	30	0.50	0.171
56	24	0.40	0.167
57	18	0.30	0.165
59	12	0.20	0.161
60	6	0.10	0.159

N	Time (min)	Time (hrs)	Qn (cfs)
4	252	4.20	0.000
7	258	4.30	0.666
10	264	4.40	0.521
13	270	4.50	0.436
16	276	4.60	0.380
19	282	4.70	0.339
22	288	4.80	0.307
25	294	4.90	0.283
28	300	5.00	0.262
31	306	5.10	0.245
34	312	5.20	0.231
37	318	5.30	0.219
40	324	5.40	0.208
43	330	5.50	0.198
46	336	5.60	0.190
49	342	5.70	0.182
52	348	5.80	0.175
55	354	5.90	0.169
58	360	6.00	0.163
61	366	6.10	0.000

North Iris Lane Preliminary Design 17-Mar-22

S-2

Post Development Hydrographs - 6 Hour Rational Method

					Ratio X/2		1.219	1.469	1.750	1.844	2.188
					P6	1.6	1.95	2.35	2.8	2.95	3.5
					Pre-Deve	2.754	3.357	4.045	4.820	5.078	6.025
					Peak	6.266	7.637	9.203	10.965	11.553	13.707
			2 Year		Return /Yr	2	5	10	25	50	100
N	Time (min)	Time (hrs)	Qn (cfs)	Vol (cf)	Time (hrs)	Q(n)	Q(n)	Q(n)	Q(n)	Q(n)	Q(n)
	0	0.00	0.000	0	0.00	0.000	0.000	0.000	0.000	0.000	0.000
60	6	0.10	0.159	29	0.10	0.159	0.194	0.234	0.279	0.294	0.349
59	12	0.20	0.161	58	0.20	0.161	0.196	0.237	0.282	0.297	0.353
57	18	0.30	0.165	59	0.30	0.165	0.201	0.242	0.289	0.304	0.361
56	24	0.40	0.167	60	0.40	0.167	0.203	0.245	0.292	0.308	0.365
54	30	0.50	0.171	61	0.50	0.171	0.208	0.251	0.299	0.315	0.374
53	36	0.60	0.173	62	0.60	0.173	0.211	0.254	0.303	0.319	0.378
51	42	0.70	0.177	63	0.70	0.177	0.216	0.260	0.310	0.327	0.388
50	48	0.80	0.180	64	0.80	0.180	0.219	0.264	0.314	0.331	0.393
48	54	0.90	0.184	66	0.90	0.184	0.225	0.271	0.323	0.340	0.403
47	60	1.00	0.187	67	1.00	0.187	0.228	0.275	0.327	0.345	0.409
45	66	1.10	0.192	68	1.10	0.192	0.234	0.282	0.337	0.355	0.421
44	72	1.20	0.195	70	1.20	0.195	0.238	0.287	0.342	0.360	0.427
42	78	1.30	0.201	71	1.30	0.201	0.245	0.295	0.352	0.371	0.440
41	84	1.40	0.204	73	1.40	0.204	0.249	0.300	0.358	0.377	0.447
39	90	1.50	0.211	75	1.50	0.211	0.257	0.310	0.370	0.389	0.462
38	96	1.60	0.215	77	1.60	0.215	0.262	0.315	0.376	0.396	0.470
36	102	1.70	0.222	79	1.70	0.222	0.271	0.327	0.389	0.410	0.487
35	108	1.80	0.227	81	1.80	0.227	0.276	0.333	0.397	0.418	0.496
33	114	1.90	0.236	83	1.90	0.236	0.287	0.346	0.412	0.434	0.515
32	120	2.00	0.240	86	2.00	0.240	0.293	0.353	0.421	0.443	0.526
30	126	2.10	0.251	88	2.10	0.251	0.306	0.368	0.439	0.462	0.548
29	132	2.20	0.256	91	2.20	0.256	0.312	0.377	0.449	0.473	0.561
27	138	2.30	0.269	95	2.30	0.269	0.327	0.395	0.470	0.495	0.588
26	144	2.40	0.275	98	2.40	0.275	0.336	0.405	0.482	0.508	0.603
24	150	2.50	0.290	102	2.50	0.290	0.354	0.426	0.508	0.535	0.635
23	156	2.60	0.299	106	2.60	0.299	0.364	0.439	0.523	0.551	0.653
21	162	2.70	0.317	111	2.70	0.317	0.386	0.466	0.555	0.585	0.694
20	168	2.80	0.327	116	2.80	0.327	0.399	0.481	0.573	0.604	0.716
18	174	2.90	0.351	122	2.90	0.351	0.428	0.516	0.615	0.647	0.768
17	180	3.00	0.365	129	3.00	0.365	0.445	0.536	0.638	0.673	0.798
15	186	3.10	0.396	137	3.10	0.396	0.483	0.582	0.694	0.731	0.867
14	192	3.20	0.415	146	3.20	0.415	0.506	0.610	0.727	0.766	0.908
12	198	3.30	0.460	158	3.30	0.460	0.561	0.676	0.806	0.849	1.007
11	204	3.40	0.488	171	3.40	0.488	0.595	0.717	0.855	0.900	1.068
9	210	3.50	0.560	189	3.50	0.560	0.682	0.822	0.980	1.032	1.224
8	216	3.60	0.607	210	3.60	0.607	0.740	0.891	1.062	1.119	1.328
6	222	3.70	0.742	243	3.70	0.742	0.904	1.090	1.298	1.368	1.623
5	228	3.80	0.845	286	3.80	0.845	1.030	1.241	1.479	1.558	1.848
3	234	3.90	1.241	375	3.90	1.241	1.512	1.822	2.171	2.287	2.714
2	240	4.00	1.748	538	4.00	1.748	2.130	2.567	3.059	3.223	3.824
1	246	4.10	6.266	1,443	4.10	6.266	7.637	9.203	10.965	11.553	13.707
4	252	4.20	0.995	1,307	4.20	0.995	1.213	1.462	1.741	1.835	2.177
7	258	4.30	0.666	299	4.30	0.666	0.811	0.978	1.165	1.228	1.456
10	264	4.40	0.521	214	4.40	0.521	0.635	0.765	0.912	0.960	1.140
13	270	4.50	0.436	172	4.50	0.436	0.532	0.641	0.764	0.805	0.954
16	276	4.60	0.380	147	4.60	0.380	0.463	0.558	0.665	0.700	0.831
19	282	4.70	0.339	129	4.70	0.339	0.413	0.498	0.593	0.625	0.741
22	288	4.80	0.307	116	4.80	0.307	0.375	0.452	0.538	0.567	0.673
25	294	4.90	0.283	106	4.90	0.283	0.344	0.415	0.495	0.521	0.618
28	300	5.00	0.262	98	5.00	0.262	0.320	0.385	0.459	0.484	0.574
31	306	5.10	0.245	91	5.10	0.245	0.299	0.360	0.429	0.452	0.537
34	312	5.20	0.231	86	5.20	0.231	0.282	0.339	0.404	0.426	0.505
37	318	5.30	0.219	81	5.30	0.219	0.266	0.321	0.382	0.403	0.478
40	324	5.40	0.208	77	5.40	0.208	0.253	0.305	0.363	0.383	0.454
43	330	5.50	0.198	73	5.50	0.198	0.241	0.291	0.347	0.365	0.433
46	336	5.60	0.190	70	5.60	0.190	0.231	0.278	0.332	0.350	0.415
49	342	5.70	0.182	67	5.70	0.182	0.222	0.267	0.318	0.335	0.398
52	348	5.80	0.175	64	5.80	0.175	0.213	0.257	0.306	0.323	0.383
55	354	5.90	0.169	62	5.90	0.169	0.206	0.248	0.295	0.311	0.369
58	360	6.00	0.163	60	6.00	0.163	0.199	0.239	0.285	0.301	0.357
61	366	6.10	0.000	29	6.10	0.000	0.000	0.000	0.000	0.000	0.000

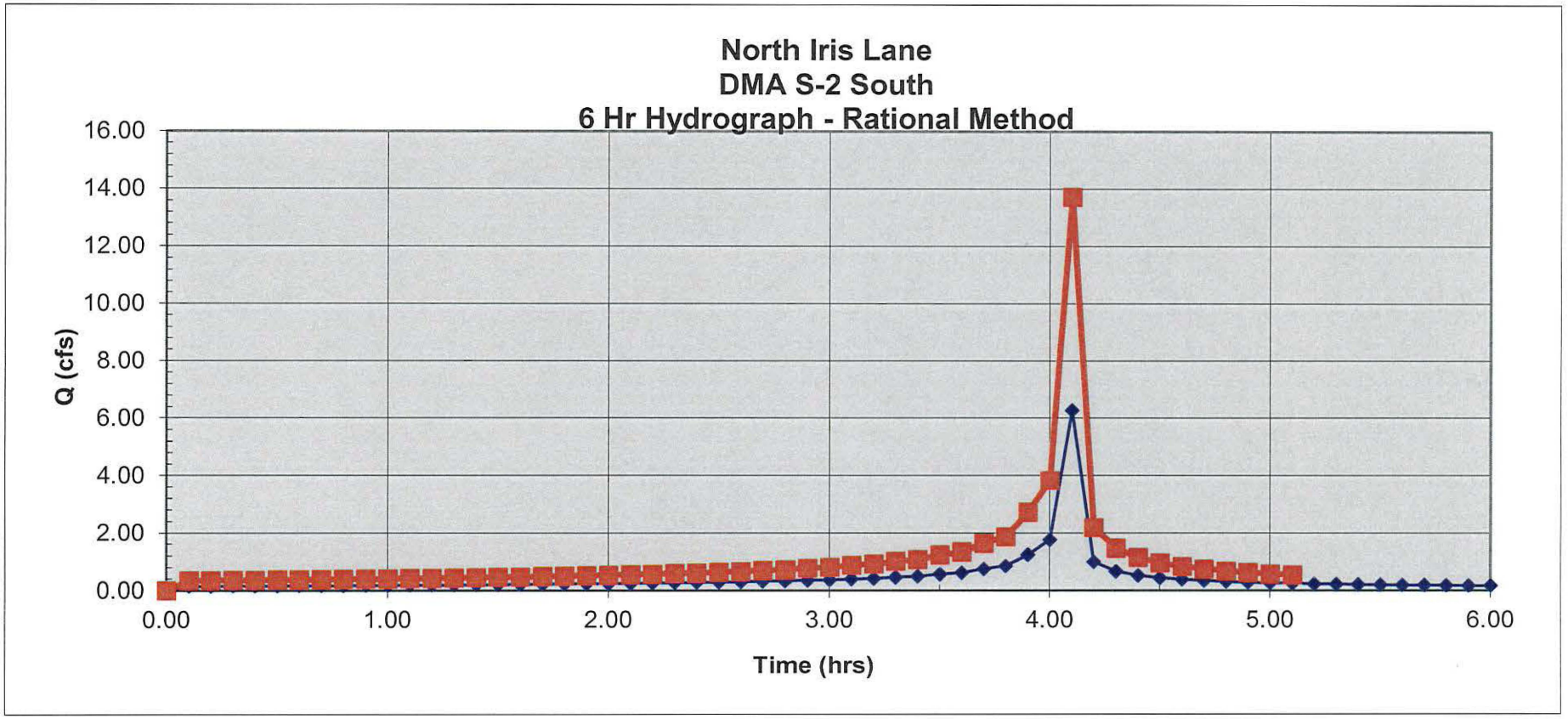

North Iris Lane
DMA S-2 South
6 Hr Hydrograph - Rational Method
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
Q (cfs)
0.00
1.00
2.00
3.00
4.00
5.00
6.00
Time (hrs)

EXHIBIT C

STORAGE INDICATION TABLES

North Iris Lane

Basin 3				715.60				0.311	0.014					
BMP-3 / HMP 3		Top	717.10		6,201 cf					Height	0.30			4.80
		Storage @ Overflow	716.60		4,978 cf			711.80			1.500			48
Basin Storage Volumes			124.58%		dT= 10			dT= 15			1.500			48
											712.05	Not Used	Not Used	716.60
DEPTH (FT)	ELEVATION	AREA (SF)	Void Ratio	Volume (CF)	STORAGE (CF)	2S/dT (CFS)	2S/dT + O (CFS)	2S/dT (CFS)	2S/dT + O (CFS)	OUTFLOW (CFS)	#1 (CFS)	#2 (CFS)	#3 (CFS)	Overflow (CFS)
0.00	711.55	2,010	0.40	0	0	0.00	0.00	0.00	0.00	0.00				
0.10	711.65	2,010	0.40	80	80	0.27	0.28	0.18	0.19	0.01				
0.20	711.75	2,010	0.40	80	161	0.54	0.55	0.36	0.37	0.01				
0.25	711.80	2,010	0.40	40	201	0.67	0.68	0.45	0.46	0.01	0.000			
0.35	711.90	2,010	0.40	80	281	0.94	0.97	0.63	0.66	0.03	0.017			
0.45	712.00	2,010	0.40	80	362	1.21	1.25	0.80	0.85	0.04	0.027			
0.55	712.10	2,010	0.40	80	442	1.47	1.52	0.98	1.03	0.05	0.033			
0.65	712.20	2,010	0.40	80	523	1.74	1.80	1.16	1.21	0.05	0.039			
0.75	712.30	2,010	0.40	80	603	2.01	2.07	1.34	1.40	0.06	0.043			
0.85	712.40	2,010	0.40	80	683	2.28	2.34	1.52	1.58	0.06	0.047			
0.95	712.50	2,010	0.40	80	764	2.55	2.61	1.70	1.76	0.07	0.051			
1.05	712.60	2,010	0.40	80	844	2.81	2.88	1.88	1.95	0.07	0.055			
1.15	712.70	2,010	0.40	80	925	3.08	3.15	2.05	2.13	0.07	0.058			
1.25	712.80	2,010	0.40	80	1,005	3.35	3.43	2.23	2.31	0.08	0.061			
1.35	712.90	2,010	0.40	80	1,085	3.62	3.70	2.41	2.49	0.08	0.064			
1.45	713.00	2,010	0.40	80	1,166	3.89	3.97	2.59	2.67	0.08	0.067			
1.55	713.10	2,010	0.40	80	1,246	4.15	4.24	2.77	2.85	0.08	0.070			
1.65	713.20	2,010	0.40	80	1,327	4.42	4.51	2.95	3.04	0.09	0.073			
1.75	713.30	2,010	0.40	80	1,407	4.69	4.78	3.13	3.22	0.09	0.076			
1.85	713.40	2,010	0.40	80	1,487	4.96	5.05	3.31	3.40	0.09	0.078			
1.95	713.50	2,010	0.40	80	1,568	5.23	5.32	3.48	3.58	0.10	0.081			
2.05	713.60	2,010	0.40	80	1,648	5.49	5.59	3.66	3.76	0.10	0.083			
2.15	713.70	2,010	0.40	80	1,729	5.76	5.86	3.84	3.94	0.10	0.085			
2.25	713.80	2,010	0.40	80	1,809	6.03	6.13	4.02	4.12	0.10	0.088			
2.35	713.90	2,010	0.40	80	1,889	6.30	6.40	4.20	4.30	0.10	0.090			
2.45	714.00	2,010	0.40	80	1,970	6.57	6.67	4.38	4.48	0.11	0.092			
2.55	714.10	2,010	0.30	70	2,040	6.80	6.91	4.53	4.64	0.11	0.094			
2.65	714.20	2,010	0.30	60	2,100	7.00	7.11	4.67	4.78	0.11	0.096			
2.75	714.30	2,010	0.30	60	2,161	7.20	7.32	4.80	4.91	0.11	0.098			
2.85	714.40	2,010	0.30	60	2,221	7.40	7.52	4.94	5.05	0.11	0.100			
2.95	714.50	2,010	0.30	60	2,281	7.60	7.72	5.07	5.19	0.12	0.102			
3.05	714.60	2,010	0.30	60	2,342	7.81	7.92	5.20	5.32	0.12	0.104			
3.15	714.70	2,010	0.30	60	2,402	8.01	8.13	5.34	5.46	0.12	0.106			
3.25	714.80	2,010	0.30	60	2,462	8.21	8.33	5.47	5.59	0.12	0.108			
3.35	714.90	2,010	0.30	60	2,523	8.41	8.53	5.61	5.73	0.12	0.110			
3.45	715.00	2,010	0.30	60	2,583	8.61	8.71	5.74	5.84	0.10	0.087			
3.55	715.10	2,010	0.30	60	2,643	8.81	8.91	5.87	5.98	0.10	0.089			
3.65	715.20	2,010	0.30	60	2,703	9.01	9.12	6.01	6.11	0.10	0.090			
3.75	715.30	2,010	0.30	60	2,764	9.21	9.32	6.14	6.25	0.11	0.091			
3.85	715.40	2,010	0.30	60	2,824	9.41	9.52	6.28	6.38	0.11	0.093			
3.95	715.50	2,010	0.30	60	2,884	9.61	9.72	6.41	6.52	0.11	0.094			
4.05	715.60	2,010	1.00	131	3,015	10.05	10.16	6.70	6.81	0.11	0.095			
4.15	715.70	2,048	1.00	203	3,218	10.73	10.84	7.15	7.26	0.11	0.096			
4.25	715.80	2,086	1.00	207	3,425	11.42	11.53	7.61	7.72	0.11	0.098			
4.35	715.90	2,124	1.00	211	3,635	12.12	12.23	8.08	8.19	0.11	0.099			
4.45	716.00	2,162	1.00	214	3,849	12.83	12.95	8.55	8.67	0.11	0.100			
4.55	716.10	2,200	1.00	218	4,068	13.56	13.67	9.04	9.15	0.12	0.101			0.00
4.65	716.20	2,238	1.00	222	4,289	14.30	15.10	9.53	10.33	0.80	0.103			0.68
4.75	716.30	2,276	1.00	226	4,515	15.05	17.10	10.03	12.08	2.05	0.104			1.93
4.85	716.40	2,314	1.00	230	4,745	15.82	19.48	10.54	14.21	3.67	0.105			3.55
4.95	716.50	2,352	1.00	233	4,978	16.59	22.18	11.06	16.65	5.58	0.106			5.46
5.05	716.60	2,390	1.00	237	5,215	17.38	25.14	11.59	19.35	7.76	0.107			7.64
5.15	716.70	2,428	1.00	241	5,456	18.19	28.35	12.12	22.29	10.16	0.108			10.04
5.25	716.80	2,466	1.00	245	5,701	19.00	31.78	12.67	25.44	12.77	0.109			12.65
5.35	716.90	2,504	1.00	249	5,949	19.83	35.41	13.22	28.80	15.58	0.110			15.46
5.45	717.00	2,542	1.00	252	6,201	20.67	39.24	13.78	32.35	18.57	0.112			18.44
5.55	717.10	2,580	1.00	256	6,458	21.53	43.25	14.35	36.08	21.73	0.113			21.60

North Iris Lane

Infiltration 0.22 0.012 11.14

BMP-2 / HMP 2 Middle Top 708.00 12,762 cf Height 0.50 5.50

Storage @ Overflow 706.50 6,026 cf 0.14 1.500 0 24

Basin Storage Volumes 211.81% dT= 5 dT= 15 1.500 0 24

702.00 0.00 Not Used

DEPTH (FT)	ELEVATION	AREA (SF)	Void Ratio	Volume (CF)	STORAGE (CF)	2S/dT (CFS)	2S/dT + O (CFS)	2S/dT (CFS)	2S/dT + O (CFS)	OUTFLOW (CFS)	#1 (CFS)	#2 (CFS)	#3 (CFS)	Overflow (CFS)
0.00	701.50	2,320	0.40	0	0	0.00	0.00	0.00	0.00	0.00				
0.10	701.60	2,320	0.40	93	93	0.62	0.63	0.21	0.22	0.012				
0.20	701.70	2,320	0.40	93	186	1.24	1.25	0.41	0.42	0.012				
0.30	701.80	2,320	0.40	93	278	1.86	1.87	0.62	0.63	0.012				
0.40	701.90	2,320	0.40	93	371	2.47	2.49	0.82	0.84	0.012				
0.50	702.00	2,320	0.40	93	464	3.09	3.11	1.03	1.04	0.012	0.000			
0.60	702.10	2,320	0.40	93	557	3.71	3.74	1.24	1.27	0.028	0.017			
0.70	702.20	2,320	0.40	93	650	4.33	4.37	1.44	1.48	0.039	0.027			
0.80	702.30	2,320	0.40	93	742	4.95	4.99	1.65	1.69	0.043	0.032			
0.90	702.40	2,320	0.40	93	835	5.57	5.62	1.86	1.91	0.050	0.038			
1.00	702.50	2,320	0.40	93	928	6.19	6.24	2.06	2.12	0.055	0.043			
1.10	702.60	2,320	0.40	93	1,021	6.81	6.86	2.27	2.33	0.059	0.048			
1.20	702.70	2,320	0.40	93	1,114	7.42	7.49	2.47	2.54	0.064	0.052			
1.30	702.80	2,320	0.40	93	1,206	8.04	8.11	2.68	2.75	0.068	0.056			
1.40	702.90	2,320	0.40	93	1,299	8.66	8.73	2.89	2.96	0.071	0.059			
1.50	703.00	2,320	0.40	93	1,392	9.28	9.35	3.09	3.17	0.075	0.063			
1.60	703.10	2,320	0.40	93	1,485	9.90	9.98	3.30	3.38	0.078	0.066			
1.70	703.20	2,320	0.40	93	1,578	10.52	10.60	3.51	3.59	0.081	0.069			
1.80	703.30	2,320	0.40	93	1,670	11.14	11.22	3.71	3.80	0.084	0.072			
1.90	703.40	2,320	0.40	93	1,763	11.75	11.84	3.92	4.01	0.087	0.075			
2.00	703.50	2,320	0.40	93	1,856	12.37	12.46	4.12	4.21	0.090	0.078			
2.10	703.60	2,320	0.40	93	1,949	12.99	13.08	4.33	4.42	0.092	0.081			
2.20	703.70	2,320	0.40	93	2,042	13.61	13.71	4.54	4.63	0.095	0.083			
2.30	703.80	2,320	0.40	93	2,134	14.23	14.33	4.74	4.84	0.097	0.086			
2.40	703.90	2,320	0.40	93	2,227	14.85	14.95	4.95	5.05	0.100	0.088			
2.50	704.00	2,320	0.40	93	2,320	15.47	15.57	5.16	5.26	0.102	0.090			
2.60	704.10	2,320	0.40	93	2,413	16.09	16.19	5.36	5.47	0.105	0.093			
2.70	704.20	2,320	0.40	93	2,506	16.70	16.81	5.57	5.67	0.107	0.095			
2.80	704.30	2,320	0.40	93	2,598	17.32	17.43	5.77	5.88	0.109	0.097			
2.90	704.40	2,320	0.40	93	2,691	17.94	18.05	5.98	6.09	0.111	0.099			
3.00	704.50	2,320	0.40	93	2,784	18.56	18.67	6.19	6.30	0.113	0.101			
3.10	704.60	2,320	0.30	81	2,865	19.10	19.22	6.37	6.48	0.115	0.103			
3.20	704.70	2,320	0.30	70	2,935	19.57	19.68	6.52	6.64	0.117	0.106			
3.30	704.80	2,320	0.30	70	3,004	20.03	20.15	6.68	6.80	0.119	0.107			
3.40	704.90	2,320	0.30	70	3,074	20.49	20.61	6.83	6.95	0.121	0.109			
3.50	705.00	2,320	0.30	70	3,144	20.96	21.08	6.99	7.11	0.123	0.111			
3.60	705.10	2,320	0.30	70	3,213	21.42	21.55	7.14	7.27	0.125	0.113			
3.70	705.20	2,320	0.30	70	3,283	21.89	22.01	7.30	7.42	0.127	0.115			
3.80	705.30	2,320	0.30	70	3,352	22.35	22.48	7.45	7.58	0.129	0.117			
3.90	705.40	2,320	0.30	70	3,422	22.81	22.94	7.60	7.73	0.131	0.119			
4.00	705.50	2,320	0.30	70	3,492	23.28	23.41	7.76	7.89	0.132	0.120			
4.10	705.60	2,320	0.30	70	3,561	23.74	23.88	7.91	8.05	0.134	0.122			
4.20	705.70	2,320	0.30	70	3,631	24.21	24.34	8.07	8.20	0.136	0.124			
4.30	705.80	2,320	0.30	70	3,700	24.67	24.81	8.22	8.36	0.137	0.126			
4.40	705.90	2,320	0.30	70	3,770	25.13	25.27	8.38	8.52	0.139	0.127			
4.50	706.00	3,440	1.00	207	3,977	26.51	26.65	8.84	8.98	0.141	0.129			
4.60	706.10	3,554	1.00	350	4,327	28.84	28.99	9.61	9.76	0.142	0.131			
4.70	706.20	3,668	1.00	361	4,688	31.25	31.39	10.42	10.56	0.144	0.132			
4.80	706.30	3,782	1.00	559	5,246	34.98	35.12	11.66	11.80	0.146	0.134			
4.90	706.40	3,896	1.00	384	5,630	37.54	37.68	12.51	12.66	0.147	0.135			
5.00	706.50	4,010	1.00	395	6,026	40.17	40.32	13.39	13.54	0.149	0.137			0.00
5.10	706.60	4,124	1.00	407	6,432	42.88	43.37	14.29	14.79	0.492	0.138			0.34
5.20	706.70	4,238	1.00	418	6,850	45.67	46.79	15.22	16.34	1.118	0.140			0.97
5.30	706.80	4,352	1.00	430	7,280	48.53	50.46	16.18	18.11	1.928	0.141			1.77
5.40	706.90	4,466	1.00	447	7,726	51.51	54.40	17.17	20.06	2.887	0.143			2.73
5.50	707.00	4,580	1.00	452	8,179	54.53	58.50	18.18	22.15	3.975	0.144			3.82
5.60	707.10	4,694	1.00	464	8,642	57.62	62.79	19.21	24.38	5.177	0.146			5.02
5.70	707.20	4,808	1.00	475	9,118	60.78	67.27	20.26	26.75	6.484	0.147			6.33
5.80	707.30	4,922	1.00	487	9,604	64.03	71.92	21.34	29.23	7.888	0.149			7.73
5.90	707.40	5,036	1.00	498	10,102	67.35	76.64	22.45	31.74	9.294	0.150			9.13
6.00	707.50	5,150	1.00	509	10,611	70.74	80.53	23.58	33.37	9.790	0.151			9.63
6.10	707.60	5,264	1.00	521	11,132	74.21	84.47	24.74	35.00	10.261	0.153			10.10
6.20	707.70	5,378	1.00	532	11,664	77.76	88.47	25.92	36.63	10.711	0.154			10.54
6.30	707.80	5,492	1.00	544	12,208	81.38	92.53	27.13	38.27	11.143	0.156			10.98
6.40	707.90	5,606	1.00	555	12,762	85.08	96.64	28.36	39.92	11.559	0.157			11.39
6.50	708.00	5,720	1.00	566	13,329	88.86	100.82	29.62	41.58	11.960	0.158			11.79
6.60	708.10	5,834	1.00	578	13,906	92.71	105.06	30.90	43.25	12.348	0.160			12.18
6.70	708.20	5,948	1.00	589	14,496	96.64	109.36	32.21	44.94	12.724	0.161			12.55
6.80	708.30	6,062	1.00	601	15,096	100.64	113.73	33.55	46.64	13.089	0.162			12.91

North Iris Lane

											0.3110		
											0.019		
BMP-1 (South)			Top	706.00		8,924 cf				Height		0.25	
			Storage @ Overflow	704.80		4,567 cf		0.10				1.500	0
Basin Storage Volumes				195.40%		dT= 6		dT= 15				1.500	0
												100.00	0.00
DEPTH (FT)	ELEVATION	AREA (SF)	Void Ratio	Volume (CF)	STORAGE (CF)	2S/dT (CFS)	2S/dT + O (CFS)	2S/dT (CFS)	2S/dT + O (CFS)	OUTFLOW (CFS)	#1 (CFS)	#2 (CFS)	
0.00	700.90	**2,590**	0.40	0	0	0.00	0.00	0.00	0.00	0.000			
0.10	701.00	2,590	0.40	104	104	0.58	0.59	0.23	0.25	0.019			
0.20	701.10	2,590	0.40	104	207	1.15	1.17	0.46	0.48	0.019			
0.30	701.20	2,590	0.40	104	311	1.73	1.75	0.69	0.71	0.019	0.0000		
0.40	701.30	2,590	0.40	104	414	2.30	2.34	0.92	0.96	0.035	0.0166		
0.50	701.40	2,590	0.40	104	518	2.88	2.92	1.15	1.20	0.046	0.0273		
0.60	701.50	2,590	0.40	104	622	3.45	3.51	1.38	1.43	0.052	0.0337		
0.70	701.60	2,590	0.40	104	725	4.03	4.09	1.61	1.67	0.059	0.0402		
0.80	701.70	2,590	0.40	104	829	4.60	4.67	1.84	1.90	0.063	0.0443		
0.90	701.80	2,590	0.40	104	932	5.18	5.25	2.07	2.14	0.066	0.0476		
1.00	701.90	2,590	0.40	104	1,036	5.76	5.83	2.30	2.37	0.071	0.0519		
1.10	702.00	2,590	0.40	104	1,140	6.33	6.41	2.53	2.61	0.074	0.0558		
1.20	702.10	2,590	0.40	104	1,243	6.91	6.98	2.76	2.84	0.078	0.0595		
1.30	702.20	2,590	0.40	104	1,347	7.48	7.56	2.99	3.07	0.082	0.0629		
1.40	702.30	2,590	0.40	104	1,450	8.06	8.14	3.22	3.31	0.085	0.0662		
1.50	702.40	2,590	0.40	104	1,554	8.63	8.72	3.45	3.54	0.088	0.0693		
1.60	702.50	2,590	0.40	104	1,658	9.21	9.30	3.68	3.77	0.091	0.0723		
1.70	702.60	2,590	0.30	91	1,748	9.71	9.81	3.89	3.98	0.094	0.0751		
1.80	702.70	2,590	0.30	78	1,826	10.14	10.24	4.06	4.15	0.097	0.0779		
1.90	702.80	2,590	0.30	78	1,904	10.58	10.68	4.23	4.33	0.099	0.0806		
2.00	702.90	2,590	0.30	78	1,981	11.01	11.11	4.40	4.50	0.102	0.0831		
2.10	703.00	2,590	0.30	78	2,059	11.44	11.54	4.58	4.68	0.104	0.0856		
2.20	703.10	2,590	0.30	78	2,137	11.87	11.98	4.75	4.86	0.107	0.0881		
2.30	703.20	2,590	0.30	78	2,214	12.30	12.41	4.92	5.03	0.109	0.0904		
2.40	703.30	2,590	0.30	78	2,292	12.73	12.85	5.09	5.21	0.111	0.0927		
2.50	703.40	2,590	0.30	78	2,370	13.17	13.28	5.27	5.38	0.114	0.0950		
2.60	703.50	2,590	0.30	78	2,448	13.60	13.71	5.44	5.55	0.116	0.0972		
2.70	703.60	2,590	0.30	78	2,525	14.03	14.15	5.61	5.73	0.118	0.0993		
2.80	703.70	2,590	0.30	78	2,603	14.46	14.58	5.78	5.90	0.120	0.1014		
2.90	703.80	2,590	0.30	78	2,681	14.89	15.01	5.96	6.08	0.122	0.1035		
3.00	703.90	2,590	0.30	78	2,758	15.32	15.45	6.13	6.25	0.124	0.1055		
3.10	704.00	2,590	0.30	78	2,836	15.76	15.88	6.30	6.43	0.126	0.1075		
3.20	704.10	2,590	0.30	78	2,914	16.19	16.32	6.48	6.60	0.128	0.1094		
3.30	704.20	2,590	0.30	220	3,134	17.41	17.54	6.96	7.09	0.130	0.1113		
3.40	704.30	3,053	1.00	192	3,325	18.47	18.61	7.39	7.52	0.132	0.1132		
3.50	704.40	3,078	1.00	307	3,632	20.18	20.31	8.07	8.20	0.134	0.1151		
3.60	704.50	3,104	1.00	309	3,941	21.89	22.03	8.76	8.89	0.136	0.1169		
3.70	704.60	3,129	1.00	312	4,253	23.63	23.76	9.45	9.59	0.137	0.1187		
3.80	704.70	3,155	1.00	314	4,567	25.37	25.51	10.15	10.29	0.139	0.1205		
3.90	704.80	3,180	1.00	317	4,884	27.13	27.27	10.85	10.99	0.141	0.1222		
4.00	704.90	3,270	1.00	322	5,206	28.92	29.35	11.57	12.00	0.432	0.1239		

EXHIBIT D

DETENTION SUMMARY

North Iris Lane

NORTH

N-1 Preliminary Design 17-Mar-22

BMP-3 / HMP 3

6-Hour Rational Method Hydrograph

Total 0.575 ac

		Elev	Storage (cf)	Storage (ac-ft)	Depth (ft)
Bottom of Storage	2,010 sf	711.55	0	0.00	0
Low Flow	2,010 sf	712.05	362	0.01	0.50
Bottom	2,010 sf	715.60	2,884	0.07	4.05
Overflow Weir	2,276 sf	716.10	3,849	0.09	4.55
Top Of Basin	2,390 sf	717.10	6,201	0.14	5.55

Storm Frequency	Qexist (cfs)	Qin (cfs)	Qtotal (cfs)	WSEL (ft)	Depth (ft)
10% Q2					
2 YEAR	0.54	1.12	0.093	713.40	1.9
5 YEAR	0.66	1.36	0.102	713.80	2.3
10 YEAR	0.80	1.64	0.117	714.50	3.0
25 YEAR	0.95	1.95	0.124	715.40	3.9
50 YEAR	1.00	2.06	0.124	715.60	4.1
100 YEAR	1.19	2.44	0.124	715.90	4.4

Outlet Control Structure Overflow Weir

Opening	#1	#2	#3	Overflow
Elevation	712.05	Not Used	Not Used	716.1
Width (in)	1.500	0	Not	48.00
Height (in)	1.500	0	Used	48.00

Drain Time - Surface Volume below overflow elevation

Surface Area @ Overflow	2,276 sf
Surface Area Btm	2,010 sf
Depth @ Overflow	0.50 ft
Avg Area	2,143 sf
Surface Volume	1,072 cf
Drain Time	**2.6 hrs**
Qavg	0.114 cfs

North Iris Lane

SOUTH Basin Mid

Basin 2 Preliminary Design 17-Mar-22

BMP-2 / HMP 2 Middle

6-Hour Rational Method Hydrograph

Total 3.815 ac

			Elev	Storage (cf)	Storage (ac-ft)	Depth (ft)
Bottom of Storage		2,320 sf	701.50	0	0.00	0.00
Low Flow Weir		2,320 sf	702.25	650	0.00	0.8
Bottom		4,010	706.50	5,630	0.00	4.3
Overflow Weir	0.50	4,580	707.00	7,726	0.18	5.5
Top Of WQ	1.00	5,150	707.50	10,102	0.23	6.0
Top of Detenition	1.80	5,720	708.30	14,496	0.33	6.8

Storm Frequency	Qexist (cfs)	Qin (cfs)	Qtotal (cfs)	WSEL (ft)	Depth (ft)
2 YEAR	4.53	11.58	5.18	707.1	5.6
5 YEAR	5.52	14.11	7.89	707.3	5.8
10 YEAR	6.65	17.01	9.29	707.4	5.9
25 YEAR	7.92	20.26	9.79	707.5	6.0
50 YEAR	8.34	21.35	10.26	707.6	6.1
100 YEAR	9.90	25.33	11.14	707.8	6.3

Outlet Control Structure Overflow Weir

Opening	#1	#2	#3	Overflow
Elevation	702.25		Not Used	707.0
Width (in)	1.500	Not	Not	24.00
Height (in)	1.500	Used	Used	24.00

Drain Time - Surface Volume below overflow elevation

Btm Area	4,010 sf
Overflow Area	4,580 sf
Depth	0.80 ft
Avg Area	4,295 sf
Volume	3,436 cf
Drain Time	**7.9 hrs**
Avg Outflow	0.121 cfs

North Iris Lane

SOUTH Basin

S-2 Preliminary Design 17-Mar-22

BMP-1 (South)

6-Hour Rational Method Hydrograph

Total 2.322 ac

			Elev	Storage (cf)	Storage (ac-ft)	Depth (ft)
Bottom of Storage		2,590 sf	700.90	0	0.00	0.00
Low Flow Weir		2,590 sf	701.40	414	0.00	0.50
Bottom		2,590	704.30	3,134	0.00	3.40
Overflow Weir	0.50	3,180	704.80	4,567	0.10	3.90
Top Of Treatment	1.00	3,628	705.30	6,227	0.14	4.40
Top Of Detention	1.50	4,076	705.80	8,108	0.19	1.50

Storm Frequency	Qexist (cfs)	Qin (cfs)	Qdischarge (cfs)	Qout	WSEL (ft)	Depth (ft)
2 YEAR	2.75	6.27	3.38		705.10	4.2
5 YEAR	3.36	7.64	3.38		705.10	4.2
10 YEAR	4.05	9.20	5.51		705.20	4.3
25 YEAR	4.82	10.97	7.97		705.30	4.4
50 YEAR	5.08	11.55	7.97		705.30	4.4
100 YEAR	6.02	13.71	7.97	7.95	705.30	4.4

Outlet Control Structure Overflow Weir

Opening	#1	#2	#3	Overflow
Elevation	701.40		Not Used	704.80
Width (in)	1.500	Not	Not	37.00
Height (in)	1.500	Used	Used	37.00

Drain Time - Surface Volume below overflow elevation

Surface	2,590 sf
Overflow	3,180 sf
Depth	0.80 ft
Avg Area	2,885 sf
Volume	2,308 cf
Drain Time	**4.6 hrs**
Avg Outflow	0.139 cfs

EXHIBIT E

BASIN ROUTING

BMP-3 / HMP 3

DETENTION BASIN ROUTING

1.19 Allowable

2.44

0.124 Qout

100 YEAR EVENT ~ 6 Hour STORM

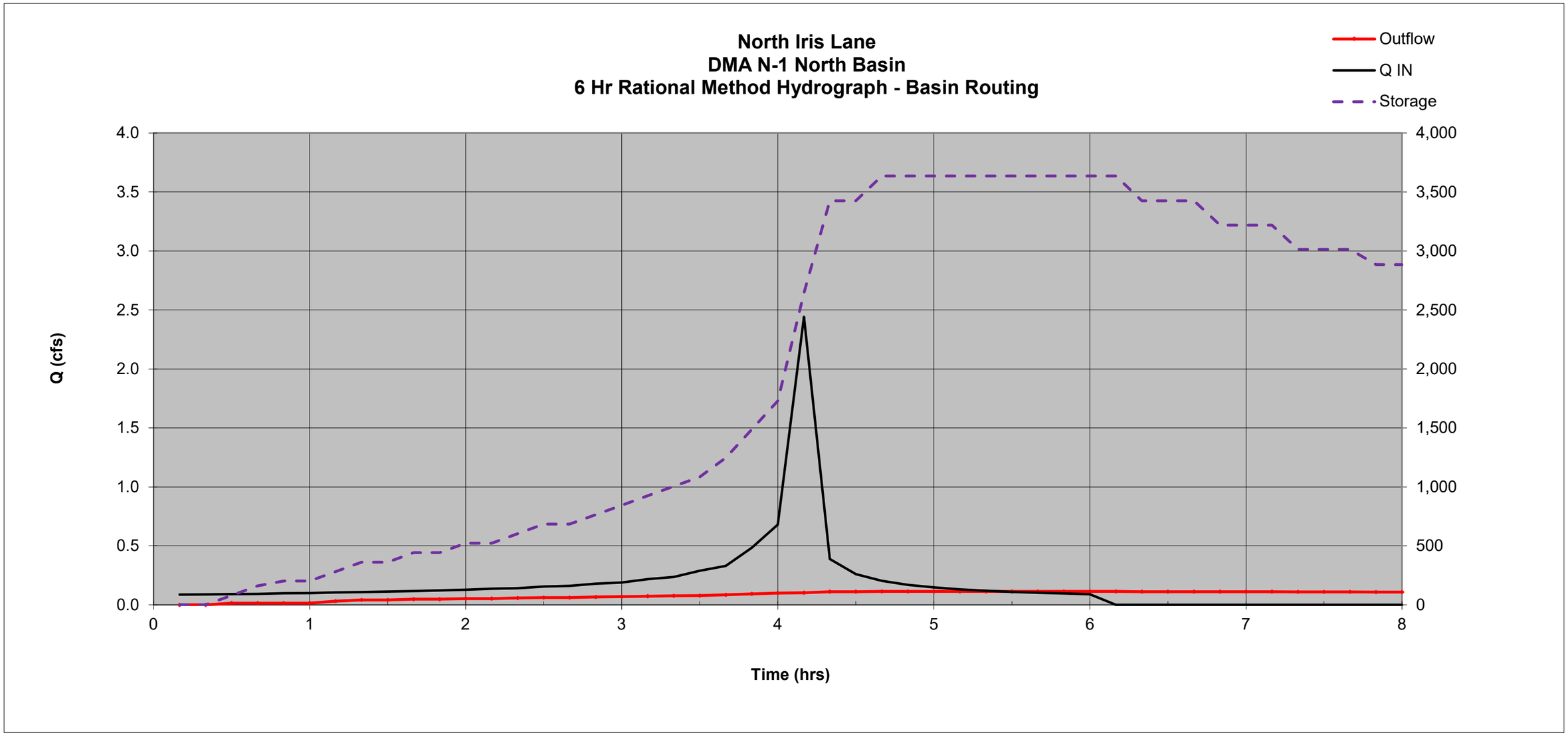
715.90 Max WSEL

10 Min

hrs Drain Time

Interval	T (HRS)	Q IN (CFS)	2S/dT+O	2S/dT-O (CFS)	O (CFS)	Basin WSEL
1	0.17	0.087	0.09	0.09	0.0000	711.55
2	0.33	0.088	0.26	0.26	0.0000	711.55
3	0.50	0.092	0.44	0.41	0.0145	711.65
4	0.67	0.094	0.60	0.57	0.0145	711.75
5	0.83	0.098	0.76	0.73	0.0145	711.80
6	1.00	0.100	0.93	0.90	0.0145	711.80
7	1.17	0.105	1.10	1.04	0.0310	711.90
8	1.33	0.107	1.25	1.17	0.0418	712.00
9	1.50	0.113	1.39	1.31	0.0418	712.00
10	1.67	0.116	1.54	1.44	0.0479	712.10
11	1.83	0.124	1.68	1.59	0.0479	712.10
12	2.00	0.128	1.84	1.73	0.0531	712.20
13	2.17	0.137	2.00	1.89	0.0531	712.20
14	2.33	0.142	2.17	2.05	0.0576	712.30
15	2.50	0.154	2.35	2.23	0.0618	712.40
16	2.67	0.162	2.54	2.42	0.0618	712.40
17	2.83	0.179	2.76	2.63	0.0656	712.50
18	3.00	0.190	3.00	2.86	0.0691	712.60
19	3.17	0.218	3.27	3.12	0.0724	712.70
20	3.33	0.236	3.58	3.43	0.0755	712.80
21	3.50	0.289	3.95	3.80	0.0786	712.90
22	3.67	0.329	4.41	4.24	0.0846	713.10
23	3.83	0.483	5.06	4.87	0.0926	713.40
24	4.00	0.681	6.04	5.84	0.0999	713.70
25	4.17	2.441	8.96	8.75	0.1030	715.10
26	4.33	0.388	11.58	11.36	0.1121	715.80
27	4.50	0.259	12.01	11.78	0.1121	715.80
28	4.67	0.203	12.24	12.02	0.1134	715.90
29	4.83	0.170	12.39	12.16	0.1134	715.90
30	5.00	0.148	12.48	12.25	0.1134	715.90
31	5.17	**0.132**	12.53	12.31	0.1134	715.90
32	5.33	0.120	12.56	12.33	0.1134	715.90
33	5.50	0.110	12.56	12.34	0.1134	715.90
34	5.67	0.102	12.55	12.32	0.1134	715.90
35	5.83	0.096	12.52	12.29	0.1134	715.90
36	6.00	0.090	12.48	12.25	0.1134	715.90
37	6.17	0.000	12.34	12.11	0.1134	715.90
38	6.33	0.000	12.11	11.89	0.1121	715.80
39	6.50	0.000	11.89	11.67	0.1121	715.80
40	6.67	0.000	11.67	11.44	0.1121	715.80
41	6.83	0.000	11.44	11.22	0.1109	715.70
42	7.00	0.000	11.22	11.00	0.1109	715.70
43	7.17	0.000	11.00	10.78	0.1109	715.70
44	7.33	0.000	10.78	10.56	0.1096	715.60

45	7.50	0.000	10.56	10.34	0.1096	715.60
46	7.67	0.000	10.34	10.12	0.1096	715.60
47	7.83	0.000	10.12	9.90	0.1083	715.50
48	8.00	0.000	9.90	9.69	0.1083	715.50
49	8.17	0.000	9.69	9.47	0.1070	715.40
50	8.33	0.000	9.47	9.26	0.1057	715.30
51	8.50	0.000	9.26	9.05	0.1044	715.20
52	8.67	0.000	9.05	8.85	0.1030	715.10
53	8.83	0.000	8.85	8.64	0.1016	715.00
54	9.00	0.000	8.64	8.39	0.1243	714.90
55	9.17	0.000	8.39	8.15	0.1224	714.80
56	9.33	0.000	8.15	7.91	0.1206	714.70
57	9.50	0.000	7.91	7.67	0.1168	714.50
58	9.67	0.000	7.67	7.44	0.1148	714.40
59	9.83	0.000	7.44	7.22	0.1128	714.30
60	10.00	0.000	7.22	7.00	0.1108	714.20
61	10.17	0.000	7.00	6.78	0.1087	714.10
62	10.33	0.000	6.78	6.57	0.1066	714.00
63	10.50	0.000	6.57	6.36	0.1044	713.90
64	10.67	0.000	6.36	6.15	0.1022	713.80
65	10.83	0.000	6.15	5.95	0.1022	713.80
66	11.00	0.000	5.95	5.75	0.0999	713.70
67	11.17	0.000	5.75	5.55	0.0975	713.60
68	11.33	0.000	5.55	5.36	0.0951	713.50
69	11.50	0.000	5.36	5.17	0.0951	713.50
70	11.67	0.000	5.17	4.99	0.0926	713.40
71	11.83	0.000	4.99	4.81	0.0900	713.30
72	12.00	0.000	4.81	4.63	0.0900	713.30
73	12.17	0.000	4.63	4.45	0.0873	713.20
74	12.33	0.000	4.45	4.28	0.0846	713.10
75	12.50	0.000	4.28	4.12	0.0846	713.10
76	12.67	0.000	4.12	3.95	0.0817	713.00
77	12.83	0.000	3.95	3.80	0.0786	712.90
78	13.00	0.000	3.80	3.64	0.0786	712.90
79	13.17	0.000	3.64	3.49	0.0755	712.80
80	13.33	0.000	3.49	3.34	0.0755	712.80
81	13.50	0.000	3.34	3.19	0.0724	712.70
82	13.67	0.000	3.19	3.05	0.0724	712.70
83	13.83	0.000	3.05	2.91	0.0691	712.60
84	14.00	0.000	2.91	2.77	0.0691	712.60
85	14.17	0.000	2.77	2.64	0.0656	712.50
86	14.33	0.000	2.64	2.51	0.0656	712.50
87	14.50	0.000	2.51	2.38	0.0618	712.40
88	14.67	0.000	2.38	2.26	0.0618	712.40
89	14.83	0.000	2.26	2.15	0.0576	712.30
90	15.00	0.000	2.15	2.03	0.0576	712.30


North Iris Lane
DMA N-1 North Basin
6 Hr Rational Method Hydrograph - Basin Routing
Outflow
Q IN
Storage
Q (cfs)
Time (hrs)
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
0
1
2
3
4
5
6
7
8

BMP-2 / HMP 2 Middle **DETENTION BASIN ROUTING**

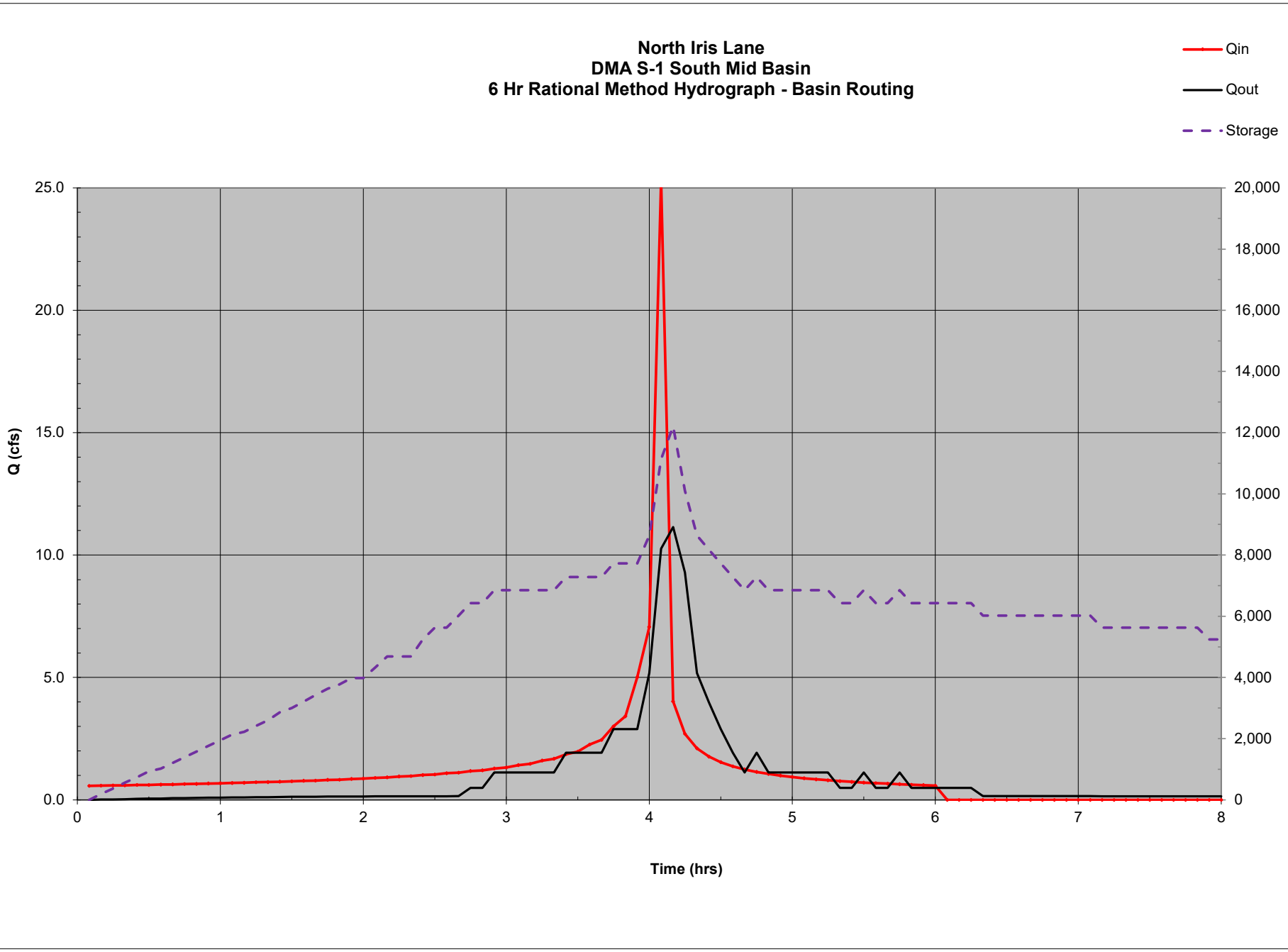
25.33

100 YEAR EVENT ~ 6 Hour STORM

9.90 Allowable
11.143 Qout
707.80 Max WSEL
hrs Drain Time

5 Min Interval	T (HRS)	Q IN (CFS)	2S/dT+O	2S/dT-O (CFS)	O (CFS)	Basin WSEL
1	0.08	0.573	0.57	0.57	0.0000	701.50
2	0.17	0.578	1.72	1.70	0.0118	701.70
3	0.25	0.589	2.87	2.84	0.0118	701.90
4	0.33	0.594	4.03	3.97	0.0284	702.10
5	0.42	0.606	5.17	5.08	0.0435	702.30
6	0.50	0.612	6.30	6.19	0.0548	702.50
7	0.58	0.624	7.43	7.31	0.0594	702.60
8	0.67	0.631	8.56	8.43	0.0676	702.80
9	0.75	0.645	9.70	9.55	0.0747	703.00
10	0.83	0.652	10.85	10.69	0.0811	703.20
11	0.92	0.666	12.01	11.83	0.0869	703.40
12	1.00	0.674	13.17	12.99	0.0924	703.60
13	1.08	0.690	14.35	14.16	0.0975	703.80
14	1.17	0.699	15.55	15.35	0.0999	703.90
15	1.25	0.717	16.76	16.55	0.1045	704.10
16	1.33	0.726	18.00	17.78	0.1090	704.30
17	1.42	0.745	19.25	19.02	0.1153	704.60
18	1.50	0.756	20.52	20.28	0.1193	704.80
19	1.58	0.777	21.81	21.56	0.1250	705.10
20	1.67	0.789	23.13	22.87	0.1305	705.40
21	1.75	0.813	24.47	24.20	0.1357	705.70
22	1.83	0.826	25.84	25.56	0.1391	705.90
23	1.92	0.854	27.24	26.96	0.1407	706.00
24	2.00	0.868	28.68	28.40	0.1407	706.00
25	2.08	**0.899**	30.17	29.88	0.1424	706.10
26	2.17	0.916	31.70	31.41	0.1440	706.20
27	2.25	0.952	33.28	32.99	0.1440	706.20
28	2.33	0.972	34.91	34.63	0.1440	706.20
29	2.42	1.014	36.61	36.32	0.1456	706.30
30	2.50	1.036	38.37	38.08	0.1471	706.40
31	2.58	1.086	40.20	39.90	0.1471	706.40
32	2.67	1.113	42.10	41.81	0.1487	706.50
33	2.75	1.174	44.09	43.11	0.4917	706.60
34	2.83	1.207	45.49	44.51	0.4917	706.60
35	2.92	1.282	47.00	44.76	1.1177	706.70
36	3.00	1.324	47.37	45.13	1.1177	706.70
37	3.08	1.420	47.88	45.64	1.1177	706.70
38	3.17	1.475	48.53	46.30	1.1177	706.70
39	3.25	1.603	49.38	47.14	1.1177	706.70
40	3.33	1.678	50.42	48.19	1.1177	706.70
41	3.42	1.861	51.73	47.87	1.9278	706.80
42	3.50	1.974	51.71	47.85	1.9278	706.80
43	3.58	2.263	52.09	48.23	1.9278	706.80
44	3.67	2.454	52.95	49.09	1.9278	706.80
45	3.75	2.999	54.54	48.77	2.8869	706.90
46	3.83	3.416	55.19	49.41	2.8869	706.90

47	3.92	5.015	57.84	52.07	2.8869	706.90
48	4.00	7.067	64.15	53.80	5.1770	707.10
49	4.08	25.330	86.19	65.67	10.2608	707.60
50	4.17	4.023	95.02	72.74	11.1430	707.80
51	4.25	2.691	79.45	60.86	9.2941	707.40
52	4.33	2.106	65.66	55.31	5.1770	707.10
53	4.42	1.764	59.18	51.23	3.9746	707.00
54	4.50	1.535	54.53	48.75	2.8869	706.90
55	4.58	1.370	51.66	47.80	1.9278	706.80
56	4.67	1.243	50.42	48.18	1.1177	706.70
57	4.75	1.143	50.57	46.71	1.9278	706.80
58	4.83	1.061	48.91	46.68	1.1177	706.70
59	4.92	0.992	48.73	46.50	1.1177	706.70
60	5.00	0.934	48.42	46.19	1.1177	706.70
61	5.08	0.883	48.00	45.77	1.1177	706.70
62	5.17	0.840	47.49	45.26	1.1177	706.70
63	5.25	0.801	46.90	44.66	1.1177	706.70
64	5.33	0.766	46.23	45.24	0.4917	706.60
65	5.42	0.735	46.75	45.76	0.4917	706.60
66	5.50	0.708	47.21	44.97	1.1177	706.70
67	5.58	0.682	46.36	45.38	0.4917	706.60
68	5.67	0.659	46.72	45.73	0.4917	706.60
69	5.75	0.638	47.03	44.80	1.1177	706.70
70	5.83	0.618	46.05	45.07	0.4917	706.60
71	5.92	0.600	46.29	45.30	0.4917	706.60
72	6.00	0.583	46.49	45.50	0.4917	706.60
73	6.08	0.000	46.09	45.10	0.4917	706.60
74	6.17	0.000	45.10	44.12	0.4917	706.60
75	6.25	0.000	44.12	43.13	0.4917	706.60
76	6.33	0.000	43.13	42.84	0.1487	706.50
77	6.42	0.000	42.84	42.54	0.1487	706.50
78	6.50	0.000	42.54	42.24	0.1487	706.50
79	6.58	0.000	42.24	41.95	0.1487	706.50
80	6.67	0.000	41.95	41.65	0.1487	706.50
81	6.75	0.000	41.65	41.35	0.1487	706.50
82	6.83	0.000	41.35	41.05	0.1487	706.50
83	6.92	0.000	41.05	40.76	0.1487	706.50
84	7.00	0.000	40.76	40.46	0.1487	706.50
85	7.08	0.000	40.46	40.16	0.1487	706.50
86	7.17	0.000	40.16	39.87	0.1471	706.40
87	7.25	0.000	39.87	39.57	0.1471	706.40
88	7.33	0.000	39.57	39.28	0.1471	706.40
89	7.42	0.000	39.28	38.98	0.1471	706.40
90	7.50	0.000	38.98	38.69	0.1471	706.40
91	7.58	0.000	38.69	38.40	0.1471	706.40
92	7.67	0.000	38.40	38.10	0.1471	706.40
93	7.75	0.000	38.10	37.81	0.1471	706.40
94	7.83	0.000	37.81	37.51	0.1471	706.40
95	7.92	0.000	37.51	37.22	0.1456	706.30
96	8.00	0.000	37.22	36.93	0.1456	706.30


North Iris Lane
DMA S-1 South Mid Basin
6 Hr Rational Method Hydrograph - Basin Routing
Qin
Qout
Storage
Q (cfs)
25.0
20.0
15.0
10.0
5.0
0.0
20,000
18,000
16,000
14,000
12,000
10,000
8,000
6,000
4,000
2,000
0
0
1
2
3
4
5
6
7
8
Time (hrs)

BMP-1 (South) **DETENTION BASIN ROUTING** 6.02 Allowable

13.71 7.968 Qout

100 YEAR EVENT ~ 6 Hour STORM 705.30 Max WSEL

hrs Drain Time

Interval	6 Min T (HRS)	Q IN (CFS)	2S/dT+O	2S/dT-O (CFS)	O (CFS)	Basin WSEL
1	0.10	0.349	0.35	0.35	0.0000	700.90
2	0.20	0.353	1.05	1.01	0.0186	701.00
3	0.30	0.361	1.73	1.69	0.0186	701.10
4	0.40	0.365	2.41	2.34	0.0352	701.30
5	0.50	0.374	3.08	2.99	0.0459	701.40
6	0.60	0.378	3.74	3.64	0.0524	701.50
7	0.70	0.388	4.40	4.29	0.0588	701.60
8	0.80	0.393	5.07	4.94	0.0629	701.70
9	0.90	0.403	5.74	5.60	0.0663	701.80
10	1.00	0.409	6.42	6.27	0.0744	702.00
11	1.10	0.421	7.10	6.94	0.0781	702.10
12	1.20	0.427	7.79	7.63	0.0815	702.20
13	1.30	0.440	8.49	8.32	0.0848	702.30
14	1.40	0.447	9.21	9.03	0.0879	702.40
15	1.50	0.462	9.94	9.76	0.0938	702.60
16	1.60	0.470	10.69	10.49	0.0992	702.80
17	1.70	0.487	11.45	11.24	0.1018	702.90
18	1.80	0.496	12.22	12.01	0.1067	703.10
19	1.90	0.515	13.02	12.80	0.1114	703.30
20	2.00	0.526	13.84	13.61	0.1158	703.50
21	2.10	0.548	14.68	14.44	0.1201	703.70
22	2.20	0.561	15.55	15.30	0.1242	703.90
23	2.30	0.588	16.45	16.20	0.1281	704.10
24	2.40	0.603	17.39	17.13	0.1281	704.10
25	2.50	**0.635**	18.37	18.11	0.1300	704.20
26	2.60	0.653	19.40	19.13	0.1319	704.30
27	2.70	0.694	20.48	20.21	0.1337	704.40
28	2.80	0.716	21.62	21.35	0.1337	704.40
29	2.90	0.768	22.84	22.57	0.1355	704.50
30	3.00	0.798	24.13	23.86	0.1373	704.60
31	3.10	0.867	25.52	25.25	0.1391	704.70
32	3.20	0.908	27.02	26.74	0.1391	704.70
33	3.30	1.007	28.66	28.38	0.1408	704.80
34	3.40	1.068	30.45	29.59	0.4321	704.90
35	3.50	1.224	31.88	31.02	0.4321	704.90
36	3.60	1.328	33.57	30.27	1.6489	705.00
37	3.70	1.623	33.22	29.92	1.6489	705.00
38	3.80	1.848	33.39	30.10	1.6489	705.00
39	3.90	2.714	34.66	31.36	1.6489	705.00
40	4.00	3.824	37.90	31.13	3.3834	705.10
41	4.10	13.707	48.66	32.73	7.9676	705.30
42	4.20	2.177	48.61	32.68	7.9676	705.30
43	4.30	1.456	36.31	29.54	3.3834	705.10
44	4.40	1.140	32.14	31.27	0.4321	704.90
45	4.50	0.954	33.37	30.07	1.6489	705.00
46	4.60	0.831	31.86	30.99	0.4321	704.90

47	4.70	0.741	32.56	29.27	1.6489	705.00
48	4.80	0.673	30.68	29.81	0.4321	704.90
49	4.90	0.618	31.11	30.24	0.4321	704.90
50	5.00	0.574	31.43	30.57	0.4321	704.90
51	5.10	0.537	31.68	30.82	0.4321	704.90
52	5.20	0.505	31.86	30.99	0.4321	704.90
53	5.30	0.478	31.98	31.11	0.4321	704.90
54	5.40	0.454	32.05	31.18	0.4321	704.90
55	5.50	0.433	32.07	31.20	0.4321	704.90
56	5.60	0.415	32.05	31.19	0.4321	704.90
57	5.70	0.398	32.00	31.14	0.4321	704.90
58	5.80	0.383	31.92	31.05	0.4321	704.90
59	5.90	0.369	31.81	30.94	0.4321	704.90
60	6.00	0.357	31.67	30.80	0.4321	704.90
61	6.10	0.000	31.16	30.29	0.4321	704.90
62	6.20	0.000	30.29	29.43	0.4321	704.90
63	6.30	0.000	29.43	28.57	0.4321	704.90
64	6.40	0.000	28.57	28.28	0.1408	704.80
65	6.50	0.000	28.28	28.00	0.1408	704.80
66	6.60	0.000	28.00	27.72	0.1408	704.80
67	6.70	0.000	27.72	27.44	0.1408	704.80
68	6.80	0.000	27.44	27.16	0.1408	704.80
69	6.90	0.000	27.16	26.88	0.1391	704.70
70	7.00	0.000	26.88	26.60	0.1391	704.70
71	7.10	0.000	26.60	26.32	0.1391	704.70
72	7.20	0.000	26.32	26.05	0.1391	704.70
73	7.30	0.000	26.05	25.77	0.1391	704.70
74	7.40	0.000	25.77	25.49	0.1391	704.70
75	7.50	0.000	25.49	25.21	0.1373	704.60
76	7.60	0.000	25.21	24.94	0.1373	704.60
77	7.70	0.000	24.94	24.66	0.1373	704.60
78	7.80	0.000	24.66	24.39	0.1373	704.60
79	7.90	0.000	24.39	24.12	0.1373	704.60
80	8.00	0.000	24.12	23.84	0.1373	704.60

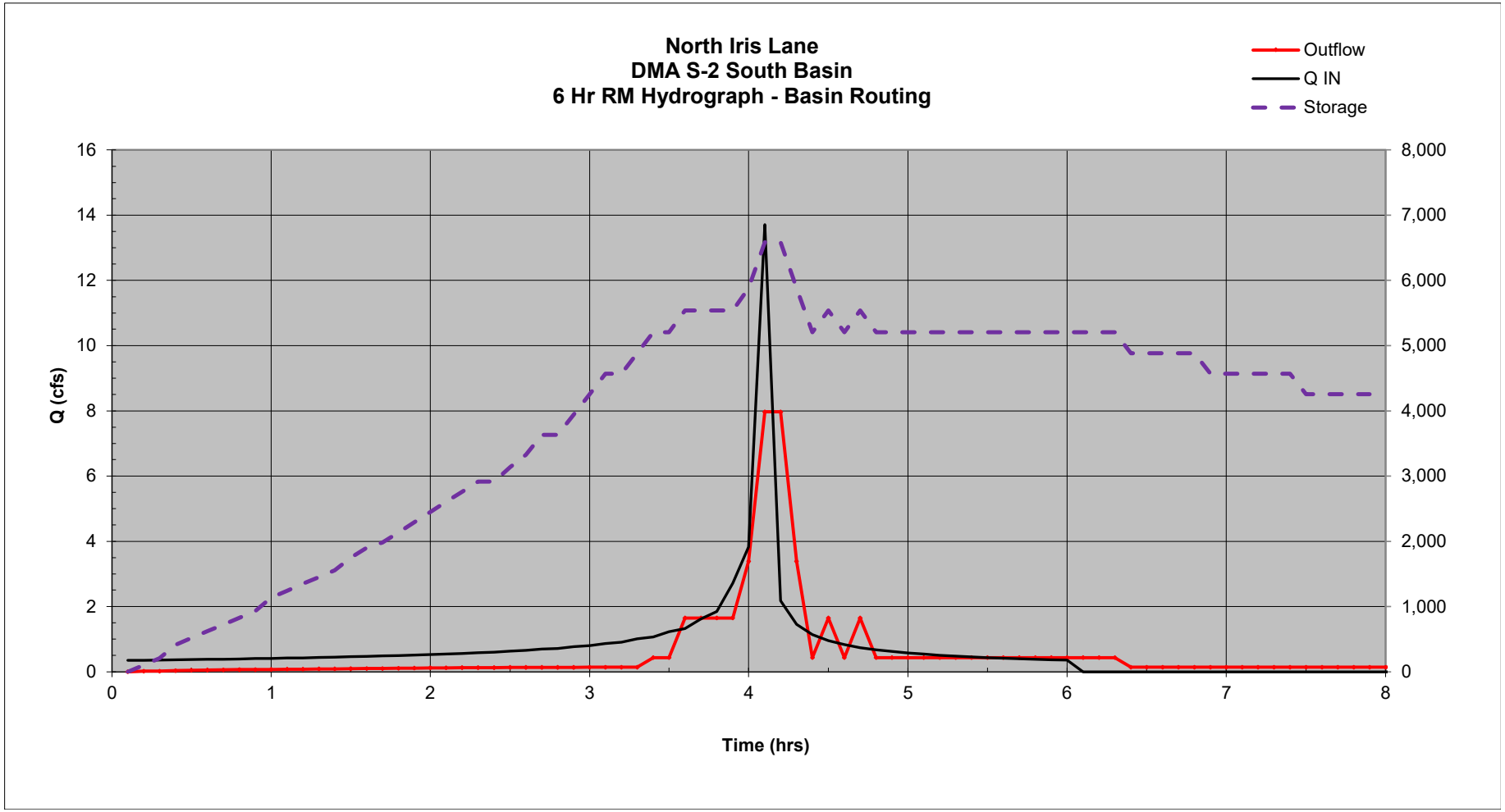

North Iris Lane
DMA S-2 South Basin
6 Hr RM Hydrograph - Basin Routing
Outflow
Q IN
Storage
Q (cfs)
Time (hrs)
0
2
4
6
8
10
12
14
16
1,000
2,000
3,000
4,000
5,000
6,000
7,000
8,000
1
3
5
7

EXHIBIT F

OFF-SITE HYDROLOGY
BYPSS STORM DRAIN
BACKWATER ANALYSIS

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software,(c)1991-2014 Version 9.0

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 06/29/21

IRIS
EXISTING
OFFSITE

********* Hydrology Study Control Information **********

Program License Serial Number 6334

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.400
24 hour precipitation(inches) = 7.000
P6/P24 = 48.6%
San Diego hydrology manual 'C' values used

++
Process from Point/Station 1.000 to Point/Station 2.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[LOW DENSITY RESIDENTIAL]
(2.9 DU/A or Less)
Impervious value, Ai = 0.250
Sub-Area C Value = 0.490
Initial subarea total flow distance = 6200.000(Ft.)
Highest elevation = 1100.000(Ft.)
Lowest elevation = 705.800(Ft.)
Elevation difference = 394.200(Ft.) Slope = 6.358 %
Top of Initial Area Slope adjusted by User to 1.000 %
Bottom of Initial Area Slope adjusted by User to 6.400 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 70.00 (Ft)

for the top area slope value of 1.00 %, in a development type of
 2.9 DU/A or Less
In Accordance With Table 3-2
Initial Area Time of Concentration = 10.00 minutes
 (for slope value of 1.00 %)
The initial area total distance of 6200.00 (Ft.) entered leaves a
remaining distance of 6130.00 (Ft.)
Using Figure 3-4, the travel time for this distance is 18.56 minutes
for a distance of 6130.00 (Ft.) and a slope of 6.40 %
with an elevation difference of 392.32(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)
 = 18.559 Minutes
Tt=[(11.9*1.1610^3)/(392.32)]^.385= 18.56
Total initial area Ti = 10.00 minutes from Table 3-2 plus
 18.56 minutes from the Figure 3-4 formula = 28.56 minutes
Rainfall intensity (I) = 2.911(In/Hr) for a 100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.490
Subarea runoff = 161.757(CFS)
Total initial stream area = 113.389(Ac.)
End of computations, total study area = 113.389 (Ac.)

San Diego County Rational Hydrology Program

CIVILCADD/CIVILDESIGN Engineering Software, (c)1991-2014 Version 9.0

Rational method hydrology program based on
San Diego County Flood Control Division 2003 hydrology manual
Rational Hydrology Study Date: 10/18/21

IRIS
OFFSITE
CHEYENNE LANE

********* Hydrology Study Control Information **********

Program License Serial Number 6334

Rational hydrology study storm event year is 100.0
English (in-lb) input data Units used

Map data precipitation entered:
6 hour, precipitation(inches) = 3.400
24 hour precipitation(inches) = 7.000
P6/P24 = 48.6%
San Diego hydrology manual 'C' values used

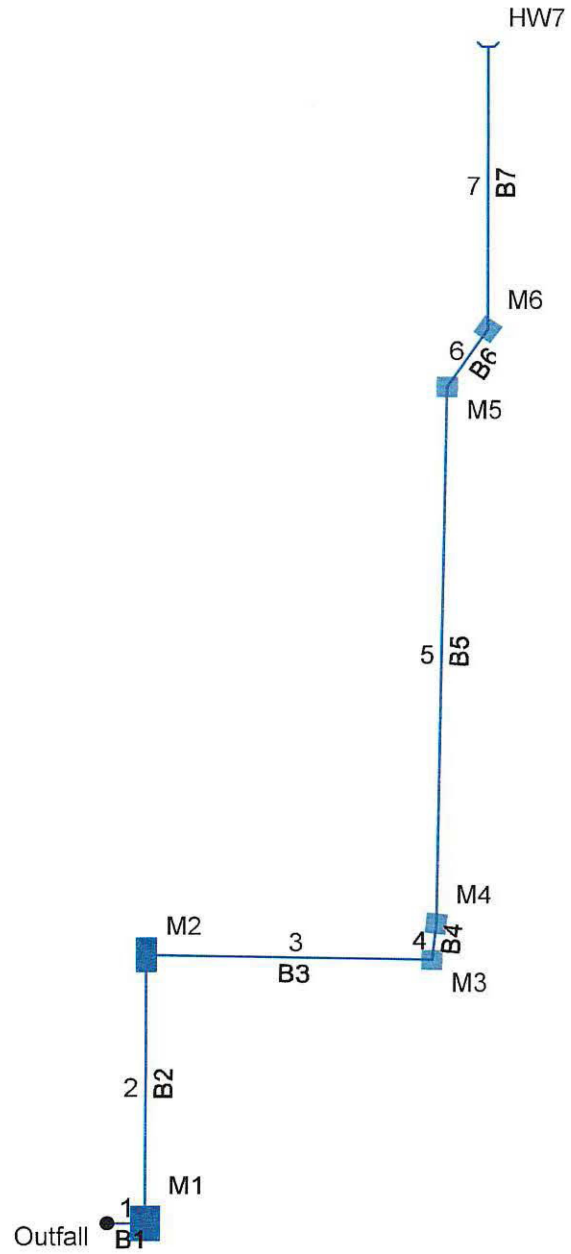
++
Process from Point/Station 3.000 to Point/Station 4.000
**** INITIAL AREA EVALUATION ****

Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[MEDIUM DENSITY RESIDENTIAL]
(7.3 DU/A or Less)
Impervious value, Ai = 0.400
Sub-Area C Value = 0.570
Initial subarea total flow distance = 1975.000(Ft.)
Highest elevation = 764.000(Ft.)
Lowest elevation = 711.000(Ft.)
Elevation difference = 53.000(Ft.) Slope = 2.684 %
Top of Initial Area Slope adjusted by User to 1.000 %
Bottom of Initial Area Slope adjusted by User to 2.745 %
INITIAL AREA TIME OF CONCENTRATION CALCULATIONS:
The maximum overland flow distance is 65.00 (Ft)

```
for the top area slope value of   1.00 %, in a development type of
 7.3 DU/A or Less
In Accordance With Figure 3-3
Initial Area Time of Concentration =   7.69 minutes
TC = [1.8*(1.1-C)*distance(Ft.)^.5)/(% slope^(1/3)]
TC = [1.8*(1.1-0.5700)*(  65.000^.5)/(   1.000^(1/3)]=   7.69
The initial area total distance of 1975.00 (Ft.) entered leaves a
remaining distance of 1910.00 (Ft.)
Using Figure 3-4, the travel time for this distance is  10.47 minutes
for a distance of 1910.00 (Ft.) and a slope of  2.75 %
with an elevation difference of  52.43(Ft.) from the end of the top area
Tt = [11.9*length(Mi)^3)/(elevation change(Ft.))]^.385 *60(min/hr)
 =   10.475 Minutes
Tt=[(11.9*0.3617^3)/( 52.43)]^.385= 10.47
Total initial area Ti =   7.69 minutes from Figure 3-3 formula plus
 10.47 minutes from the Figure 3-4 formula =  18.17 minutes
Rainfall intensity (I) =      3.898(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for area (Q=KCIA) is C = 0.570
Subarea runoff =     17.172(CFS)
Total initial stream area =        7.729(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        5.000
**** PIPEFLOW TRAVEL TIME (User specified size) ****
------------------------------------------------------------------------
Upstream point/station elevation =   704.000(Ft.)
Downstream point/station elevation =   701.600(Ft.)
Pipe length  =   240.00(Ft.) Slope =   0.0100  Manning's N = 0.013
No. of pipes = 1  Required pipe flow  =    17.172(CFS)
Given pipe size =     33.00(In.)
Calculated individual pipe flow  =    17.172(CFS)
Normal flow depth in pipe =   12.94(In.)
Flow top width inside pipe =   32.22(In.)
Critical Depth =   16.32(In.)
Pipe flow velocity =      7.95(Ft/s)
Travel time through pipe =    0.50 min.
Time of concentration (TC) =    18.67 min.


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        5.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------
Rainfall intensity (I) =      3.830(In/Hr) for a   100.0 year storm
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[MEDIUM DENSITY RESIDENTIAL                ]
(7.3 DU/A or Less       )
Impervious value, Ai = 0.400
```

```
Sub-Area C Value = 0.570
Time of concentration =    18.67 min.
Rainfall intensity =      3.830(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.570  CA =      4.742
Subarea runoff =      0.990(CFS) for      0.591(Ac.)
Total runoff =     18.162(CFS)   Total area =       8.320(Ac.)


++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
Process from Point/Station        4.000 to Point/Station        5.000
**** SUBAREA FLOW ADDITION ****
------------------------------------------------------------------------------
Rainfall intensity (I) =      3.830(In/Hr) for a   100.0 year storm
Decimal fraction soil group A = 0.000
Decimal fraction soil group B = 0.000
Decimal fraction soil group C = 0.000
Decimal fraction soil group D = 1.000
[MEDIUM DENSITY RESIDENTIAL                    ]
(7.3 DU/A or Less       )
Impervious value, Ai = 0.400
Sub-Area C Value = 0.570
Time of concentration =    18.67 min.
Rainfall intensity =      3.830(In/Hr) for a   100.0 year storm
Effective runoff coefficient used for total area
(Q=KCIA) is C = 0.570  CA =      4.961
Subarea runoff =      0.838(CFS) for      0.384(Ac.)
Total runoff =     19.001(CFS)   Total area =       8.704(Ac.)
End of computations, total study area =          8.704 (Ac.)
```

Hydraflow Storm Sewers Extension for Autodesk® Civil 3D® Plan



Project File: IRIS, OFFSITE, BOX CULVERT.stm	Number of lines: 7	Date: 3/10/2022

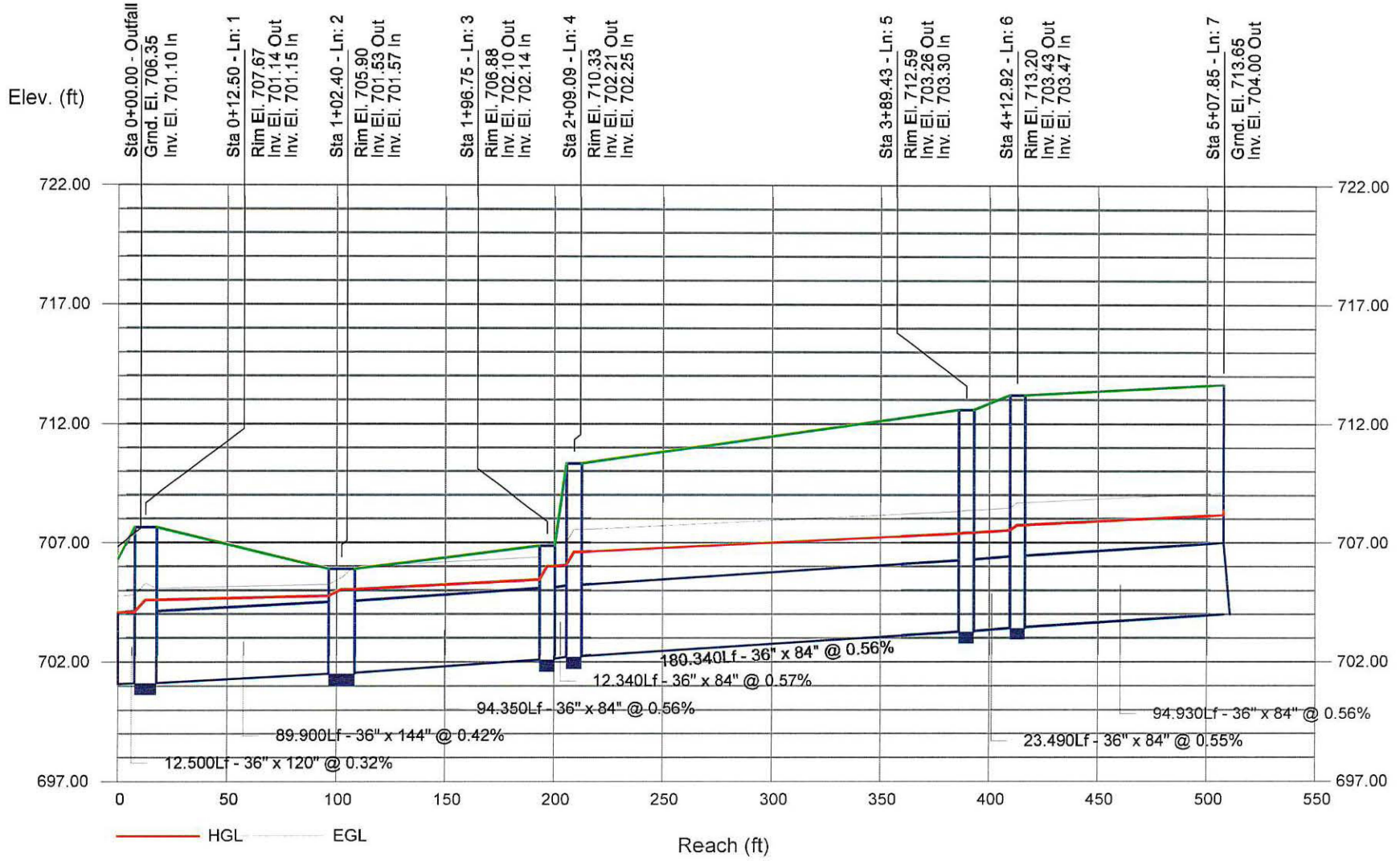
Line No.	Invert Dn (ft)	Invert Up (ft)	Line Length (ft)	Line Slope (%)	Line Size (in)	n-val Pipe	Flow Rate (cfs)	Junct Type	Defl Ang (Deg)	J-Loss Coeff	Crit Depth (ft)	Depth Dn (ft)	Depth Up (ft)	HGL Dn (ft)	HGL Up (ft)	HGL Jnct (ft)	EGL Dn (ft)	EGL Up (ft)	Energy Loss (ft)	Vel Ave (ft/s)
1	701.10	701.14	12.500	0.32	36 x 120	0.013	196.56	MH	0.000	0.75	2.29	3.00	2.97	704.10	704.11	704.62	704.77	704.79	0.026	6.58
2	701.15	701.53	89.900	0.42	36 x 144	0.013	196.56	MH	-90.000	0.60	2.03	3.00	3.00	704.62	704.78	705.06	705.08	705.25	0.161	5.46
3	701.57	702.10	94.350	0.56	36 x 84	0.013	161.76	MH	91.000	0.60	2.55	3.00	3.00	705.06	705.46	706.02	705.98	706.38	0.401	7.70
4	702.14	702.21	12.340	0.57	36 x 84	0.013	161.76	MH	-84.500	0.60	2.55	3.00	3.00	706.02	706.07	706.62	706.94	706.99	0.053	7.70
5	702.25	703.26	180.340	0.56	36 x 84	0.013	161.76	MH	-5.500	0.05	2.55	3.00	3.00	706.62	707.39	707.43	707.54	708.31	0.767	7.70
6	703.30	703.43	23.490	0.55	36 x 84	0.013	161.76	MH	34.000	0.25	2.55	3.00	3.00	707.43	707.53	707.77	708.36	708.46	0.100	7.70
7	703.47	704.00	94.930	0.56	36 x 84	0.013	161.76	Hdwall	-35.000	0.25	2.55	3.00	3.00	707.77	708.17	708.40	708.69	709.09	0.404	7.70

Project File: IRIS, OFFSITE, BOX CULVERT.stm | Number of lines: 7 | Date: 3/10/2022

NOTES: ** Critical depth

Storm Sewer Profile

Proj. file: IRIS, OFFSITE, BOX CULVERT.stm



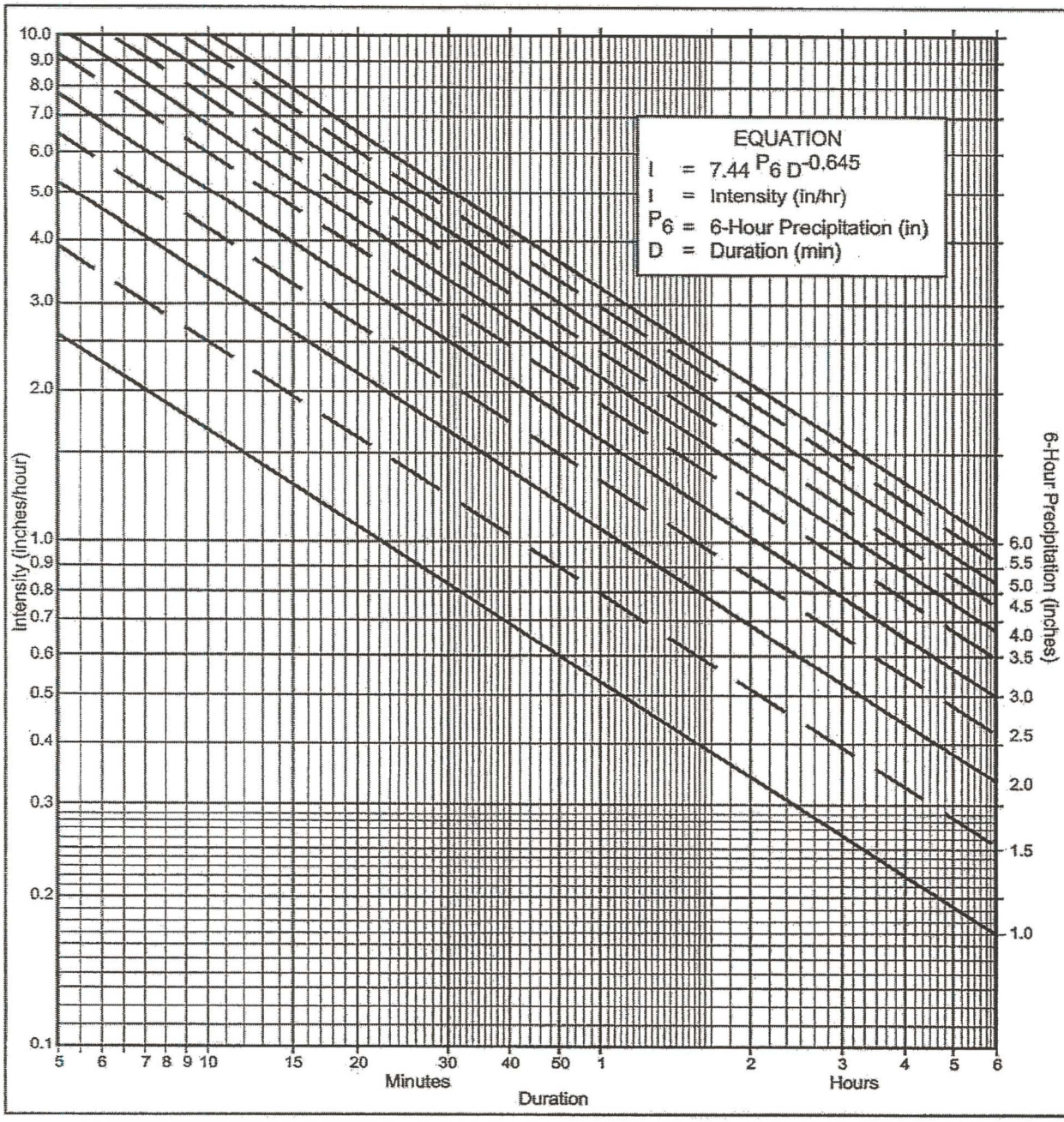
APPENDIX

COUNTY OF SAN DIEGO HYDROLOGY MANUAL EXCEPTS

Table 3-1
RUNOFF COEFFICIENTS FOR URBAN AREAS

Land Use		Runoff Coefficient "C"				
			Soil Type			
NRCS Elements	County Elements	% IMPER.	A	B	C	D
Undisturbed Natural Terrain (Natural)	Permanent Open Space	0*	0.20	0.25	0.30	0.35
Low Density Residential (LDR)	Residential, 1.0 DU/A or less	10	0.27	0.32	0.36	0.41
Low Density Residential (LDR)	Residential, 2.0 DU/A or less	20	0.34	0.38	0.42	0.46
Low Density Residential (LDR)	Residential, 2.9 DU/A or less	25	0.38	0.41	0.45	0.49
Medium Density Residential (MDR)	Residential, 4.3 DU/A or less	30	0.41	0.45	0.48	0.52
Medium Density Residential (MDR)	Residential, 7.3 DU/A or less	40	0.48	0.51	0.54	0.57
Medium Density Residential (MDR)	Residential, 10.9 DU/A or less	45	0.52	0.54	0.57	0.60
Medium Density Residential (MDR)	Residential, 14.5 DU/A or less	50	0.55	0.58	0.60	0.63
High Density Residential (HDR)	Residential, 24.0 DU/A or less	65	0.66	0.67	0.69	0.71
High Density Residential (HDR)	Residential, 43.0 DU/A or less	80	0.76	0.77	0.78	0.79
Commercial/Industrial (N. Com)	Neighborhood Commercial	80	0.76	0.77	0.78	0.79
Commercial/Industrial (G. Com)	General Commercial	85	0.80	0.80	0.81	0.82
Commercial/Industrial (O.P. Com)	Office Professional/Commercial	90	0.83	0.84	0.84	0.85
Commercial/Industrial (Limited I.)	Limited Industrial	90	0.83	0.84	0.84	0.85
Commercial/Industrial (General I.)	General Industrial	95	0.87	0.87	0.87	0.87

*The values associated with 0% impervious may be used for direct calculation of the runoff coefficient as described in Section 3.1.2 (representing the pervious runoff coefficient, Cp, for the soil type), or for areas that will remain undisturbed in perpetuity. Justification must be given that the area will remain natural forever (e.g., the area is located in Cleveland National Forest).
DU/A = dwelling units per acre
NRCS = National Resources Conservation Service



Directions for Application:

(1) From precipitation maps determine 6 hr and 24 hr amounts for the selected frequency. These maps are included in the County Hydrology Manual (10, 50, and 100 yr maps included in the Design and Procedure Manual).

(2) Adjust 6 hr precipitation (if necessary) so that it is within the range of 45% to 65% of the 24 hr precipitation (not applicaple to Desert).

(3) Plot 6 hr precipitation on the right side of the chart.

(4) Draw a line through the point parallel to the plotted lines.

(5) This line is the intensity-duration curve for the location being analyzed.

Application Form:

(a) Selected frequency _____ year

(b) P_6 = _____ in., P_{24} = _____, $\frac{P_6}{P_{24}}$ = _____ %(2)

(c) Adjusted P_6(2) = _____ in.

(d) t_x = _____ min.

(e) I = _____ in./hr.

Note: This chart replaces the Intensity-Duration-Frequency curves used since 1965.

P6	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6
Duration	I	I	I	I	I	I	I	I	I	I	I
5	2.63	3.95	5.27	6.59	7.90	9.22	10.54	11.86	13.17	14.49	15.81
7	2.12	3.18	4.24	5.30	6.36	7.42	8.48	9.54	10.60	11.66	12.72
10	1.68	2.53	3.37	4.21	5.05	5.90	6.74	7.58	8.42	9.27	10.11
15	1.30	1.95	2.59	3.24	3.89	4.54	5.19	5.84	6.49	7.13	7.78
20	1.08	1.62	2.15	2.69	3.23	3.77	4.31	4.85	5.39	5.93	6.46
25	0.93	1.40	1.87	2.33	2.80	3.27	3.73	4.20	4.67	5.13	5.60
30	0.83	1.24	1.66	2.07	2.49	2.90	3.32	3.73	4.15	4.56	4.98
40	0.69	1.03	1.38	1.72	2.07	2.41	2.76	3.10	3.45	3.79	4.13
50	0.60	0.90	1.19	1.49	1.79	2.09	2.39	2.69	2.98	3.28	3.58
60	0.53	0.80	1.06	1.33	1.59	1.86	2.12	2.39	2.65	2.92	3.18
90	0.41	0.61	0.82	1.02	1.23	1.43	1.63	1.84	2.04	2.25	2.45
120	0.34	0.51	0.68	0.85	1.02	1.19	1.36	1.53	1.70	1.87	2.04
150	0.29	0.44	0.59	0.73	0.88	1.03	1.18	1.32	1.47	1.62	1.76
180	0.26	0.39	0.52	0.65	0.78	0.91	1.04	1.18	1.31	1.44	1.57
240	0.22	0.33	0.43	0.54	0.65	0.76	0.87	0.98	1.08	1.19	1.30
300	0.19	0.28	0.38	0.47	0.56	0.66	0.75	0.85	0.94	1.03	1.13
360	0.17	0.25	0.33	0.42	0.50	0.58	0.67	0.75	0.84	0.92	1.00

Intensity-Duration Design Chart - Template

FIGURE 3-1

Note that the Initial Time of Concentration should be reflective of the general land-use at the upstream end of a drainage basin. A single lot with an area of two or less acres does not have a significant effect where the drainage basin area is 20 to 600 acres.

Table 3-2 provides limits of the length (Maximum Length (L_M)) of sheet flow to be used in hydrology studies. Initial T_i values based on average C values for the Land Use Element are also included. These values can be used in planning and design applications as described below. Exceptions may be approved by the "Regulating Agency" when submitted with a detailed study.

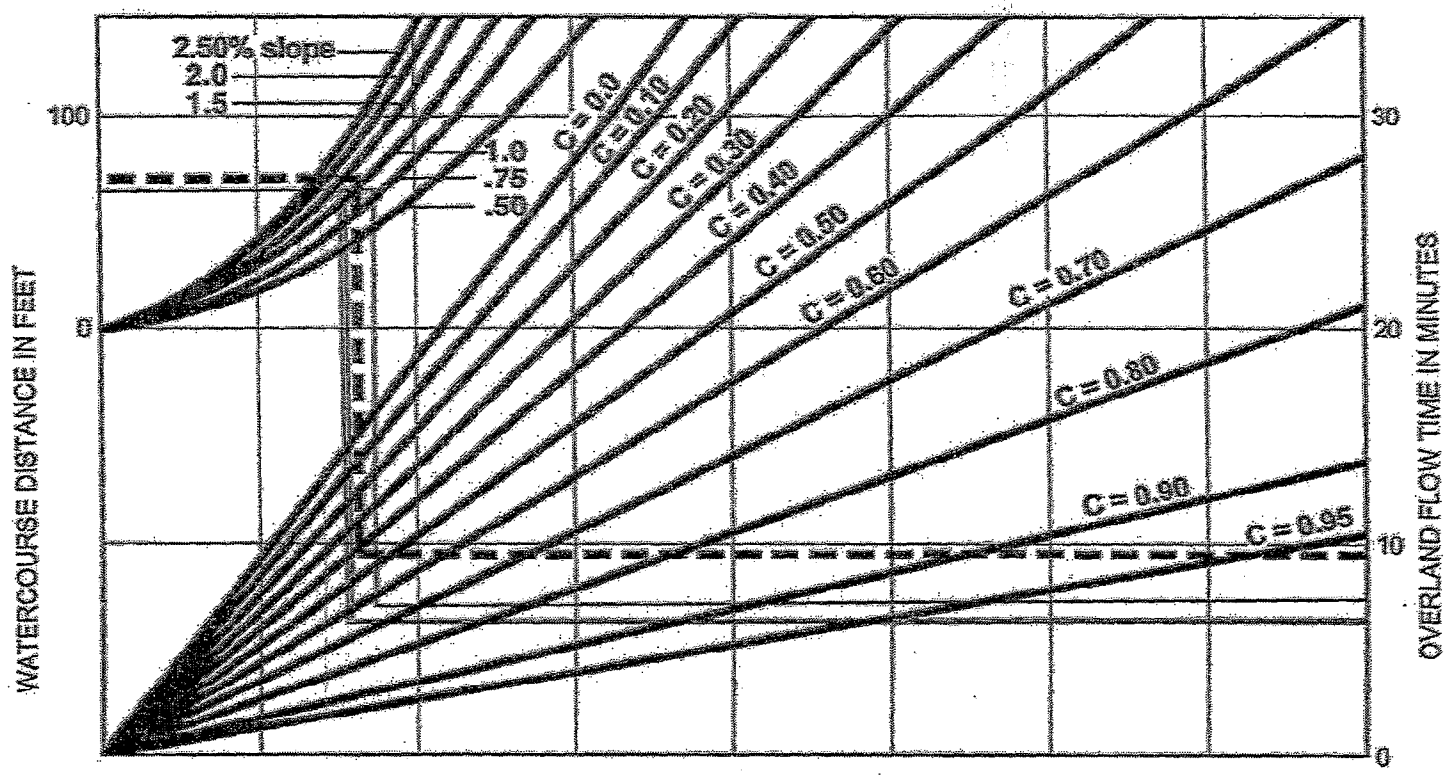
Table 3-2

MAXIMUM OVERLAND FLOW LENGTH (L_M) & INITIAL TIME OF CONCENTRATION (T_i)

Element*	DU/ Acre	.5%		1%		2%		3%		5%		10%	
		L_M	T_i	L_M	T_i	L_M	T_i	L_M	T_i	L_M	T_i	L_M	T_i
Natural		50	13.2	70	12.5	85	10.9	100	10.3	100	8.7	100	6.9
LDR	1	50	12.2	70	11.5	85	10.0	100	9.5	100	8.0	100	6.4
LDR	2	50	11.3	70	10.5	85	9.2	100	8.8	100	7.4	100	5.8
LDR	2.9	50	10.7	70	10.0	85	8.8	95	8.1	100	7.0	100	5.6
MDR	4.3	50	10.2	70	9.6	80	8.1	95	7.8	100	6.7	100	5.3
MDR	7.3	50	9.2	65	8.4	80	7.4	95	7.0	100	6.0	100	4.8
MDR	10.9	50	8.7	65	7.9	80	6.9	90	6.4	100	5.7	100	4.5
MDR	14.5	50	8.2	65	7.4	80	6.5	90	6.0	100	5.4	100	4.3
HDR	24	50	6.7	65	6.1	75	5.1	90	4.9	95	4.3	100	3.5
HDR	43	50	5.3	65	4.7	75	4.0	85	3.8	95	3.4	100	2.7
N. Com		50	5.3	60	4.5	75	4.0	85	3.8	95	3.4	100	2.7
G. Com		50	4.7	60	4.1	75	3.6	85	3.4	90	2.9	100	2.4
O.P./Com		50	4.2	60	3.7	70	3.1	80	2.9	90	2.6	100	2.2
Limited I.		50	4.2	60	3.7	70	3.1	80	2.9	90	2.6	100	2.2
General I.		50	3.7	60	3.2	70	2.7	80	2.6	90	2.3	100	1.9

*See Table 3-1 for more detailed description

Tc for Existing Drainage Basins A, B, & C



EXAMPLE:
Given: Watercourse Distance (D) = 70 Feet
Slope (s) = 1.3%
Runoff Coefficient (C) = 0.41
Overland Flow Time (T) = 9.5 Minutes

$$T = \frac{1.8(1.1-C)\sqrt{D}}{\sqrt[3]{s}}$$

Basin A Tc = 1.8(1.1-.63)(65^(1/2))/(0.8^(1/3))
= 7.35 min.
Basin B Tc = 6.25 min.
Basin C Tc = 6.42 min.

SOURCE: Airport Drainage, Federal Aviation Administration, 1965

FIGURE 3-3

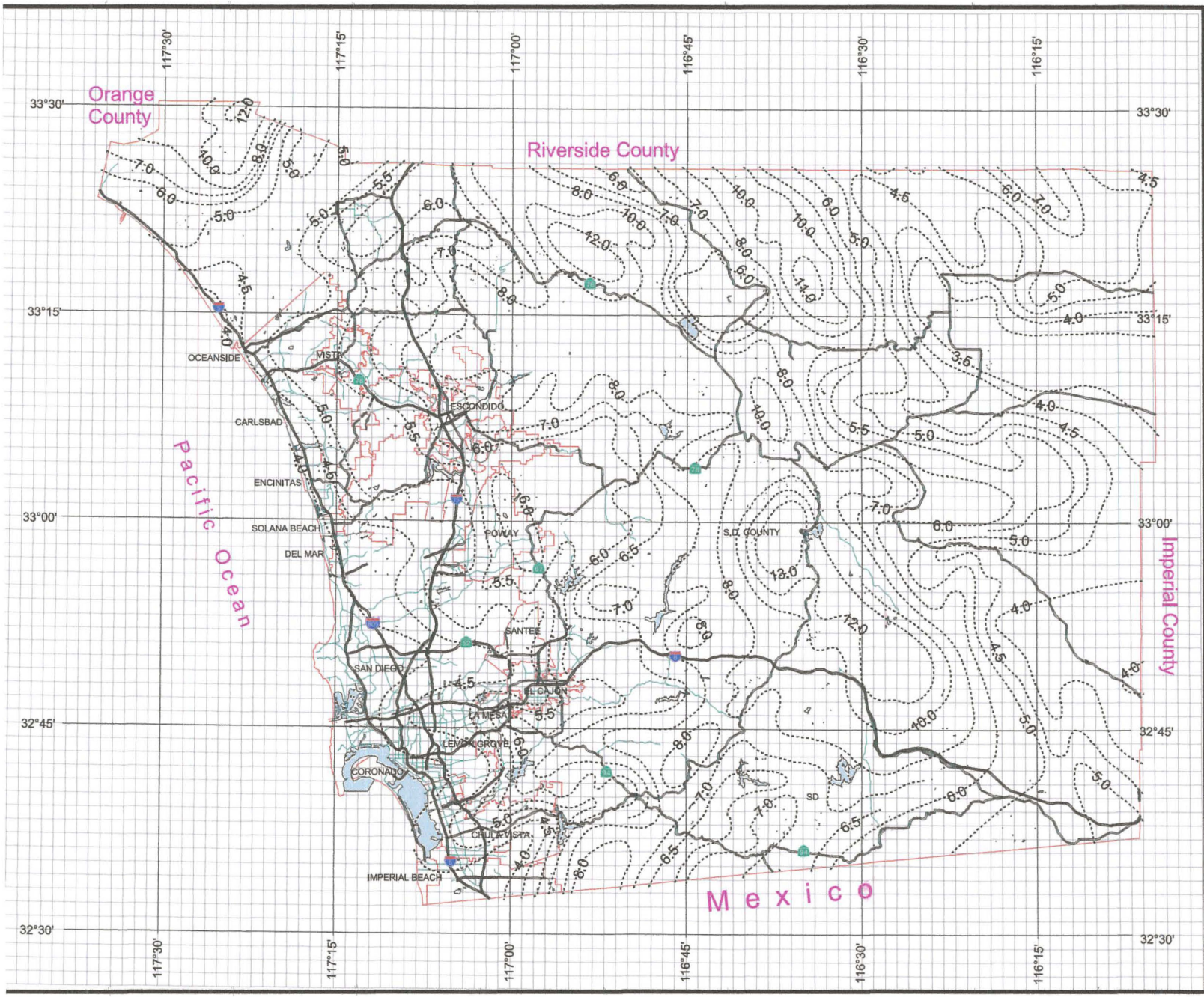
Rational Formula - Overland Time of Flow Nomograph

County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 24 Hours

Isopluvial (inches)



DPW GIS
Department of Public Works
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N
W E
S

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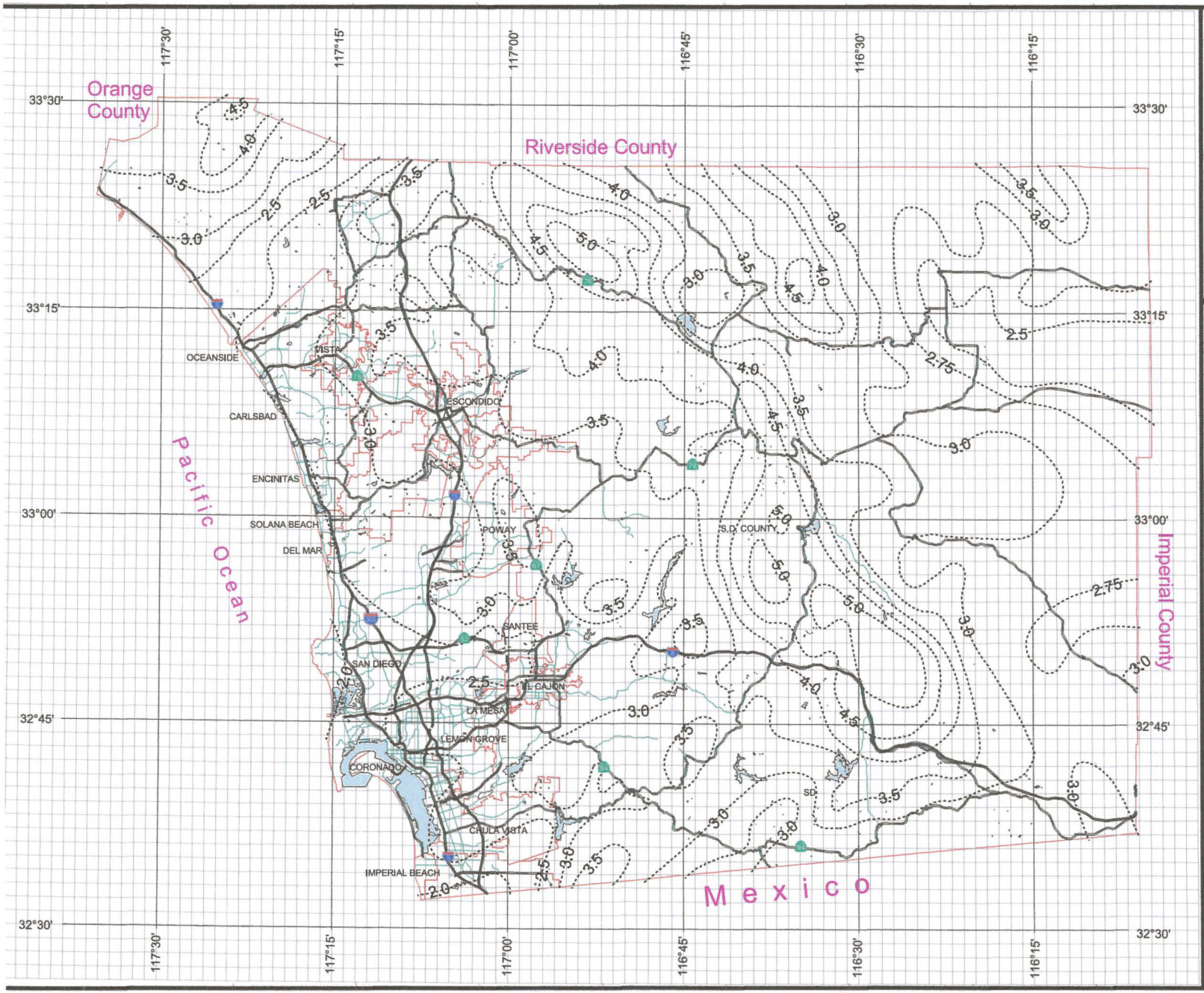
3 0 3 Miles

County of San Diego Hydrology Manual

Rainfall Isopluvials

100 Year Rainfall Event - 6 Hours

Isopluvial (inches)



DPW GIS
Department of Public Works
Geographic Information Services

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N W E S

3 0 3 Miles

SECTION 6
RATIONAL METHOD HYDROGRAPH PROCEDURE

6.1 INTRODUCTION

The procedures in this section are for the development of hydrographs from RM study results for study areas up to approximately 1 square mile in size. The RM, discussed in Section 3, is a mathematical formula used to determine the maximum runoff rate from a given rainfall. It has particular application in urban storm drainage, where it is used to estimate peak runoff rates from small urban and rural watersheds for the design of storm drains and small drainage structures. However, in some instances such as for design of detention basins, the peak runoff rate is insufficient information for the design, and a hydrograph is needed. Unlike the NRCS hydrologic method (discussed in Section 4), the RM itself does not create hydrographs. The procedures for detention basin design based on RM study results were first developed as part of the East Otay Mesa Drainage Study. Rick Engineering Company performed this study under the direction of County Flood Control. The procedures in this section may be used for the development of hydrographs from RM study results for study areas up to approximately 1 square mile in size.

6.2 HYDROGRAPH DEVELOPMENT

The concept of this hydrograph procedure is based on the RM formula:

$$Q = C\,I\,A$$

Where: Q = peak discharge, in cubic feet per second (cfs)

C = runoff coefficient, proportion of the rainfall that runs off the surface (no units)

I = average rainfall intensity for a duration equal to the T_c for the area, in inches per hour

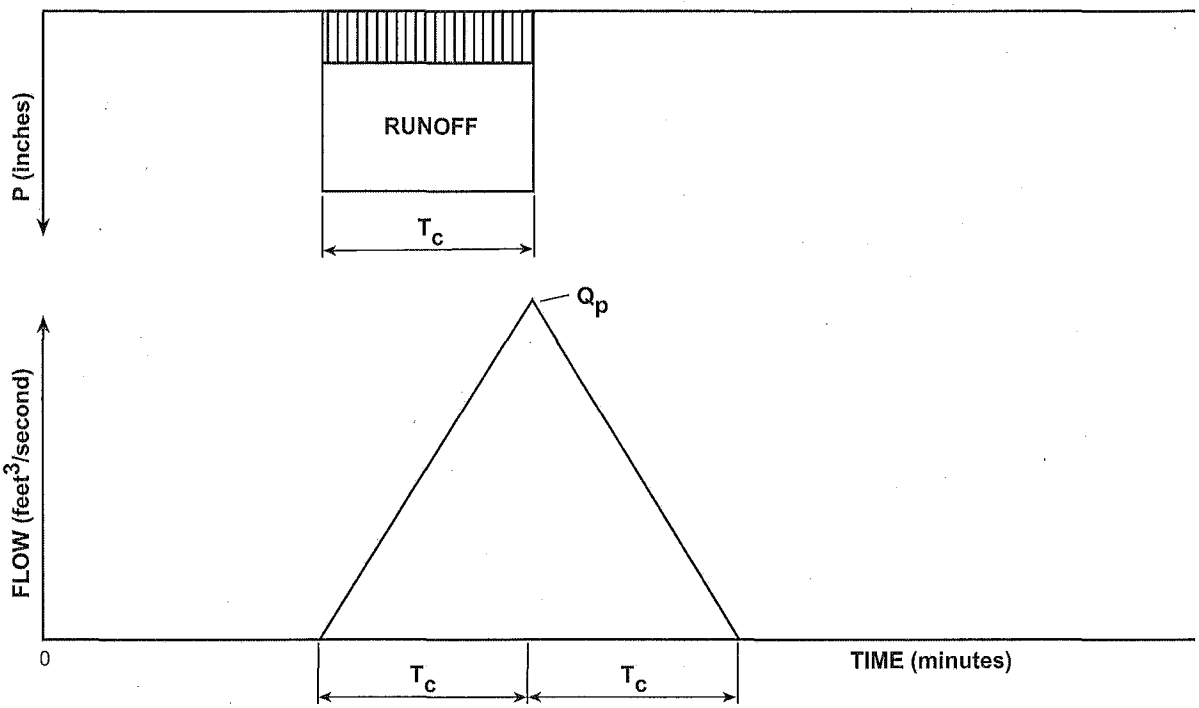
A = drainage area contributing to the design location, in acres

The RM formula is discussed in more detail in Section 3.

An assumption of the RM is that discharge increases linearly over the T_c for the drainage area until reaching the peak discharge as defined by the RM formula, and then decreases linearly. A linear hydrograph can be developed for the peak flow occurring over the T_c as shown in Figure 6-1. However, for designs that are dependent on the total storm volume, it is not sufficient to consider a single hydrograph for peak flow occurring over the T_c at the beginning of a 6-hour storm event because the hydrograph does not account for the entire volume of runoff from the storm event. The volume under the hydrograph shown in Figure 6-1 is equal to the rainfall intensity multiplied by the duration for which that intensity occurs (T_c), the drainage area (A) contributing to the design location, and the runoff coefficient (C) for the drainage area. For designs that are dependent on the total storm volume, a hydrograph must be generated to account for the entire volume of runoff from the 6-hour storm event. The hydrograph for the entire 6-hour storm event is generated by creating a rainfall distribution consisting of blocks of rain, creating an incremental hydrograph for each block of rain, and adding the hydrographs from each block of rain. This process creates a hydrograph that contains runoff from all the blocks of rain and accounts for the entire volume of runoff from the 6-hour storm event. The total volume under the resulting hydrograph is equal to the following equation:

$$VOL = CP_6A \qquad \text{(Eq. 6-1)}$$

Where: VOL = volume of runoff (acre-inches)
P_6 = 6-hour rainfall (inches)
C = runoff coefficient
A = area of the watershed (acres)



FIGURE

6-1

Triangular Hydrograph

6.2.1 Rainfall Distribution

Figure 6-2 shows a 6-hour rainfall distribution consisting of blocks of rain over increments of time equal to T_c. The number of blocks is determined by rounding T_c to the nearest whole number of minutes, dividing 360 minutes (6 hours) by T_c, and rounding again to the nearest whole number. The blocks are distributed using a (2/3, 1/3) distribution in which the peak rainfall block is placed at the 4-hour time within the 6-hour rainfall duration. The additional blocks are distributed in a sequence alternating two blocks to the left and one block to the right of the 4-hour time (see Figure 6-2). The total amount of rainfall ($P_{T(N)}$) for any given block (N) is determined as follows:

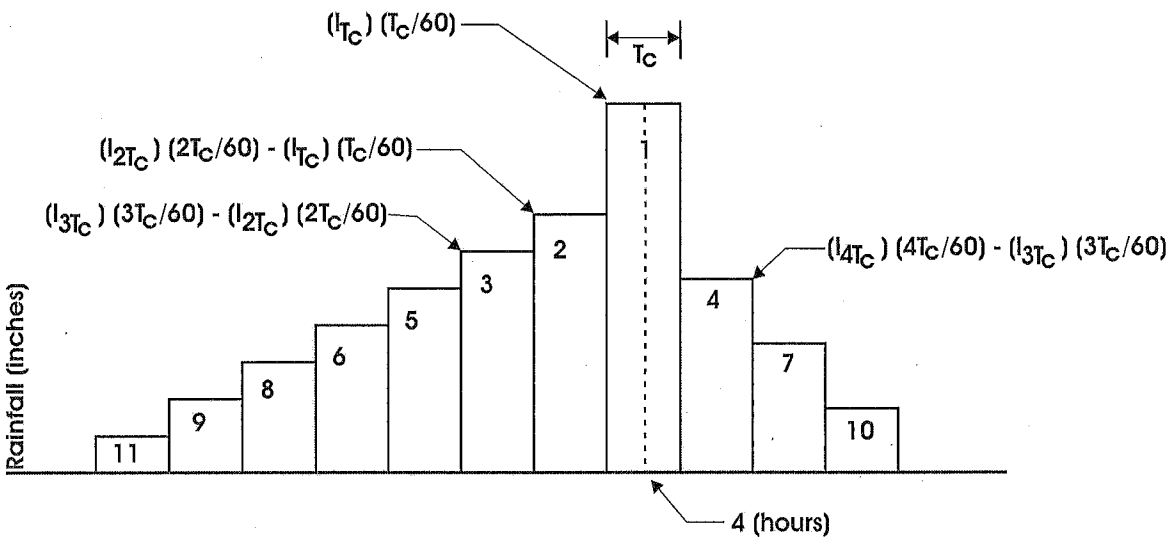
$$P_{T(N)} = (I_{T(N)}\ T_{T(N)}) / 60$$

Where: $P_{T(N)}$ = total amount of rainfall for any given block (N)
$I_{T(N)}$ = average rainfall intensity for a duration equal to $T_{T(N)}$ in inches per hour
$T_{T(N)} = NT_c$ in minutes (N is an integer representing the given block number of rainfall)

Intensity is calculated using the following equation (described in detail in Section 3):

$$I = 7.44\ P_6\ D^{-0.645}$$

Where: I = average rainfall intensity for a duration equal to D in inches per hour
P_6 = adjusted 6-hour storm rainfall
D = duration in minutes



FIGURE

6-2

Rainfall Distribution

Substituting the equation for I in the equation above for $P_{T(N)}$ and setting the duration (D) equal to $T_{T(N)}$ yields:

$$P_{T(N)} = [(7.44\ P_6/T_{T(N)}^{0.645})(T_{T(N)})] / 60$$
$$P_{T(N)} = 0.124\ P_6 T_{T(N)}^{0.355}$$

Substituting NT_c for T_T (where N equals the block number of rainfall) in the equation above yields:

$$P_{T(N)} = 0.124\ P_6\ (NT_c)^{0.355} \qquad \text{(Eq. 6-2)}$$

Equation 6-2 represents the total rainfall amount for a rainfall block with a time base equal to $T_{T(N)}$ (NT_c). The actual time base of each rainfall block in the rainfall distribution is T_c, as shown in Figure 6-2. The actual rainfall amount (P_N) for each block of rain is equal to P_T at N ($P_{T(N)}$) minus the previous P_T at N–1 ($P_{T(N-1)}$) at any given multiple of T_c (any NT_c). For example, the rainfall for block 2 is equal to $P_{T(N)}$ at $T_{T(N)} = 2T_c$ minus the $P_{T(N)}$ at $T_{T(N)} = 1T_c$, and the rainfall for block 3 equals $P_{T(N)}$ at $T_{T(N)} = 3T_c$ minus the $P_{T(N)}$ at $T_{T(N)} = 2T_c$, or P_N can be represented by the following equation:

$$P_N = P_{T(N)} - P_{T(N-1)} \qquad \text{(Eq. 6-3)}$$

For the rainfall distribution, the rainfall at block N = 1, ($1T_c$), is centered at 4 hours, the rainfall at block N = 2, ($2T_c$), is centered at 4 hours – $1T_c$, the rainfall at block N = 3, ($3T_c$), is centered at 4 hours – $2T_c$, and the rainfall at at block N = 4, ($4T_c$), is centered at 4 hours + $1T_c$. The sequence continues alternating two blocks to the left and one block to the right (see Figure 6-2).

6.2.2 Construction of Incremental Hydrographs

Figure 6-1 shows the relationship of a single block of rain to a single hydrograph. Figure 6-3 shows the relationship of the rainfall distribution to the overall hydrograph for the storm event. The peak flow amount from each block of rain is determined by the RM formula, Q = CIA, where I equals I_N (the actual rainfall intensity for the rainfall block). I_N is determined by dividing P_N by the actual time base of the block, T_c. The following equation shows this relationship:

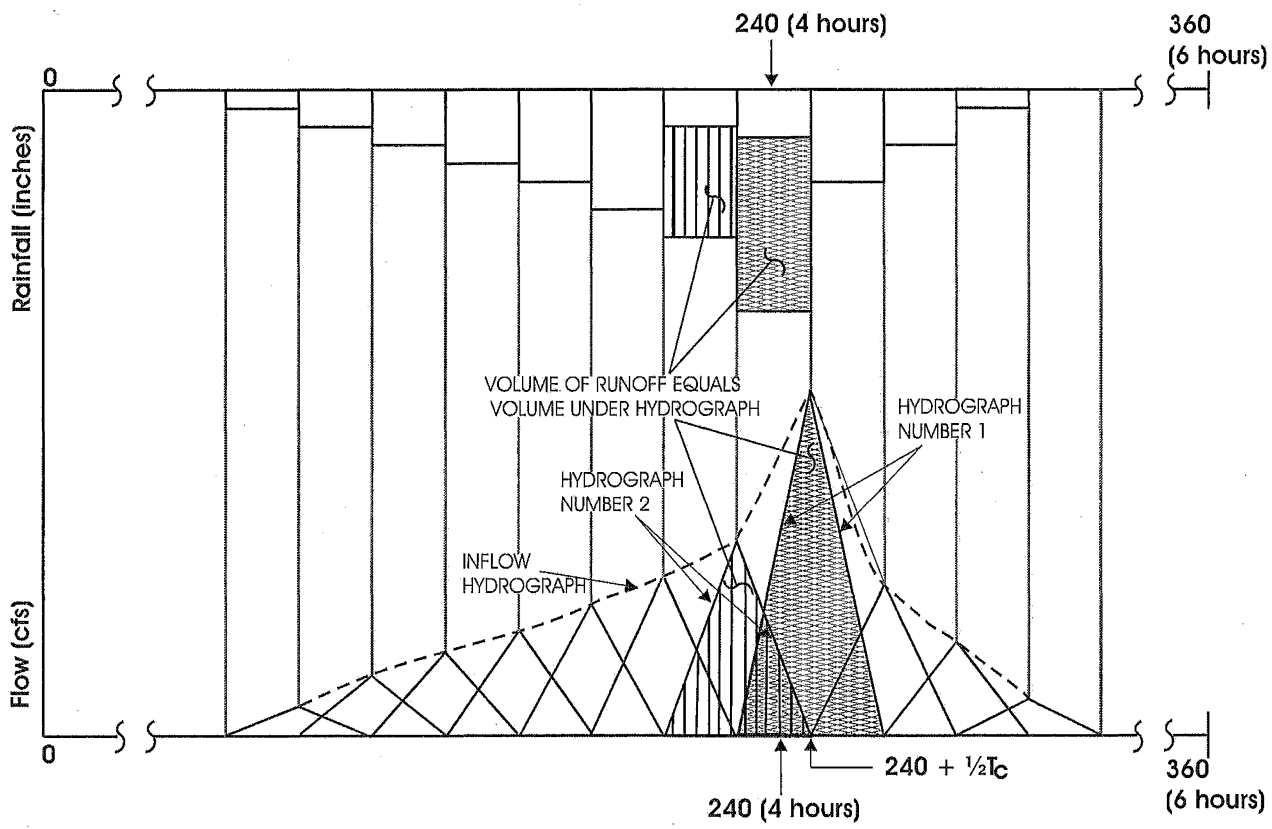
$$I_N = 60\ P_N/T_c \qquad \text{(Eq. 6-4)}$$

Where: I_N = average rainfall intensity for a duration equal to T_c in inches per hour
P_N = rainfall amount for the block in inches
T_c = time of concentration in minutes

By substituting equation 6-4 into the rational equation, the following relationship is obtained:

$$Q_N = 60\ CAP_N/T_c\ (cfs) \qquad \text{(Eq. 6-5)}$$

Finally, the overall hydrograph for the storm event is determined by adding all the hydrographs from each block of rain. Since the peak flow amount for each incremental hydrograph corresponds to a zero flow amount from the previous and proceeding hydrographs, as shown in Figure 6-3, the inflow hydrograph can be plotted by connecting the peak flow amounts (see the dashed line in Figure 6-3).



FIGURE

6-Hour Rational Method Hydrograph

6-3

6.3 GENERATING A HYDROGRAPH USING RATHYDRO

The rainfall distribution and related hydrographs can be developed using the RATHYDRO computer program provided to the County by Rick Engineering Company. A copy of this program is available at no cost from the County. The output from this computer program may be used with HEC-1 or other software for routing purposes.

The design storm pattern used by the RATHYDRO program is based on the (2/3, 1/3) distribution described in Sections 4.1.1 and 6.2.1. The ordinates on the hydrograph are calculated based on the County of San Diego Intensity-Duration Design Chart (Figure 3-1), which uses the intensity equation described in Sections 3.1.3 and 6.2.1 to relate the intensity (I) of the storm to T_c, $I = 7.44\ P_6 D^{-0.645}$. The computer program uses equations 6-2 and 6-3 described above and calculates I_N directly. The intensity at any given multiple of T_c is calculated by the following equation:

$$I_N = [(I_{T(N)})\ (T_{T(N)}) - (I_{T(N-1)})\ (T_{T(N-1)})] / T_c \qquad \text{(Eq. 6-6)}$$

Where: N = number of rainfall blocks

$T_{T(N)}$ = time of concentration at rainfall block N in minutes (equal to NT_c)

I_N = actual rainfall intensity at rainfall block N in inches per hour

$I_{T(N)}$ = rainfall intensity at time of concentration $T_{T(N)}$ in inches per hour

Figure 6-2 shows the rainfall distribution used in the RM hydrograph, computed at multiples of T_c. The rainfall at block N = 1, ($1T_c$), is centered at 4 hours, the rainfall at block N = 2, ($2T_c$), is centered at 4 hours – $1T_c$, the rainfall at block N = 3, ($3T_c$), is centered at 4 hours – $2T_c$, and the rainfall at at block N = 4, ($4T_c$), is centered at 4 hours + $1T_c$. The sequence continues alternating two blocks to the left and one block to the right (see Figure 6-2).

As described in Section 6.2.2, the peak discharge (Q_N) of the hydrograph for any given rainfall block (N) is determined by the RM formula Q = CIA, where $I = I_N$ = the actual

rainfall intensity for the rainfall block. The RATHYDRO program substitutes equation 6-6 into the RM formula to determine Q_N yielding the following equation:

$$Q_N = [(I_{T(N)})(T_{T(N)}) - (I_{T(N-1)})(T_{T(N-1)})]\, CA / T_c \qquad \text{(Eq. 6-7)}$$

Where: Q_N = peak discharge for rainfall block N in cubic feet per second (cfs)
N = number of rainfall blocks
$T_{T(N)}$ = time of concentration at rainfall block N in minutes (equal to NT_c)
$I_{T(N)}$ = rainfall intensity at time of concentration $T_{T(N)}$ in inches per hour
C = RM runoff coefficient
A = area of the watershed (acres)

To develop the hydrograph for the 6-hour design storm, a series of triangular hydrographs with ordinates at multiples of the given T_c are created and added to create the hydrograph. This hydrograph has its peak at 4 hours plus ½ of the T_c. The total volume under the hydrograph is equal to the following equation (equation 6-1):

$$VOL = CP_6A$$

Where: VOL = volume of runoff (acre-inches)
P_6 = 6-hour rainfall (inches)
C = runoff coefficient
A = area of the watershed (acres)

SEE TILE 32 (SHEET 25)

SEE TILE 30 (SHEET 23)

SEE TILE 28 (SHEET 21)

PARCEL LINE INFORMATION PROVIDED BY:
SAN DIEGO DATA PROCESSING CORPORATION
ACCORDING TO THE BASE MAP SUB LICENSE
AGREEMENT WITH THE CITY OF ESCONDIDO

TOPOGRAPHY COMPILED BY:
GEONEX NORTH AMERICAN OPERATIONS, INC.
DATED NOVEMBER, 1992

LEGEND
- EXISTING CONTOUR ELEVATION
- EXISTING NATURAL FLOW
- EXISTING IMPROVED CHANNEL
- EXISTING STORM DRAIN
- PROPOSED FACILITY
- EXISTING LAKES

LEGEND
- MAJOR BASIN BOUNDARY
- MINOR BASIN BOUNDARY
- GENERAL PLAN BOUNDARY
- BASIN DESIGNATION
- EXIST. / PROP. DESILT BASIN
- FACILITY IDENTIFIER

SCALE IN FEET: 400 200 0 400 800 1200

N

"E" Hill

Project Site

48" SD

RCB 12' x3'

Cross Section Upstream Channel

Reidy Creek

SEE TILE 22 (SHEET 15)

MASSON & ASSOCIATES, INC.
PLANNING ▾ ENGINEERING ▾ SURVEYING
200 E. WASHINGTON AVE. ▾ SUITE 200 ▾ ESCONDIDO ▾ CA 92025-1516
TEL (619) 741-3570 ▾ FAX (619) 741-1786

Date	App'd	REVISIONS	By	Date

Checked By	Drawn by	Designed By
DWM-END	DAM	JAW-LBR-END

Plans Prepared Under Supervision Of: For Masson & Assoc. Inc.
EDWARD N. DOMINGUE R.C.E. 34131 DATE:

SCALE Horizontal 1" = 400'
DATE: 02-06-95
Drawn By: DAM

Submitted _____ Approved _____
By _____ Asst. City Engineer
By _____ Asst. Director of Public Works

CITY OF ESCONDIDO DEPT. OF PUBLIC WORKS
DRAINAGE MASTER PLAN FOR THE CITY OF ESCONDIDO:
EXISTING / PROPOSED STORM DRAINS TILE 29

Drawing No. D- 1114
Sheet 22 of 33

EXISTING DRAINAGE EXHIBIT FOR:
N. IRIS LANE

D.M.A. LEGEND

DESCRIPTION	SYMBOL
PROPERTY LINE/PROJECT BOUNDARY	
EXISTING CONTOUR	630
EXISTING DMA LIMITS	
DIRECTION OF DRAINAGE	
BASIN IDENTIFIER	E-1
BASIN AREA (AC.)	6.4364
NODE NUMBER	1
Q_{100} (C.F.S.)	17.29

OFFSITE DRAINAGE
SEE OFFSITE DRAINAGE EXHIBIT

TYPE D SOIL

TYPE C SOIL

ROBIN HILL LANE

ROBIN HILL LANE R/W

CHEYENNE LANE

N. IRIS LANE

R/W

APN: 224-310-08

APN: 224-310-05

APN: 224-310-20

APN: 224-310-06

APN: 224-310-07

MAP NO. 10888

MAP NO. 7449

MAP NO. 0723

E-1
6.4364

E-2
0.9811

FLOW PATH (TYP.)

LOT LINE (TYP.)

3
—

5
2.75

4
15.3

EXISTING DRAINAGE EXHIBIT FOR:
N. IRIS LANE

SCALE: 1" = 40'

GRAPHIC SCALE
40' 0 40' 80' 120'

REGISTERED PROFESSIONAL ENGINEER
AARON PARKER
No. 68547
CIVIL
STATE OF CALIFORNIA

SB&O INC.
PLANNING ENGINEERING SURVEYING
3990 Ruffin Road, Suite 120
San Diego, Ca. 92123
858-560-1141 858-560-8157
Fax

03-11-22

75280.65

FILE NAME: S:\75280 N. IRIS LANE\03 DWG\DA\75280D05-EXIST NODE EXHIBIT.DWG, PLOTTED BY: COLE FARGO ON 3/16/2022 4:37 PM

PROPOSED DRAINAGE EXHIBIT FOR:
N. IRIS LANE

LEGEND

DESCRIPTION	SYMBOL
PROPERTY LINE/PROJECT BOUNDARY	
PROPOSED CURB AND GUTTER	
EXISTING CONTOUR	630
PROPOSED BASIN LIMITS	
SOIL LIMITS	
DIRECTION OF DRAINAGE	
STORM DRAIN PIPE SIZE PER PLAN	
TREE WELL	
BASIN IDENTIFIER	1A
BASIN AREA (S.F.)	5,940
NODE NUMBER	1
Q_{100} (C.F.S.)	17.29

OFFSITE DRAINAGE

TYPE D SOIL

TYPE C SOIL

ROBIN HILL LANE

ROBIN HILL LANE

N. IRIS LANE

APN: 224-310-08

APN: 224-310-05

APN: 224-310-20

APN: 224-310-06

APN: 224-310-07

MAP NO. 10888

MAP NO. 7449

MAP NO. 0723

3B 23637

3A1 2482

2B 2559

2A1 2593

2A 29732

3A 25209

2C 41923

2D 27868

3G 6100

3D 9206

3C 33572

2F 23147

2E 26577

3A1 2622

3A 22433

3F 6959

3E 4646

2G 12193

BMP-1

BMP-2

BMP-3

401 (161.8)

303 3.78

301 —

203 5.25

202 0.32

304 3.78

302 0.37

206 25.5

207 9.75

205 9.49

204 9.49

102 0.33

103 2.33

104 0.12

104 17.2

601 (17.2)

305 11.7

306 12.5

105 196.6

501 19.0

201 —

101 —

DWY. "A"

DWY. "B"

DWY. "C"

DWY. "D"

DWY. "E"

DWY. "F"

DWY. "G"

DWY. "H"

DWY. "I"

DWY. "J"

DWY. "K"

DWY. "L"

DWY. "N"

3'x7' BYPASS R.C.B.C.

PROPOSED (PVT.) TYPE "B" INLET (TYP.)

PROPOSED OUTLET CONTROL STRUCTURE (TYP.)

PROPOSED (PUB.) TYPE "B" INLET

STREET TREE

PROPOSED BOX CULVERT EXTENSION

EXIST. 12'x3' BOX CULVERT

EXIST. INLET

DRAIN FROM BMP-2 CONTROL STRUCTURE TO BOX CULVERT EXTENSION

LOW FLOW DRAIN FROM BMP-3 TO CONTROL STRUCTURE BMP-2

OVERFLOW DRAIN TO GUTTER

POC 1

R/W

PROPOSED DRAINAGE EXHIBIT FOR:
N. IRIS LANE

SCALE: 1" = 40'

GRAPHIC SCALE

40' 0 40' 80' 120'

REGISTERED PROFESSIONAL ENGINEER
AARON PARKER
No. 68547
CIVIL
STATE OF CALIFORNIA

SB&O INC.
PLANNING ENGINEERING SURVEYING
3990 Ruffin Road, Suite 120
San Diego, Ca. 92123
858-560-1141 858-560-8157
Fax

FILE NAME: S:\75280 N. IRIS LANE\03 DWG\P-REPS\DRAINAGE AREAS.DWG, PLOTTED BY: COLE FARGO ON 3/10/2022 1:56 PM

EXISTING DRAINAGE EXHIBIT FOR:
N. IRIS LANE

DRAINAGE LEGEND

DESCRIPTION	SYMBOL
PROPERTY LINE/PROJECT BOUNDARY	
EXISTING CONTOUR	630
PROPOSED DRAINAGE BASIN LIMITS	
DIRECTION OF DRAINAGE	
NODE NUMBER / Q_{100} (C.F.S.)	1 / 17.29 ELEV. ℄
BASIN IDENTIFIER	E-5
BASIN AREA (AC.)	1.9600

1 — 3,100.0 F.S.

FLOW PATH

COUNTRY CLUB DRIVE

EXIST. 48" R.C.P. MASTER PLAN ID #320

3 — 764.0 F.S.

I-15

CENTRE CITY PARKWAY

E-4 — 113.3887

E-5 — 7.7288

PROJECT BOUNDARY

ROBIN HILL LANE

PROJECT SITE

N. IRIS LANE

E-7 — 0.3836

2 — 161.8 — 705.8 ℄

4 — 17.2 — 711.0 ℄ SD INLET

5 — 19.0 — 701.6 ℄

EXIST. 12'x3' R.C.B. MASTER PLAN ID #289

CHEYENNE LANE

6 — 196.6 — 701.2 ℄

E-6 — 0.5905

BROADWAY

REID CREEK

PROJECT BOUNDARY

1 SCALE: 1" = 150'

GRAPHIC SCALE
150' 0 150' 300' 450'

EXISTING DRAINAGE EXHIBIT FOR:
N. IRIS LANE

REGISTERED PROFESSIONAL ENGINEER
AARON PARKER
No. 68547
CIVIL
STATE OF CALIFORNIA

SB&O INC.
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3990 Ruffin Road, Suite 120
San Diego, Ca. 92123
858-560-1141
858-560-8157 Fax

E:\MAP\75280.25 N IRIS LANE\PROCESSED\EXHIBIT\EXHIBIT.DWG, PLOTTED BY: JONATHAN S. KNUDSEN ON 10/6/2021 1:41 PM

Appendix J2
Stormwater Quality Management Plan

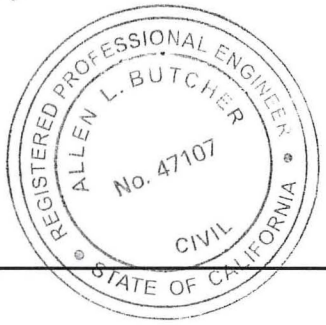
City of Escondido
PRIORITY DEVELOPMENT PROJECT (PDP) SWQMP

North Iris Lane
Project ID: PHG20-0032

2039, 2047, 2085 & 2089 North Iris Lane
Escondido, Ca 92078

ASSESSOR'S PARCEL NUMBER(S):
224-310-05, 06, 07, 08, 20

ENGINEER OF WORK:



Allen L. Butcher, PE

Hall Land Company, Inc.
740 Lomas Santa Fe Drive, Suite 204
Solana Beach, California 92075
(858) 481-3310

SB&O INC.
PLANNING ENGINEERING SURVEYING
3990 Ruffin Road, Suite 120
San Diego, Ca. 92123
858-560-1141
858-560-8157 Fax

DATE OF SWQMP: Dec 09, 2021

Exhibits Updated 3-17-2021

Plans Prepared By:
SB&O, Inc
3990 Ruffin Rd. Suite 120
San Diego, CA 92123
858.560.1141
JN 75280.65

SWQMP APPROVED:
[For City Staff Only]

ESCONDIDO
City of Choice

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ATTACHMENTS

Attachment 1: Backup for PDP Pollutant Control BMPs
- Attachment 1a: Storm Water Pollutant Control Worksheet Calculations (Worksheet B.2-1 DCV, Form I-4)
- Attachment 1b: Form I-5, Categorization of Infiltration Feasibility Condition
- Attachment 1c: Form I-6, Factor of Safety and Design Infiltration Rate Worksheet
- Attachment 1d: Drainage Management Area (DMA) Exhibit
- Attachment 1e: Individual Structural BMP DMA Map book

Attachment 2: Backup for PDP Hydromodification Control Measures
- Attachment 2a: Flow Control Facility Design
- Attachment 2b: Hydromodification Management Exhibit
- Attachment 2c: Management of Critical Coarse Sediment Yield Areas
- Attachment 2d: Geomorphic Assessment of Receiving Channels (optional)
- Attachment 2e: Vector Control Plan (if applicable)

Attachment 3: Structural BMP Maintenance Plan
- Attachment 3a: Structural BMP Maintenance Thresholds and Actions
- Attachment 3b: Draft Maintenance Agreements / Notifications (when applicable)

Attachment 4: City of Escondido PDP Structural BMP Verification

Attachment 5: Copy of Plan Sheets Showing Permanent Storm Water BMPs

ACRONYMS

ACP	Alternative Compliance Project
APN	Assessor's Parcel Number
BMP	Best Management Practice
DMA	Drainage Management Area
EOW	Engineer of Work
HMP	Hydromodification Management Plan
HSG	Hydrologic Soil Group
MS4	Municipal Separate Storm Sewer System
N/A	Not Applicable
PDP	Priority Development Project
PE	Professional Engineer
SC	Source Control
SD	Site Design
SDRWQCB	San Diego Regional Water Quality Control Board
SIC	Standard Industrial Classification
SWDM	Storm Water Design Manual
SWQMP	Storm Water Quality Management Plan
WMAA	Watershed Management Area Analysis
WQIP	Water Quality Improvement Plan

PDP SWQMP PREPARER'S CERTIFICATION PAGE

Project Name: North Iris Lane
Permit Application Number: PHG20-0032

PREPARER'S CERTIFICATION

I hereby declare that I am the Engineer in Responsible Charge of design of storm water best management practices (BMPs) for this project, and that I have exercised responsible charge over the design of the BMPs as defined in Section 6703 of the Business and Professions Code, and that the design is consistent with the PDP requirements of the City of Escondido Storm Water Design Manual, which is a design manual for compliance with the City of Escondido Municipal Code (Chapter 22, Article 2) and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2013-0001 as amended by R9-2015-0001 and R9-2015-0100) requirements for storm water management.

I have read and understand that the City of Escondido has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the Storm Water Design Manual. I certify that this PDP SWQMP has been completed to the best of my ability and accurately reflects the project being proposed and the applicable BMPs proposed to minimize the potentially negative impacts of this project's land development activities on water quality. I understand and acknowledge that the plan check review of this PDP SWQMP by City staff is confined to a review and does not relieve me, as the Engineer in Responsible Charge of design of storm water BMPs for this project, of my responsibilities for project design.

C47107 Exp 12/31/2021
Engineer of Work's Signature, PE Number & Expiration Date

Allen L, Butcher
Print Name

SB&O, Inc.
Company

December 9 , 2021
Date



Engineer's Seal:

SUBMITTAL RECORD

Use this Table to keep a record of submittals of this PDP SWQMP. Each time the PDP SWQMP is re-submitted, provide the date and status of the project. In column 4 summarize the changes that have been made or indicate if response to plan check comments is included. When applicable, insert response to plan check comments behind this page.

Preliminary Design / Planning / CEQA

Submittal Number	Date	Summary of Changes
1	March 1, 2021	Initial Submittal
2	July 1, 2021	Second Submittal – Updated DMAs, clarified BMP details.
3	December 9, 2021	Third submittal. Revised SWMM. Change to Green Streets.
4		

Final Design

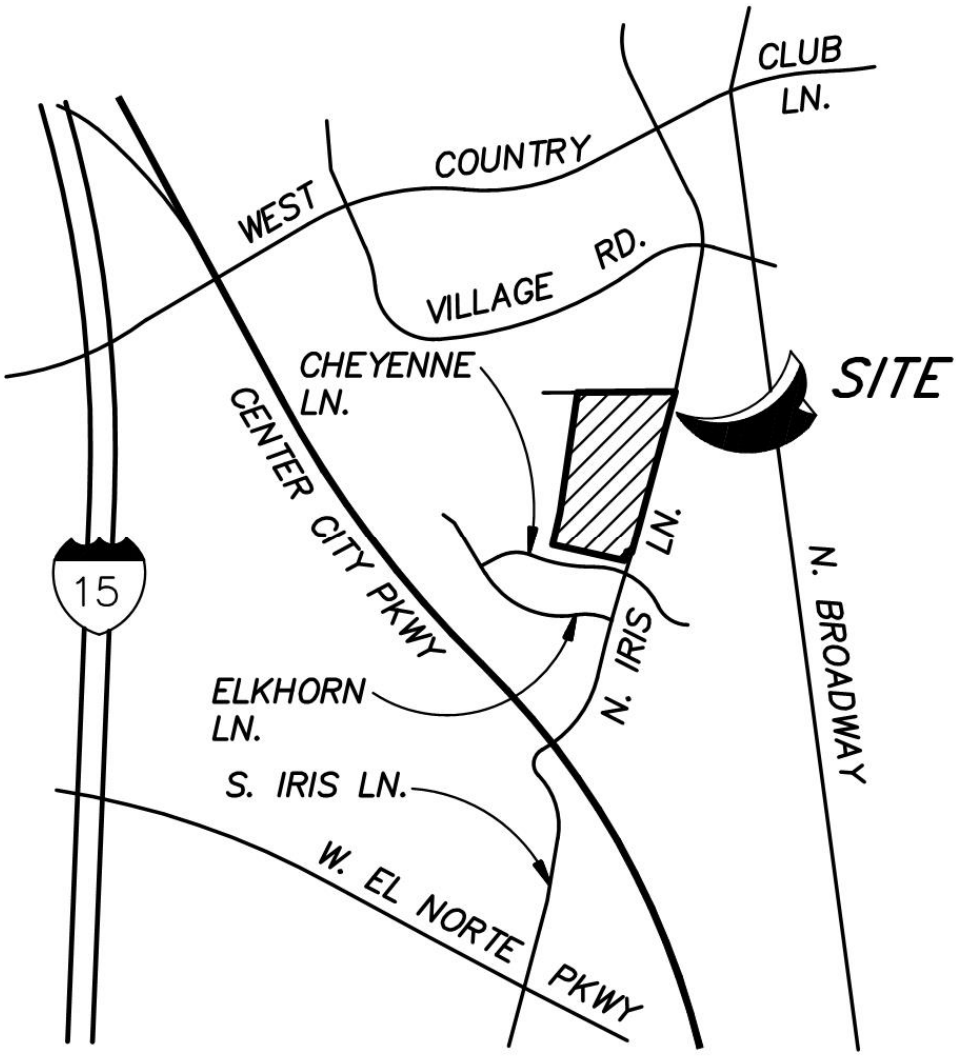
Submittal Number	Date	Summary of Changes
1		Initial Submittal
2		
3		
4		

Plan Changes

Submittal Number	Date	Summary of Changes
1		Initial Submittal
2		
3		
4		

PROJECT VICINITY MAP

Project Name: North Iris Lane
Record ID: PHG20-0032



Step 1: Project type determination (Standard or Priority Development Project) (Form I-2a)

Project Summary Information	
Project Name	North Iris Lane
Project Address	2039, 2047, 2085 & 2089 North Iris Lane Escondido, Ca 92078
Assessor's Parcel Number(s)	224-310-05, 06, 07, 08, 20
Permit Application Number	PHG20-0032
Project Watershed (Hydrologic Unit)	Select One: Carlsbad 904
Parcel Area (total area of Assessor's Parcel(s) associated with the project)	7.894_ Acres (343,863 Square Feet)
Area to be disturbed by the project (Project Area)	7.712 _ Acres (335,919 Square Feet)
Project Proposed Impervious Area (subset of Project Area)	5.547 _ Acres (241,630 Square Feet)
Project Proposed Pervious Area (subset of Project Area)	2.165 Acres (94,289 Square Feet)
Note: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project. This may be less than the Parcel Area. Includes street frontage improvements	

Confirmation of Priority Development Project Determination
The project is (select one): ☐ New Development **x Redevelopment**[1]
The total proposed newly created or replaced impervious area is: >50%

[1] Redevelopment is defined as: The creation and/or replacement of impervious surface on an already developed site. Examples include the expansion of a building footprint, road widening, the addition to or replacement of a structure, and creation or addition of impervious surfaces. Replacement of impervious surfaces includes any activity that is not part of a routine maintenance activity where impervious material(s) are removed, exposing underlying soil during construction. Redevelopment does not include routine maintenance activities, such as trenching and resurfacing associated with utility work; pavement grinding; resurfacing existing roadways; new sidewalks construction; pedestrian ramps; or bike lanes on existing roads; and routine replacement of damaged pavement, such as pothole repair.

Solar energy farms that are not also one of the categories listed in Step 2b of Table 1-1. City staff must also determine that appropriate BMPs are provided to mitigate for downstream impacts due to significant changes to the existing hydrology.

Is the project in any of the following categories, (a) through (f)?			
Yes ☐	No **X**	(a)	New development projects that create 10,000 square feet or more of impervious surfaces (collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes **X**	No ☐	(b)	Redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.
Yes ☐	No **X**	(c)	New and redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site), and support one or more of the following uses: (i) Restaurant. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (Standard Industrial Classification (SIC) code 5812). (ii) Hillside development projects. This category includes development on any natural slope that is twenty-five percent or greater. (iii) Parking lots. This category is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce. (iv) Streets, roads, highways, freeways, and driveways. This category is defined as any paved impervious surface used for the transportation of automobiles, trucks, motorcycles, and other vehicles.
Yes ☐	No **X**	(d)	New or redevelopment projects that create and/or replace 2,500 square feet or more of impervious surface (collectively over the entire project site) and discharging directly to an Environmentally Sensitive Area (ESA). "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands). *Note: ESAs are areas that include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; areas designated as Areas of Special Biological Significance by the State Water Board and San Diego Water Board; State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Board and San Diego Water Board; and any other equivalent environmentally sensitive areas which have been identified by the Co-permittees.*
Yes ☐	No **X**	(e)	New development projects, or redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface, that supports one or more of the following uses: (i) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following SIC codes: 5013, 5014, 5541, 7532-7534, or 7536-7539. (ii) Retail gasoline outlets (RGOs). This category includes RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.

Yes ☐	No **X**	(e)	New development projects, or redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface, that supports one or more of the following uses: (iii) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following SIC codes: 5013, 5014, 5541, 7532-7534, or 7536-7539. (iv) Retail gasoline outlets (RGOs). This category includes RGOs that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic (ADT) of 100 or more vehicles per day.
Yes ☐	No **X**	(f)	New or redevelopment projects that result in the disturbance of one or more acres of land and are expected to generate pollutants post construction. *Note: See Storm Water Design Manual Section 1.4.2 for additional guidance.*

Does the project meet the definition of one or more of the Priority Development Project categories (a) through (f) listed above?

☐ No – the project is not a Priority Development Project (Standard Project).

X Yes – the project is a Priority Development Project (PDP).

Further guidance may be found in Chapter 1 and Table 1-2 of the Storm Water Design Manual.

The following is for **redevelopment PDPs only**:

The area of existing (pre-project) impervious area at the project site is:	38,500 ft^2 (A)
The total proposed newly created or replaced impervious area is	241,630 ft^2 (B)
Percent impervious surface created or replaced (B/A)*100:	>50%

The percent impervious surface created or replaced is (select one based on the above calculation):

☐ less than or equal to fifty percent (50%) – **only newly created or replaced impervious areas are considered a PDP and subject to stormwater requirements**

OR

X greater than fifty percent (50%) – **the entire project site is considered a PDP and subject to stormwater requirements**

Step 1.1: Storm Water Quality Management Plan requirements

Step	Answer	Progression
Is the project a Standard Project, Priority Development Project (PDP), or exception to PDP definitions? To answer this item, complete Step 1 Project Type Determination Checklist on Pages 1 and 2, and see PDP exemption information below. For further guidance, see Section 1.4 of the Storm Water Design Manual *in its entirety*.	☐ Standard Project	Standard Project requirements apply, including Standard Project SWQMP. **Complete Form I-1.**
	X PDP	Standard and PDP requirements apply, including PDP SWQMP. **SWQMP Required.**
	☐ PDP with ACP	If participating in offsite alternative compliance, **complete Step 6.3 and an ACP SWQMP.**
	☐ PDP Exemption	**Go to Step 1.2 below.**

Step 1.2: Exemption to PDP definitions

Is the project exempt from PDP definitions based on either of the following: ☐ Projects that are only new or retrofit paved sidewalks, bicycle lanes, or trails that meet the following criteria: (i) Designed and constructed to direct storm water runoff to adjacent vegetated areas, or other non-erodible permeable areas; OR (ii) Designed and constructed to be hydraulically disconnected from paved streets or roads [i.e., runoff from the new improvement does not drain directly onto paved streets or roads]; OR (iii) Designed and constructed with permeable pavements or surfaces in accordance with County of San Diego Green Streets Infrastructure;	If so: Standard Project requirements apply, AND any additional requirements specific to the type of project. City concurrence with the exemption is required. *Provide discussion and list any additional requirements below in this form.*
☐ Projects that are only retrofitting or redeveloping existing paved alleys, streets or roads that are designed and constructed in accordance with the City of Escondido Guidance on Green Infrastructure.	**PDP Exempt.**
Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable:	

Step 2: Construction Storm Water BMPs

Construction storm water BMPs shall be shown on the Grading Plan and (if applicable) included in the Storm Water Pollution Prevention Plan (SWPPP).

Step 3: City of Escondido PDP SWQMP Site Information Checklist (Form I-2a)

Step 3.1: Description of Existing Site Condition

Current Status of the Site (select all that apply):
X Existing development
X Previously graded but not built out
☐Demolition completed without new construction
☐Agricultural or other non-impervious use
X Vacant, undeveloped/natural

Description / Additional Information:

Existing Land Cover Includes (select all that apply and provide each area on site):
X Vegetative Cover 1.837 Acres (80,000 Square Feet)
X Non-Vegetated Pervious Areas 4 . 8 7 2 a cres (212,244 Square Feet)
X Impervious Areas 0.884 Acres (38,500 Square Feet)

Description / Additional Information:

Underlying Soil belongs to Hydrologic Soil Group (select all that apply):
☐NRCS Type A
☐NRCS Type B
X NRCS Type C
X NRCS Type D

Approximate Depth to Groundwater (GW) (or N/A for no infiltration BMPs):
☐GW Depth < 5 feet
☐5 feet < GW Depth < 10 feet
X 10 feet < GW Depth < 20 feet
☐GW Depth > 20 feet

Existing Natural Hydrologic Features (select all that apply):
X Watercourses
☐Seeps
☐Springs
☐Wetlands
☐None
☐Other

Description / Additional Information:

Step 3.2: Description of Existing Site Drainage Patterns

How is storm water runoff conveyed from the site? At a minimum, this description should answer:

(1) Whether existing drainage conveyance is natural or urban;
(2) Is runoff from offsite conveyed through the site? if yes, quantify all offsite drainage areas, design flows, and locations where offsite flows enter the project site, and summarize how such flows are conveyed through the site;
(3) Provide details regarding existing project site drainage conveyance network, including any existing storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels; and
(4) Identify all discharge locations from the existing project site along with a summary of conveyance system size and capacity for each of the discharge locations. Provide summary of the pre-project drainage areas and design flows to each of the existing runoff discharge locations.

Describe existing site drainage patterns:

1. Drainage patterns are rural, predominately overland flow.
2. Offsite flows enter the site in a shallow (18" deep) trapezoidal channel which runs through the southerly ¼ of the site. The 100-year peak runoff from approximately 24 acres or low density residential is estimated at 45 cfs, which is tributary to the existing box culvert under North Iris Lane at the southeast corner of the site. Additional minor runoff occurs from a small area at the northwest corner of the property, which travel overland to Robin Hill Lane.
3. Site drain is generally overland flow toward the existing earth channel in the southerly ¼ of the site, which flow easterly toward the box culvert under North Iris Lane.
4. Approximately 6.0 acres drain to the southeast. The southerly discharge location is a shallow 12' x 3' box culvert under North Iris Lane, which has a capacity of approximately 200 cfs. The northerly 1.5 acres flows to the North Iris gutter, which has an approximate capacity of 7 cfs (street grade is 0.87% north of Robin Hill Lane intersection).

Discharge Location	Site Discharge (cfs)	Tributary Area (ac)	Existing Capacity (cfs)
North Iris Gutter	4.5	1.6	7.0
SE – Box Culvert	17.7	6.3	200

Step 3.3: Description of Proposed Site Development

Project Description / Proposed Land Use and/or Activities:

Redevelopment of site. Demolition of existing residences and associated structures. Re-grading of the site to allow multi-family residential buildings and private driveways. Construction of frontage improvements. .

List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features):

Site: Buildings roofs, driveways, parking spaces, walkways, patios, recreational areas.
Frontage: Street paving, curb & gutter, sidewalks.

List/describe proposed pervious features of the project (e.g., landscape areas):

Landscaping, manufactured slopes, water quality basins

Does the project include grading and changes to site topography?

X Yes

☐ No

Description / Additional Information:
Site grading will include cut and fill to provide a more uniform slope rate across the site.

Insert acreage or square feet for the different land cover types in the table below:

Change in Land Cover Type Summary			
Land Cover Type	Existing (acres or ft^2)	Proposed (acres or ft^2)	Percent Change
Vegetation	1.837	2.165	+18
Pervious (non-vegetated)	4.782	0	N/A
Impervious	0.884	5.547	+527%

Step 3.4: Description of Proposed Site Drainage Patterns

Does the project include changes to site drainage (e.g., installation of new storm water conveyance systems)?

x Yes

☐No

If yes, provide details regarding the proposed project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels, and the method for conveying offsite flows through or around the proposed project site. Identify all discharge locations from the proposed project site along with a summary of the conveyance system size and capacity for each of the discharge locations. Provide a summary of pre- and post-project drainage areas and design flows to each of the runoff discharge locations. Reference the drainage study for detailed calculations.

Describe proposed site drainage patterns:

The project proposes surface ditch to intercept offsite flows along the westerly boundary.
A bypass storm drain system will intercept flows at the existing earth channel at the westerly boundary and route flows to the existing box culvert near the southeast corner of the site at N Iris Lane.

Site drainage will consist of paved private streets with curbs and surface gutters, and private storm drains directed to the basins along the east boundary / North Iris Lane frontage. Surface drainage from the southerly portion of North Iris Lane will be directed to the tow (2) southerly basins. The northerly street sections (North Iris Lane & Robin Hill Lane) will discharge to the gutter and continue northerly along the existing gutter on the west side of North Iris Lane.

Step 3.5: Potential Pollutant Source Areas

Identify whether any of the following features, activities, and/or pollutant source areas will be present (select all that apply).

- X On-site storm drain inlets
- ☐ Interior floor drains and elevator shaft sump pumps
- ☐ Interior parking garages
- ☐ Need for future indoor & structural pest control
- X Landscape/Outdoor Pesticide Use
- ☐ Pools, spas, ponds, decorative fountains, and other water features
- ☐ Food service
- ☐ Refuse areas
- ☐ Industrial processes
- ☐ Outdoor storage of equipment or materials
- ☐ Vehicle and Equipment Cleaning
- ☐ Vehicle/Equipment Repair and Maintenance
- ☐ Fuel Dispensing Areas
- ☐ Loading Docks
- X Fire Sprinkler Test Water
- X Miscellaneous Drain or Wash Water
- X Plazas, sidewalks, and parking lots
- ☐ Other (provide description)

Description / Additional Information:

Step 3.6: Identification and Narrative of Receiving Water and Pollutants of Concern

Describe flow path of storm water from the project site discharge location(s), through urban storm conveyance systems as applicable, to receiving creeks, rivers, and lagoons as applicable, and ultimate discharge to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable):

List any 303(d) impaired water bodies[2] within the path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable), identify the pollutant(s)/stressor(s) causing impairment, and identify any TMDLs and/or Highest Priority Pollutants from the WQIP for the impaired water bodies:

303(d) Impaired Water Body	Pollutant(s)/Stressor(s)	TMDLs / WQIP Highest Priority Pollutant
Escondido Creek	Benthic/Pesticides/Nutrients	Riparian Habitat Degradation
San Elijo Lagoon	Eutrophic/Sediment/Silt/ Turbidity	Indicator bacteria

Identification of Project Site Pollutants*

*Identification of project site pollutants below is only required if flow-thru treatment BMPs are implemented onsite in lieu of retention or biofiltration BMPs. Note the project must also participate in an alternative compliance program (unless prior lawful approval to meet earlier PDP requirements is demonstrated).

Identify pollutants expected from the project site based on all proposed use(s) of the site (see Storm Water Design Manual Appendix B.6):

Pollutant	Not Applicable to the Project Site	Anticipated from the Project Site	Also a Receiving Water Pollutant of Concern
Sediment			
Nutrients			
Heavy Metals			
Organic Compounds			
Trash & Debris			
Oxygen Demanding Substances			
Oil & Grease			
Bacteria & Viruses			
Pesticides			

[2] The current list of Section 303(d) impaired water bodies can be found at

http://www.waterboards.ca.gov/water_issues/programs/water_quality_assessment/#impaired

Step 3.7: Hydromodification Management Requirements

Do hydromodification management requirements apply (see Section 1.6 of the Storm Water Design Manual)?

X Yes, hydromodification management requirements for flow control and preservation of critical coarse sediment yield areas are applicable.

☐No, the project will discharge runoff directly to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☐No, the project will discharge runoff directly to conveyance channels whose bed and bank are concrete-lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☐No, the project will discharge runoff directly to an area identified as appropriate for an exemption by the WMAA[3] for the watershed in which the project resides.

Description / Additional Information (to be provided if a 'No' answer has been selected above):

[3]The Watershed Management Area Analysis (WMAA) is an optional element for inclusion in the Water Quality Improvement Plans (WQIPs) described in the 2013 MS4 Permit [Provision B.3.b.(4)]. It is available online at the Project Clean Water website: http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=248

Step 3.7.1: Critical Coarse Sediment Yield Areas*

***This Section only required if hydromodification management requirements apply**

Based on the maps provided within the WMAA, do potential critical coarse sediment yield areas exist within the project drainage boundaries?

Yes

X No, no critical coarse sediment yield areas to be protected based on WMAA maps

If yes, have any of the optional analyses presented in Section 6.2 of the manual been performed?

6.2.1 Verification of GLUs (classification that provides an estimate of sediment yield based on geology, hillslope, and land cover) Onsite

6.2.2 Downstream Systems Sensitivity to Coarse Sediment

6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite

No optional analyses performed, the project will avoid critical coarse sediment yield areas identified based on WMAA maps

If optional analyses were performed, what is the final result?

No critical coarse sediment yield areas to be protected based on verification of GLUs onsite.

Critical coarse sediment yield areas exist but additional analysis has determined that protection is not required. Documentation attached in Attachment 8 of the SWQMP.

Critical coarse sediment yield areas exist and require protection. The project will implement management measures described in Sections 6.2.4 and 6.2.5 as applicable, and the areas are identified on the SWQMP Exhibit.

Discussion / Additional Information:

Flow Control for Post-Project Runoff*

*This Section only required if hydromodification management requirements apply
List and describe point(s) of compliance (POCs) for flow control for hydromodification management (see Section 6.3.1). For each POC, provide a POC identification name or number correlating to the project's HMP Exhibit and a receiving channel identification name or number correlating to the project's HMP Exhibit. Project has 1 POC located at the outlet of the south basins (near the existing box culvert). .
Has a geomorphic assessment been performed for the receiving channel(s)? **X** No, the low flow threshold is 0.1Q2 (default low flow threshold) ☐Yes, the result is the low flow threshold is 0.1Q2 ☐Yes, the result is the low flow threshold is 0.3Q2 ☐Yes, the result is the low flow threshold is 0.5Q2 *If a geomorphic assessment has been performed, provide title, date, and preparer:* *Discussion / Additional Information: (optional)*

Step 3.8: Other Site Requirements and Constraints

When applicable, list other site requirements or constraints that will influence storm water management design, such as zoning requirements including setbacks and open space, or local codes governing minimum street width, sidewalk construction, allowable pavement types, and drainage requirements.

City improvement standards for frontage improvements. Offsite bypass storm drain and shallow downstream connection point at box culvert. Site topography, building setbacks, minimum open space requirements and fire accessibility.

Optional Additional Information or Continuation of Previous Sections As Needed

This space provided for additional information or continuation of information from previous sections as needed.

Step 4: Source Control BMP Checklist (Form I-2b)

Source Control BMPs

All development projects must implement source control BMPs 4.2.1 through 4.2.6 where applicable and feasible. See Chapter 4.2 and Appendix E of the City Storm Water Design Manual for information to implement source control BMPs shown in this checklist. The following checklists serve as guides only. Mark what elements are included in your project. See Storm Water Design Manual Chapter 4 and Appendix E for more information on determining appropriate BMPs for your project.

Answer each category below pursuant to the following:

- "Yes" means the project will implement the source control BMP as described in Chapter 4.2 and/or Appendix E of the City Storm Water Design Manual. Discussion / justification is not required.
- "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.
- "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project has no outdoor materials storage areas). Discussion / justification must be provided.

Source Control Requirement	Applied?		
SC-1 Prevention of Illicit Discharges into the MS4	☒ Yes	☐No	☐N/A
□ Direct irrigation water away from impervious surfaces □ Direct vehicle wash water away from impervious surfaces □ Other: _____ *Discussion / justification if SC-1 not implemented:*			
SC-2 Storm Drain Stenciling or Signage	☒ Yes	☐No	☐N/A
□ Stencil or stamp storm drains with anti-dumping message □ Post signs prohibiting illegal dumping □ Other *Discussion / justification if SC-2 not implemented:*			
SC-3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐Yes	☐No	☒ N/A
□ Store materials inside a covered enclosure □ Direct runoff from downspouts and roofs away from storage areas □ Other *Discussion / justification if SC-3 not implemented:*			

SC-4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐Yes	☐No	☒ ☐N/A
□ Locate work area away from storm drains or catch basins □ Work over impermeable surfaces where spills and pollutants can be captured and removed *Discussion / justification if SC-4 not implemented:*			
SC-5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☒ Yes	☐No	☐N/A
□ Locate trash containers in a roofed, walled enclosure □ Locate trash containers away from storm drains *Discussion / justification if SC-5 not implemented:*			
SC-6 Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below):			
☐ A. On-site storm drain inlets	☒ Yes	☐No	☐N/A
☐ B. Interior floor drains and elevator shaft sump pumps	☐Yes	☐No	☒ N/A
☐ C. Interior parking garages	☐Yes	☐No	☒ N/A
☐ D. Need for future indoor & structural pest control	☒ Yes	☐No	☐N/A
☐ E. Landscape/outdoor pesticide use	☒ Yes	☐No	☐N/A
☐ F. Pools, spas, ponds, fountains, and other water features	☐Yes	☐No	☒ N/A
☐ G. Food service	☐Yes	☐No	☒ N/A
☐ H. Refuse areas	☒ Yes	☐No	☐N/A
☐ I. Industrial processes	☐Yes	☐No	☒ N/A
☐ J. Outdoor storage of equipment or materials	☐Yes	☐No	☒ N/A
☐ K. Vehicle and equipment cleaning	☐Yes	☐No	☒ N/A
☐ L. Vehicle/equipment repair and maintenance	☐Yes	☐No	☒ N/A
☐ M. Fuel dispensing areas	☐Yes	☐No	☒ N/A
☐ N. Loading docks	☐Yes	☐No	☒ N/A
☐ O. Fire sprinkler test water	☒ Yes	☐No	☐N/A
☐ P. Miscellaneous drain or wash water	☒ Yes	☐No	☐N/A
☐ Q. Plazas, sidewalks, and parking lots	☒ Yes	☐No	☒N/A
Discussion / justification if SC-6 not implemented. Clearly identify which sources of runoff pollutants are discussed. Justification must be provided for <u>all</u> "No" answers shown above.			

Note: Show all source control measures described above that are included in design capture volume calculations in the plan sheets of Attachment 5.

Step 5: Site Design BMP Checklist (Form I-2c)

Site Design BMPs

All development projects must implement site design BMPs SD-A through SD-H where applicable and feasible. See Chapter 4.3 and Appendix E of the City Storm Water Design Manual for information to implement site design BMPs shown in this checklist. The following checklists serve as guides only. Mark what elements are included in your project. See Storm Water Design Manual Chapter 4 and Appendix E for more information on determining appropriate BMPs for your project.

Answer each category below pursuant to the following:

- "Yes" means the project will implement the site design BMP as described in Chapter 4.3 and/or Appendix E of the City Storm Water Design Manual. Discussion / justification is not required.
- "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.
- "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project site has no existing natural areas to conserve). Discussion / justification must be provided.

Site Design Requirement	Applied?		
SD-1 Maintain Natural Drainage Pathways and Hydrologic Features	☐Yes	☐No	☒ N/A
□ Maintain existing drainage patterns *Discussion / justification if SD-1 not implemented:* Site was previously developed.			
SD-2 Conserve Natural Areas, Soils, and Vegetation	☐Yes	☒ No	☐N/A
□ Preserve trees (see Zoning Code Art. 55 Grading & Erosion Control; Art. 62 Landscape Regulations) □ Avoid sensitive areas such as wetlands and waterways *Discussion / justification if SD-2 not implemented:* Existing tress and vegetation are non-native.			
SD-3 Minimize Impervious Area	☒ Yes	☐No	☐N/A
□ Install parking and driving aisles to minimum width required to meet standards *Discussion / justification if SD-3 not implemented:*			

SD-4 Minimize Soil Compaction	☐Yes	☐No	☒ ☐N/A
□ Avoid compaction in planned landscaped spaces □ Till and amend soil for improved infiltration capacity *Discussion / justification if SD-4 not implemented:* Redevelopment site. Landscape slopes must be compacted.			
SD-5 Impervious Area Dispersion	☐Yes	☐No	☒ N/A
□ Drain rooftops, roads or sidewalks into adjacent landscape areas □ Drain impervious surfaces through pervious areas *Discussion / justification if SD-5 not implemented:* The soil types (C and D) and the adjacent landscape areas are not large enough to achieve dispersion.			
SD-6 Runoff Collection	☐Yes		
Discussion / justification if SD-6 not implemented:	☒ Yes	☐No	☐N/A
SD-7 Landscaping with Native or Drought Tolerant Species			
Discussion / justification if SD-7 not implemented:	☒ Yes	☐No	☐N/A
SD-8 Harvesting and Using Precipitation			
Discussion / justification if SD-8 not implemented: Harvest & Reuse is not Warranted.	☐Yes	☐No	☒ N/A

Note: Show all site design measures described above that are included in design capture volume calculations in the plan sheets of Attachment 5.

Step 6: PDP Structural BMPs (Form I-3)

All PDPs must implement structural BMPs for storm water pollutant control (see Chapter 5 of the Storm Water Design Manual). Selection of PDP structural BMPs for storm water pollutant control must be based on the selection process described in Chapter 5. PDPs subject to hydromodification management requirements must also implement structural BMPs for flow control for hydromodification management (see Chapter 6 of the Storm Water Design Manual). Both storm water pollutant control and flow control for hydromodification management can be achieved within the same structural BMP(s).

PDP structural BMPs must be verified by the City at the completion of construction. This may include requiring the project owner or project owner's representative and engineer of record to certify construction of the structural BMPs (see Section 8.2.3.2 of the Storm Water Design Manual). PDP structural BMPs must be maintained into perpetuity, and the City must confirm the maintenance (see Section 7 of the Storm Water Design Manual).

Use this section to provide narrative description of the general strategy for structural BMP implementation at the project site in the box below. Then complete the PDP structural BMP summary information sheet (Step 6.2) for each structural BMP within the project (copy the BMP summary information sheet [Step 6.2] as many times as needed to provide summary information for each individual structural BMP).

Step 6.1: Description of structural BMP strategy

Describe the general strategy for structural BMP implementation at the site. This information must describe how the steps for selecting and designing storm water pollutant control BMPs presented in Section 5.1 of the Storm Water D*esign Manual were followed, and the results (type of BMPs selected). For projects requiring hydromodification flow control BMPs, indicate whether pollutant control and flow control BMPs are integrated or separate. At the end of this discussion provide a summary of all the structural BMPs within the project including the type and number.*

The project development requires both treatment and HMP mitigation. The project site includes both Type "C" and "D" soils. Based upon limited infiltration rates at the site, the infiltration feasibility worksheet supports only partial infiltration. Due to space constraints, combined treatment & HMP basins were selected, to be located near the North Iris Lane right-of-way.

The majority of site runoff is directed to the south. Two linear basins are proposed on either side of the emergency entry. SWMM modeling includes all three (3) basins together to address site runoff. Low flow and HMP discharge from all 3 basins are tributary to the box culvert (POC-1). Due to the lack of existing storm drain, overflow from the north basin will discharge to the North Iris Lane gutter and flow northerly.

The project frontage improvements on Robin Hill Lane and the northerly improvements near the North Iris intersection will uses street trees in accordance with Green Streets.

Continue on following page as necessary.)

Description of structural **BMP** strategy continued (Page reserved for continuation of description of general strategy for structural **BMP** implementation at the site)
(Continued from previous page)

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. BMP-1 **(South Basin)**	
Construction Plan Sheet No. **See DMA Exhibit**	
Type of structural BMP: ☐Retention by harvest and use (HU-1) ☐Retention by infiltration basin (INF-1) ☐Retention by bioretention (INF-2) ☐Retention by permeable pavement (INF-3) ☒ Partial retention by biofiltration with partial retention (PR-1) ☐Biofiltration (BF-1) ☐Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐Detention pond or vault for hydromodification management ☐Other (describe in discussion section below)	
Purpose: ☐Pollutant control only ☐Hydromodification control only ☒ Combined pollutant control and hydromodification control ☐Pre-treatment/forebay for another structural BMP ☐Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms (See Section 8.2.3.2 of the Storm Water Design Manual)	Engineer of Work
Who will be the final owner of this BMP?	☒HOA ☐Property Owner ☐City ☐Other (describe)
Who will maintain this BMP into perpetuity?	☒HOA ☐Property Owner ☐City ☐Other (describe)
Discussion (as needed): *(Continue on subsequent pages as necessary)*	

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. **BMP-2 (Middle Basin)**	
Construction Plan Sheet No. **See DMA Exhibit**	
Type of structural BMP: ☐Retention by harvest and use (HU-1) ☐Retention by infiltration basin (INF-1) ☐Retention by bioretention (INF-2) ☐Retention by permeable pavement (INF-3) ☒ Partial retention by biofiltration with partial retention (PR-1) ☐Biofiltration (BF-1) ☐Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐Detention pond or vault for hydromodification management ☐Other (describe in discussion section below)	
Purpose: ☐Pollutant control only ☐Hydromodification control only ☒ Combined pollutant control and hydromodification control ☐Pre-treatment/forebay for another structural BMP ☐Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms (See Section 8.2.3.2 of the Storm Water Design Manual)	Engineer of Work
Who will be the final owner of this BMP?	☒HOA ☐Property Owner ☐City ☐Other (describe)
Who will maintain this BMP into perpetuity?	☒HOA ☐Property Owner ☐City ☐Other (describe)
Discussion (as needed): *(Continue on subsequent pages as necessary)*	

Step 6.2: Structural BMP Checklist

(Copy this page as needed to provide information for each individual proposed structural BMP)	
Structural BMP ID No. **BMP-3 (North Basin)**	
Construction Plan Sheet No. **See DMA Exhibit**	
Type of structural BMP: ☐Retention by harvest and use (HU-1) ☐Retention by infiltration basin (INF-1) ☐Retention by bioretention (INF-2) ☐Retention by permeable pavement (INF-3) ☒ Partial retention by biofiltration with partial retention (PR-1) ☐Biofiltration (BF-1) ☐Biofiltration with Nutrient Sensitive Media Design (BF-2) ☐Proprietary Biofiltration (BF-3) meeting all requirements of Appendix F ☐Flow-thru treatment control with prior lawful approval to meet earlier PDP requirements (provide BMP type/description in discussion section below) ☐Flow-thru treatment control included as pre-treatment/forebay for an onsite retention or biofiltration BMP (provide BMP type/description and indicate which onsite retention or biofiltration BMP it serves in discussion section below) ☐Flow-thru treatment control with alternative compliance (provide BMP type/description in discussion section below) ☐Detention pond or vault for hydromodification management ☐Other (describe in discussion section below)	
Purpose: ☐Pollutant control only ☐Hydromodification control only ☒ Combined pollutant control and hydromodification control ☐Pre-treatment/forebay for another structural BMP ☐Other (describe in discussion section below)	
Who will certify construction of this BMP? Provide name and contact information for the party responsible to sign BMP verification forms (See Section 8.2.3.2 of the Storm Water Design Manual)	Engineer of Work
Who will be the final owner of this BMP?	☒HOA ☐Property Owner ☐City ☐Other (describe)
Who will maintain this BMP into perpetuity?	☒HOA ☐Property Owner ☐City ☐Other (describe)
Discussion (as needed): *(Continue on subsequent pages as necessary)*	

Step 6.3: Offsite Alternative Compliance Participation Form

THIS FORM IS NOT APPLICABLE AT THIS TIME: An Alternative Compliance Program is under consideration by the City of Escondido.	
PDP INFORMATION	
Record ID:	
Assessor's Parcel Number(s) [APN(s)]	
What are your PDP Pollutant Control Debits? *See Attachment 1 of the PDP SWQMP	
What are your PDP HMP Debits? (if applicable) *See Attachment 2 of the PDP SWQMP	
ACP Information	
Record ID:	
Assessor's Parcel Number(s) [APN(s)]	
Project Owner/Address	
What are your ACP Pollutant Control Credits? *See Attachment 1 of the ACP SWQMP	
What are your ACP HMP Debits? (if applicable) *See Attachment 2 of the ACP SWQMP	
Is your ACP in the same watershed as your PDP? ☐Yes ☐No	Will your ACP project be completed prior to the completion of the PDP? ☐Yes ☐No
Does your ACP account for all Deficits generated by the PDP? ☐Yes ☐No (PDP and/or ACP must be redesigned to account for all deficits generated by the PDP.)	What is the difference between your PDP debits and ACP Credits? *(ACP Credits -Total PDP Debits = Total Earned Credits) _____

ATTACHMENT 1

BACKUP FOR PDP POLLUTANT CONTROL BMPS

This is the cover sheet for Attachment 1.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 1a	Storm Water Pollutant Control Worksheet Calculations -Worksheet B.2-1 (Required) -Worksheet B.3-1 (Form I-4; Required) -Worksheet B.4-1 (if applicable) -Worksheet B.5-1 (if applicable) -Worksheet B.5-2 (if applicable) -Worksheet B.5-3 (if applicable) -Worksheet B.6-1 (if applicable) -Summary Worksheet (optional)	☒Included
Attachment 1b	Form I-5, Categorization of Infiltration Feasibility Condition (Required unless the project will use harvest and use BMPs) Refer to Appendices C and D of the Storm Water Design Manual to complete Form I-5.	☒Included ☐Not included because the entire project will use harvest and use BMPs
Attachment 1c	Form I-6, Factor of Safety and Design Infiltration Rate Worksheet (Required unless the project will use harvest and use BMPs) Refer to Appendices C and D of the Storm Water Design Manual to complete Form I-6.	☒Included ☐Not included because the entire project will use harvest and use BMPs
Attachment 1d	DMA Exhibit (Required) See DMA Exhibit Checklist on the back of this Attachment cover sheet.	☒Included
Attachment 1e	Individual Structural BMP DMA Map book (Required) -Place each map on 8.5”x11” paper. -Show at a minimum the DMA, Structural BMP, and any existing hydrologic features within the DMA.	☐Included Not applicable for Discretionary Phase.

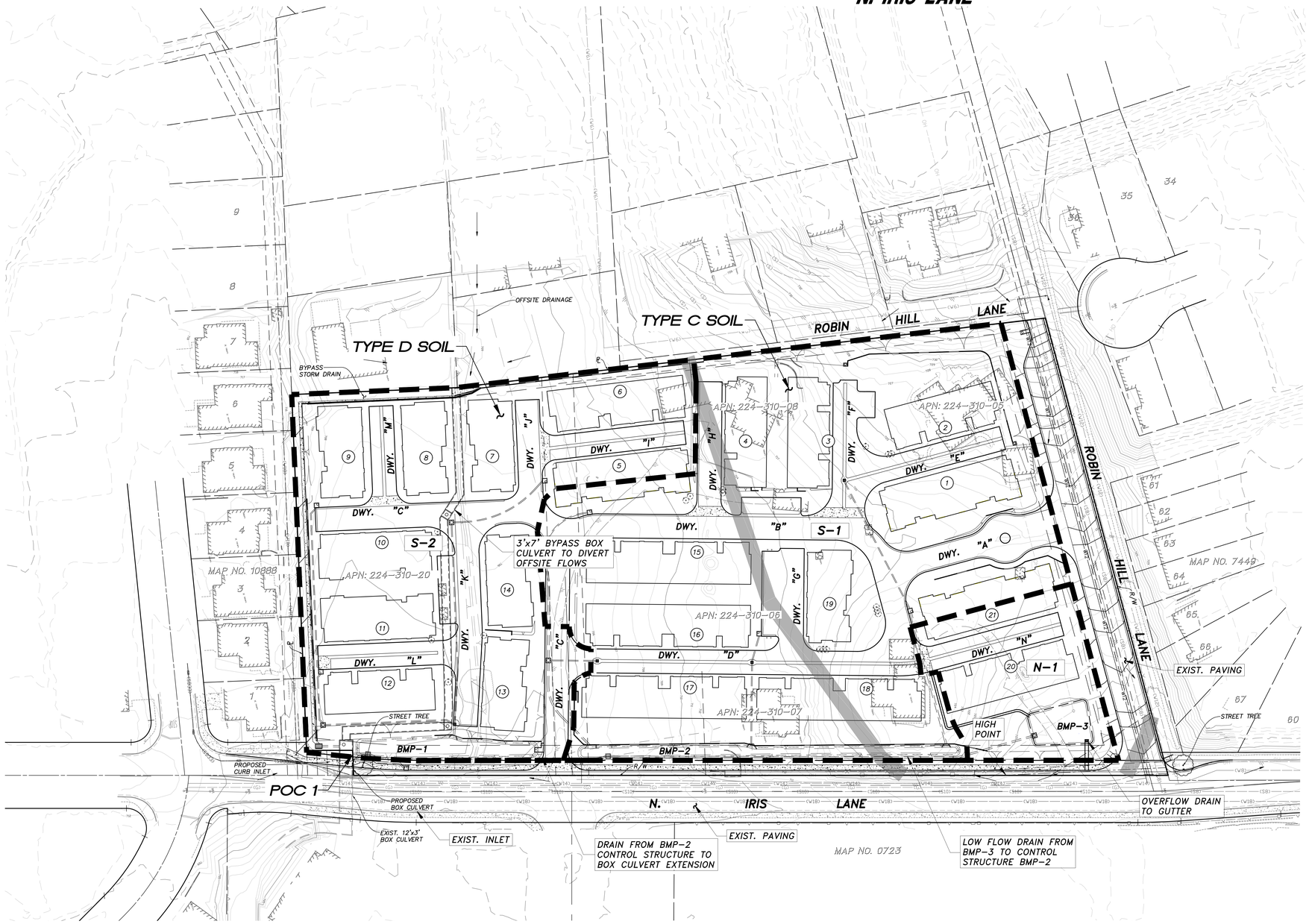
Use this checklist to ensure the required information has been included on the DMA Exhibit:

The DMA Exhibit must identify:

☒Underlying hydrologic soil group
☒Approximate depth to groundwater
☒Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
☒Critical coarse sediment yield areas to be protected
☒Existing topography and impervious areas
☒Existing and proposed site drainage network and connections to drainage offsite
☒Proposed demolition
☒Proposed grading
☒Proposed impervious features
☒Proposed design features and surface treatments used to minimize imperviousness
☒Drainage management area (DMA) boundaries, DMA ID numbers, and DMA areas (square footage or acreage), and DMA type (i.e., drains to BMP, self-retaining, or self-mitigating)
☒Potential pollutant source areas and corresponding required source controls (see Chapter 4, Appendix E.1, and Step 3.5)
☒Structural BMPs (identify location, structural BMP ID#, type of BMP, and size/detail)

☒ **Point(s) of Compliance (POC) for Hydromodification Management**

DMA AND HMP EXHIBIT FOR:
N. IRIS LANE



D.M.A. LEGEND

DESCRIPTION	SYMBOL
PROPERTY LINE/PROJECT BOUNDARY	
PROPOSED CURB AND GUTTER	
EXISTING CONTOUR	630
PROPOSED DMA LIMITS	
SOIL LIMITS	
DIRECTION OF DRAINAGE	
STORM DRAIN PIPE SIZE PER PLAN	SD
TREE WELL	
BASIN IDENTIFIER	E-5
BASIN AREA (AC.)	1.9600

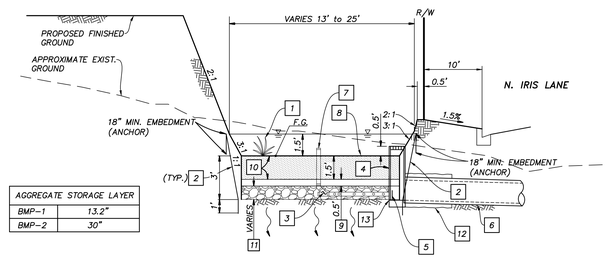
UNDERLYING HYDROLOGIC SOILS GROUP:	TYPE "C" & "D"
APPROXIMATE DEPTH TO GROUNDWATER:	GREATER THAN 10 FEET
EXISTING NATURAL HYDROLOGIC FEATURES:	N/A
POTENTIAL CRITICAL COARSE SEDIMENT YIELD AREAS:	N/A
EXISTING TOPOGRAPHY:	SHOWN
EXISTING IMPERVIOUS AREAS:	SHOWN
EXISTING DRAINAGE SYSTEM:	SHOWN
PROPOSED DRAINAGE SYSTEM:	SHOWN
PROPOSED DEMOLITION:	EXISTING HOUSES AND DRIVEWAYS
PROPOSED GRADING:	SHOWN
PROPOSED IMPERVIOUS SURFACES:	PAVING AND BUILDINGS
DMA AREAS:	SEE TABLE
POLLUTANT SOURCES:	PAVEMENT AND LANDSCAPE AREAS
STRUCTURAL SOURCE CONTROL:	SHOWN
INLET SIGNAGE:	CURB INLETS
TRASH ENCLOSURE CONTROLS:	PROVIDED
TREATMENT BMP:	SEE TABLE

SOURCE CONTROL BMPS

1. STORM DRAIN INLETS.
2. LANDSCAPE/OUTDOOR PESTICIDE USE.
3. FIRE SPRINKLER TEST WATER.
4. MISCELLANEOUS DRAIN OR WASH WATER.
5. PLAZAS, SIDEWALKS, AND PARKING LOTS.
6. MINIMIZE IMPERVIOUS AREA.

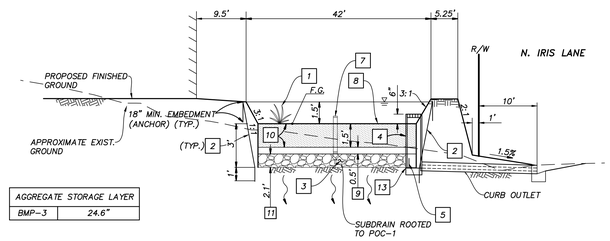
SITE DESIGN BMPS

7. RUNOFF COLLECTION.
8. LANDSCAPE WITH NATIVE OR DRAUGHT TOLERANT SPECIES.
10. INDOOR/STRUCTURAL PEST CONTROL.



AGGREGATE STORAGE LAYER	
BMP-1	13.2"
BMP-2	30"

A/3 SITE SECTION ~ BIOFILTRATION BASIN (BMP-1 AND BMP-2)
NOT TO SCALE



AGGREGATE STORAGE LAYER	
BMP-3	24.6"

B/3 SITE SECTION ~ BIOFILTRATION BASIN (BMP-3)
NOT TO SCALE

BIOFILTRATION DETAIL NOTES

1. PLANTING.
2. 30 MIL. P.V.C. LINER. ALL JOINTS TO BE SEALED WITH 12" MIN. OVERLAP. SEAL ALL PENETRATIONS.
3. 6" SLOTTED P.V.C. SUBDRAIN (ASTM D-3034), 3" MIN. FROM BOTTOM.
4. OUTLET CONTROL STRUCTURE WITH GRATED TOP.
5. ORIFICE PLATE (SEE TABLE BELOW).
6. OUTLET PIPE.
7. SUBDRAIN CLEANOUT PER SDRSD SC-01. RIM = F.G. + 0.6'
8. INSTALL WELL AGED SHREDDED HARDWOOD MULCH THAT HAS BEEN STOCKPILED OR STORED FOR AT LEAST 12 MONTHS. MULCH MUST BE NON-FLOATING.
9. FILTER COURSE TO BE 3" CLEAN AND WASHED SAND (ASTM NO. 33) OVER 3" LAYER OF ASTM NO. 8 STONE.
10. SOIL MEDIA, INFILTRATION = (BSM SPECIFICATION PER APPENDIX G OF COUNTY OF SAN DIEGO L.I.D. HANDBOOK JUNE 2014)

PER COUNTY OF SAN DIEGO L.I.D. HANDBOOK:

BSM COMPOSITION	SAND	SANDY LOAM			COMPOST
		SAND	SILT	CLAY	
VOLUME	65%	20%			15%
WEIGHT	75-80%	10% MAX.		3% MAX.	9% MAX.[1]

9% COMPOST BY WEIGHT RESULTS IN APPROXIMATELY 5% ORGANIC MATTER BY WEIGHT.

BASIN	CONTROL ORIFICE
BMP-1	1.5"
BMP-2	1.5"
BMP-3	1.5"

11. AGGREGATE STORAGE LAYER ASTM NO. 57 ROCK.
12. 2-SACK SLURRY BACKFILL AROUND STORM DRAIN LINE, PIPE ZONE. SLURRY BACKFILL TO START AT STORM DRAIN BOX AND EXTEND AT LEAST 5 FEET BEYOND SLOPE FACE.
13. SEAL PVC LINER AROUND PIPES:
    USE A PIPE BOOT AND PVC SKIRT TO SEAL ALL LINER PENETRATIONS FOR PIPES, PVC SKIRT SHOULD BE SEALED TO THE PARENT LINER PER MANUFACTURER'S RECOMMENDATIONS (TYPICALLY A WEDGE WELDER). THE PIPE BOOT SLEEVE SHOULD BE ATTACHED TO THE PIPE USING BUTYL TAPE AND STAINLESS STEEL BAND CLAMP.

    ATTACH THE LINER TO CONCRETE STRUCTURES:
    1. PREPARE A PVC SKIRT FOR CONCRETE STRUCTURE.
    2. ATTACHED THE LINER TO THE CONCRETE STRUCTURE USING A STAINLESS STEEL BATTEN STRIP. ALSO ADHERE THE LINER TO THE CONCRETE USING A WATER PROOF ADHESIVE PER THE MANUFACTURE'S RECOMMENDATIONS (TYPICALLY A POLYURETHANE).
    3. THE PVC SKIRT TO BE SEALED TO THE PARENT LINER PER MANUFACTURER'S RECOMMENDATIONS (TYPICALLY A WEDGE WELDER).
14. EMBED LINER 12" VERTICAL.

DMA & BMP SUMMARY TABLE

DMA NO	TOTAL AREA (SF)	IMPERVIOUS (SF)	IMPERVIOUS (%)	PERVIOUS (SF)	ADJUSTED IMPERVIOUS (SF)	DCV (CF)	SURFACE AREA REQUIRED * (SF)	SURFACE AREA PROVIDED (SF)	BMP TYPE / STANDARD	BMP ID
N1	25,054	17,538	70%	7,516	17,513	1,022	525	2,231	BIOFILTRATION PARTIAL PR-1	BMP-3
S1	166,590	116,613	70%	49,977	118,196	6,895	3,546	4,580	BIOFILTRATION PARTIAL PR-1	BMP-2
S2	111,841	78,289	70%	33,552	80,526	4,697	2,416	3,383	BIOFILTRATION PARTIAL PR-1	BMP-1
-	-	-		-	-	-	-			
TOTAL	303,486	212,440	70%	91,046	216,234	12,614	6,487	10,194		
-	-	-		-	-	-	-			
-	-	-		-	-	-	-			
-	-	-		-	-	-	-			
-	-	-		-	-	-	-			
TOTAL	303,486	212,440	70%	91,046	216,234	12,614				

DMA AND HMP EXHIBIT FOR:
N. IRIS LANE

GRAPHIC SCALE
SCALE: 1" = 40'
40' 0 40' 80' 120'

REGISTERED PROFESSIONAL ENGINEER
JASON PARKER
No. 68547
CIVIL
STATE OF CALIFORNIA

SB&O INC.
PLANNING ENGINEERING SURVEYING
3990 Ruffin Road, Suite 120
San Diego, Ca. 92123
858-560-1141 858-560-8157
Fax

12-16-21

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EXISTING DMA AND HMP EXHIBIT FOR:
N. IRIS LANE



LEGEND

DESCRIPTION	SYMBOL
PROPERTY LINE/PROJECT BOUNDARY	
EXISTING CONTOUR	630
EXISTING BASIN LIMITS	
DIRECTION OF DRAINAGE	
BASIN IDENTIFIER	E-1
BASIN AREA (AC.)	6.4364

EXISTING DMA AND HMP EXHIBIT FOR:
N. IRIS LANE

SCALE: 1" = 40'

GRAPHIC SCALE

40' 0 40' 80' 120'

REGISTERED PROFESSIONAL ENGINEER
AARON PARKER
No. 68547
CIVIL
STATE OF CALIFORNIA

SB&O INC.
PLANNING ENGINEERING SURVEYING
3990 Ruffin Road, Suite 120
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Fax

03-11-22

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Worksheet C.4-1: Categorization of Infiltration Feasibility Condition

BMP-2 and BMP-3

Categorization of Infiltration Feasibility Condition		Worksheet C.4-1	
Part 1 - Full Infiltration Feasibility Screening Criteria **Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?**			
Criteria	Screening Question	**Yes**	**No**
1	**Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		X
Provide basis: We performed three infiltration tests using a constant head downhole test method. The results indicate design infiltration rates of 0.007, 0.0045, and 0.017 inches per hour (with an applied factor of safety of 2). Full infiltration is considered infeasible since the design rate is below 0.5 iph. Therefore, full infiltration is not considered feasible at the site.			
2	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	X	
Provide basis: Infiltration at the proposed locations may result in lateral water migration that could adversely impact adjacent utilities, roadways, and foundations. The adverse impacts of infiltration could be reasonably mitigated to accepted levels provided side liners and a subdrain are incorporated into the design. In addition, an overflow device should be added to prevent overtopping of the BMP slopes.			

Worksheet C.4-1 Page 2 of 4			
Criteria	Screening Question	Yes	No
3	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, storm water pollutants or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.		X
Provide basis: Perched groundwater is located within 10 feet of the proposed BMP basins. Infiltration of storm water may increase the risk of contamination.			
4	**Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	X	
Provide basis: We are not aware of any potential water balance issues or change of ephemeral stream flow as a result of infiltrating storm water. Researching downstream water rights and evaluating water balance issues to stream flows is beyond the scope of the geotechnical engineer.			
Part 1 Result*	If all answers to rows 1 - 4 are "**Yes**" a full infiltration design is potentially feasible. The feasibility screening category is **Full Infiltration** If any answer from row 1-4 is "**No**", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design. Proceed to Part 2		**NO**

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by City Engineer to substantiate findings.

Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria

Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
5	**Do soil and geologic conditions allow for infiltration in any appreciable rate or volume?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		X

Provide basis: An appreciable rate is typically defined as a factored rate of at least 0.05 inches per hour (using a factor of safety of 2). Based on our experience and field testing, we anticipate that the saturated hydraulic conductivity (Ksat) of the compacted fill will be less than 0.05 inches per hour. The in-situ infiltration test results on the underlying surficial soils indicated an average design rate of 0.028 iph. Therefore, in our opinion the soil and geologic conditions do not allow for partial infiltration based test results and geologic conditions.

6	**Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	X	

Provide basis: Infiltration at the proposed locations may result in lateral water migration that could adversely impact adjacent utilities, roadways, and foundations. The adverse impacts of infiltration could be reasonably mitigated to accepted levels provided side liners and a subdrain are incorporated into the design. In addition, an overflow device should be added to prevent overtopping of the BMP slopes.

Worksheet C.4-1 Page 4 of 4			
Criteria	Screening Question	**Yes**	**No**
7	**Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, storm water pollutants or other factors)?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.		X
Provide basis: Perched groundwater is located within 10 feet of the proposed BMP basins. Infiltration of storm water may increase the risk of contamination.			
8	**Can infiltration be allowed without violating downstream water rights?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	X	
Provide basis: We are not aware of any downstream water rights. Researching downstream water rights is beyond the scope of the geotechnical engineer.			
Part 2 Result*	If all answers from row 5-8 are yes then partial infiltration design is potentially feasible. The feasibility screening category is **Partial Infiltration.** If any answer from row 5-8 is no, then infiltration of any volume is considered to be **infeasible** within the drainage area. The feasibility screening category is **No Infiltration.**		**No Infiltration**

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings.

Worksheet C.4-1: Categorization of Infiltration Feasibility Condition

BMP-1

Categorization of Infiltration Feasibility Condition		Worksheet C.4-1	
Part 1 - Full Infiltration Feasibility Screening Criteria **Would infiltration of the full design volume be feasible from a physical perspective without any undesirable consequences that cannot be reasonably mitigated?**			
Criteria	Screening Question	**Yes**	**No**
1	**Is the estimated reliable infiltration rate below proposed facility locations greater than 0.5 inches per hour?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.		X
Provide basis: We performed one infiltration test using a constant head downhole test method. The results indicate design infiltration rates of 0.156 inches per hour (with an applied factor of safety of 2). Full infiltration is considered infeasible since the design rate is below 0.5 iph. Therefore, full infiltration is not considered feasible at the site.			
2	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	X	
Provide basis: Full infiltration at the proposed location may result in lateral water migration that could adversely impact adjacent utilities, roadways, and foundations. The adverse impacts of infiltration could be reasonably mitigated to accepted levels provided side liners and a subdrain are incorporated into the design. In addition, an overflow device should be added to prevent overtopping of the BMP slopes.			

Worksheet C.4-1 Page 2 of 4			
Criteria	Screening Question	Yes	No
3	**Can infiltration greater than 0.5 inches per hour be allowed without increasing risk of groundwater contamination (shallow water table, storm water pollutants or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	X	
Provide basis: Groundwater was not observed within 10 feet of the proposed BMP basin.			
4	**Can infiltration greater than 0.5 inches per hour be allowed without causing potential water balance issues such as change of seasonality of ephemeral streams or increased discharge of contaminated groundwater to surface waters?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	X	
Provide basis: We are not aware of any potential water balance issues or change of ephemeral stream flow as a result of infiltrating storm water. Researching downstream water rights and evaluating water balance issues to stream flows is beyond the scope of the geotechnical engineer.			
Part 1 Result*	If all answers to rows 1 - 4 are "**Yes**" a full infiltration design is potentially feasible. The feasibility screening category is **Full Infiltration** If any answer from row 1-4 is "**No**", infiltration may be possible to some extent but would not generally be feasible or desirable to achieve a "full infiltration" design. Proceed to Part 2		**NO**

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by City Engineer to substantiate findings.

Part 2 – Partial Infiltration vs. No Infiltration Feasibility Screening Criteria

Would infiltration of water in any appreciable amount be physically feasible without any negative consequences that cannot be reasonably mitigated?

Criteria	Screening Question	Yes	No
5	**Do soil and geologic conditions allow for infiltration in any appreciable rate or volume?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2 and Appendix D.	X	

Provide basis: An appreciable rate is typically defined as a factored rate of at least 0.05 inches per hour (using a factor of safety of 2). Based on our experience and field testing, we anticipate that the saturated hydraulic conductivity (Ksat) of the compacted fill will be less than 0.05 inches per hour. The in-situ infiltration test results on the underlying surficial soils indicated an average design rate of 0.156 iph. Therefore, in our opinion the soil and geologic conditions allow for partial infiltration based on infiltration rates for the colluvium beneath the NE portion of the site. Impermeable side liners and a subdrain should be incorporated into the design to prevent lateral water migration through compacted fills.

6	**Can Infiltration in any appreciable quantity be allowed without increasing risk of geotechnical hazards (slope stability, groundwater mounding, utilities, or other factors) that cannot be mitigated to an acceptable level?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.2.	X	

Provide basis: Infiltration at the proposed locations may result in lateral water migration that could adversely impact adjacent utilities, roadways, and foundations. The adverse impacts of infiltration could be reasonably mitigated to accepted levels provided side liners and a subdrain are incorporated into the design. In addition, an overflow device should be added to prevent overtopping of the BMP slopes.

Worksheet C.4-1 Page 4 of 4			
Criteria	Screening Question	**Yes**	**No**
7	**Can Infiltration in any appreciable quantity be allowed without posing significant risk for groundwater related concerns (shallow water table, storm water pollutants or other factors)?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	X	
Provide basis: Groundwater was not observed within 10 feet of the proposed BMP basins.			
8	**Can infiltration be allowed without violating downstream water rights?** The response to this Screening Question shall be based on a comprehensive evaluation of the factors presented in Appendix C.3.	X	
Provide basis: We are not aware of any downstream water rights. Researching downstream water rights is beyond the scope of the geotechnical engineer.			
Part 2 Result*	If all answers from row 5-8 are yes then partial infiltration design is potentially feasible. The feasibility screening category is **Partial Infiltration.** If any answer from row 5-8 is no, then infiltration of any volume is considered to be **infeasible** within the drainage area. The feasibility screening category is **No Infiltration.**		**Partial Infiltration**

*To be completed using gathered site information and best professional judgment considering the definition of MEP in the MS4 Permit. Additional testing and/or studies may be required by Agency/Jurisdictions to substantiate findings.

75280 **North Iris Lane** **Updated 12-Dec-2021**

0.90 Impervious Coefficient
0.23 0.30 Pervious Coefficent Soil Type C & D
0.70 85th Percentile

DMA & BMP SUMMARY TABLE

DMA NO	TOTAL AREA (SF)	IMPERVIOUS (SF)	IMPERVIOUS (%)	PERVIOUS (SF)	ADJUSTED IMPERVIOUS (SF)	DCV (CF)	SURFACE AREA REQUIRED * (SF)	SURFACE AREA PROVIDED (SF)	BMP TYPE / STANDARD	BMP ID
N1	25,054	17,538	70%	7,516	17,513	1,022	525	2,231	BIOFILTRATION PARTIAL PR-1	BMP-3
S1	166,590	116,613	70%	49,977	118,196	6,895	3,546	4,580	BIOFILTRATION PARTIAL PR-1	BMP-2
S2	111,841	78,289	70%	33,552	80,526	4,697	2,416	3,383	BIOFILTRATION PARTIAL PR-1	BMP-1
-	-	-		-	-	-	-			
TOTAL	303,486	212,440	70%	91,046	216,234	12,614	6,487	10,194		
-	-	-		-	-	-	-			
-	-	-		-	-	-	-			
-	-	-		-	-	-	-			
-	-	-		-	-	-	-			
TOTAL	303,486	212,440	70%	91,046	216,234	12,614				

Automated Worksheet B.3-1: Project-Scale BMP Feasibility Analysis (V1.3)

Category	#	Description	Value	Units
Capture & Use Inputs	0	Design Capture Volume for Entire Project Site	12,614	cubic-feet
	1	Proposed Development Type	Residential	unitless
	2	Number of Residents or Employees at Proposed Development	306	#
	3	Total Planted Area within Development	91,046	sq-ft
	4	Water Use Category for Proposed Planted Areas	Low	unitless
Infiltration Inputs	5	Is Average Site Design Infiltration Rate ≤0.500 Inches per Hour?	Yes	yes/no
	6	Is Average Site Design Infiltration Rate ≤0.010 Inches per Hour?	No	yes/no
	7	Is Infiltration of the Full DCV Anticipated to Produce Negative Impacts?	No	yes/no
	8	Is Infiltration of Any Volume Anticipated to Produce Negative Impacts?	No	yes/no
Calculations	9	36-Hour Toilet Use Per Resident or Employee	1.86	cubic-feet
	10	Subtotal: Anticipated 36 Hour Toilet Use	571	cubic-feet
	11	Anticipated 1 Acre Landscape Use Over 36 Hours	52.14	cubic-feet
	12	Subtotal: Anticipated Landscape Use Over 36 Hours	109	cubic-feet
	13	Total Anticipated Use Over 36 Hours	680	cubic-feet
	14	Total Anticipated Use / Design Capture Volume	0.05	cubic-feet
	15	Are Full Capture and Use Techniques Feasible for this Project?	No	unitless
	16	Is Full Retention Feasible for this Project?	No	yes/no
	17	Is Partial Retention Feasible for this Project?	Yes	yes/no
Result	18	Feasibility Category	4	1, 2, 3, 4, 5

Worksheet B.3-1 General Notes:

A. Applicants may use this worksheet to determine the types of structural BMPs that are acceptable for implementation at their project site (as required in Section 5 of the BMPDM). User input should be provided for yellow shaded cells, values for all other cells will be automatically generated. Projects demonstrating feasibility or potential feasibility via this worksheet are encouraged to incorporate capture and use features in their project.

B. Negative impacts associated with retention may include geotechnical, groundwater, water balance, or other issues identified by a geotechnical engineer and substantiated through completion of Form I-8.

C. Feasibility Category 1: Applicant must implement capture & use, retention, and/or infiltration elements for the entire DCV.

D. Feasibility Category 2: Applicant must implement capture & use elements for the entire DCV.

E. Feasibility Category 3: Applicant must implement retention and/or infiltration elements for all DMAs with Design Infiltration Rates greater than 0.50 in/hr.

F. Feasibility Category 4: Applicant must implement standard unlined biofiltration BMPs sized at ≥3% of the effective impervious tributary area for all DMAs with Design Infiltration Rates of 0.011 to 0.50 in/hr. Applicants may be permitted to implement lined BMPs, reduced size BMPs, and/or specialized biofiltration BMPs provided additional criteria identified in "Supplemental Retention Criteria for Non-Standard Biofiltration BMPs" are satisfied.

G. Feasibility Category 5: Applicant must implement standard lined biofiltration BMPs sized at ≥3% of the effective impervious tributary area for all DMAs with Design Infiltration Rates of 0.010 in/hr or less. Applicants may also be permitted to implement reduced size and/or specialized biofiltration BMPs provided additional criteria identified in "Supplemental Retention Criteria for Non-Standard Biofiltration BMPs" are satisfied.

H. PDPs participating in an offsite alternative compliance program are not held to the feasibility categories presented herein.

Automated Worksheet B.1-1: Calculation of Design Capture Volume (V1.3)

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
Standard Drainage Basin Inputs	0	Drainage Basin ID or Name	S1	S2	N1								unitless
	1	Basin Drains to the Following BMP Type	Biofiltration	Biofiltration	Biofiltration								unitless
	2	85th Percentile 24-hr Storm Depth	0.70	0.70	0.70								inches
	3	Design Infiltration Rate Recommended by Geotechnical Engineer	0.000	0.000	0.030								in/hr
	4	Impervious Surfaces Not Directed to Dispersion Area (C=0.90)	116,613	78,289	17,538								sq-ft
	5	Semi-Pervious Surfaces Not Serving as Dispersion Area (C=0.30)											sq-ft
	6	Engineered Pervious Surfaces Not Serving as Dispersion Area (C=0.10)											sq-ft
	7	Natural Type A Soil Not Serving as Dispersion Area (C=0.10)											sq-ft
	8	Natural Type B Soil Not Serving as Dispersion Area (C=0.14)											sq-ft
	9	Natural Type C Soil Not Serving as Dispersion Area (C=0.23)	24,989		7,516								sq-ft
	10	Natural Type D Soil Not Serving as Dispersion Area (C=0.30)	24,989	33,552									sq-ft
Dispersion Area, Tree Well & Rain Barrel Inputs (Optional)	11	Does Tributary Incorporate Dispersion, Tree Wells, and/or Rain Barrels?	No	No	No								yes/no
	12	Impervious Surfaces **Directed to Dispersion Area** per SD-B (Ci=0.90)											sq-ft
	13	Semi-Pervious Surfaces **Serving as Dispersion Area** per SD-B (Ci=0.30)											sq-ft
	14	Engineered Pervious Surfaces **Serving as Dispersion Area** per SD-B (Ci=0.10)											sq-ft
	15	Natural Type A Soil **Serving as Dispersion Area** per SD-B (Ci=0.10)											sq-ft
	16	Natural Type B Soil **Serving as Dispersion Area** per SD-B (Ci=0.14)											sq-ft
	17	Natural Type C Soil **Serving as Dispersion Area** per SD-B (Ci=0.23)											sq-ft
	18	Natural Type D Soil **Serving as Dispersion Area** per SD-B (Ci=0.30)											sq-ft
	19	Number of Tree Wells Proposed per SD-A											#
	20	Average Mature Tree Canopy Diameter											ft
	21	Number of Rain Barrels Proposed per SD-E											#
	22	Average Rain Barrel Size											gal
Treatment Train Inputs & Calculations	23	Does BMP Overflow to Stormwater Features in Downstream Drainage?	No	No	No	No	No	No	No	No	No	No	unitless
	24	Identify Downstream Drainage Basin Providing Treatment in Series											unitless
	25	Percent of Upstream Flows Directed to Downstream Dispersion Areas											percent
	26	Upstream Impervious Surfaces Directed to Dispersion Area (Ci=0.90)	0	0	0	0	0	0	0	0	0	0	cubic-feet
	27	Upstream Impervious Surfaces Not Directed to Dispersion Area (C=0.90)	0	0	0	0	0	0	0	0	0	0	cubic-feet
Initial Runoff Factor Calculation	28	Total Tributary Area	166,590	111,841	25,054	0	0	0	0	0	0	0	sq-ft
	29	Initial Runoff Factor for Standard Drainage Areas	0.71	0.72	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	30	Initial Runoff Factor for Dispersed & Dispersion Areas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	31	Initial Weighted Runoff Factor	0.71	0.72	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	32	Initial Design Capture Volume	6,900	4,697	1,023	0	0	0	0	0	0	0	cubic-feet
Dispersion Area Adjustments	33	Total Impervious Area Dispersed to Pervious Surface	0	0	0	0	0	0	0	0	0	0	sq-ft
	34	Total Pervious Dispersion Area	0	0	0	0	0	0	0	0	0	0	sq-ft
	35	Ratio of Dispersed Impervious Area to Pervious Dispersion Area	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	ratio
	36	Adjustment Factor for Dispersed & Dispersion Areas	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	ratio
	37	Runoff Factor After Dispersion Techniques	0.71	0.72	0.70	n/a	n/a	n/a	n/a	n/a	n/a	n/a	unitless
	38	Design Capture Volume After Dispersion Techniques	6,900	4,697	1,023	0	0	0	0	0	0	0	cubic-feet
Tree & Barrel Adjustments	39	Total Tree Well Volume Reduction	0	0	0	0	0	0	0	0	0	0	cubic-feet
	40	Total Rain Barrel Volume Reduction	0	0	0	0	0	0	0	0	0	0	cubic-feet
Results	41	Final Adjusted Runoff Factor	0.71	0.72	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	42	Final Effective Tributary Area	118,279	80,526	17,538	0	0	0	0	0	0	0	sq-ft
	43	Initial Design Capture Volume Retained by Site Design Elements	0	0	0	0	0	0	0	0	0	0	cubic-feet
	44	Final Design Capture Volume Tributary to BMP	6,900	4,697	1,023	0	0	0	0	0	0	0	cubic-feet

Worksheet B.1-1 General Notes:

A. Applicants may use this worksheet to calculate design capture volumes for up to 10 drainage areas User input must be provided for yellow shaded cells, values for all other cells will be automatically generated, errors/notifications will be highlighted in red and summarized below. Upon completion of this worksheet, proceed to the appropriate BMP Sizing worksheet(s).

Automated Worksheet B.5-1: Sizing Lined or Unlined Biofiltration BMPs (V1.3)

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
BMP Inputs	0	Drainage Basin ID or Name	S1	S2	N1	-	-	-	-	-	-	-	sq-ft
	1	Design Infiltration Rate Recommended by Geotechnical Engineer	0.000	0.000	0.030	-	-	-	-	-	-	-	in/hr
	2	Effective Tributary Area	118,279	80,526	17,538	-	-	-	-	-	-	-	sq-ft
	3	Minimum Biofiltration Footprint Sizing Factor	0.030	0.030	0.030	-	-	-	-	-	-	-	ratio
	4	Design Capture Volume Tributary to BMP	6,900	4,697	1,023	-	-	-	-	-	-	-	cubic-feet
	5	Is Biofiltration Basin Impermeably Lined or Unlined?	Lined	Lined	Unlined								unitless
	6	Provided Biofiltration BMP Surface Area	4,580	3,383	2,231								sq-ft
	7	Provided Surface Ponding Depth	12	12	12								inches
	8	Provided Soil Media Thickness	21	21	21								inches
	9	Provided Depth of Gravel Above Underdrain Invert	10.2	27	21.6								inches
	10	Diameter of Underdrain or Hydromod Orifice (Select Smallest)	1.50	1.50	1.50								inches
	11	Provided Depth of Gravel Below the Underdrain	6	6	6								inches
Retention Calculations	12	Volume Infiltrated Over 6 Hour Storm	0	0	33	0	0	0	0	0	0	0	cubic-feet
	13	Soil Media Pore Space Available for Retention	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	unitless
	14	Gravel Pore Space Available for Retention	0.00	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	unitless
	15	Effective Retention Depth	1.05	1.05	3.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	inches
	16	Calculated Retention Storage Drawdown (Including 6 Hr Storm)	120	120	86	0	0	0	0	0	0	0	hours
	17	Volume Retained by BMP	401	296	675	0	0	0	0	0	0	0	cubic-feet
	18	Fraction of DCV Retained	0.06	0.06	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	19	Portion of Retention Performance Standard Satisfied	0.07	0.07	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	20	Fraction of DCV Retained (normalized to 36-hr drawdown)	0.03	0.03	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	21	Design Capture Volume Remaining for Biofiltration	6,693	4,556	573	0	0	0	0	0	0	0	cubic-feet
Biofiltration Calculations	22	Max Hydromod Flow Rate through Underdrain	0.1111	0.1313	0.1252	n/a	n/a	n/a	n/a	n/a	n/a	n/a	CFS
	23	Max Soil Filtration Rate Allowed by Underdrain Orifice	1.05	1.68	2.42	n/a	n/a	n/a	n/a	n/a	n/a	n/a	in/hr
	24	Soil Media Filtration Rate per Specifications	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	in/hr
	25	Soil Media Filtration Rate to be used for Sizing	1.05	1.68	2.42	5.00	5.00	5.00	5.00	5.00	5.00	5.00	in/hr
	26	Depth Biofiltered Over 6 Hour Storm	6.29	10.06	14.54	30.00	30.00	30.00	30.00	30.00	30.00	30.00	inches
	27	Soil Media Pore Space Available for Biofiltration	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	unitless
	28	Effective Depth of Biofiltration Storage	20.28	27.00	24.84	0.00	0.00	0.00	0.00	0.00	0.00	0.00	inches
	29	Drawdown Time for Surface Ponding	11	7	5	0	0	0	0	0	0	0	hours
	30	Drawdown Time for Effective Biofiltration Depth	19	16	10	0	0	0	0	0	0	0	hours
	31	Total Depth Biofiltered	26.57	37.06	39.38	30.00	30.00	30.00	30.00	30.00	30.00	30.00	inches
	32	Option 1 - Biofilter 1.50 DCV: Target Volume	10,040	6,834	860	0	0	0	0	0	0	0	cubic-feet
	33	Option 1 - Provided Biofiltration Volume	10,040	6,834	860	0	0	0	0	0	0	0	cubic-feet
	34	Option 2 - Store 0.75 DCV: Target Volume	5,020	3,417	430	0	0	0	0	0	0	0	cubic-feet
	35	Option 2 - Provided Storage Volume	5,020	3,417	430	0	0	0	0	0	0	0	cubic-feet
	36	Portion of Biofiltration Performance Standard Satisfied	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
Result	37	Do Site Design Elements and BMPs Satisfy Annual Retention Requirements?	Yes	Yes	Yes	-	-	-	-	-	-	-	yes/no
	38	Overall Portion of Performance Standard Satisfied	1.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	ratio
	39	This BMP Overflows to the Following Drainage Basin	-	-	-	-	-	-	-	-	-	-	unitless
	40	**Deficit of Effectively Treated Stormwater**	**0**	**0**	**0**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	**n/a**	cubic-feet

Worksheet B.5-1 General Notes:

A. Applicants may use this worksheet to size Lined or Unlined Biofiltration BMPs (BF-1, PR-1) for up to 10 basins. User input must be provided for yellow shaded cells, values for blue cells are automatically populated based on user inputs from previous worksheets, values for all other cells will be automatically generated, errors/notifications will be highlighted in red/orange and summarized below. BMPs fully satisfying the pollutant control performance standards will have a deficit treated volume of zero and be highlighted in green.

Summary of Stormwater Pollutant Control Calculations (V1.3)

Category	#	Description	*i*	*ii*	*iii*	*iv*	*v*	*vi*	*vii*	*viii*	*ix*	*x*	Units
General Info	0	Drainage Basin ID or Name	S1	S2	N1	-	-	-	-	-	-	-	unitless
	1	85th Percentile Storm Depth	0.70	0.70	0.70	-	-	-	-	-	-	-	inches
	2	Design Infiltration Rate Recommended by Geotechnical Engineer	0.000	0.000	0.030	-	-	-	-	-	-	-	in/hr
	3	Total Tributary Area	166,590	111,841	25,054	-	-	-	-	-	-	-	sq-ft
	4	85th Percentile Storm Volume (Rainfall Volume)	9,718	6,524	1,461	-	-	-	-	-	-	-	cubic-feet
Initial DCV	5	Initial Weighted Runoff Factor	0.71	0.72	0.70	-	-	-	-	-	-	-	unitless
	6	Initial Design Capture Volume	6,900	4,697	1,023	-	-	-	-	-	-	-	cubic-feet
Site Design Volume Reductions	7	Dispersion Area Reductions	0	0	0	-	-	-	-	-	-	-	cubic-feet
	8	Tree Well and Rain Barrel Reductions	0	0	0	-	-	-	-	-	-	-	cubic-feet
BMP Volume Reductions	9	Effective Area Tributary to BMP	118,279	80,526	17,538	-	-	-	-	-	-	-	square feet
	10	Final Design Capture Volume Tributary to BMP	6,900	4,697	1,023	-	-	-	-	-	-	-	cubic-feet
	11	Basin Drains to the Following BMP Type	Biofiltration	Biofiltration	Biofiltration	-	-	-	-	-	-	-	unitless
	12	Volume Retained by BMP (normalized to 36 hour drawdown)	207	141	450	-	-	-	-	-	-	-	cubic-feet
Total Volume Reductions	13	Total Fraction of Initial DCV Retained within DMA	0.03	0.03	0.44	-	-	-	-	-	-	-	fraction
	14	Percent of Average Annual Runoff Retention Provided	4.6%	4.6%	50.0%	-	-	-	-	-	-	-	%
	15	Percent of Average Annual Runoff Retention Required	1.5%	1.5%	9.4%	-	-	-	-	-	-	-	%
Performance Standard	16	Percent of Pollution Control Standard Satisfied	100.0%	100.0%	100.0%	-	-	-	-	-	-	-	%
Treatment Train	17	Discharges to Secondary Treatment in Drainage Basin	-	-	-	-	-	-	-	-	-	-	unitless
	18	Impervious Surface Area Still Requiring Treatment	0	0	0	-	-	-	-	-	-	-	square feet
	19	Impervious Surfaces Directed to Downstream Dispersion Area	-	-	-	-	-	-	-	-	-	-	square feet
	20	Impervious Surfaces Not Directed to Downstream Dispersion Area	-	-	-	-	-	-	-	-	-	-	square feet
Result	21	Deficit of Effectively Treated Stormwater	0	0	0	-	-	-	-	-	-	-	cubic-feet

Summary Notes:

All fields in this summary worksheet are populated based on previous user inputs. If applicable, drainage basin elements that require revisions and/or supplemental information outside the scope of these worksheets are highlighted in orange and summairzed in the red text below. If all drainage basins achieve full compliance without a need for supplemental information, a green message will appear below.

-Congratulations, all specified drainage basins and BMPs are in compliance with stormwater pollutant control requirements. Include 11x17 color prints of this summary sheet and supporting worksheet calculations as part of the SWQMP submittal package.

False

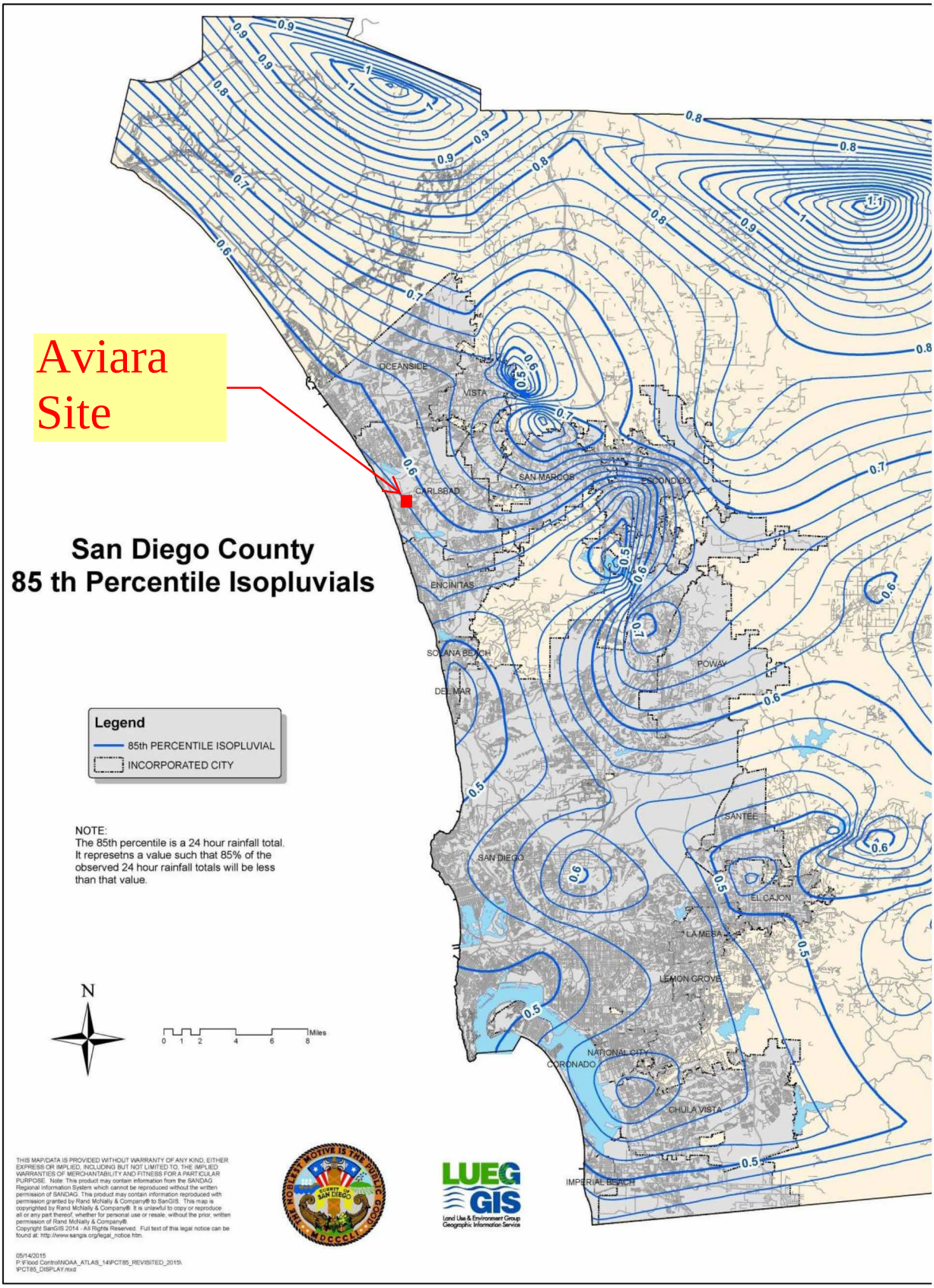

Figure B.1-1: 85th Percentile 2

ATTACHMENT 2

BACKUP FOR PDP HYDROMODIFICATION CONTROL MEASURES

This is the cover sheet for Attachment 2.

☐Mark this box if this attachment is empty because the project is exempt from PDP hydromodification management requirements.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	**Contents**	**Checklist**
Attachment 2a	Flow Control Facility Design, including Structural BMP Drawdown Calculations and Overflow Design Summary (Required) See Chapter 6 and Appendix G of the Storm Water Design Manual	☒Included ☐Submitted as separate stand-alone document
Attachment 2b	Hydromodification Management Exhibit (Required)	☒Included - **See DMA Exhibit**
Attachment 2c	Management of Critical Coarse Sediment Yield Areas See Section 6.2 and Appendix H of the Storm Water Design Manual.	☒Exhibit depicting onsite and/or upstream sources of critical coarse sediment as mapped in the WMAA AND, ☐Demonstration that the project effectively avoids and bypasses sources of mapped critical coarse sediment OR, ☐Demonstration that project does not generate a net impact on the receiving water.
Attachment 2d	Geomorphic Assessment of Receiving Channels (Optional) See Section 6.3.4 of the Storm Water Design Manual.	☒Not performed ☐Included ☐Submitted as separate stand-alone document
Attachment 2e	Vector Control Plan (Required when structural BMPs will not drain in 96 hours)	☐Included ☒Not required because BMPs will drain in less than 96 hours

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Use this checklist to ensure the required information has been included on the Hydromodification Management Exhibit:

See DMA Exhibit

The Hydromodification Management Exhibit must identify:

☐Underlying hydrologic soil group
☐Approximate depth to groundwater
☐Existing natural hydrologic features (watercourses, seeps, springs, wetlands)
☐Critical coarse sediment yield areas to be protected
☐Existing topography
☐Existing and proposed site drainage network and connections to drainage offsite
☐Proposed grading
☐Proposed impervious features
☐Proposed design features and surface treatments used to minimize imperviousness
☒**Point(s) of Compliance (POC) for Hydromodification Management**
☐Existing and proposed drainage boundary and drainage area to each POC (when necessary, create separate exhibits for pre-development and post-project conditions)
☐Structural BMPs for hydromodification management (identify location, type of BMP, and size/detail)

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ATTACHMENT

S.W.M.M. ~ HMP CONTINUOUS SIMULATION MODEL FOR:

NORTH IRIS LANE

CITY OF ESCONDIDO, CA

December 15, 2021

PREPARED BY:

3990 RUFFIN ROAD, SUITE 120

SAN DIEGO, CA 92123

858-560-1141

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INTRODUCTION

This report, “S.W.M.M. ~ HMP CONTINUOUS SIMULATION MODELING FOR NORTH IRIS LANE”, is an attachment to the project Storm Water Quality Management Plan (SWQMP) and is not intended to be an independent document.

The San Diego County final Hydromodification Management Plan (HMP) became effective in January of 2011, and is applicable to all priority projects regardless of size. The HMP model seeks to limit post development increases in runoff (magnitude and duration) for runoff event ranging from a fraction of the Q2 up to Q10.

Hydromodification flow control is achieved for this project by routing runoff through the HMP control facility (basins). Outflow is restricted by using multiple control openings at each discharge. To determine the hydromodification controls and tank dimensions, Continuous Simulation Modeling was done using the EPA Storm Water Management Model (SWMM) software. Separate reports have been prepared to analyze the onsite 100-year storm capacity and to analyze the capacity of the downstream public drainage system.

STORM WATER MANAGEMENT MODEL SOFTWARE

EPA's Storm Water Management Model (SWMM) was first developed in 1971, and has since undergone several major upgrades. It continues to be widely used throughout the world for planning, analysis and design related to stormwater runoff, combined sewers, sanitary sewers, and other drainage systems in urban areas, with many applications in non-urban areas as well.

This general purpose urban hydrology and conveyance system hydraulics software is a dynamic rainfall-runoff simulation model used for single event or long-term (continuous) simulation of runoff quantity and quality from primarily urban areas. The runoff component of SWMM operates on a collection of subcatchment areas that receive precipitation and generate runoff and pollutant loads. The routing portion of SWMM transports this runoff through a system of pipes, channels, storage/treatment devices, pumps, and regulators. SWMM tracks the quantity and quality of runoff generated within each subcatchment, and the flow rate, flow depth, and quality of water in each pipe and channel during a simulation period comprised of multiple time steps.

EPA has recently extended SWMM 5 to explicitly model the hydrologic performance of specific types of low impact development (LID) controls, such as porous pavement, bio-retention areas (e.g., rain gardens, green roofs, and street planters), rain barrels, infiltration trenches, and vegetative swales. The updated model allows engineers and planners to accurately represent any combination of LID controls within a study area to determine their effectiveness in managing stormwater and combined sewer overflows.

SWMM 5 was produced in a joint development effort with CDM, Inc., a global consulting, engineering, construction, and operations firm.

POINT OF COMPLIANCE (POC)

The two southern DMAs, S-1 and S-2, will convey runoff through a private storm drain system to their respective BMP/Hydromodification basins, BF-1 and BF-2. These basins discharge into the culvert crossing N Iris Lane and eventually discharging into Reidy Canyon. The northern DMA, N-1, will convey runoff overland into BMP/Hydromodification basin, BF-3. The subdrain is connected to POC1. This basin overflow outlets to the curb and gutter on N Iris Lane, then runs north into an existing inlet. The water is then conveyed across N Iris Lane and subsequently turning south to discharge into Reidy Canyon. Thus, there is one POC for all onsite DMAs. The location of the POC is consistent with the pre-development condition.

ANALYSIS

For each of the POCs, two models were simulated: pre-development and post-development mitigated. The pre-development condition simulation is a representation of the undeveloped site. The post-developed site adds BMPs and the detention facilities to reduce flows to meet the HMP requirements.

The performance standard requires the following:

1. For flow rates from 10% of the pre-project 2-year runoff event (0.1Q2) to the pre-project 10-year runoff event (Q10), the post-project discharge rates and durations shall not deviate above the pre-project rates and durations by more than 10% over more than 10% of the length of the flow duration curve.
2. For flow rates from 0.1 Q2 to Q5, the post-project peak flows shall not exceed pre-project peak flows. For flow rates from Q5 to Q10, post-project peak flows may exceed pre-project flows by up to 10% for a 1-year frequency interval. For example, post-project flows could exceed pre-project flows by up to 10% for the interval from Q9 to Q10 or from Q5.5 to Q6.5, but not from Q8 to Q10.

RAINFALL DATA

Precipitation is the principal driving variable in rainfall-runoff-quantity simulation. The volume and rate of stormwater runoff depends directly on the precipitation magnitude, and its spatial and temporal distribution over the catchment. Each subcatchment in SWMM is linked to a Rain Gage object that describes the format and source of the rainfall input for the subcatchment. The same rain gage and time series is applied to all scenarios for this project.

Long-term hourly rainfall records have been prepared for the San Diego rainfall stations. Sources of the rainfall data include ALERT data from the County of San Diego (which extend back to 1982), the California Climatic Data Archive, National Oceanic and Atmospheric Administration (NOAA), the National Climatic Data Center, and the Western Regional Climate Center. In all cases, the length of the overall rainfall station record is 35 years or the overall length of the rainfall record, whichever is longer. The **ESCONDIDO** ALERT Station rainfall data was used for this project and can be found at, www.projectcleanwater.org.

ESCONDIDO RESERVOIR was chosen for this site due to its geographic proximity and similarity in elevation to this site.

EVAPORATION

Single event simulations are usually insensitive to the evaporation rate. Thus, evaporation is typically neglected when a single rainfall event or a synthetic storm is simulated. However, this process is more significant when a continuous simulation is performed because it is through evaporation that depression storage is recovered and water levels in extended detention and wet ponds are reduced; thus it becomes an important component of the overall water budget.

This project is located in the California Irrigation Management Information System (CIMIS) Zone 6. Monthly averages are applied to this site as provided by CIMIS.

SUBCATCHMENTS

SWMM is a distributed model, which means that a study area can be subdivided into any number of irregular subcatchments to best capture the effect that spatial variability in topography, drainage pathways, land cover, and soil characteristics have on runoff generation. Each subcatchment can be further divided into three subareas: an impervious area with depression (detention) storage, an impervious area without depression storage, and a pervious area with depression storage. Only the latter area allows for rainfall losses due to infiltration into the soil. Described below are some of the characteristics of a subcatchment.

Width/Length

W = AREA ÷ LENGTH OF OVERLAND FLOW

The width can be defined as the subcatchment area divided by the length of the longest un-concentrated overland flow path that water can travel. If there are several such paths, then one would use an average of their lengths to compute a width. In urbanized catchments, true overland flow can be very short before it is collected into channels or pipes.

Slope
This is the slope of the land surface over which runoff flows, and is the same for both the pervious and impervious surfaces. It is the slope of what one considers to be the overland flow path, or its area-weighted average, if there are several such paths in the subcatchment.

The existing site is largely undeveloped with less than 1 dwelling unit per acre and an approximate grade of 4%. The largest area, E-1, flows southerly to the culvert that runs under N Iris Lane. The north area, E-2, flows northerly to the gutter on N Iris Lane.

Proposed finished grades in the development areas are expected to be mild (0.5% to 1.0% range), with manufactured slopes along the perimeter.

Imperviousness
This is the percentage of the subcatchment area that is covered by impervious surfaces, such as roofs and roadways, through which rainfall cannot infiltrate. Imperviousness tends to be the most sensitive parameter in the hydrologic characterization of a catchment, and can range anywhere from 0% for undeveloped areas up to 100% for high-density areas.
The existing site is 90% pervious low density residential.

The developed condition for is approximately 70% impervious and the on-site.

Roughness Coefficient
The roughness coefficient reflects the amount of resistance that overland flow encounters as it runs off of the subcatchment surface. Since SWMM uses the Manning equation to compute the overland flow rate, this coefficient is the same as Manning's roughness coefficient *n*. Separate values are required for the impervious and pervious fractions of a subcatchment since the pervious *n* is generally an order of magnitude higher than the impervious *n*.

N-imperv = 0.012
N-perv = 0.15

Depression Storage "Dstore"
Depression storage corresponds to a volume that must be filled prior to the occurrence of any runoff. Different values can be used for the pervious and impervious areas of a subcatchment. It represents initial abstractions such as surface ponding, interception by flat roofs and vegetation, and surface wetting.

Typical "D" values:

Surface	D (in)
Impervious surfaces (AC,PCC)	0.05
Proposed Landscaping	0.10
Existing Natural Terrain	0.15

Percent of Impervious Area without Depression Storage
This parameter accounts for immediate runoff that occurs at the beginning of rainfall before depression storage is satisfied. It represents pavement close to the gutters that has no surface storage, pitched rooftops that drain directly to street gutters, new pavement that may not have surface ponding, etc. By default the value of this variable is 25%, but it can be changed in each subcatchment. Unless special circumstances are known to exist, a percent imperviousness area without depression storage of 25% is recommended.

Subarea Routing
Choice of internal routing of runoff between pervious and impervious areas:
IMPERVIOUS: Runoff from pervious areas flow to impervious areas
PERVIOUS: Runoff from impervious areas flow to pervious areas.
OUTLET: Runoff from both areas flow directly to outlets.

This project utilizes only the OUTLET routing option, as recommended in the San Diego County BMP Design Manual.

Percent Routed
The percentage of runoff from the subcatchment that is to be routed. In all cases this is 100%.

Infiltration Model

Three different methods for computing infiltration loss on the pervious areas of a subcatchment are available in SWMM. They are the Horton, Green-Ampt and Curve Number models. There is no general agreement on which model is best. The Horton model has a long history of use in dynamic simulations, the Green-Ampt model is more physically-based, and the Curve Number model is derived from (but not the same as) the well-known SCS Curve Number method used in simplified runoff models.

We have chosen to use the Green-Ampt model for this project for type "D" soil:
Suction Head = 9.0 inches
Conductivity = 0.025
Initial Deficit = 0.3

Low Impact Development (LID) Controls

LID Controls are low impact development practices designed to capture surface runoff and provide some combination of detention, infiltration, and evapotranspiration. They are considered as properties of a given subcatchment, similar to how Aquifers and Snow Packs are treated. SWMM can explicitly model five different generic types of LID controls: Bio-retention Cells (with impermeable liner option), Infiltration Trenches, Continuous Porous Pavement Systems, Rain Barrels (or Cisterns) and Vegetative Swales.

Bio-retention cells, infiltration trenches, and porous pavement systems can all contain optional underdrain systems in their gravel storage beds to convey captured runoff off of the site rather than letting it all infiltrate. They can also have an impermeable floor or liner that prevents any infiltration into the native soil from occurring. Infiltration trenches and porous pavement systems can also be subject to a decrease in hydraulic conductivity over time due to clogging.

This project models BMPs as Bio-Retention Cells with a liner on the sides. The program is setup to route all flows from a Subcatchment into a smaller subcatchment that is fully occupied by the LID control. The project geotechnical engineer has found that infiltration is minimal, so the on-site BMP is lined on the sides.

STORAGE

SWMM routes runoff through storage units such as ponds and tanks with outlet orifices and weirs. Tanks can be modeled using either a storage curve function or a depth-area table. For this project we inputted a depth-area table and do allow for storage infiltration.

The project is required to provide water quality treatment and flow control for post development runoff. The project proposes a surface biofiltration basin with enhanced below grade storage to provide treatment and flow control. The surface basin has additional storage depth and an overflow structure with both on orifice opening and grated top to provide attenuation of larger storm events. In order to ensure that post development flows do not exceed existing peak flows, detention routing analyses were prepared to determine peak outflows, and to provide adjusted discharge estimate for comparison to the existing condition. Raw test results of the surficial soils indicate poor infiltration rates. However, the bottom of the BMP has been left unlined to attain infiltration on the low flows.

Basin 1 Storage 11,440 cf. (0.27 ac-ft) AT 0.5' surface depth

Elevation	Description	Dimension/Size (sf)	Comment
705.5	Top of Earth Berm	3,790	1.5' surface depth
704.5	Grated overflow 5' x5'	3,180	0.5' surface depth
704.5	**surface depth @ 6"**	**3,180**	**Treatment Surface Area**
704.0	Floor of Surface Basin	2,590	
702.5	Bottom of Soil Layer	2,590	30% Void Ratio
700.9	Bottom of Crushed Rock	2,590	40% Void Ratio
701.4	Low Flow Orifice	1.5" dia.	

Basin 2 Storage 17,200 cf. (0.4 ac-ft) AT 0.5' surface depth

Elevation	Description	Dimension/Size (sf)	Comment
707.5	Top of Earth Berm	4,580	1.5' surface depth
706.5	Grated overflow 5' x5'	3,440	0.5' surface depth
706.5	**surface depth @ 6"**	**3,440**	**Treatment Surface Area**
706.0	Floor of Surface Basin	2,320	
704.5	Bottom of Soil Layer	2,320	30% Void Ratio
701.5	Bottom of Crushed Rock	2,320	40% Void Ratio
702.0	Low Flow Orifice	1.5" dia.	

Basin 3 Storage 9,840 cf. (0.23 ac-ft) AT 0.5' surface depth

Elevation	Description	Dimension/Size (sf)	Comment
717.1	Top of Earth Berm	2,580	1.5' surface depth
716.1	Grated overflow 5' x5'	2,290	0.5' surface depth
716.1	**surface depth @ 6"**	**2,290**	**Treatment Surface Area**
715.6	Floor of Surface Basin	2,010	
714.1	Bottom of Soil Layer	2,010	30% Void Ratio
711.55	Bottom of Crushed Rock	2,010	40% Void Ratio
711.8	Low Flow Orifice	1.5" dia.	

STATISTICS

SWMM computes peak flow frequency statistics by constructing a partial-duration series. This involves examining the entire runoff time series generated by the model, dividing the runoff time series into a set of discrete unrelated events, determining the peak flow for each event, ranking the peak flows for all events and then computing the recurrence interval or plotting position for each storm event. A separation event, defined as a time period in which runoff does not exceed a prescribed threshold, is required to parse the long-term flow records into discrete runoff events. The separation event corresponds to the required number of consecutive time intervals (24 hours in this case) with a flow value less than Flow Floor 1 (0.002 cfs/acre).

SWMM uses the Weibull method for construction of the partial-duration series, but the Final HMP gives preference to the Cunnane method. Both the Weibull and Cunnane methods result in very similar return periods and frequencies for events that occur below the Q10, and do not begin significantly contrasting until the low frequency (high flow) ranges. We have converted the SWMM partial duration series to a Cunnane plotting for this report and have included a table at the end of this report.

AREA SUMMARY

	TOTAL	BMP	IMPERV	PERVIOUS	IMP. %
PRE-	*7.418*	*0.0000*	*0.7418*	*6.6762*	*10*
POST-	*7.418*	*0.456*	*5.1926*	*2.2254*	*70%*

NOTE: ALL AREAS SHOWN IN ACRES

RESULTS

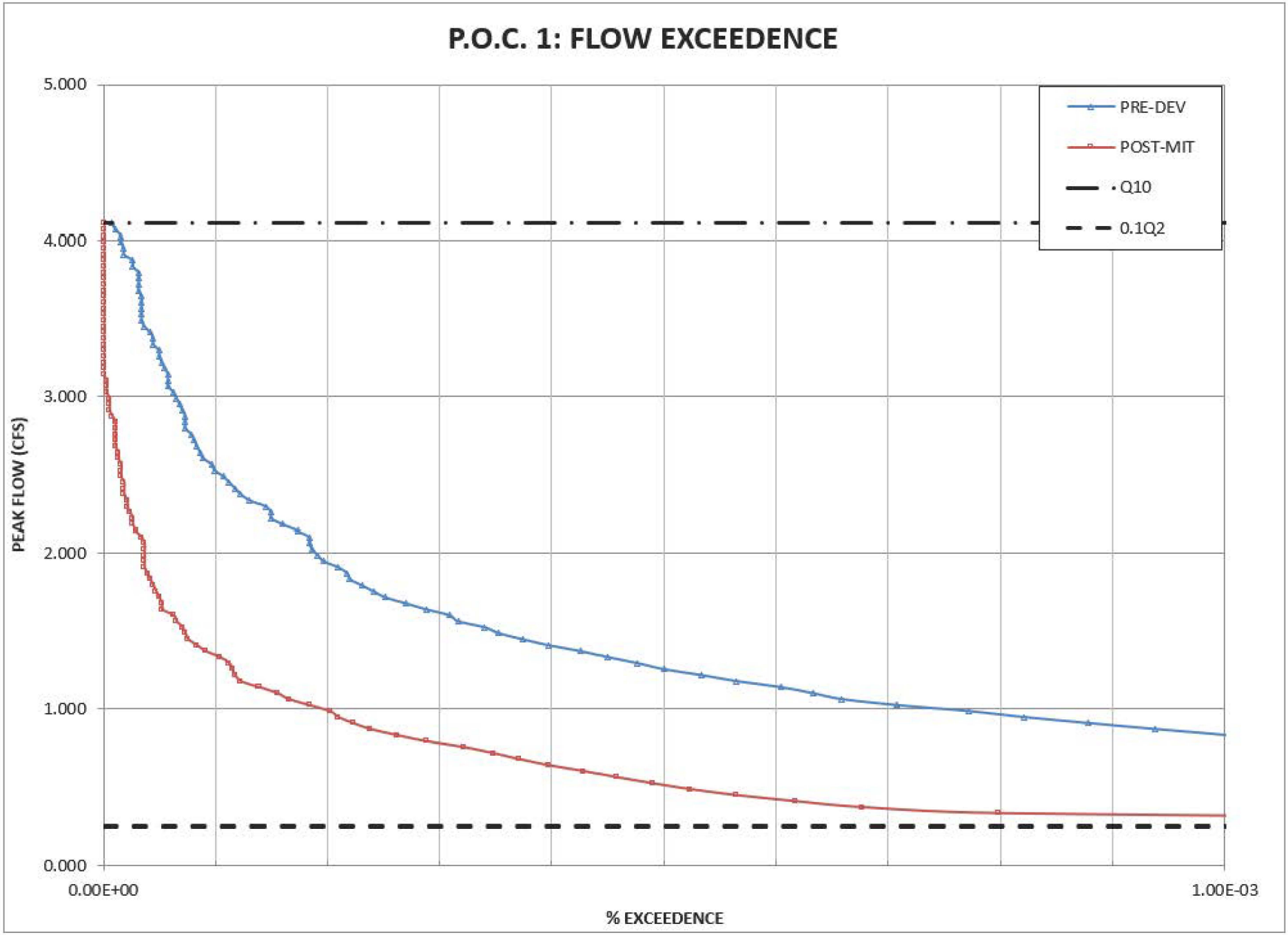
For each HMP facility (each POC) the results are included at the end of this report and are summarized as follows:

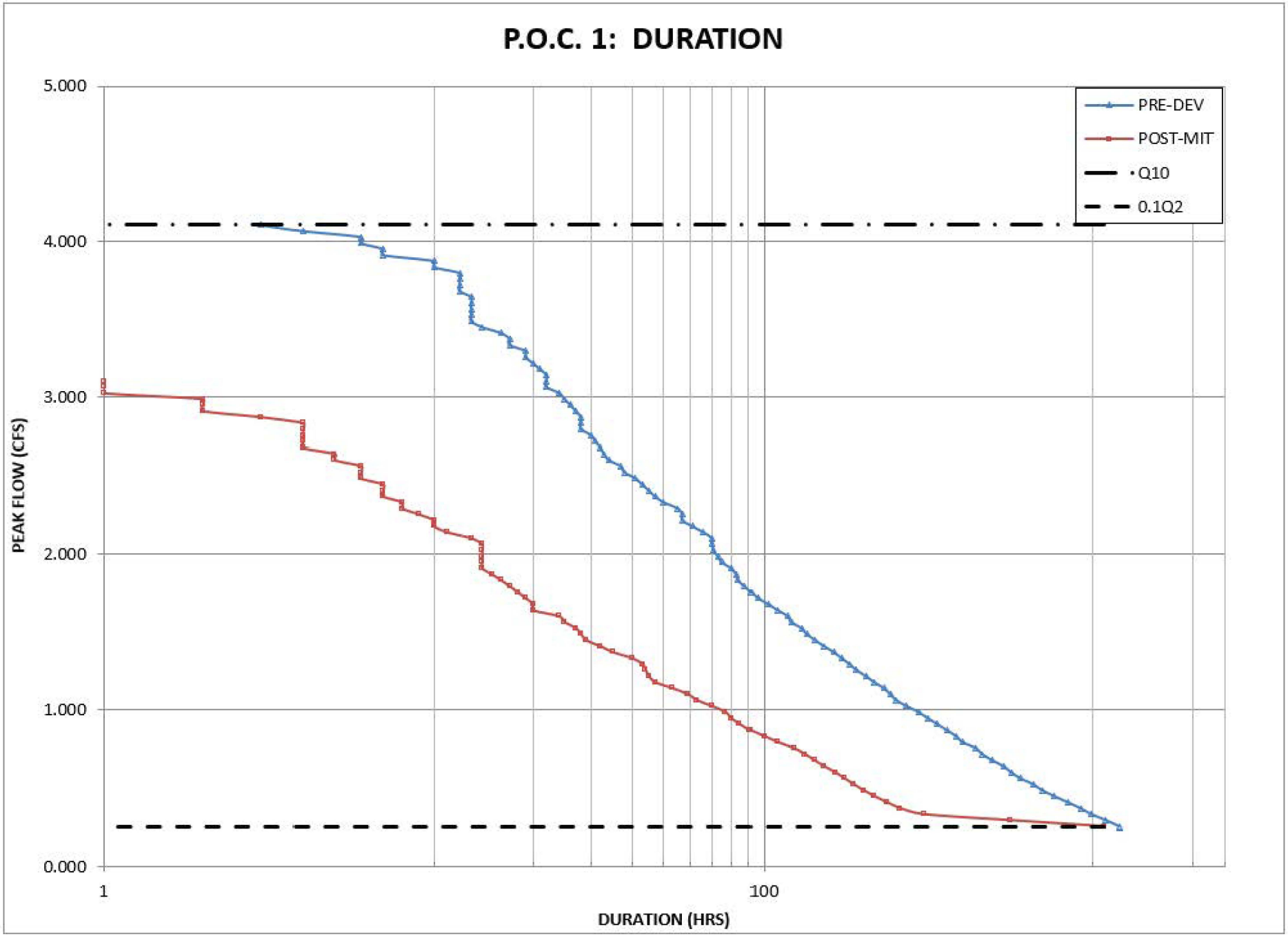
A. PEAK FLOW-EXCEEDANCE CURVE
B. RUNOFF-DURATION CURVE (LOGARITHMIC)
C. FLOW-DURATION DATA TABLE
D. PEAK EVENT TABLE – EXISTING (INCLUDES Q2-Q10 THRESHOLDS)
E. PEAK EVENT TABLE – POST-MITIGATED

Observing flows between 0.1Q2 and Q10, each of these charts or tables show the flow control openings for the project HMP facility reduces the runoff from the site to below the pre-developed condition, and meets the performance standard requirements described above.

APPENDIX I: POC #1 SWMM RESULTS

A. PEAK FLOW-EXCEEDANCE CURVE
B. RUNOFF-DURATION CURVE (LOGARITHMIC)
C. FLOW-DURATION DATA TABLE
D. PEAK EVENT TABLE – EXISTING (INCLUDES Q2-Q10 THRESHOLDS)
E. PEAK EVENT TABLE – POST-MITIGATED
F. POND STAGE-STORAGE-DISCHARGE TABLE


P.O.C. 1: FLOW EXCEEDENCE
5.000
4.000
3.000
2.000
1.000
0.000
PEAK FLOW (CFS)
0.00E+00
1.00E-03
% EXCEEDENCE
PRE-DEV
POST-MIT
Q10
0.1Q2


P.O.C. 1: DURATION
5.000
4.000
3.000
2.000
1.000
0.000
PEAK FLOW (CFS)
1
100
DURATION (HRS)
PRE-DEV
POST-MIT
Q10
0.1Q2

POC. #1: FLOW-DURATION TABLE

Q2 = 2.501 CFS FRACTION = 1.0%
0.1Q2= 0.250100072 CFS
Q10 = 4.107 CFS
STEP = 0.039 CFS

	EXISTING			POST-MITIGATED		PERCENT	PASS OR
INTERVAL	Q (CFS)	HRS>Q	% EXCEEDED	HRS>Q	% EXCEEDED	POST/PRE	FAIL
0	0.250	1199	3.13E-03	1082	2.83E-03	90%	PASS
1	0.289	1093	2.86E-03	560	1.46E-03	51%	PASS
2	0.327	988	2.58E-03	305	7.97E-04	31%	PASS
3	0.366	915	2.39E-03	259	6.77E-04	28%	PASS
4	0.404	836	2.18E-03	236	6.17E-04	28%	PASS
5	0.443	762	1.99E-03	216	5.64E-04	28%	PASS
6	0.482	700	1.83E-03	200	5.23E-04	29%	PASS
7	0.520	657	1.72E-03	187	4.89E-04	28%	PASS
8	0.559	600	1.57E-03	175	4.57E-04	29%	PASS
9	0.597	563	1.47E-03	164	4.28E-04	29%	PASS
10	0.636	534	1.40E-03	152	3.97E-04	28%	PASS
11	0.674	493	1.29E-03	142	3.71E-04	29%	PASS
12	0.713	461	1.20E-03	133	3.47E-04	29%	PASS
13	0.752	440	1.15E-03	123	3.21E-04	28%	PASS
14	0.790	401	1.05E-03	110	2.87E-04	27%	PASS
15	0.829	383	1.00E-03	100	2.61E-04	26%	PASS
16	0.867	359	9.38E-04	91	2.38E-04	25%	PASS
17	0.906	336	8.78E-04	85	2.22E-04	25%	PASS
18	0.944	314	8.20E-04	80	2.09E-04	25%	PASS
19	0.983	295	7.71E-04	77	2.01E-04	26%	PASS
20	1.022	271	7.08E-04	70	1.83E-04	26%	PASS
21	1.060	252	6.58E-04	63	1.65E-04	25%	PASS
22	1.099	242	6.32E-04	59	1.54E-04	24%	PASS
23	1.137	231	6.04E-04	53	1.38E-04	23%	PASS
24	1.176	216	5.64E-04	47	1.23E-04	22%	PASS
25	1.214	204	5.33E-04	45	1.18E-04	22%	PASS
26	1.253	191	4.99E-04	44	1.15E-04	23%	PASS
27	1.292	182	4.76E-04	43	1.12E-04	24%	PASS
28	1.330	172	4.49E-04	40	1.05E-04	23%	PASS
29	1.369	163	4.26E-04	35	9.14E-05	21%	PASS
30	1.407	152	3.97E-04	32	8.36E-05	21%	PASS
31	1.446	143	3.74E-04	29	7.58E-05	20%	PASS
32	1.484	135	3.53E-04	28	7.32E-05	21%	PASS
33	1.523	130	3.40E-04	27	7.05E-05	21%	PASS
34	1.562	121	3.16E-04	25	6.53E-05	21%	PASS
35	1.600	118	3.08E-04	24	6.27E-05	20%	PASS
36	1.639	110	2.87E-04	20	5.23E-05	18%	PASS
37	1.677	103	2.69E-04	20	5.23E-05	19%	PASS
38	1.716	96	2.51E-04	19	4.96E-05	20%	PASS
39	1.754	92	2.40E-04	18	4.70E-05	20%	PASS
40	1.793	88	2.30E-04	17	4.44E-05	19%	PASS
41	1.832	84	2.19E-04	16	4.18E-05	19%	PASS
42	1.870	83	2.17E-04	15	3.92E-05	18%	PASS
43	1.909	80	2.09E-04	14	3.66E-05	18%	PASS
44	1.947	75	1.96E-04	14	3.66E-05	19%	PASS
45	1.986	73	1.91E-04	14	3.66E-05	19%	PASS
46	2.024	71	1.86E-04	14	3.66E-05	20%	PASS
47	2.063	70	1.83E-04	14	3.66E-05	20%	PASS
48	2.102	70	1.83E-04	13	3.40E-05	19%	PASS

49	2.140	66	1.72E-04	11	2.87E-05	17%	PASS
50	2.179	61	1.59E-04	10	2.61E-05	16%	PASS
51	2.217	57	1.49E-04	10	2.61E-05	18%	PASS
52	2.256	57	1.49E-04	9	2.35E-05	16%	PASS
53	2.294	55	1.44E-04	8	2.09E-05	15%	PASS
54	2.333	50	1.31E-04	8	2.09E-05	16%	PASS
55	2.372	47	1.23E-04	7	1.83E-05	15%	PASS
56	2.410	45	1.18E-04	7	1.83E-05	16%	PASS
57	2.449	43	1.12E-04	7	1.83E-05	16%	PASS
58	2.487	41	1.07E-04	6	1.57E-05	15%	PASS
59	2.526	38	9.93E-05	6	1.57E-05	16%	PASS
60	2.564	37	9.67E-05	6	1.57E-05	16%	PASS
61	2.603	34	8.88E-05	5	1.31E-05	15%	PASS
62	2.642	33	8.62E-05	5	1.31E-05	15%	PASS
63	2.680	32	8.36E-05	4	1.05E-05	13%	PASS
64	2.719	31	8.10E-05	4	1.05E-05	13%	PASS
65	2.757	30	7.84E-05	4	1.05E-05	13%	PASS
66	2.796	28	7.32E-05	4	1.05E-05	14%	PASS
67	2.835	28	7.32E-05	4	1.05E-05	14%	PASS
68	2.873	28	7.32E-05	3	7.84E-06	11%	PASS
69	2.912	27	7.05E-05	2	5.23E-06	7%	PASS
70	2.950	26	6.79E-05	2	5.23E-06	8%	PASS
71	2.989	25	6.53E-05	2	5.23E-06	8%	PASS
72	3.027	24	6.27E-05	1	2.61E-06	4%	PASS
73	3.066	22	5.75E-05	1	2.61E-06	5%	PASS
74	3.105	22	5.75E-05	1	2.61E-06	5%	PASS
75	3.143	22	5.75E-05	0	0.00E+00	0%	PASS
76	3.182	21	5.49E-05	0	0.00E+00	0%	PASS
77	3.220	20	5.23E-05	0	0.00E+00	0%	PASS
78	3.259	19	4.96E-05	0	0.00E+00	0%	PASS
79	3.297	19	4.96E-05	0	0.00E+00	0%	PASS
80	3.336	17	4.44E-05	0	0.00E+00	0%	PASS
81	3.375	17	4.44E-05	0	0.00E+00	0%	PASS
82	3.413	16	4.18E-05	0	0.00E+00	0%	PASS
83	3.452	14	3.66E-05	0	0.00E+00	0%	PASS
84	3.490	13	3.40E-05	0	0.00E+00	0%	PASS
85	3.529	13	3.40E-05	0	0.00E+00	0%	PASS
86	3.567	13	3.40E-05	0	0.00E+00	0%	PASS
87	3.606	13	3.40E-05	0	0.00E+00	0%	PASS
88	3.645	13	3.40E-05	0	0.00E+00	0%	PASS
89	3.683	12	3.14E-05	0	0.00E+00	0%	PASS
90	3.722	12	3.14E-05	0	0.00E+00	0%	PASS
91	3.760	12	3.14E-05	0	0.00E+00	0%	PASS
92	3.799	12	3.14E-05	0	0.00E+00	0%	PASS
93	3.837	10	2.61E-05	0	0.00E+00	0%	PASS
94	3.876	10	2.61E-05	0	0.00E+00	0%	PASS
95	3.915	7	1.83E-05	0	0.00E+00	0%	PASS
96	3.953	7	1.83E-05	0	0.00E+00	0%	PASS
97	3.992	6	1.57E-05	0	0.00E+00	0%	PASS
98	4.030	6	1.57E-05	0	0.00E+00	0%	PASS
99	4.069	4	1.05E-05	0	0.00E+00	0%	PASS
100	4.107	3	7.84E-06	0	0.00E+00	0%	PASS

P.O.C. #1: PEAK EVENTS - EXISTING

WEIBULL (SWMM)

F = m/(nr+1) where F = frequency
m = event rank
nr = total number of event
n = number of year anlayzed

CUNNANE

F = (i-0.4)/(n+0.2)
i = rank
n = sample size = # of storms

Number of Years Analyzed (n): 43.69
Total number of events (nr) 818

	Weibull		Cunnane		
m or i	F	Return (yrs)	F	Return	Q
1	0.12%	44.69	0.07%	73.15	5.320
2	0.24%	22.35	0.20%	27.43	4.616
3	0.37%	14.90	0.32%	16.88	4.331
4	0.49%	11.17	0.44%	12.19	4.079
5	0.61%	8.94	0.56%	9.54	4.056
6	0.73%	7.45	0.68%	7.84	4.044
7	0.85%	6.38	0.81%	6.65	3.891
8	0.98%	5.59	0.93%	5.78	3.885
9	1.10%	4.97	1.05%	5.10	3.803
10	1.22%	4.47	1.17%	4.57	3.422
11	1.34%	4.06	1.30%	4.14	3.324
12	1.47%	3.72	1.42%	3.78	3.306
13	1.59%	3.44	1.54%	3.48	3.222
14	1.71%	3.19	1.66%	3.23	3.047
15	1.83%	2.98	1.78%	3.01	3.046
16	1.95%	2.79	1.91%	2.81	2.979
17	2.08%	2.63	2.03%	2.64	2.885
18	2.20%	2.48	2.15%	2.49	2.769
19	2.32%	2.35	2.27%	2.36	2.753
20	2.44%	2.23	2.40%	2.24	2.712
21	2.56%	2.13	2.52%	2.13	2.667
22	2.69%	2.03	2.64%	2.03	2.600
23	2.81%	1.94	2.76%	1.94	2.569
24	2.93%	1.86	2.88%	1.86	2.509
25	3.05%	1.79	3.01%	1.78	2.494
26	3.17%	1.72	3.13%	1.71	2.466
27	3.30%	1.66	3.25%	1.65	2.407
28	3.42%	1.60	3.37%	1.59	2.337
29	3.54%	1.54	3.50%	1.53	2.315
30	3.66%	1.49	3.62%	1.48	2.297
31	3.79%	1.44	3.74%	1.43	2.290
32	3.91%	1.40	3.86%	1.39	2.212
33	4.03%	1.35	3.98%	1.35	2.189
34	4.15%	1.31	4.11%	1.31	2.177
35	4.27%	1.28	4.23%	1.27	2.155
36	4.40%	1.24	4.35%	1.23	2.127
37	4.52%	1.21	4.47%	1.20	1.989
38	4.64%	1.18	4.60%	1.17	1.986
39	4.76%	1.15	4.72%	1.14	1.985
40	4.88%	1.12	4.84%	1.11	1.945

SUMMARY OF PEAK EVENTS

Q2	**2.501**
Q3	**2.977**
Q4	**3.051**
Q5	**3.371**
Q6	**4.518**
Q7	**4.054**
Q8	**3.902**
Q9	**4.229**
Q10	**4.107**

START	9/24/1964 13:00
END	5/23/2008 23:00
TOTAL YRS	43.69
TOTAL HRS	382738

41	5.01%	1.09	4.96%	1.08	1.925
42	5.13%	1.06	5.08%	1.06	1.840
43	5.25%	1.04	5.21%	1.03	1.824
44	5.37%	1.02	5.33%	1.01	1.766
45	5.49%	0.99	5.45%	0.98	1.750
46	5.62%	0.97	5.57%	0.96	1.675
47	5.74%	0.95	5.70%	0.94	1.632
48	5.86%	0.93	5.82%	0.92	1.621
49	5.98%	0.91	5.94%	0.90	1.609
50	6.11%	0.89	6.06%	0.88	1.589
51	6.23%	0.88	6.18%	0.87	1.585
52	6.35%	0.86	6.31%	0.85	1.560
53	6.47%	0.84	6.43%	0.83	1.553
54	6.59%	0.83	6.55%	0.82	1.544
55	6.72%	0.81	6.67%	0.80	1.543
56	6.84%	0.80	6.80%	0.79	1.500
57	6.96%	0.78	6.92%	0.78	1.458
58	7.08%	0.77	7.04%	0.76	1.449
59	7.20%	0.76	7.16%	0.75	1.434
60	7.33%	0.74	7.28%	0.74	1.426
61	7.45%	0.73	7.41%	0.72	1.405
62	7.57%	0.72	7.53%	0.71	1.400
63	7.69%	0.71	7.65%	0.70	1.397
64	7.81%	0.70	7.77%	0.69	1.396
65	7.94%	0.69	7.90%	0.68	1.380
66	8.06%	0.68	8.02%	0.67	1.371
67	8.18%	0.67	8.14%	0.66	1.369
68	8.30%	0.66	8.26%	0.65	1.365
69	8.42%	0.65	8.38%	0.64	1.340
70	8.55%	0.64	8.51%	0.63	1.329
71	8.67%	0.63	8.63%	0.62	1.310
72	8.79%	0.62	8.75%	0.61	1.264
73	8.91%	0.61	8.87%	0.60	1.243
74	9.04%	0.60	9.00%	0.60	1.235
75	9.16%	0.60	9.12%	0.59	1.234
76	9.28%	0.59	9.24%	0.58	1.233
77	9.40%	0.58	9.36%	0.57	1.227
78	9.52%	0.57	9.48%	0.57	1.226
79	9.65%	0.57	9.61%	0.56	1.219
80	9.77%	0.56	9.73%	0.55	1.204
81	9.89%	0.55	9.85%	0.54	1.199
82	10.01%	0.55	9.97%	0.54	1.168
83	10.13%	0.54	10.10%	0.53	1.140
84	10.26%	0.53	10.22%	0.53	1.129
85	10.38%	0.53	10.34%	0.52	1.099
86	10.50%	0.52	10.46%	0.51	1.095
87	10.62%	0.51	10.58%	0.51	1.071
88	10.74%	0.51	10.71%	0.50	1.062
89	10.87%	0.50	10.83%	0.50	1.059
90	10.99%	0.50	10.95%	0.49	1.058
91	11.11%	0.49	11.07%	0.48	1.054
92	11.23%	0.49	11.20%	0.48	1.052
93	11.36%	0.48	11.32%	0.47	1.049
94	11.48%	0.48	11.44%	0.47	1.045
95	11.60%	0.47	11.56%	0.46	1.044

96	11.72%	0.47	11.68%	0.46	1.036
97	11.84%	0.46	11.81%	0.45	1.020
98	11.97%	0.46	11.93%	0.45	1.017
99	12.09%	0.45	12.05%	0.45	1.008
100	12.21%	0.45	12.17%	0.44	1.002
101	12.33%	0.44	12.30%	0.44	1.002
102	12.45%	0.44	12.42%	0.43	0.994
103	12.58%	0.43	12.54%	0.43	0.981
104	12.70%	0.43	12.66%	0.42	0.976
105	12.82%	0.43	12.78%	0.42	0.973
106	12.94%	0.42	12.91%	0.42	0.963
107	13.06%	0.42	13.03%	0.41	0.961
108	13.19%	0.41	13.15%	0.41	0.956
109	13.31%	0.41	13.27%	0.40	0.936
110	13.43%	0.41	13.40%	0.40	0.922
111	13.55%	0.40	13.52%	0.40	0.906
112	13.68%	0.40	13.64%	0.39	0.904
113	13.80%	0.40	13.76%	0.39	0.904
114	13.92%	0.39	13.88%	0.39	0.899
115	14.04%	0.39	14.01%	0.38	0.897
116	14.16%	0.39	14.13%	0.38	0.887
117	14.29%	0.38	14.25%	0.38	0.879
118	14.41%	0.38	14.37%	0.37	0.876
119	14.53%	0.38	14.50%	0.37	0.856
120	14.65%	0.37	14.62%	0.37	0.853
121	14.77%	0.37	14.74%	0.36	0.852
122	14.90%	0.37	14.86%	0.36	0.848
123	15.02%	0.36	14.98%	0.36	0.844
124	15.14%	0.36	15.11%	0.36	0.840
125	15.26%	0.36	15.23%	0.35	0.826
126	15.38%	0.35	15.35%	0.35	0.825
127	15.51%	0.35	15.47%	0.35	0.814
128	15.63%	0.35	15.60%	0.34	0.804
129	15.75%	0.35	15.72%	0.34	0.803
130	15.87%	0.34	15.84%	0.34	0.785
131	16.00%	0.34	15.96%	0.34	0.778
132	16.12%	0.34	16.08%	0.33	0.773
133	16.24%	0.34	16.21%	0.33	0.773
134	16.36%	0.33	16.33%	0.33	0.769
135	16.48%	0.33	16.45%	0.33	0.763
136	16.61%	0.33	16.57%	0.32	0.763
137	16.73%	0.33	16.70%	0.32	0.762
138	16.85%	0.32	16.82%	0.32	0.749
139	16.97%	0.32	16.94%	0.32	0.746
140	17.09%	0.32	17.06%	0.31	0.743
141	17.22%	0.32	17.18%	0.31	0.732
142	17.34%	0.31	17.31%	0.31	0.697
143	17.46%	0.31	17.43%	0.31	0.695
144	17.58%	0.31	17.55%	0.31	0.694
145	17.70%	0.31	17.67%	0.30	0.689
146	17.83%	0.31	17.80%	0.30	0.689
147	17.95%	0.30	17.92%	0.30	0.687
148	18.07%	0.30	18.04%	0.30	0.678
149	18.19%	0.30	18.16%	0.30	0.669
150	18.32%	0.30	18.28%	0.29	0.659

151	18.44%	0.30	18.41%	0.29	0.649
152	18.56%	0.29	18.53%	0.29	0.648
153	18.68%	0.29	18.65%	0.29	0.623
154	18.80%	0.29	18.77%	0.29	0.622
155	18.93%	0.29	18.90%	0.28	0.621
156	19.05%	0.29	19.02%	0.28	0.620
157	19.17%	0.28	19.14%	0.28	0.616
158	19.29%	0.28	19.26%	0.28	0.610
159	19.41%	0.28	19.38%	0.28	0.599
160	19.54%	0.28	19.51%	0.28	0.599
161	19.66%	0.28	19.63%	0.27	0.593
162	19.78%	0.28	19.75%	0.27	0.591
163	19.90%	0.27	19.87%	0.27	0.590
164	20.02%	0.27	20.00%	0.27	0.584
165	20.15%	0.27	20.12%	0.27	0.581
166	20.27%	0.27	20.24%	0.27	0.579
167	20.39%	0.27	20.36%	0.26	0.573
168	20.51%	0.27	20.48%	0.26	0.555
169	20.63%	0.26	20.61%	0.26	0.545
170	20.76%	0.26	20.73%	0.26	0.541
171	20.88%	0.26	20.85%	0.26	0.532
172	21.00%	0.26	20.97%	0.26	0.531
173	21.12%	0.26	21.10%	0.25	0.530
174	21.25%	0.26	21.22%	0.25	0.524
175	21.37%	0.26	21.34%	0.25	0.522
176	21.49%	0.25	21.46%	0.25	0.519
177	21.61%	0.25	21.58%	0.25	0.517
178	21.73%	0.25	21.71%	0.25	0.509
179	21.86%	0.25	21.83%	0.25	0.506
180	21.98%	0.25	21.95%	0.24	0.505
181	22.10%	0.25	22.07%	0.24	0.493
182	22.22%	0.25	22.20%	0.24	0.481
183	22.34%	0.24	22.32%	0.24	0.480
184	22.47%	0.24	22.44%	0.24	0.454
185	22.59%	0.24	22.56%	0.24	0.440
186	22.71%	0.24	22.68%	0.24	0.425
187	22.83%	0.24	22.81%	0.24	0.425
188	22.95%	0.24	22.93%	0.23	0.417
189	23.08%	0.24	23.05%	0.23	0.410
190	23.20%	0.24	23.17%	0.23	0.407
191	23.32%	0.23	23.30%	0.23	0.407
192	23.44%	0.23	23.42%	0.23	0.399
193	23.57%	0.23	23.54%	0.23	0.389
194	23.69%	0.23	23.66%	0.23	0.383
195	23.81%	0.23	23.78%	0.23	0.383
196	23.93%	0.23	23.91%	0.22	0.371
197	24.05%	0.23	24.03%	0.22	0.368
198	24.18%	0.23	24.15%	0.22	0.363
199	24.30%	0.22	24.27%	0.22	0.352
200	24.42%	0.22	24.40%	0.22	0.346
201	24.54%	0.22	24.52%	0.22	0.346
202	24.66%	0.22	24.64%	0.22	0.343
203	24.79%	0.22	24.76%	0.22	0.342
204	24.91%	0.22	24.88%	0.22	0.338
205	25.03%	0.22	25.01%	0.21	0.338

206	25.15%	0.22	25.13%	0.21	0.334
207	25.27%	0.22	25.25%	0.21	0.332
208	25.40%	0.21	25.37%	0.21	0.327
209	25.52%	0.21	25.49%	0.21	0.324
210	25.64%	0.21	25.62%	0.21	0.321
211	25.76%	0.21	25.74%	0.21	0.320
212	25.89%	0.21	25.86%	0.21	0.310
213	26.01%	0.21	25.98%	0.21	0.307
214	26.13%	0.21	26.11%	0.21	0.300
215	26.25%	0.21	26.23%	0.20	0.296
216	26.37%	0.21	26.35%	0.20	0.294
217	26.50%	0.21	26.47%	0.20	0.294
218	26.62%	0.21	26.59%	0.20	0.292
219	26.74%	0.20	26.72%	0.20	0.289
220	26.86%	0.20	26.84%	0.20	0.288
221	26.98%	0.20	26.96%	0.20	0.283
222	27.11%	0.20	27.08%	0.20	0.273
223	27.23%	0.20	27.21%	0.20	0.269
224	27.35%	0.20	27.33%	0.20	0.264
225	27.47%	0.20	27.45%	0.20	0.262
226	27.59%	0.20	27.57%	0.19	0.255
227	27.72%	0.20	27.69%	0.19	0.253
228	27.84%	0.20	27.82%	0.19	0.247
229	27.96%	0.20	27.94%	0.19	0.246
230	28.08%	0.19	28.06%	0.19	0.242
231	28.21%	0.19	28.18%	0.19	0.241
232	28.33%	0.19	28.31%	0.19	0.239
233	28.45%	0.19	28.43%	0.19	0.238
234	28.57%	0.19	28.55%	0.19	0.235
235	28.69%	0.19	28.67%	0.19	0.235
236	28.82%	0.19	28.79%	0.19	0.235
237	28.94%	0.19	28.92%	0.19	0.229
238	29.06%	0.19	29.04%	0.18	0.228
239	29.18%	0.19	29.16%	0.18	0.226
240	29.30%	0.19	29.28%	0.18	0.225
241	29.43%	0.19	29.41%	0.18	0.221
242	29.55%	0.18	29.53%	0.18	0.221
243	29.67%	0.18	29.65%	0.18	0.219
244	29.79%	0.18	29.77%	0.18	0.219
245	29.91%	0.18	29.89%	0.18	0.214
246	30.04%	0.18	30.02%	0.18	0.206
247	30.16%	0.18	30.14%	0.18	0.203
248	30.28%	0.18	30.26%	0.18	0.198
249	30.40%	0.18	30.38%	0.18	0.192
250	30.53%	0.18	30.51%	0.18	0.192
251	30.65%	0.18	30.63%	0.18	0.190
252	30.77%	0.18	30.75%	0.17	0.187
253	30.89%	0.18	30.87%	0.17	0.180
254	31.01%	0.18	30.99%	0.17	0.180
255	31.14%	0.18	31.12%	0.17	0.176
256	31.26%	0.17	31.24%	0.17	0.176
257	31.38%	0.17	31.36%	0.17	0.175
258	31.50%	0.17	31.48%	0.17	0.175
259	31.62%	0.17	31.61%	0.17	0.175
260	31.75%	0.17	31.73%	0.17	0.174

261	31.87%	0.17	31.85%	0.17	0.174
262	31.99%	0.17	31.97%	0.17	0.174
263	32.11%	0.17	32.09%	0.17	0.174
264	32.23%	0.17	32.22%	0.17	0.172
265	32.36%	0.17	32.34%	0.17	0.172
266	32.48%	0.17	32.46%	0.17	0.170
267	32.60%	0.17	32.58%	0.16	0.167
268	32.72%	0.17	32.71%	0.16	0.167
269	32.84%	0.17	32.83%	0.16	0.166
270	32.97%	0.17	32.95%	0.16	0.164
271	33.09%	0.16	33.07%	0.16	0.163
272	33.21%	0.16	33.19%	0.16	0.163
273	33.33%	0.16	33.32%	0.16	0.161
274	33.46%	0.16	33.44%	0.16	0.153
275	33.58%	0.16	33.56%	0.16	0.150
276	33.70%	0.16	33.68%	0.16	0.148
277	33.82%	0.16	33.81%	0.16	0.148
278	33.94%	0.16	33.93%	0.16	0.148
279	34.07%	0.16	34.05%	0.16	0.147
280	34.19%	0.16	34.17%	0.16	0.147
281	34.31%	0.16	34.29%	0.16	0.147
282	34.43%	0.16	34.42%	0.16	0.147
283	34.55%	0.16	34.54%	0.16	0.147
284	34.68%	0.16	34.66%	0.15	0.147
285	34.80%	0.16	34.78%	0.15	0.147
286	34.92%	0.16	34.91%	0.15	0.147
287	35.04%	0.16	35.03%	0.15	0.147
288	35.16%	0.16	35.15%	0.15	0.147
289	35.29%	0.15	35.27%	0.15	0.147
290	35.41%	0.15	35.39%	0.15	0.147
291	35.53%	0.15	35.52%	0.15	0.147
292	35.65%	0.15	35.64%	0.15	0.147
293	35.78%	0.15	35.76%	0.15	0.147
294	35.90%	0.15	35.88%	0.15	0.147
295	36.02%	0.15	36.01%	0.15	0.147
296	36.14%	0.15	36.13%	0.15	0.147
297	36.26%	0.15	36.25%	0.15	0.147
298	36.39%	0.15	36.37%	0.15	0.147
299	36.51%	0.15	36.49%	0.15	0.147
300	36.63%	0.15	36.62%	0.15	0.147
301	36.75%	0.15	36.74%	0.15	0.147
302	36.87%	0.15	36.86%	0.15	0.147
303	37.00%	0.15	36.98%	0.15	0.146
304	37.12%	0.15	37.11%	0.14	0.146
305	37.24%	0.15	37.23%	0.14	0.146
306	37.36%	0.15	37.35%	0.14	0.146
307	37.48%	0.15	37.47%	0.14	0.146
308	37.61%	0.15	37.59%	0.14	0.146
309	37.73%	0.14	37.72%	0.14	0.146
310	37.85%	0.14	37.84%	0.14	0.146
311	37.97%	0.14	37.96%	0.14	0.146
312	38.10%	0.14	38.08%	0.14	0.146
313	38.22%	0.14	38.21%	0.14	0.146
314	38.34%	0.14	38.33%	0.14	0.146
315	38.46%	0.14	38.45%	0.14	0.146

316	38.58%	0.14	38.57%	0.14	0.146
317	38.71%	0.14	38.69%	0.14	0.146
318	38.83%	0.14	38.82%	0.14	0.146
319	38.95%	0.14	38.94%	0.14	0.145
320	39.07%	0.14	39.06%	0.14	0.145
321	39.19%	0.14	39.18%	0.14	0.145
322	39.32%	0.14	39.31%	0.14	0.145
323	39.44%	0.14	39.43%	0.14	0.145
324	39.56%	0.14	39.55%	0.14	0.145
325	39.68%	0.14	39.67%	0.14	0.145
326	39.80%	0.14	39.79%	0.13	0.145
327	39.93%	0.14	39.92%	0.13	0.145
328	40.05%	0.14	40.04%	0.13	0.145
329	40.17%	0.14	40.16%	0.13	0.145
330	40.29%	0.14	40.28%	0.13	0.145
331	40.42%	0.14	40.41%	0.13	0.145
332	40.54%	0.13	40.53%	0.13	0.145
333	40.66%	0.13	40.65%	0.13	0.145
334	40.78%	0.13	40.77%	0.13	0.144
335	40.90%	0.13	40.89%	0.13	0.144
336	41.03%	0.13	41.02%	0.13	0.144
337	41.15%	0.13	41.14%	0.13	0.144
338	41.27%	0.13	41.26%	0.13	0.143
339	41.39%	0.13	41.38%	0.13	0.143
340	41.51%	0.13	41.51%	0.13	0.143
341	41.64%	0.13	41.63%	0.13	0.143
342	41.76%	0.13	41.75%	0.13	0.140
343	41.88%	0.13	41.87%	0.13	0.139
344	42.00%	0.13	41.99%	0.13	0.136
345	42.12%	0.13	42.12%	0.13	0.135
346	42.25%	0.13	42.24%	0.13	0.131
347	42.37%	0.13	42.36%	0.13	0.125
348	42.49%	0.13	42.48%	0.13	0.120
349	42.61%	0.13	42.61%	0.13	0.118
350	42.74%	0.13	42.73%	0.13	0.118
351	42.86%	0.13	42.85%	0.13	0.118
352	42.98%	0.13	42.97%	0.12	0.118
353	43.10%	0.13	43.09%	0.12	0.118
354	43.22%	0.13	43.22%	0.12	0.118
355	43.35%	0.13	43.34%	0.12	0.118
356	43.47%	0.13	43.46%	0.12	0.118
357	43.59%	0.13	43.58%	0.12	0.118
358	43.71%	0.12	43.71%	0.12	0.118
359	43.83%	0.12	43.83%	0.12	0.118
360	43.96%	0.12	43.95%	0.12	0.118
361	44.08%	0.12	44.07%	0.12	0.118
362	44.20%	0.12	44.19%	0.12	0.117
363	44.32%	0.12	44.32%	0.12	0.117
364	44.44%	0.12	44.44%	0.12	0.117
365	44.57%	0.12	44.56%	0.12	0.116
366	44.69%	0.12	44.68%	0.12	0.116
367	44.81%	0.12	44.81%	0.12	0.116
368	44.93%	0.12	44.93%	0.12	0.116
369	45.05%	0.12	45.05%	0.12	0.116
370	45.18%	0.12	45.17%	0.12	0.116

371	45.30%	0.12	45.29%	0.12	0.116
372	45.42%	0.12	45.42%	0.12	0.116
373	45.54%	0.12	45.54%	0.12	0.116
374	45.67%	0.12	45.66%	0.12	0.116
375	45.79%	0.12	45.78%	0.12	0.116
376	45.91%	0.12	45.91%	0.12	0.116
377	46.03%	0.12	46.03%	0.12	0.115
378	46.15%	0.12	46.15%	0.12	0.115
379	46.28%	0.12	46.27%	0.12	0.115
380	46.40%	0.12	46.39%	0.12	0.115
381	46.52%	0.12	46.52%	0.12	0.115
382	46.64%	0.12	46.64%	0.12	0.114
383	46.76%	0.12	46.76%	0.11	0.114
384	46.89%	0.12	46.88%	0.11	0.114
385	47.01%	0.12	47.01%	0.11	0.112
386	47.13%	0.12	47.13%	0.11	0.110
387	47.25%	0.12	47.25%	0.11	0.110
388	47.37%	0.12	47.37%	0.11	0.106
389	47.50%	0.11	47.49%	0.11	0.101
390	47.62%	0.11	47.62%	0.11	0.095
391	47.74%	0.11	47.74%	0.11	0.095
392	47.86%	0.11	47.86%	0.11	0.088
393	47.99%	0.11	47.98%	0.11	0.088
394	48.11%	0.11	48.11%	0.11	0.088
395	48.23%	0.11	48.23%	0.11	0.088
396	48.35%	0.11	48.35%	0.11	0.088
397	48.47%	0.11	48.47%	0.11	0.088
398	48.60%	0.11	48.59%	0.11	0.088
399	48.72%	0.11	48.72%	0.11	0.088
400	48.84%	0.11	48.84%	0.11	0.088
401	48.96%	0.11	48.96%	0.11	0.088
402	49.08%	0.11	49.08%	0.11	0.088
403	49.21%	0.11	49.21%	0.11	0.088
404	49.33%	0.11	49.33%	0.11	0.088
405	49.45%	0.11	49.45%	0.11	0.087
406	49.57%	0.11	49.57%	0.11	0.087
407	49.69%	0.11	49.69%	0.11	0.087
408	49.82%	0.11	49.82%	0.11	0.087
409	49.94%	0.11	49.94%	0.11	0.087
410	50.06%	0.11	50.06%	0.11	0.087
411	50.18%	0.11	50.18%	0.11	0.087
412	50.31%	0.11	50.31%	0.11	0.087
413	50.43%	0.11	50.43%	0.11	0.087
414	50.55%	0.11	50.55%	0.11	0.087
415	50.67%	0.11	50.67%	0.11	0.087
416	50.79%	0.11	50.79%	0.11	0.087
417	50.92%	0.11	50.92%	0.11	0.087
418	51.04%	0.11	51.04%	0.11	0.086
419	51.16%	0.11	51.16%	0.10	0.086
420	51.28%	0.11	51.28%	0.10	0.086
421	51.40%	0.11	51.41%	0.10	0.086
422	51.53%	0.11	51.53%	0.10	0.086
423	51.65%	0.11	51.65%	0.10	0.085
424	51.77%	0.11	51.77%	0.10	0.085
425	51.89%	0.11	51.89%	0.10	0.085

426	52.01%	0.10	52.02%	0.10	0.085
427	52.14%	0.10	52.14%	0.10	0.085
428	52.26%	0.10	52.26%	0.10	0.085
429	52.38%	0.10	52.38%	0.10	0.084
430	52.50%	0.10	52.51%	0.10	0.084
431	52.63%	0.10	52.63%	0.10	0.084
432	52.75%	0.10	52.75%	0.10	0.084
433	52.87%	0.10	52.87%	0.10	0.083
434	52.99%	0.10	52.99%	0.10	0.083
435	53.11%	0.10	53.12%	0.10	0.081
436	53.24%	0.10	53.24%	0.10	0.078
437	53.36%	0.10	53.36%	0.10	0.074
438	53.48%	0.10	53.48%	0.10	0.074
439	53.60%	0.10	53.61%	0.10	0.074
440	53.72%	0.10	53.73%	0.10	0.074
441	53.85%	0.10	53.85%	0.10	0.074
442	53.97%	0.10	53.97%	0.10	0.074
443	54.09%	0.10	54.09%	0.10	0.074
444	54.21%	0.10	54.22%	0.10	0.074
445	54.33%	0.10	54.34%	0.10	0.074
446	54.46%	0.10	54.46%	0.10	0.074
447	54.58%	0.10	54.58%	0.10	0.074
448	54.70%	0.10	54.71%	0.10	0.074
449	54.82%	0.10	54.83%	0.10	0.074
450	54.95%	0.10	54.95%	0.10	0.074
451	55.07%	0.10	55.07%	0.10	0.074
452	55.19%	0.10	55.19%	0.10	0.074
453	55.31%	0.10	55.32%	0.10	0.074
454	55.43%	0.10	55.44%	0.10	0.074
455	55.56%	0.10	55.56%	0.10	0.074
456	55.68%	0.10	55.68%	0.10	0.074
457	55.80%	0.10	55.81%	0.10	0.074
458	55.92%	0.10	55.93%	0.10	0.074
459	56.04%	0.10	56.05%	0.10	0.074
460	56.17%	0.10	56.17%	0.10	0.074
461	56.29%	0.10	56.29%	0.10	0.074
462	56.41%	0.10	56.42%	0.10	0.074
463	56.53%	0.10	56.54%	0.09	0.074
464	56.65%	0.10	56.66%	0.09	0.074
465	56.78%	0.10	56.78%	0.09	0.074
466	56.90%	0.10	56.91%	0.09	0.074
467	57.02%	0.10	57.03%	0.09	0.074
468	57.14%	0.10	57.15%	0.09	0.074
469	57.26%	0.10	57.27%	0.09	0.074
470	57.39%	0.10	57.39%	0.09	0.074
471	57.51%	0.09	57.52%	0.09	0.074
472	57.63%	0.09	57.64%	0.09	0.074
473	57.75%	0.09	57.76%	0.09	0.074
474	57.88%	0.09	57.88%	0.09	0.074
475	58.00%	0.09	58.01%	0.09	0.074
476	58.12%	0.09	58.13%	0.09	0.074
477	58.24%	0.09	58.25%	0.09	0.074
478	58.36%	0.09	58.37%	0.09	0.074
479	58.49%	0.09	58.49%	0.09	0.074
480	58.61%	0.09	58.62%	0.09	0.074

481	58.73%	0.09	58.74%	0.09	0.074
482	58.85%	0.09	58.86%	0.09	0.074
483	58.97%	0.09	58.98%	0.09	0.074
484	59.10%	0.09	59.11%	0.09	0.074
485	59.22%	0.09	59.23%	0.09	0.074
486	59.34%	0.09	59.35%	0.09	0.074
487	59.46%	0.09	59.47%	0.09	0.074
488	59.58%	0.09	59.59%	0.09	0.074
489	59.71%	0.09	59.72%	0.09	0.074
490	59.83%	0.09	59.84%	0.09	0.074
491	59.95%	0.09	59.96%	0.09	0.074
492	60.07%	0.09	60.08%	0.09	0.074
493	60.20%	0.09	60.21%	0.09	0.074
494	60.32%	0.09	60.33%	0.09	0.074
495	60.44%	0.09	60.45%	0.09	0.074
496	60.56%	0.09	60.57%	0.09	0.074
497	60.68%	0.09	60.69%	0.09	0.074
498	60.81%	0.09	60.82%	0.09	0.074
499	60.93%	0.09	60.94%	0.09	0.074
500	61.05%	0.09	61.06%	0.09	0.074
501	61.17%	0.09	61.18%	0.09	0.074
502	61.29%	0.09	61.31%	0.09	0.074
503	61.42%	0.09	61.43%	0.09	0.074
504	61.54%	0.09	61.55%	0.09	0.074
505	61.66%	0.09	61.67%	0.09	0.074
506	61.78%	0.09	61.79%	0.09	0.074
507	61.90%	0.09	61.92%	0.09	0.074
508	62.03%	0.09	62.04%	0.09	0.074
509	62.15%	0.09	62.16%	0.09	0.074
510	62.27%	0.09	62.28%	0.09	0.074
511	62.39%	0.09	62.41%	0.09	0.074
512	62.52%	0.09	62.53%	0.09	0.074
513	62.64%	0.09	62.65%	0.09	0.074
514	62.76%	0.09	62.77%	0.09	0.074
515	62.88%	0.09	62.89%	0.09	0.074
516	63.00%	0.09	63.02%	0.09	0.074
517	63.13%	0.09	63.14%	0.08	0.074
518	63.25%	0.09	63.26%	0.08	0.074
519	63.37%	0.09	63.38%	0.08	0.074
520	63.49%	0.09	63.51%	0.08	0.074
521	63.61%	0.09	63.63%	0.08	0.074
522	63.74%	0.09	63.75%	0.08	0.074
523	63.86%	0.09	63.87%	0.08	0.074
524	63.98%	0.09	63.99%	0.08	0.074
525	64.10%	0.09	64.12%	0.08	0.074
526	64.22%	0.08	64.24%	0.08	0.074
527	64.35%	0.08	64.36%	0.08	0.074
528	64.47%	0.08	64.48%	0.08	0.074
529	64.59%	0.08	64.61%	0.08	0.074
530	64.71%	0.08	64.73%	0.08	0.074
531	64.84%	0.08	64.85%	0.08	0.074
532	64.96%	0.08	64.97%	0.08	0.074
533	65.08%	0.08	65.09%	0.08	0.074
534	65.20%	0.08	65.22%	0.08	0.074
535	65.32%	0.08	65.34%	0.08	0.074

536	65.45%	0.08	65.46%	0.08	0.074
537	65.57%	0.08	65.58%	0.08	0.074
538	65.69%	0.08	65.71%	0.08	0.074
539	65.81%	0.08	65.83%	0.08	0.074
540	65.93%	0.08	65.95%	0.08	0.074
541	66.06%	0.08	66.07%	0.08	0.074
542	66.18%	0.08	66.19%	0.08	0.074
543	66.30%	0.08	66.32%	0.08	0.074
544	66.42%	0.08	66.44%	0.08	0.074
545	66.54%	0.08	66.56%	0.08	0.074
546	66.67%	0.08	66.68%	0.08	0.074
547	66.79%	0.08	66.81%	0.08	0.074
548	66.91%	0.08	66.93%	0.08	0.074
549	67.03%	0.08	67.05%	0.08	0.074
550	67.16%	0.08	67.17%	0.08	0.074
551	67.28%	0.08	67.29%	0.08	0.074
552	67.40%	0.08	67.42%	0.08	0.074
553	67.52%	0.08	67.54%	0.08	0.074
554	67.64%	0.08	67.66%	0.08	0.074
555	67.77%	0.08	67.78%	0.08	0.074
556	67.89%	0.08	67.91%	0.08	0.074
557	68.01%	0.08	68.03%	0.08	0.074
558	68.13%	0.08	68.15%	0.08	0.074
559	68.25%	0.08	68.27%	0.08	0.074
560	68.38%	0.08	68.39%	0.08	0.074
561	68.50%	0.08	68.52%	0.08	0.074
562	68.62%	0.08	68.64%	0.08	0.074
563	68.74%	0.08	68.76%	0.08	0.074
564	68.86%	0.08	68.88%	0.08	0.074
565	68.99%	0.08	69.01%	0.08	0.074
566	69.11%	0.08	69.13%	0.08	0.074
567	69.23%	0.08	69.25%	0.08	0.074
568	69.35%	0.08	69.37%	0.08	0.074
569	69.47%	0.08	69.49%	0.08	0.074
570	69.60%	0.08	69.62%	0.08	0.074
571	69.72%	0.08	69.74%	0.08	0.074
572	69.84%	0.08	69.86%	0.08	0.074
573	69.96%	0.08	69.98%	0.08	0.074
574	70.09%	0.08	70.11%	0.08	0.074
575	70.21%	0.08	70.23%	0.08	0.074
576	70.33%	0.08	70.35%	0.08	0.074
577	70.45%	0.08	70.47%	0.08	0.074
578	70.57%	0.08	70.59%	0.08	0.074
579	70.70%	0.08	70.72%	0.08	0.074
580	70.82%	0.08	70.84%	0.08	0.074
581	70.94%	0.08	70.96%	0.08	0.074
582	71.06%	0.08	71.08%	0.08	0.074
583	71.18%	0.08	71.21%	0.08	0.074
584	71.31%	0.08	71.33%	0.08	0.074
585	71.43%	0.08	71.45%	0.08	0.074
586	71.55%	0.08	71.57%	0.07	0.074
587	71.67%	0.08	71.69%	0.07	0.074
588	71.79%	0.08	71.82%	0.07	0.074
589	71.92%	0.08	71.94%	0.07	0.074
590	72.04%	0.08	72.06%	0.07	0.074

591	72.16%	0.08	72.18%	0.07	0.074
592	72.28%	0.08	72.31%	0.07	0.074
593	72.41%	0.08	72.43%	0.07	0.074
594	72.53%	0.08	72.55%	0.07	0.074
595	72.65%	0.08	72.67%	0.07	0.074
596	72.77%	0.07	72.79%	0.07	0.074
597	72.89%	0.07	72.92%	0.07	0.074
598	73.02%	0.07	73.04%	0.07	0.074
599	73.14%	0.07	73.16%	0.07	0.074
600	73.26%	0.07	73.28%	0.07	0.074
601	73.38%	0.07	73.41%	0.07	0.074
602	73.50%	0.07	73.53%	0.07	0.074
603	73.63%	0.07	73.65%	0.07	0.074
604	73.75%	0.07	73.77%	0.07	0.074
605	73.87%	0.07	73.89%	0.07	0.074
606	73.99%	0.07	74.02%	0.07	0.074
607	74.11%	0.07	74.14%	0.07	0.074
608	74.24%	0.07	74.26%	0.07	0.074
609	74.36%	0.07	74.38%	0.07	0.074
610	74.48%	0.07	74.51%	0.07	0.074
611	74.60%	0.07	74.63%	0.07	0.074
612	74.73%	0.07	74.75%	0.07	0.074
613	74.85%	0.07	74.87%	0.07	0.074
614	74.97%	0.07	74.99%	0.07	0.074
615	75.09%	0.07	75.12%	0.07	0.074
616	75.21%	0.07	75.24%	0.07	0.074
617	75.34%	0.07	75.36%	0.07	0.074
618	75.46%	0.07	75.48%	0.07	0.074
619	75.58%	0.07	75.60%	0.07	0.074
620	75.70%	0.07	75.73%	0.07	0.074
621	75.82%	0.07	75.85%	0.07	0.074
622	75.95%	0.07	75.97%	0.07	0.074
623	76.07%	0.07	76.09%	0.07	0.074
624	76.19%	0.07	76.22%	0.07	0.074
625	76.31%	0.07	76.34%	0.07	0.074
626	76.43%	0.07	76.46%	0.07	0.074
627	76.56%	0.07	76.58%	0.07	0.074
628	76.68%	0.07	76.70%	0.07	0.074
629	76.80%	0.07	76.83%	0.07	0.074
630	76.92%	0.07	76.95%	0.07	0.074
631	77.05%	0.07	77.07%	0.07	0.074
632	77.17%	0.07	77.19%	0.07	0.074
633	77.29%	0.07	77.32%	0.07	0.074
634	77.41%	0.07	77.44%	0.07	0.074
635	77.53%	0.07	77.56%	0.07	0.074
636	77.66%	0.07	77.68%	0.07	0.074
637	77.78%	0.07	77.80%	0.07	0.074
638	77.90%	0.07	77.93%	0.07	0.074
639	78.02%	0.07	78.05%	0.07	0.074
640	78.14%	0.07	78.17%	0.07	0.074
641	78.27%	0.07	78.29%	0.07	0.074
642	78.39%	0.07	78.42%	0.07	0.074
643	78.51%	0.07	78.54%	0.07	0.074
644	78.63%	0.07	78.66%	0.07	0.074
645	78.75%	0.07	78.78%	0.07	0.074

646	78.88%	0.07	78.90%	0.07	0.074
647	79.00%	0.07	79.03%	0.07	0.074
648	79.12%	0.07	79.15%	0.07	0.074
649	79.24%	0.07	79.27%	0.07	0.074
650	79.37%	0.07	79.39%	0.07	0.074
651	79.49%	0.07	79.52%	0.07	0.074
652	79.61%	0.07	79.64%	0.07	0.074
653	79.73%	0.07	79.76%	0.07	0.074
654	79.85%	0.07	79.88%	0.07	0.074
655	79.98%	0.07	80.00%	0.07	0.074
656	80.10%	0.07	80.13%	0.07	0.074
657	80.22%	0.07	80.25%	0.07	0.074
658	80.34%	0.07	80.37%	0.07	0.074
659	80.46%	0.07	80.49%	0.07	0.074
660	80.59%	0.07	80.62%	0.07	0.074
661	80.71%	0.07	80.74%	0.07	0.074
662	80.83%	0.07	80.86%	0.07	0.074
663	80.95%	0.07	80.98%	0.07	0.074
664	81.07%	0.07	81.10%	0.07	0.074
665	81.20%	0.07	81.23%	0.07	0.074
666	81.32%	0.07	81.35%	0.07	0.074
667	81.44%	0.07	81.47%	0.07	0.074
668	81.56%	0.07	81.59%	0.07	0.074
669	81.68%	0.07	81.72%	0.07	0.074
670	81.81%	0.07	81.84%	0.07	0.074
671	81.93%	0.07	81.96%	0.07	0.074
672	82.05%	0.07	82.08%	0.07	0.074
673	82.17%	0.07	82.20%	0.07	0.074
674	82.30%	0.07	82.33%	0.07	0.074
675	82.42%	0.07	82.45%	0.07	0.074
676	82.54%	0.07	82.57%	0.06	0.074
677	82.66%	0.07	82.69%	0.06	0.074
678	82.78%	0.07	82.82%	0.06	0.074
679	82.91%	0.07	82.94%	0.06	0.074
680	83.03%	0.07	83.06%	0.06	0.074
681	83.15%	0.07	83.18%	0.06	0.065
682	83.27%	0.07	83.30%	0.06	0.061
683	83.39%	0.07	83.43%	0.06	0.058
684	83.52%	0.07	83.55%	0.06	0.058
685	83.64%	0.07	83.67%	0.06	0.058
686	83.76%	0.07	83.79%	0.06	0.058
687	83.88%	0.07	83.92%	0.06	0.058
688	84.00%	0.06	84.04%	0.06	0.058
689	84.13%	0.06	84.16%	0.06	0.058
690	84.25%	0.06	84.28%	0.06	0.058
691	84.37%	0.06	84.40%	0.06	0.058
692	84.49%	0.06	84.53%	0.06	0.058
693	84.62%	0.06	84.65%	0.06	0.058
694	84.74%	0.06	84.77%	0.06	0.058
695	84.86%	0.06	84.89%	0.06	0.058
696	84.98%	0.06	85.02%	0.06	0.058
697	85.10%	0.06	85.14%	0.06	0.058
698	85.23%	0.06	85.26%	0.06	0.058
699	85.35%	0.06	85.38%	0.06	0.058
700	85.47%	0.06	85.50%	0.06	0.058

701	85.59%	0.06	85.63%	0.06	0.058
702	85.71%	0.06	85.75%	0.06	0.058
703	85.84%	0.06	85.87%	0.06	0.058
704	85.96%	0.06	85.99%	0.06	0.058
705	86.08%	0.06	86.12%	0.06	0.058
706	86.20%	0.06	86.24%	0.06	0.058
707	86.32%	0.06	86.36%	0.06	0.058
708	86.45%	0.06	86.48%	0.06	0.058
709	86.57%	0.06	86.60%	0.06	0.058
710	86.69%	0.06	86.73%	0.06	0.058
711	86.81%	0.06	86.85%	0.06	0.058
712	86.94%	0.06	86.97%	0.06	0.058
713	87.06%	0.06	87.09%	0.06	0.058
714	87.18%	0.06	87.22%	0.06	0.058
715	87.30%	0.06	87.34%	0.06	0.058
716	87.42%	0.06	87.46%	0.06	0.058
717	87.55%	0.06	87.58%	0.06	0.058
718	87.67%	0.06	87.70%	0.06	0.057
719	87.79%	0.06	87.83%	0.06	0.057
720	87.91%	0.06	87.95%	0.06	0.057
721	88.03%	0.06	88.07%	0.06	0.057
722	88.16%	0.06	88.19%	0.06	0.057
723	88.28%	0.06	88.32%	0.06	0.057
724	88.40%	0.06	88.44%	0.06	0.057
725	88.52%	0.06	88.56%	0.06	0.057
726	88.64%	0.06	88.68%	0.06	0.057
727	88.77%	0.06	88.80%	0.06	0.057
728	88.89%	0.06	88.93%	0.06	0.057
729	89.01%	0.06	89.05%	0.06	0.057
730	89.13%	0.06	89.17%	0.06	0.057
731	89.26%	0.06	89.29%	0.06	0.057
732	89.38%	0.06	89.42%	0.06	0.057
733	89.50%	0.06	89.54%	0.06	0.057
734	89.62%	0.06	89.66%	0.06	0.057
735	89.74%	0.06	89.78%	0.06	0.057
736	89.87%	0.06	89.90%	0.06	0.057
737	89.99%	0.06	90.03%	0.06	0.057
738	90.11%	0.06	90.15%	0.06	0.057
739	90.23%	0.06	90.27%	0.06	0.057
740	90.35%	0.06	90.39%	0.06	0.056
741	90.48%	0.06	90.52%	0.06	0.056
742	90.60%	0.06	90.64%	0.06	0.056
743	90.72%	0.06	90.76%	0.06	0.055
744	90.84%	0.06	90.88%	0.06	0.055
745	90.96%	0.06	91.00%	0.06	0.055
746	91.09%	0.06	91.13%	0.06	0.055
747	91.21%	0.06	91.25%	0.06	0.054
748	91.33%	0.06	91.37%	0.06	0.054
749	91.45%	0.06	91.49%	0.06	0.054
750	91.58%	0.06	91.62%	0.06	0.050
751	91.70%	0.06	91.74%	0.06	0.050
752	91.82%	0.06	91.86%	0.06	0.050
753	91.94%	0.06	91.98%	0.06	0.050
754	92.06%	0.06	92.10%	0.06	0.048
755	92.19%	0.06	92.23%	0.06	0.048

756	92.31%	0.06	92.35%	0.06	0.047
757	92.43%	0.06	92.47%	0.06	0.047
758	92.55%	0.06	92.59%	0.06	0.042
759	92.67%	0.06	92.72%	0.06	0.042
760	92.80%	0.06	92.84%	0.06	0.042
761	92.92%	0.06	92.96%	0.06	0.035
762	93.04%	0.06	93.08%	0.06	0.035
763	93.16%	0.06	93.20%	0.06	0.035
764	93.28%	0.06	93.33%	0.06	0.035
765	93.41%	0.06	93.45%	0.06	0.035
766	93.53%	0.06	93.57%	0.06	0.035
767	93.65%	0.06	93.69%	0.06	0.035
768	93.77%	0.06	93.82%	0.06	0.035
769	93.89%	0.06	93.94%	0.06	0.034
770	94.02%	0.06	94.06%	0.06	0.032
771	94.14%	0.06	94.18%	0.06	0.032
772	94.26%	0.06	94.30%	0.06	0.028
773	94.38%	0.06	94.43%	0.06	0.028
774	94.51%	0.06	94.55%	0.06	0.028
775	94.63%	0.06	94.67%	0.06	0.028
776	94.75%	0.06	94.79%	0.06	0.028
777	94.87%	0.06	94.92%	0.06	0.028
778	94.99%	0.06	95.04%	0.06	0.028
779	95.12%	0.06	95.16%	0.06	0.028
780	95.24%	0.06	95.28%	0.06	0.028
781	95.36%	0.06	95.40%	0.06	0.028
782	95.48%	0.06	95.53%	0.06	0.028
783	95.60%	0.06	95.65%	0.06	0.028
784	95.73%	0.06	95.77%	0.06	0.028
785	95.85%	0.06	95.89%	0.06	0.028
786	95.97%	0.06	96.02%	0.06	0.028
787	96.09%	0.06	96.14%	0.06	0.028
788	96.21%	0.06	96.26%	0.06	0.028
789	96.34%	0.06	96.38%	0.06	0.028
790	96.46%	0.06	96.50%	0.06	0.028
791	96.58%	0.06	96.63%	0.06	0.027
792	96.70%	0.06	96.75%	0.06	0.027
793	96.83%	0.06	96.87%	0.06	0.027
794	96.95%	0.06	96.99%	0.06	0.027
795	97.07%	0.06	97.12%	0.06	0.027
796	97.19%	0.06	97.24%	0.06	0.027
797	97.31%	0.06	97.36%	0.06	0.027
798	97.44%	0.06	97.48%	0.06	0.027
799	97.56%	0.06	97.60%	0.05	0.027
800	97.68%	0.06	97.73%	0.05	0.027
801	97.80%	0.06	97.85%	0.05	0.027
802	97.92%	0.06	97.97%	0.05	0.026
803	98.05%	0.06	98.09%	0.05	0.026
804	98.17%	0.06	98.22%	0.05	0.025
805	98.29%	0.06	98.34%	0.05	0.025
806	98.41%	0.06	98.46%	0.05	0.025
807	98.53%	0.06	98.58%	0.05	0.025
808	98.66%	0.06	98.70%	0.05	0.025
809	98.78%	0.06	98.83%	0.05	0.025
810	98.90%	0.06	98.95%	0.05	0.025

811	99.02%	0.06	99.07%	0.05	0.025
812	99.15%	0.06	99.19%	0.05	0.024
813	99.27%	0.05	99.32%	0.05	0.024
814	99.39%	0.05	99.44%	0.05	0.024
815	99.51%	0.05	99.56%	0.05	0.024
816	99.63%	0.05	99.68%	0.05	0.020
817	99.76%	0.05	99.80%	0.05	0.019
818	99.88%	0.05	99.93%	0.05	0.019

POC #1: PEAK EVENTS - POST MITIGATED

WEIBULL (SWMM)

F = m/(nr+1) where F = frequency
m = event rank
nr = total number of event
n = number of year anlayzed

CUNNANE

F = (i-0.4)/(n+0.2)
i = rank
n = sample size = # of storms

Number of Years Analyzed (n): 43.69
Total number of events (nr) 517

	Weibull		Cunnane		
m or i	F	Return (yrs)	F	Return	Q
1	0.19%	44.69	0.12%	73.15	3.132
2	0.39%	22.35	0.31%	27.43	2.994
3	0.58%	14.90	0.50%	16.88	2.458
4	0.77%	11.17	0.70%	12.19	2.338
5	0.97%	8.94	0.89%	9.54	2.273
6	1.16%	7.45	1.08%	7.84	2.079
7	1.35%	6.38	1.28%	6.65	1.764
8	1.54%	5.59	1.47%	5.78	1.735
9	1.74%	4.97	1.66%	5.10	1.606
10	1.93%	4.47	1.86%	4.57	1.537
11	2.12%	4.06	2.05%	4.14	1.536
12	2.32%	3.72	2.24%	3.78	1.413
13	2.51%	3.44	2.44%	3.48	1.403
14	2.70%	3.19	2.63%	3.23	1.294
15	2.90%	2.98	2.82%	3.01	1.224
16	3.09%	2.79	3.02%	2.81	1.103
17	3.28%	2.63	3.21%	2.64	1.043
18	3.47%	2.48	3.40%	2.49	1.016
19	3.67%	2.35	3.60%	2.36	0.895
20	3.86%	2.23	3.79%	2.24	0.862
21	4.05%	2.13	3.98%	2.13	0.856
22	4.25%	2.03	4.18%	2.03	0.799
23	4.44%	1.94	4.37%	1.94	0.769
24	4.63%	1.86	4.56%	1.86	0.744
25	4.83%	1.79	4.76%	1.78	0.739
26	5.02%	1.72	4.95%	1.71	0.713
27	5.21%	1.66	5.14%	1.65	0.684
28	5.41%	1.60	5.34%	1.59	0.604
29	5.60%	1.54	5.53%	1.53	0.597
30	5.79%	1.49	5.72%	1.48	0.593
31	5.98%	1.44	5.92%	1.43	0.588
32	6.18%	1.40	6.11%	1.39	0.586
33	6.37%	1.35	6.30%	1.35	0.529
34	6.56%	1.31	6.50%	1.31	0.521
35	6.76%	1.28	6.69%	1.27	0.488
36	6.95%	1.24	6.88%	1.23	0.485
37	7.14%	1.21	7.08%	1.20	0.473
38	7.34%	1.18	7.27%	1.17	0.461
39	7.53%	1.15	7.46%	1.14	0.352
40	7.72%	1.12	7.66%	1.11	0.334
41	7.92%	1.09	7.85%	1.08	0.318
42	8.11%	1.06	8.04%	1.06	0.317
43	8.30%	1.04	8.24%	1.03	0.308
44	8.49%	1.02	8.43%	1.01	0.304
45	8.69%	0.99	8.62%	0.98	0.302
46	8.88%	0.97	8.82%	0.96	0.302
47	9.07%	0.95	9.01%	0.94	0.299
48	9.27%	0.93	9.20%	0.92	0.299
49	9.46%	0.91	9.40%	0.90	0.298
50	9.65%	0.89	9.59%	0.88	0.296
51	9.85%	0.88	9.78%	0.87	0.296
52	10.04%	0.86	9.98%	0.85	0.295
53	10.23%	0.84	10.17%	0.83	0.293
54	10.42%	0.83	10.36%	0.82	0.292
55	10.62%	0.81	10.56%	0.80	0.291
56	10.81%	0.80	10.75%	0.79	0.291

SUMMARY OF PEAK EVENTS

Q2	**0.656**
Q3	**1.075**
Q4	**1.551**
Q5	**1.855**
Q6	**1.735**
Q7	**2.000**
Q8	**1.816**
Q9	**2.460**
Q10	**2.432**

START	9/24/1964 13:00
END	5/23/2008 23:00
TOTAL YRS	43.69
TOTAL HRS	382738

Summary of Existing Events

2.501001	Pass
2.977166	Pass
3.050669	Pass
3.370661	Pass
4.517618	Pass
4.053516	Pass
3.901726	Pass
4.228862	Pass
4.107427	Pass

57	11.00%	0.78	10.94%	0.78	0.290
58	11.20%	0.77	11.14%	0.76	0.290
59	11.39%	0.76	11.33%	0.75	0.290
60	11.58%	0.74	11.52%	0.74	0.290
61	11.78%	0.73	11.72%	0.72	0.290
62	11.97%	0.72	11.91%	0.71	0.289
63	12.16%	0.71	12.10%	0.70	0.288
64	12.36%	0.70	12.30%	0.69	0.287
65	12.55%	0.69	12.49%	0.68	0.287
66	12.74%	0.68	12.68%	0.67	0.286
67	12.93%	0.67	12.88%	0.66	0.286
68	13.13%	0.66	13.07%	0.65	0.285
69	13.32%	0.65	13.26%	0.64	0.285
70	13.51%	0.64	13.46%	0.63	0.284
71	13.71%	0.63	13.65%	0.62	0.284
72	13.90%	0.62	13.84%	0.61	0.284
73	14.09%	0.61	14.04%	0.60	0.283
74	14.29%	0.60	14.23%	0.60	0.280
75	14.48%	0.60	14.42%	0.59	0.280
76	14.67%	0.59	14.62%	0.58	0.279
77	14.86%	0.58	14.81%	0.57	0.279
78	15.06%	0.57	15.00%	0.57	0.278
79	15.25%	0.57	15.20%	0.56	0.278
80	15.44%	0.56	15.39%	0.55	0.278
81	15.64%	0.55	15.58%	0.54	0.277
82	15.83%	0.55	15.78%	0.54	0.276
83	16.02%	0.54	15.97%	0.53	0.275
84	16.22%	0.53	16.16%	0.53	0.275
85	16.41%	0.53	16.36%	0.52	0.274
86	16.60%	0.52	16.55%	0.51	0.274
87	16.80%	0.51	16.74%	0.51	0.272
88	16.99%	0.51	16.94%	0.50	0.272
89	17.18%	0.50	17.13%	0.50	0.272
90	17.37%	0.50	17.32%	0.49	0.271
91	17.57%	0.49	17.52%	0.48	0.271
92	17.76%	0.49	17.71%	0.48	0.271
93	17.95%	0.48	17.90%	0.47	0.270
94	18.15%	0.48	18.10%	0.47	0.269
95	18.34%	0.47	18.29%	0.46	0.269
96	18.53%	0.47	18.48%	0.46	0.268
97	18.73%	0.46	18.68%	0.45	0.268
98	18.92%	0.46	18.87%	0.45	0.268
99	19.11%	0.45	19.06%	0.45	0.268
100	19.31%	0.45	19.26%	0.44	0.265
101	19.50%	0.44	19.45%	0.44	0.265
102	19.69%	0.44	19.64%	0.43	0.265
103	19.88%	0.43	19.84%	0.43	0.265
104	20.08%	0.43	20.03%	0.42	0.262
105	20.27%	0.43	20.22%	0.42	0.262
106	20.46%	0.42	20.42%	0.42	0.261
107	20.66%	0.42	20.61%	0.41	0.260
108	20.85%	0.41	20.80%	0.41	0.260
109	21.04%	0.41	21.00%	0.40	0.258
110	21.24%	0.41	21.19%	0.40	0.257
111	21.43%	0.40	21.38%	0.40	0.257
112	21.62%	0.40	21.58%	0.39	0.256
113	21.81%	0.40	21.77%	0.39	0.252
114	22.01%	0.39	21.96%	0.39	0.251
115	22.20%	0.39	22.16%	0.38	0.250
116	22.39%	0.39	22.35%	0.38	0.250
117	22.59%	0.38	22.54%	0.38	0.249
118	22.78%	0.38	22.74%	0.37	0.245
119	22.97%	0.38	22.93%	0.37	0.245
120	23.17%	0.37	23.12%	0.37	0.243
121	23.36%	0.37	23.32%	0.36	0.240
122	23.55%	0.37	23.51%	0.36	0.238
123	23.75%	0.36	23.70%	0.36	0.235
124	23.94%	0.36	23.90%	0.36	0.234
125	24.13%	0.36	24.09%	0.35	0.233
126	24.32%	0.35	24.28%	0.35	0.230
127	24.52%	0.35	24.48%	0.35	0.230

128	24.71%	0.35	24.67%	0.34	0.229
129	24.90%	0.35	24.86%	0.34	0.224
130	25.10%	0.34	25.06%	0.34	0.223
131	25.29%	0.34	25.25%	0.34	0.222
132	25.48%	0.34	25.44%	0.33	0.222
133	25.68%	0.34	25.64%	0.33	0.221
134	25.87%	0.33	25.83%	0.33	0.219
135	26.06%	0.33	26.02%	0.33	0.219
136	26.25%	0.33	26.22%	0.32	0.218
137	26.45%	0.33	26.41%	0.32	0.217
138	26.64%	0.32	26.60%	0.32	0.216
139	26.83%	0.32	26.80%	0.32	0.216
140	27.03%	0.32	26.99%	0.31	0.216
141	27.22%	0.32	27.18%	0.31	0.216
142	27.41%	0.31	27.38%	0.31	0.216
143	27.61%	0.31	27.57%	0.31	0.215
144	27.80%	0.31	27.76%	0.31	0.215
145	27.99%	0.31	27.96%	0.30	0.214
146	28.19%	0.31	28.15%	0.30	0.214
147	28.38%	0.30	28.34%	0.30	0.213
148	28.57%	0.30	28.54%	0.30	0.212
149	28.76%	0.30	28.73%	0.30	0.212
150	28.96%	0.30	28.92%	0.29	0.212
151	29.15%	0.30	29.12%	0.29	0.211
152	29.34%	0.29	29.31%	0.29	0.211
153	29.54%	0.29	29.51%	0.29	0.209
154	29.73%	0.29	29.70%	0.29	0.209
155	29.92%	0.29	29.89%	0.28	0.209
156	30.12%	0.29	30.09%	0.28	0.209
157	30.31%	0.28	30.28%	0.28	0.209
158	30.50%	0.28	30.47%	0.28	0.208
159	30.69%	0.28	30.67%	0.28	0.208
160	30.89%	0.28	30.86%	0.28	0.207
161	31.08%	0.28	31.05%	0.27	0.207
162	31.27%	0.28	31.25%	0.27	0.206
163	31.47%	0.27	31.44%	0.27	0.205
164	31.66%	0.27	31.63%	0.27	0.205
165	31.85%	0.27	31.83%	0.27	0.205
166	32.05%	0.27	32.02%	0.27	0.205
167	32.24%	0.27	32.21%	0.26	0.204
168	32.43%	0.27	32.41%	0.26	0.204
169	32.63%	0.26	32.60%	0.26	0.204
170	32.82%	0.26	32.79%	0.26	0.203
171	33.01%	0.26	32.99%	0.26	0.202
172	33.20%	0.26	33.18%	0.26	0.201
173	33.40%	0.26	33.37%	0.25	0.201
174	33.59%	0.26	33.57%	0.25	0.200
175	33.78%	0.26	33.76%	0.25	0.199
176	33.98%	0.25	33.95%	0.25	0.198
177	34.17%	0.25	34.15%	0.25	0.197
178	34.36%	0.25	34.34%	0.25	0.197
179	34.56%	0.25	34.53%	0.25	0.196
180	34.75%	0.25	34.73%	0.24	0.196
181	34.94%	0.25	34.92%	0.24	0.196
182	35.14%	0.25	35.11%	0.24	0.196
183	35.33%	0.24	35.31%	0.24	0.196
184	35.52%	0.24	35.50%	0.24	0.195
185	35.71%	0.24	35.69%	0.24	0.195
186	35.91%	0.24	35.89%	0.24	0.195
187	36.10%	0.24	36.08%	0.24	0.194
188	36.29%	0.24	36.27%	0.23	0.193
189	36.49%	0.24	36.47%	0.23	0.192
190	36.68%	0.24	36.66%	0.23	0.191
191	36.87%	0.23	36.85%	0.23	0.187
192	37.07%	0.23	37.05%	0.23	0.187
193	37.26%	0.23	37.24%	0.23	0.184
194	37.45%	0.23	37.43%	0.23	0.181
195	37.64%	0.23	37.63%	0.23	0.180
196	37.84%	0.23	37.82%	0.22	0.179
197	38.03%	0.23	38.01%	0.22	0.178
198	38.22%	0.23	38.21%	0.22	0.176

199	38.42%	0.22	38.40%	0.22	0.176
200	38.61%	0.22	38.59%	0.22	0.176
201	38.80%	0.22	38.79%	0.22	0.176
202	39.00%	0.22	38.98%	0.22	0.175
203	39.19%	0.22	39.17%	0.22	0.175
204	39.38%	0.22	39.37%	0.22	0.174
205	39.58%	0.22	39.56%	0.21	0.171
206	39.77%	0.22	39.75%	0.21	0.171
207	39.96%	0.22	39.95%	0.21	0.169
208	40.15%	0.21	40.14%	0.21	0.168
209	40.35%	0.21	40.33%	0.21	0.166
210	40.54%	0.21	40.53%	0.21	0.165
211	40.73%	0.21	40.72%	0.21	0.164
212	40.93%	0.21	40.91%	0.21	0.162
213	41.12%	0.21	41.11%	0.21	0.162
214	41.31%	0.21	41.30%	0.21	0.162
215	41.51%	0.21	41.49%	0.20	0.160
216	41.70%	0.21	41.69%	0.20	0.160
217	41.89%	0.21	41.88%	0.20	0.159
218	42.08%	0.21	42.07%	0.20	0.158
219	42.28%	0.20	42.27%	0.20	0.157
220	42.47%	0.20	42.46%	0.20	0.157
221	42.66%	0.20	42.65%	0.20	0.156
222	42.86%	0.20	42.85%	0.20	0.153
223	43.05%	0.20	43.04%	0.20	0.153
224	43.24%	0.20	43.23%	0.20	0.152
225	43.44%	0.20	43.43%	0.20	0.151
226	43.63%	0.20	43.62%	0.19	0.150
227	43.82%	0.20	43.81%	0.19	0.149
228	44.02%	0.20	44.01%	0.19	0.149
229	44.21%	0.20	44.20%	0.19	0.149
230	44.40%	0.19	44.39%	0.19	0.146
231	44.59%	0.19	44.59%	0.19	0.146
232	44.79%	0.19	44.78%	0.19	0.144
233	44.98%	0.19	44.97%	0.19	0.144
234	45.17%	0.19	45.17%	0.19	0.143
235	45.37%	0.19	45.36%	0.19	0.143
236	45.56%	0.19	45.55%	0.19	0.140
237	45.75%	0.19	45.75%	0.19	0.139
238	45.95%	0.19	45.94%	0.18	0.137
239	46.14%	0.19	46.13%	0.18	0.137
240	46.33%	0.19	46.33%	0.18	0.137
241	46.53%	0.19	46.52%	0.18	0.135
242	46.72%	0.18	46.71%	0.18	0.135
243	46.91%	0.18	46.91%	0.18	0.133
244	47.10%	0.18	47.10%	0.18	0.133
245	47.30%	0.18	47.29%	0.18	0.132
246	47.49%	0.18	47.49%	0.18	0.132
247	47.68%	0.18	47.68%	0.18	0.132
248	47.88%	0.18	47.87%	0.18	0.131
249	48.07%	0.18	48.07%	0.18	0.131
250	48.26%	0.18	48.26%	0.18	0.131
251	48.46%	0.18	48.45%	0.18	0.129
252	48.65%	0.18	48.65%	0.17	0.126
253	48.84%	0.18	48.84%	0.17	0.124
254	49.03%	0.18	49.03%	0.17	0.124
255	49.23%	0.18	49.23%	0.17	0.123
256	49.42%	0.17	49.42%	0.17	0.122
257	49.61%	0.17	49.61%	0.17	0.121
258	49.81%	0.17	49.81%	0.17	0.121
259	50.00%	0.17	50.00%	0.17	0.121
260	50.19%	0.17	50.19%	0.17	0.120
261	50.39%	0.17	50.39%	0.17	0.120
262	50.58%	0.17	50.58%	0.17	0.119
263	50.77%	0.17	50.77%	0.17	0.118
264	50.97%	0.17	50.97%	0.17	0.118
265	51.16%	0.17	51.16%	0.17	0.118
266	51.35%	0.17	51.35%	0.17	0.117
267	51.54%	0.17	51.55%	0.16	0.117
268	51.74%	0.17	51.74%	0.16	0.116
269	51.93%	0.17	51.93%	0.16	0.116

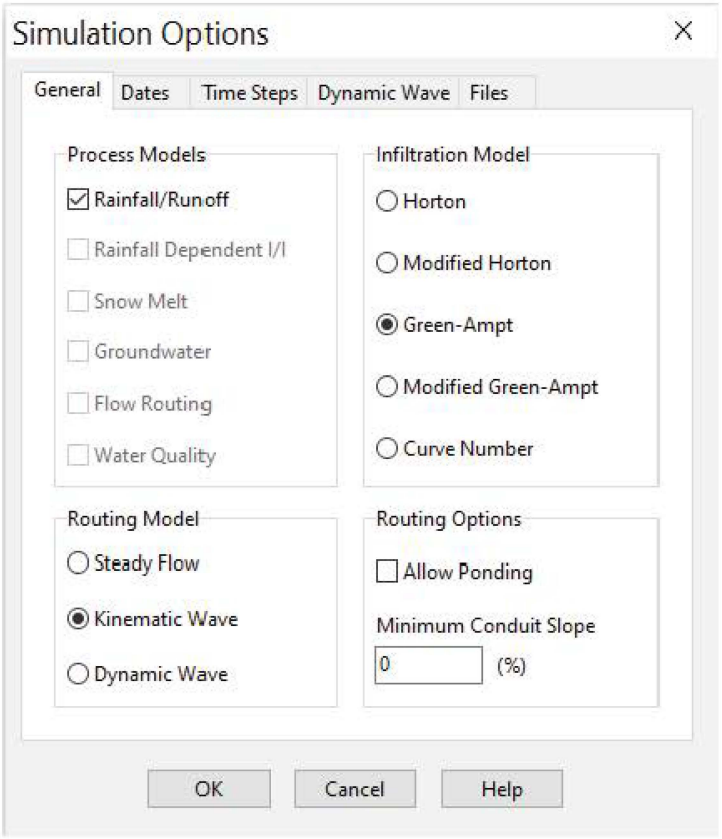
270	52.12%	0.17	52.13%	0.16	0.116
271	52.32%	0.16	52.32%	0.16	0.115
272	52.51%	0.16	52.51%	0.16	0.113
273	52.70%	0.16	52.71%	0.16	0.111
274	52.90%	0.16	52.90%	0.16	0.111
275	53.09%	0.16	53.09%	0.16	0.110
276	53.28%	0.16	53.29%	0.16	0.110
277	53.47%	0.16	53.48%	0.16	0.110
278	53.67%	0.16	53.67%	0.16	0.109
279	53.86%	0.16	53.87%	0.16	0.108
280	54.05%	0.16	54.06%	0.16	0.108
281	54.25%	0.16	54.25%	0.16	0.108
282	54.44%	0.16	54.45%	0.16	0.108
283	54.63%	0.16	54.64%	0.16	0.108
284	54.83%	0.16	54.83%	0.15	0.107
285	55.02%	0.16	55.03%	0.15	0.107
286	55.21%	0.16	55.22%	0.15	0.106
287	55.41%	0.16	55.41%	0.15	0.106
288	55.60%	0.16	55.61%	0.15	0.106
289	55.79%	0.15	55.80%	0.15	0.106
290	55.98%	0.15	55.99%	0.15	0.105
291	56.18%	0.15	56.19%	0.15	0.105
292	56.37%	0.15	56.38%	0.15	0.105
293	56.56%	0.15	56.57%	0.15	0.105
294	56.76%	0.15	56.77%	0.15	0.105
295	56.95%	0.15	56.96%	0.15	0.104
296	57.14%	0.15	57.15%	0.15	0.103
297	57.34%	0.15	57.35%	0.15	0.103
298	57.53%	0.15	57.54%	0.15	0.102
299	57.72%	0.15	57.73%	0.15	0.101
300	57.92%	0.15	57.93%	0.15	0.101
301	58.11%	0.15	58.12%	0.15	0.101
302	58.30%	0.15	58.31%	0.15	0.100
303	58.49%	0.15	58.51%	0.15	0.099
304	58.69%	0.15	58.70%	0.14	0.099
305	58.88%	0.15	58.89%	0.14	0.099
306	59.07%	0.15	59.09%	0.14	0.098
307	59.27%	0.15	59.28%	0.14	0.098
308	59.46%	0.15	59.47%	0.14	0.098
309	59.65%	0.14	59.67%	0.14	0.098
310	59.85%	0.14	59.86%	0.14	0.097
311	60.04%	0.14	60.05%	0.14	0.097
312	60.23%	0.14	60.25%	0.14	0.097
313	60.42%	0.14	60.44%	0.14	0.097
314	60.62%	0.14	60.63%	0.14	0.096
315	60.81%	0.14	60.83%	0.14	0.096
316	61.00%	0.14	61.02%	0.14	0.096
317	61.20%	0.14	61.21%	0.14	0.096
318	61.39%	0.14	61.41%	0.14	0.095
319	61.58%	0.14	61.60%	0.14	0.095
320	61.78%	0.14	61.79%	0.14	0.094
321	61.97%	0.14	61.99%	0.14	0.094
322	62.16%	0.14	62.18%	0.14	0.094
323	62.36%	0.14	62.37%	0.14	0.093
324	62.55%	0.14	62.57%	0.14	0.093
325	62.74%	0.14	62.76%	0.14	0.093
326	62.93%	0.14	62.95%	0.13	0.093
327	63.13%	0.14	63.15%	0.13	0.093
328	63.32%	0.14	63.34%	0.13	0.093
329	63.51%	0.14	63.53%	0.13	0.092
330	63.71%	0.14	63.73%	0.13	0.092
331	63.90%	0.14	63.92%	0.13	0.092
332	64.09%	0.13	64.11%	0.13	0.092
333	64.29%	0.13	64.31%	0.13	0.092
334	64.48%	0.13	64.50%	0.13	0.092
335	64.67%	0.13	64.69%	0.13	0.091
336	64.86%	0.13	64.89%	0.13	0.091
337	65.06%	0.13	65.08%	0.13	0.090
338	65.25%	0.13	65.27%	0.13	0.089
339	65.44%	0.13	65.47%	0.13	0.089
340	65.64%	0.13	65.66%	0.13	0.089

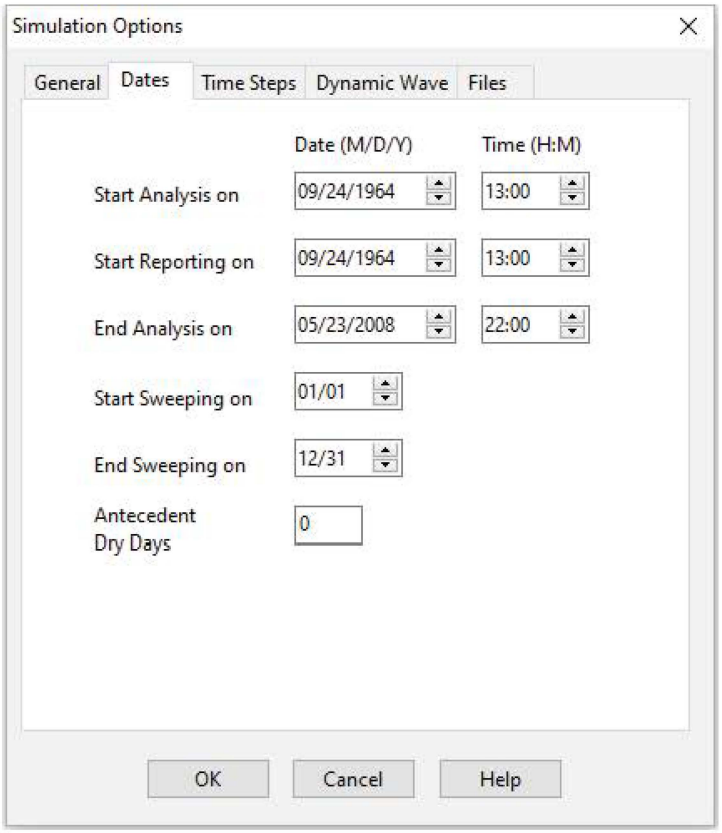
341	65.83%	0.13	65.85%	0.13	0.089
342	66.02%	0.13	66.05%	0.13	0.088
343	66.22%	0.13	66.24%	0.13	0.088
344	66.41%	0.13	66.43%	0.13	0.086
345	66.60%	0.13	66.63%	0.13	0.086
346	66.80%	0.13	66.82%	0.13	0.086
347	66.99%	0.13	67.01%	0.13	0.086
348	67.18%	0.13	67.21%	0.13	0.086
349	67.37%	0.13	67.40%	0.13	0.085
350	67.57%	0.13	67.59%	0.13	0.085
351	67.76%	0.13	67.79%	0.13	0.084
352	67.95%	0.13	67.98%	0.12	0.084
353	68.15%	0.13	68.17%	0.12	0.084
354	68.34%	0.13	68.37%	0.12	0.083
355	68.53%	0.13	68.56%	0.12	0.083
356	68.73%	0.13	68.75%	0.12	0.083
357	68.92%	0.13	68.95%	0.12	0.083
358	69.11%	0.12	69.14%	0.12	0.082
359	69.31%	0.12	69.33%	0.12	0.082
360	69.50%	0.12	69.53%	0.12	0.081
361	69.69%	0.12	69.72%	0.12	0.081
362	69.88%	0.12	69.91%	0.12	0.080
363	70.08%	0.12	70.11%	0.12	0.080
364	70.27%	0.12	70.30%	0.12	0.079
365	70.46%	0.12	70.49%	0.12	0.079
366	70.66%	0.12	70.69%	0.12	0.079
367	70.85%	0.12	70.88%	0.12	0.079
368	71.04%	0.12	71.08%	0.12	0.078
369	71.24%	0.12	71.27%	0.12	0.078
370	71.43%	0.12	71.46%	0.12	0.077
371	71.62%	0.12	71.66%	0.12	0.077
372	71.81%	0.12	71.85%	0.12	0.076
373	72.01%	0.12	72.04%	0.12	0.076
374	72.20%	0.12	72.24%	0.12	0.076
375	72.39%	0.12	72.43%	0.12	0.076
376	72.59%	0.12	72.62%	0.12	0.075
377	72.78%	0.12	72.82%	0.12	0.075
378	72.97%	0.12	73.01%	0.12	0.075
379	73.17%	0.12	73.20%	0.12	0.075
380	73.36%	0.12	73.40%	0.12	0.075
381	73.55%	0.12	73.59%	0.12	0.074
382	73.75%	0.12	73.78%	0.12	0.074
383	73.94%	0.12	73.98%	0.11	0.073
384	74.13%	0.12	74.17%	0.11	0.072
385	74.32%	0.12	74.36%	0.11	0.072
386	74.52%	0.12	74.56%	0.11	0.072
387	74.71%	0.12	74.75%	0.11	0.071
388	74.90%	0.12	74.94%	0.11	0.071
389	75.10%	0.11	75.14%	0.11	0.071
390	75.29%	0.11	75.33%	0.11	0.071
391	75.48%	0.11	75.52%	0.11	0.070
392	75.68%	0.11	75.72%	0.11	0.069
393	75.87%	0.11	75.91%	0.11	0.069
394	76.06%	0.11	76.10%	0.11	0.069
395	76.25%	0.11	76.30%	0.11	0.068
396	76.45%	0.11	76.49%	0.11	0.067
397	76.64%	0.11	76.68%	0.11	0.067
398	76.83%	0.11	76.88%	0.11	0.066
399	77.03%	0.11	77.07%	0.11	0.066
400	77.22%	0.11	77.26%	0.11	0.066
401	77.41%	0.11	77.46%	0.11	0.065
402	77.61%	0.11	77.65%	0.11	0.064
403	77.80%	0.11	77.84%	0.11	0.064
404	77.99%	0.11	78.04%	0.11	0.064
405	78.19%	0.11	78.23%	0.11	0.064
406	78.38%	0.11	78.42%	0.11	0.063
407	78.57%	0.11	78.62%	0.11	0.063
408	78.76%	0.11	78.81%	0.11	0.062
409	78.96%	0.11	79.00%	0.11	0.062
410	79.15%	0.11	79.20%	0.11	0.062
411	79.34%	0.11	79.39%	0.11	0.061

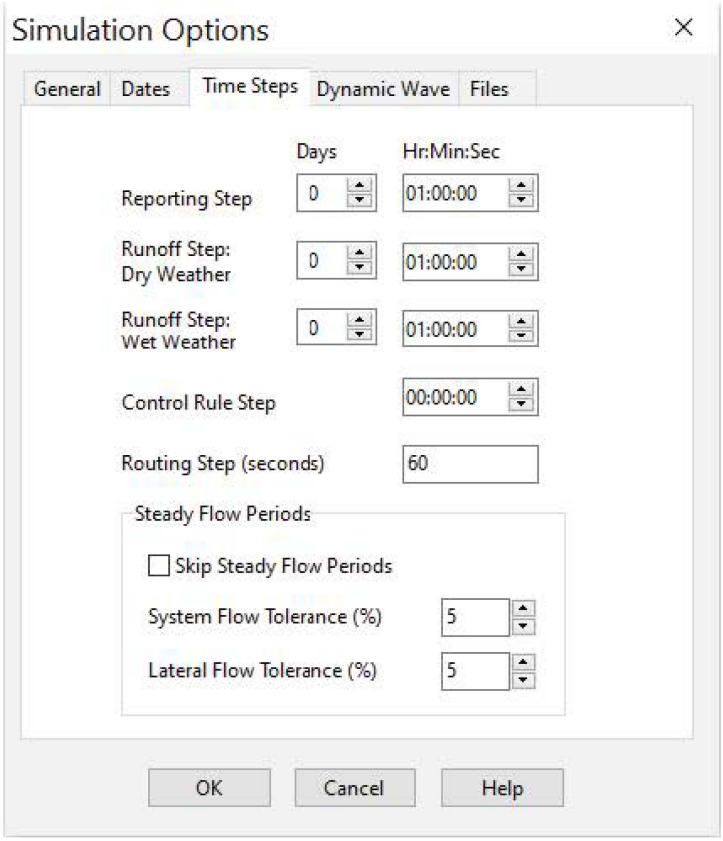
412	79.54%	0.11	79.58%	0.11	0.061
413	79.73%	0.11	79.78%	0.11	0.061
414	79.92%	0.11	79.97%	0.11	0.060
415	80.12%	0.11	80.16%	0.11	0.060
416	80.31%	0.11	80.36%	0.11	0.060
417	80.50%	0.11	80.55%	0.11	0.060
418	80.69%	0.11	80.74%	0.11	0.059
419	80.89%	0.11	80.94%	0.10	0.059
420	81.08%	0.11	81.13%	0.10	0.059
421	81.27%	0.11	81.32%	0.10	0.058
422	81.47%	0.11	81.52%	0.10	0.058
423	81.66%	0.11	81.71%	0.10	0.057
424	81.85%	0.11	81.90%	0.10	0.057
425	82.05%	0.11	82.10%	0.10	0.056
426	82.24%	0.10	82.29%	0.10	0.056
427	82.43%	0.10	82.48%	0.10	0.056
428	82.63%	0.10	82.68%	0.10	0.056
429	82.82%	0.10	82.87%	0.10	0.055
430	83.01%	0.10	83.06%	0.10	0.055
431	83.20%	0.10	83.26%	0.10	0.054
432	83.40%	0.10	83.45%	0.10	0.052
433	83.59%	0.10	83.64%	0.10	0.052
434	83.78%	0.10	83.84%	0.10	0.052
435	83.98%	0.10	84.03%	0.10	0.050
436	84.17%	0.10	84.22%	0.10	0.049
437	84.36%	0.10	84.42%	0.10	0.048
438	84.56%	0.10	84.61%	0.10	0.048
439	84.75%	0.10	84.80%	0.10	0.048
440	84.94%	0.10	85.00%	0.10	0.045
441	85.14%	0.10	85.19%	0.10	0.044
442	85.33%	0.10	85.38%	0.10	0.044
443	85.52%	0.10	85.58%	0.10	0.043
444	85.71%	0.10	85.77%	0.10	0.041
445	85.91%	0.10	85.96%	0.10	0.040
446	86.10%	0.10	86.16%	0.10	0.040
447	86.29%	0.10	86.35%	0.10	0.038
448	86.49%	0.10	86.54%	0.10	0.038
449	86.68%	0.10	86.74%	0.10	0.037
450	86.87%	0.10	86.93%	0.10	0.037
451	87.07%	0.10	87.12%	0.10	0.036
452	87.26%	0.10	87.32%	0.10	0.036
453	87.45%	0.10	87.51%	0.10	0.035
454	87.64%	0.10	87.70%	0.10	0.035
455	87.84%	0.10	87.90%	0.10	0.033
456	88.03%	0.10	88.09%	0.10	0.033
457	88.22%	0.10	88.28%	0.10	0.032
458	88.42%	0.10	88.48%	0.10	0.032
459	88.61%	0.10	88.67%	0.10	0.032
460	88.80%	0.10	88.86%	0.10	0.031
461	89.00%	0.10	89.06%	0.10	0.031
462	89.19%	0.10	89.25%	0.10	0.031
463	89.38%	0.10	89.44%	0.09	0.031
464	89.58%	0.10	89.64%	0.09	0.031
465	89.77%	0.10	89.83%	0.09	0.031
466	89.96%	0.10	90.02%	0.09	0.030
467	90.15%	0.10	90.22%	0.09	0.030
468	90.35%	0.10	90.41%	0.09	0.029
469	90.54%	0.10	90.60%	0.09	0.029
470	90.73%	0.10	90.80%	0.09	0.029
471	90.93%	0.09	90.99%	0.09	0.029
472	91.12%	0.09	91.18%	0.09	0.028
473	91.31%	0.09	91.38%	0.09	0.028
474	91.51%	0.09	91.57%	0.09	0.028
475	91.70%	0.09	91.76%	0.09	0.028
476	91.89%	0.09	91.96%	0.09	0.028
477	92.08%	0.09	92.15%	0.09	0.027
478	92.28%	0.09	92.34%	0.09	0.026
479	92.47%	0.09	92.54%	0.09	0.026
480	92.66%	0.09	92.73%	0.09	0.025
481	92.86%	0.09	92.92%	0.09	0.025
482	93.05%	0.09	93.12%	0.09	0.025

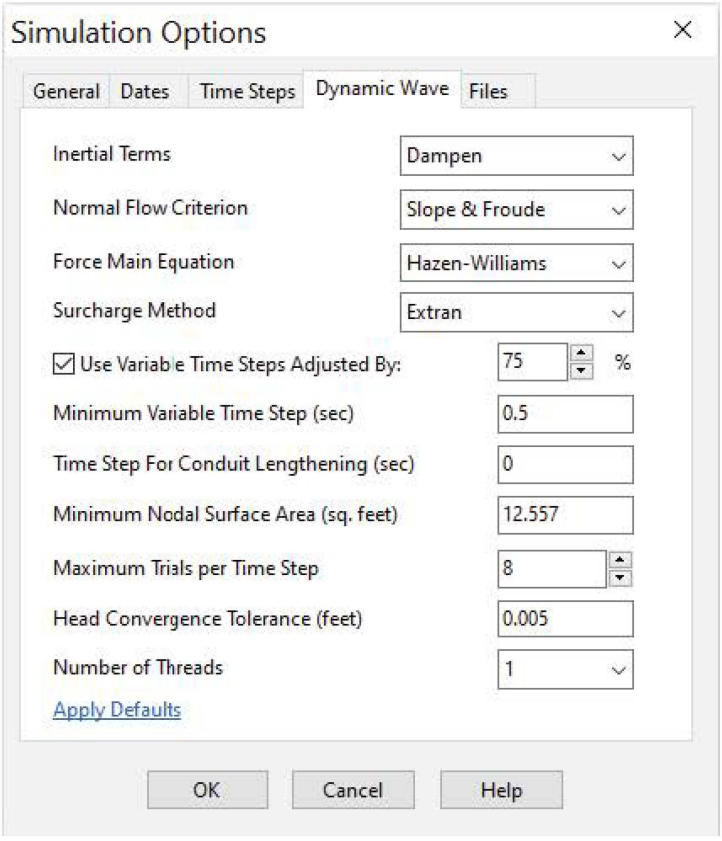
483	93.24%	0.09	93.31%	0.09	0.025
484	93.44%	0.09	93.50%	0.09	0.024
485	93.63%	0.09	93.70%	0.09	0.024
486	93.82%	0.09	93.89%	0.09	0.024
487	94.02%	0.09	94.08%	0.09	0.024
488	94.21%	0.09	94.28%	0.09	0.023
489	94.40%	0.09	94.47%	0.09	0.023
490	94.59%	0.09	94.66%	0.09	0.023
491	94.79%	0.09	94.86%	0.09	0.023
492	94.98%	0.09	95.05%	0.09	0.023
493	95.17%	0.09	95.24%	0.09	0.022
494	95.37%	0.09	95.44%	0.09	0.022
495	95.56%	0.09	95.63%	0.09	0.022
496	95.75%	0.09	95.82%	0.09	0.021
497	95.95%	0.09	96.02%	0.09	0.021
498	96.14%	0.09	96.21%	0.09	0.021
499	96.33%	0.09	96.40%	0.09	0.021
500	96.53%	0.09	96.60%	0.09	0.021
501	96.72%	0.09	96.79%	0.09	0.021
502	96.91%	0.09	96.98%	0.09	0.020
503	97.10%	0.09	97.18%	0.09	0.020
504	97.30%	0.09	97.37%	0.09	0.020
505	97.49%	0.09	97.56%	0.09	0.020
506	97.68%	0.09	97.76%	0.09	0.019
507	97.88%	0.09	97.95%	0.09	0.019
508	98.07%	0.09	98.14%	0.09	0.019
509	98.26%	0.09	98.34%	0.09	0.018
510	98.46%	0.09	98.53%	0.09	0.018
511	98.65%	0.09	98.72%	0.09	0.018
512	98.84%	0.09	98.92%	0.09	0.018
513	99.03%	0.09	99.11%	0.09	0.017
514	99.23%	0.09	99.30%	0.09	0.017
515	99.42%	0.09	99.50%	0.09	0.016
516	99.61%	0.09	99.69%	0.09	0.016
517	99.81%	0.09	99.88%	0.08	0.015

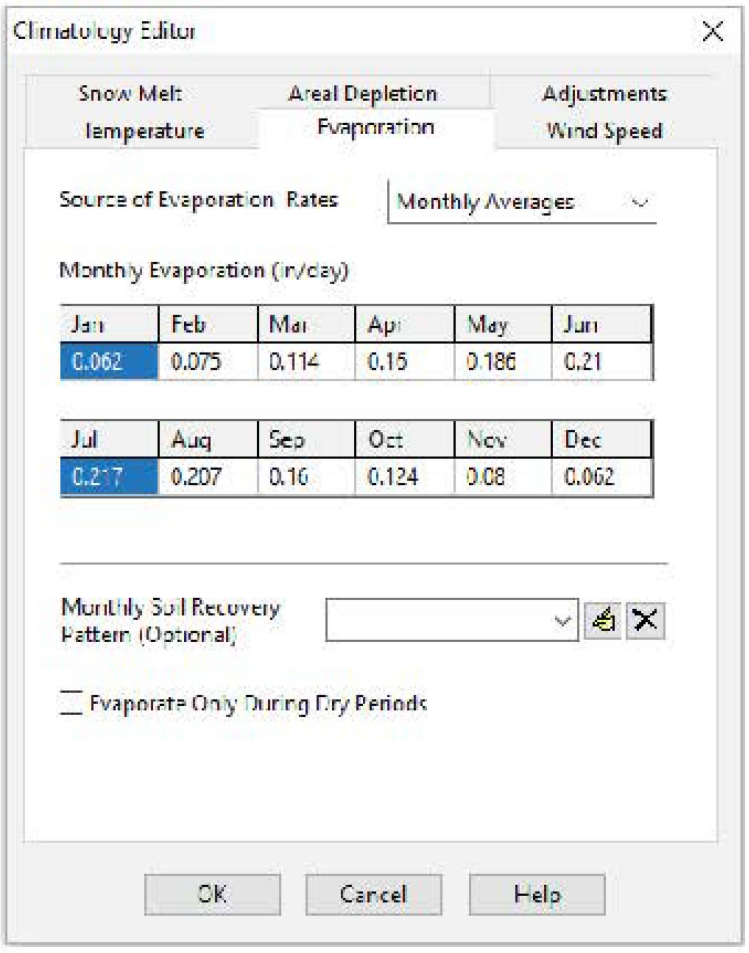
APPENDIX II: SUMMARY OF INPUT DATA/PARAMETERS

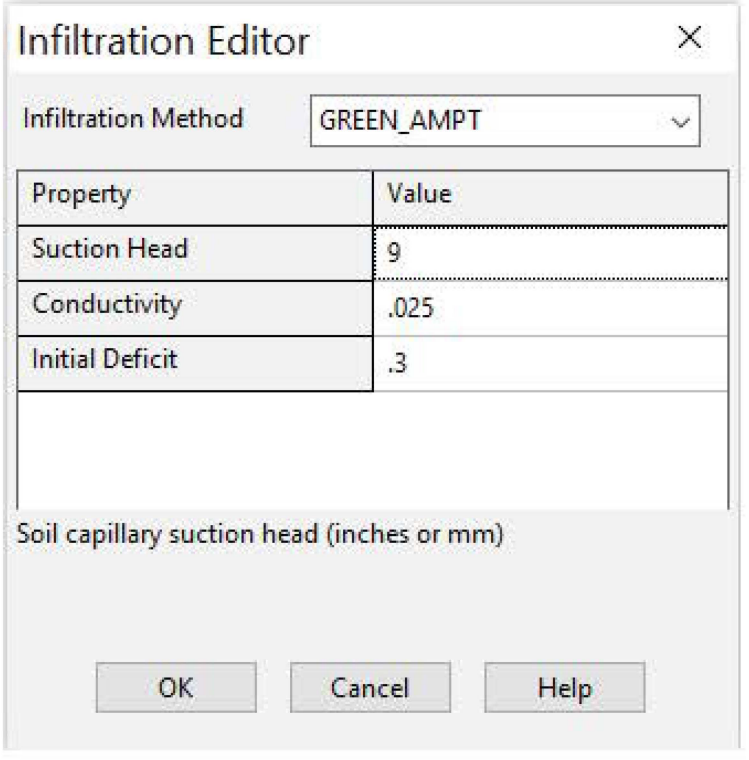

Simulation Options
General
Dates
Time Steps
Dynamic Wave
Files
Process Models
Rainfall/Runoff
Rainfall Dependent I/I
Snow Melt
Groundwater
Flow Routing
Water Quality
Infiltration Model
Horton
Modified Horton
Green-Ampt
Modified Green-Ampt
Curve Number
Routing Model
Steady Flow
Kinematic Wave
Dynamic Wave
Routing Options
Allow Ponding
Minimum Conduit Slope
0
(%)
OK
Cancel
Help

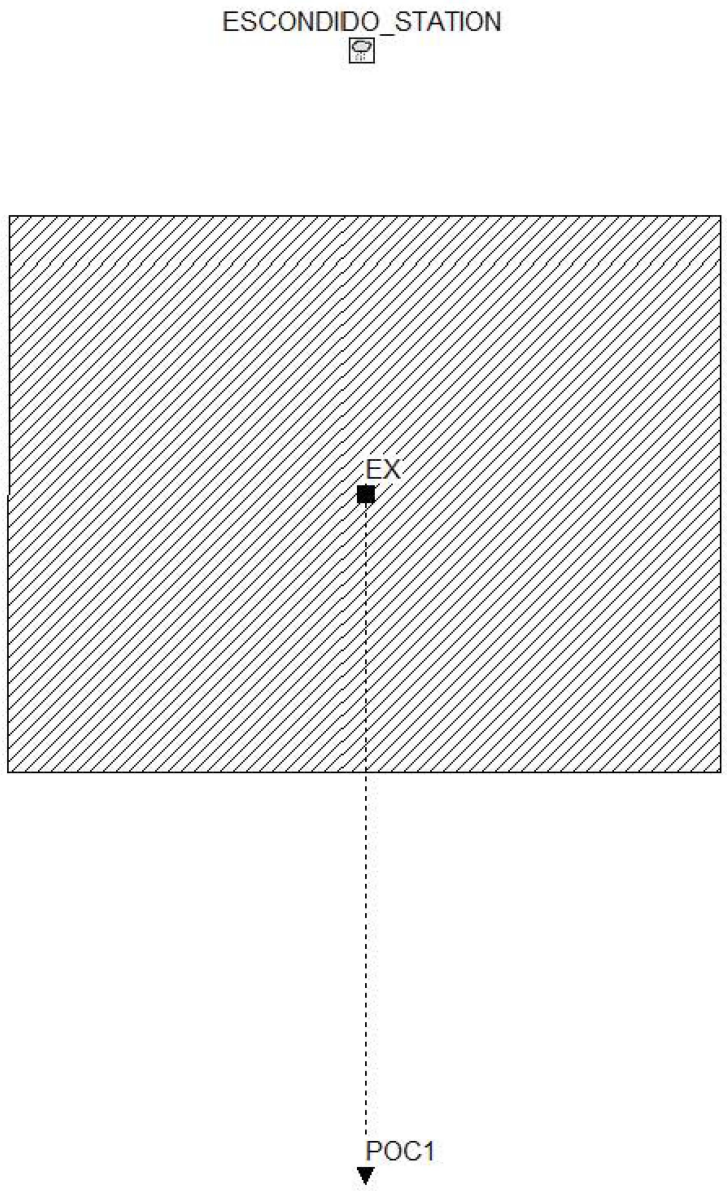

Simulation Options
General
Dates
Time Steps
Dynamic Wave
Files
Date (M/D/Y)
Time (H:M)
Start Analysis on
09/24/1964
13:00
Start Reporting on
09/24/1964
13:00
End Analysis on
05/23/2008
22:00
Start Sweeping on
01/01
End Sweeping on
12/31
Antecedent Dry Days
0
OK
Cancel
Help


Simulation Options
General
Dates
Time Steps
Dynamic Wave
Files
Days
Hr:Min:Sec
Reporting Step
0
01:00:00
Runoff Step:
Dry Weather
0
01:00:00
Runoff Step:
Wet Weather
0
01:00:00
Control Rule Step
00:00:00
Routing Step (seconds)
60
Steady Flow Periods
Skip Steady Flow Periods
System Flow Tolerance (%)
5
Lateral Flow Tolerance (%)
5
OK
Cancel
Help


Simulation Options
General
Dates
Time Steps
Dynamic Wave
Files
Inertial Terms
Dampen
Normal Flow Criterion
Slope & Froude
Force Main Equation
Hazen-Williams
Surcharge Method
Extran
Use Variable Time Steps Adjusted By:
75
%
Minimum Variable Time Step (sec)
0.5
Time Step For Conduit Lengthening (sec)
0
Minimum Nodal Surface Area (sq. feet)
12.557
Maximum Trials per Time Step
8
Head Convergence Tolerance (feet)
0.005
Number of Threads
1
Apply Defaults
OK
Cancel
Help


Climatology Editor
Snow Melt
Areal Depletion
Adjustments
Temperature
Evaporation
Wind Speed
Source of Evaporation Rates
Monthly Averages
Monthly Evaporation (in/day)
Jan
Feb
Mar
Apr
May
Jun
0.062
0.075
0.114
0.15
0.186
0.21
Jul
Aug
Sep
Oct
Nov
Dec
0.217
0.207
0.16
0.124
0.08
0.062
Monthly Soil Recovery Pattern (Optional)
Evaporate Only During Dry Periods
OK
Cancel
Help


Infiltration Editor
Infiltration Method
GREEN_AMPT
Property
Value
Suction Head
9
Conductivity
.025
Initial Deficit
.3
Soil capillary suction head (inches or mm)
OK
Cancel
Help


ESCONDIDO_STATION
EX
POC1

Rain Gage ESCONDIDO_STA...

Property	Value
Name	ESCONDIDO_STATION
X-Coordinate	4731.429
Y-Coordinate	8322.857
Description	
Tag	
Rain Format	INTENSITY
Time Interval	1:00
Snow Catch Factor	1.0
Data Source	TIMESERIES
TIME SERIES:	
- Series Name	ESCONDIDO_RAINFALL
DATA FILE:	
- File Name	*
- Station ID	*
- Rain Units	IN

User-assigned name of rain gage

Subcatchment EX

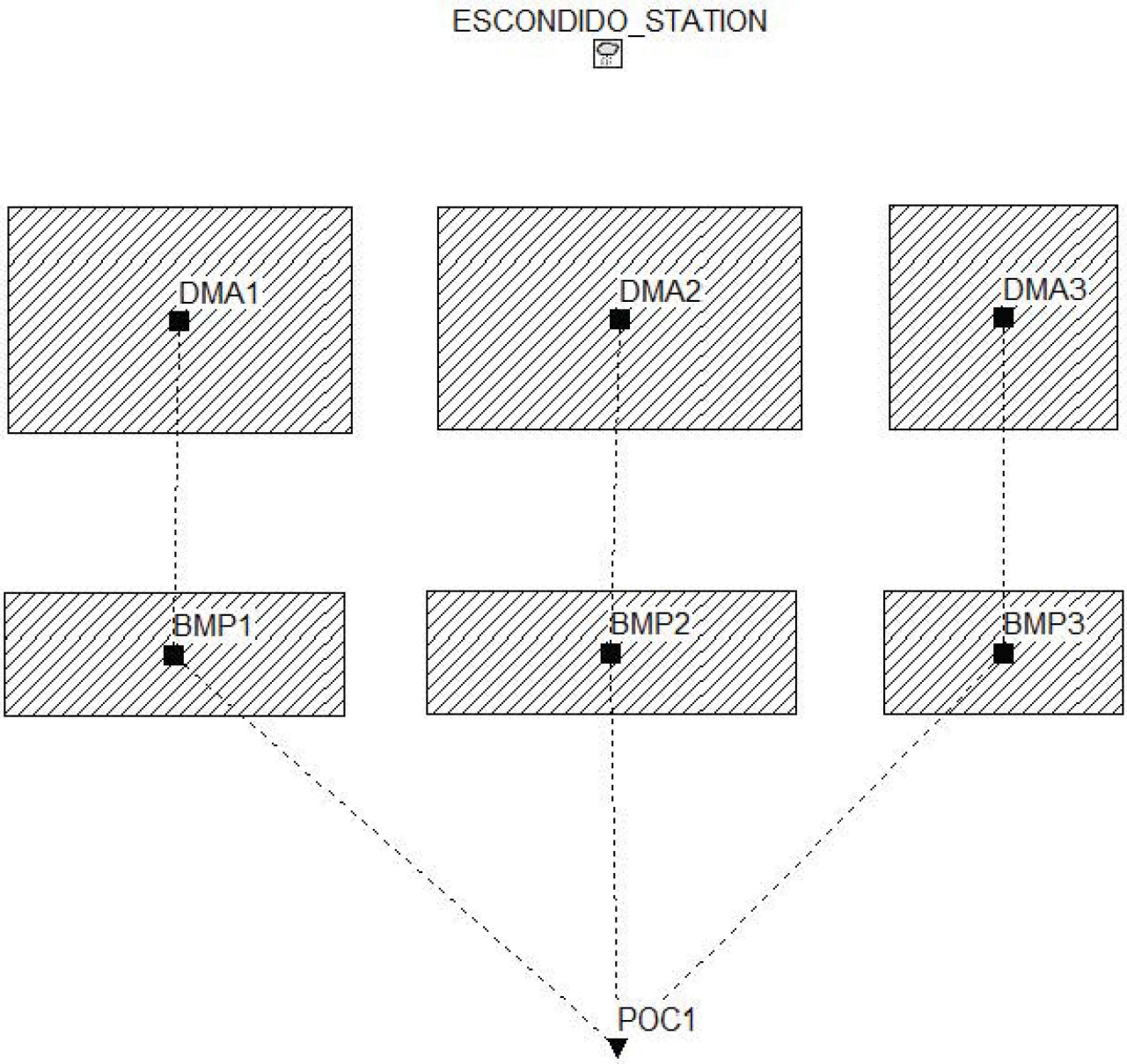
Property	Value
Name	EX
X-Coordinate	4735.502
Y-Coordinate	6778.816
Description	
Tag	
Rain Gage	ESCONDIDO_STATION
Outlet	POC1
Area	7.410
Width	400
% Slope	4
% Imperv	10
N-Imperv	0.017
N-Perv	0.15
Dstore-Imperv	0.05
Dstore-Perv	0.10
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration Data	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0
N-Perv Pattern	
Dstore Pattern	
Infil Pattern	

Percent of impervious area (%)

Outfall POC1

Property	Value
Name	POC1
X-Coordinate	4737.143
Y-Coordinate	4391.429
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Route To	
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*

User-assigned name of outfall


ESCONDIDO_STATION
DMA1
DMA2
DMA3
BMP1
BMP2
BMP3
POC1

Subcatchment DMA1

Property	Value
Name	DMA1
X-Coordinate	1580.494
Y-Coordinate	7206.228
Description	
Tag	
Rain Gage	ESCONDIDO_STATION
Outlet	BMP1
Area	2.476
Width	268
% Slope	1
% Imperv	70
N-Imperv	0.012
N-Perv	0.15
Dstore-Imperv	0.05
Dstore-Perv	0.10
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration Data	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0
N-Perv Pattern	
Dstore Pattern	
Infil. Pattern	

User-assigned name of subcatchment

Subcatchment DMA2

Property	Value
Name	DMA2
X-Coordinate	4386.017
Y-Coordinate	7212.104
Description	
Tag	
Rain Gage	ESCONDIDO_STATION
Outlet	BMP2
Area	2.572
Width	272
% Slope	1
% Imperv	70
N-Imperv	0.012
N-Perv	0.15
Dstore-Imperv	0.05
Dstore-Perv	0.10
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration Data	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0
N-Perv Pattern	
Dstore Pattern	
Infil. Pattern	

User-assigned name of subcatchment

Subcatchment DMA3

Property	Value
Name	DMA3
X-Coordinate	6828.731
Y-Coordinate	7220.917
Description	
Tag	
Rain Gage	ESCONDIDO_STATION
Outlet	BMP3
Area	0.516
Width	92
% Slope	0.5
% Imperv	70
N-Imperv	0.012
N-Perv	0.15
Dstore-Imperv	0.05
Dstore-Perv	0.10
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration Data	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0
N-Perv Pattern	
Dstore Pattern	
Infil. Pattern	

User-assigned name of subcatchment

Subcatchment BMP1

Property	Value
Name	BMP1
X-Coordinate	1545.241
Y-Coordinate	5073.443
Description	
Tag	
Rain Gage	ESCONDIDO_STATION
Outlet	POC1
Area	.087
Width	20
% Slope	0
% Imperv	.5
N-Imperv	0.012
N-Perv	0.15
Dstore-Imperv	0.05
Dstore-Perv	0.10
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration Data	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	1
Land Uses	0
Initial Buildup	NONE
Curb Length	0
N-Perv Pattern	
Dstore Pattern	
Infil. Pattern	

User-assigned name of subcatchment

Subcatchment BMP2

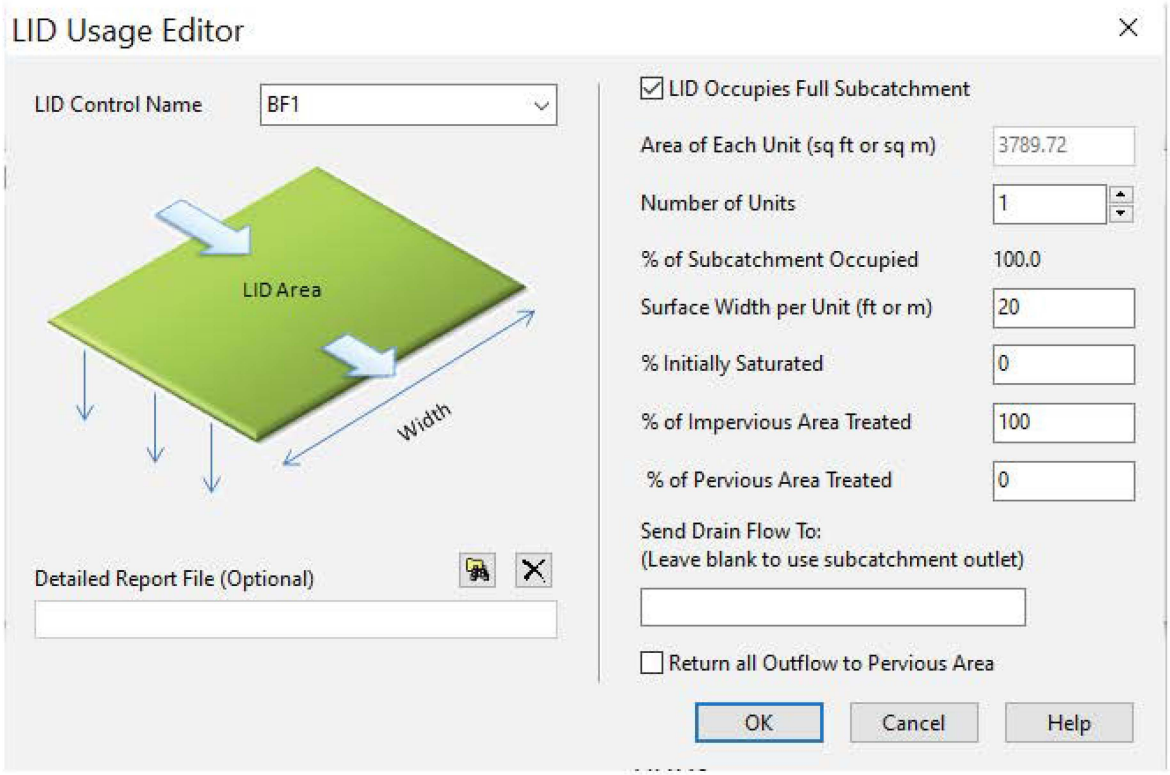
Property	Value
Name	BMP2
X-Coordinate	4330.200
Y-Coordinate	5088.132
Description	
Tag	
Rain Gage	ESCONDIDO_STATION
Outlet	POC1
Area	.105
Width	12
% Slope	1
% Imperv	.5
N-Imperv	0.012
N-Perv	0.15
Dstore-Imperv	0.05
Dstore-Perv	0.10
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration Data	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	1
Land Uses	0
Initial Buildup	NONE
Curb Length	0
N-Perv Pattern	
Dstore Pattern	
Infil. Pattern	

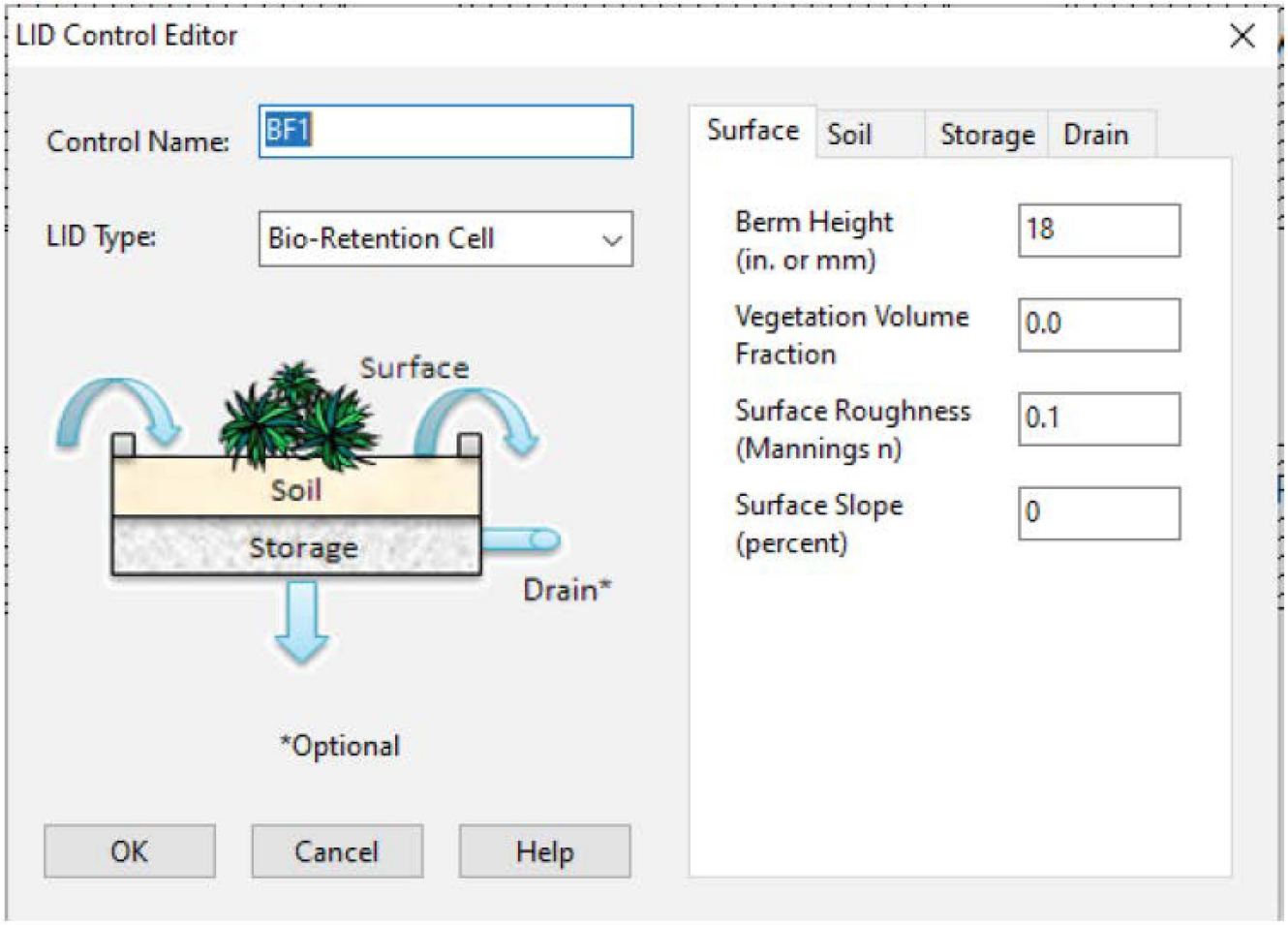
User-assigned name of subcatchment

Subcatchment BMP3

Property	Value
Name	BMP3
X-Coordinate	6830.200
Y-Coordinate	5091.069
Description	
Tag	
Rain Gage	ESCONDIDO_STATION
Outlet	POC1
Area	0.059
Width	62
% Slope	0
% Imperv	.5
N-Imperv	0.012
N-Perv	0.15
Dstore-Imperv	0.05
Dstore-Perv	0.10
%Zero-Imperv	25
Subarea Routing	OUTLET
Percent Routed	100
Infiltration Data	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	1
Land Uses	0
Initial Buildup	NONE
Curb Length	0
N-Perv Pattern	
Dstore Pattern	
Infil. Pattern	

User-assigned name of subcatchment

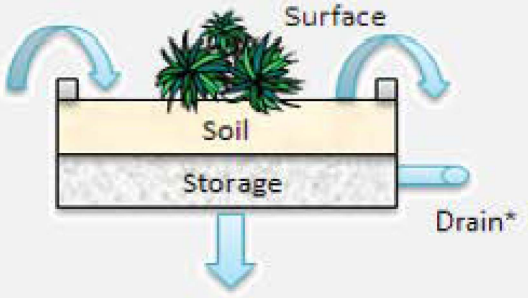

LID Usage Editor
LID Control Name
BF1
LID Area
Width
Detailed Report File (Optional)
LID Occupies Full Subcatchment
Area of Each Unit (sq ft or sq m)
3789.72
Number of Units
1
% of Subcatchment Occupied
100.0
Surface Width per Unit (ft or m)
20
% Initially Saturated
0
% of Impervious Area Treated
100
% of Pervious Area Treated
0
Send Drain Flow To:
(Leave blank to use subcatchment outlet)
Return all Outflow to Pervious Area
OK
Cancel
Help


LID Control Editor
Control Name:
BF1
LID Type:
Bio-Retention Cell
Surface
Soil
Storage
Drain
Surface
Soil
Storage
Drain*
*Optional
OK
Cancel
Help
Berm Height
(in. or mm)
18
Vegetation Volume
Fraction
0.0
Surface Roughness
(Mannings n)
0.1
Surface Slope
(percent)
0

LID Control Editor

Control Name: BF1

LID Type: Bio-Retention Cell



*Optional

OK Cancel Help

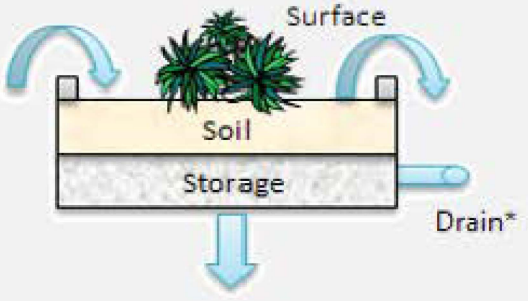
Surface | Soil | Storage | Drain

Thickness (in. or mm)	18
Porosity (volume fraction)	.4
Field Capacity (volume fraction)	.2
Wilting Point (volume fraction)	0.1
Conductivity (in/hr or mm/hr)	5
Conductivity Slope	5
Suction Head (in. or mm)	1.5

LID Control Editor

Control Name: BF1

LID Type: Bio-Retention Cell



*Optional

OK Cancel Help

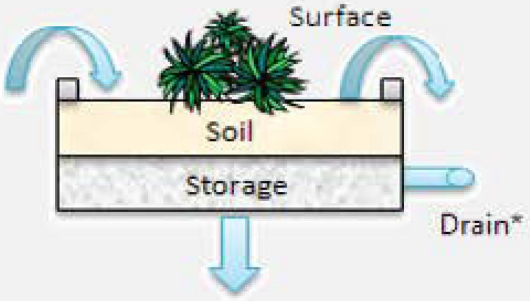
Surface | Soil | Storage | Drain

Thickness (in. or mm)	19.2
Void Ratio (Voids / Solids)	0.67
Seepage Rate (in/hr or mm/hr)	0.014
Clogging Factor	0

LID Control Editor

Control Name: BF1

LID Type: Bio-Retention Cell



*Optional

OK Cancel Help

Surface | Soil | Storage | Drain

Flow Coefficient* .20

Flow Exponent 0.5

Offset (in or mm) 6

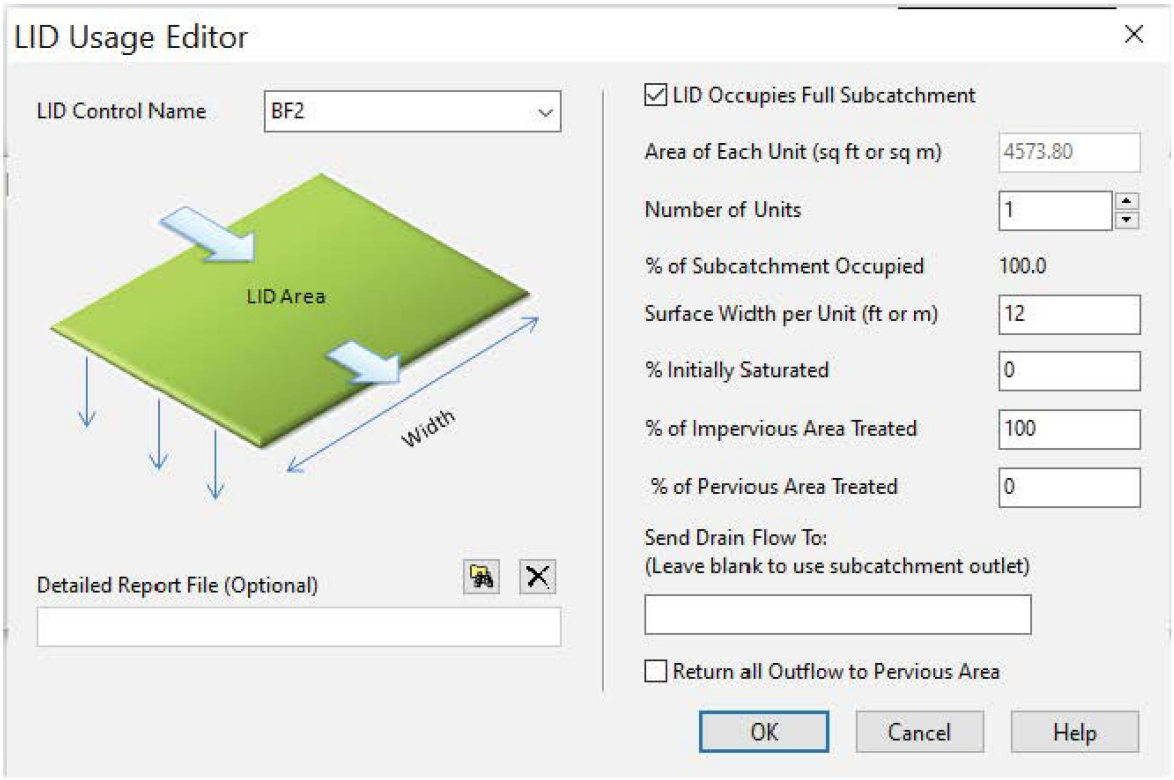
Open Level (in or mm) 0

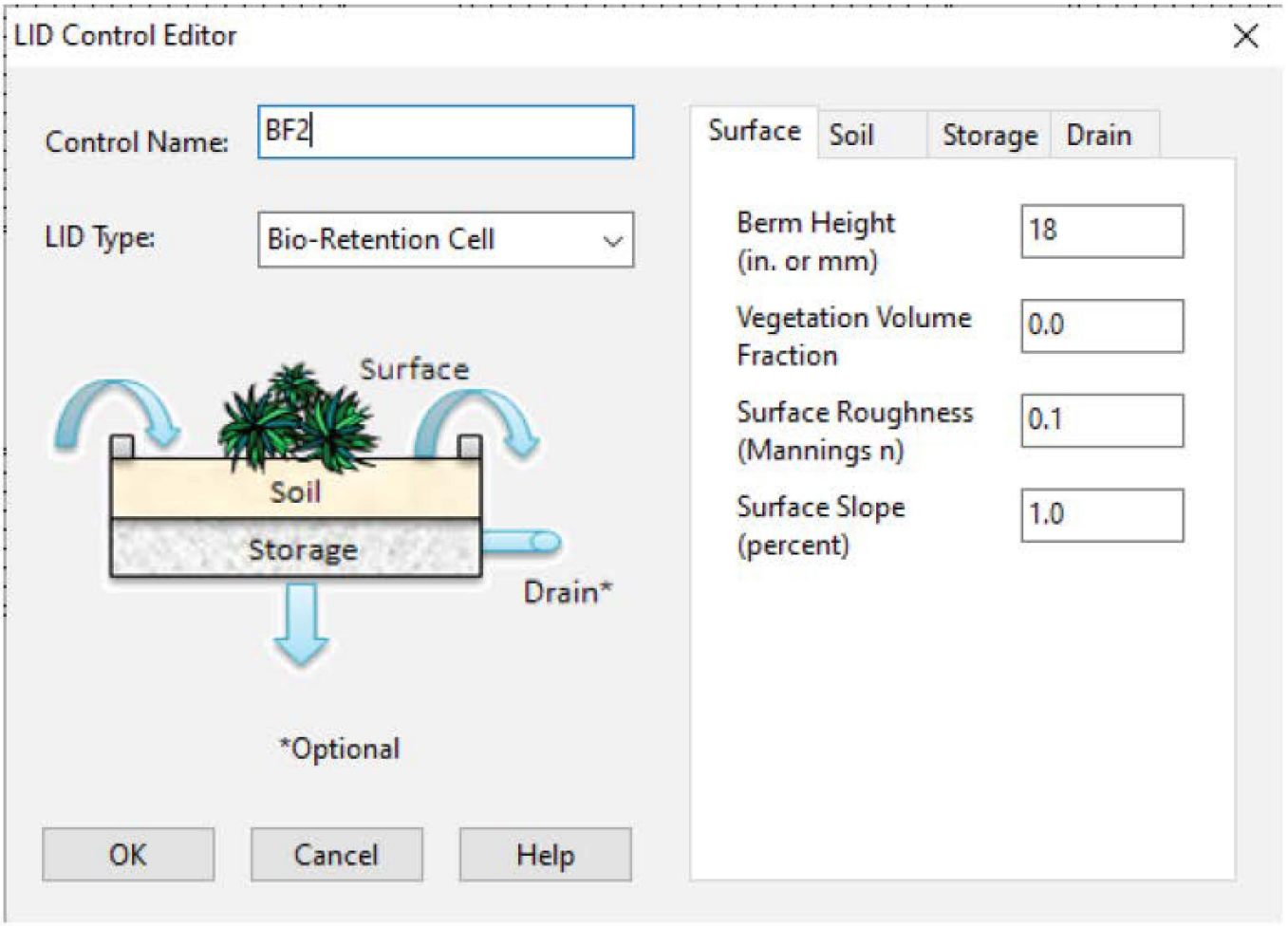
Closed Level (in or mm) 0

Control Curve

Drain Advisor

*Flow is in in/hr or mm/hr; use 0 if there is no drain.

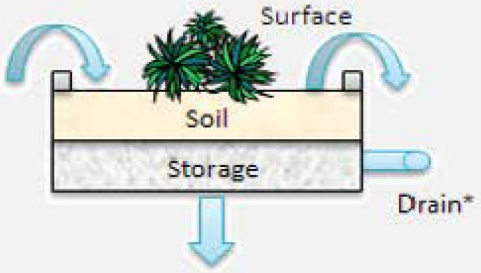

LID Usage Editor
LID Control Name
BF2
LID Area
Width
Detailed Report File (Optional)
LID Occupies Full Subcatchment
Area of Each Unit (sq ft or sq m)
4573.80
Number of Units
1
% of Subcatchment Occupied
100.0
Surface Width per Unit (ft or m)
12
% Initially Saturated
0
% of Impervious Area Treated
100
% of Pervious Area Treated
0
Send Drain Flow To:
(Leave blank to use subcatchment outlet)
Return all Outflow to Pervious Area
OK
Cancel
Help


LID Control Editor
Control Name:
BF2
LID Type:
Bio-Retention Cell
Surface
Soil
Storage
Drain*
*Optional
OK
Cancel
Help
Surface
Soil
Storage
Drain
Berm Height
(in. or mm)
18
Vegetation Volume
Fraction
0.0
Surface Roughness
(Mannings n)
0.1
Surface Slope
(percent)
1.0

LID Control Editor

Control Name: BF2

LID Type: Bio-Retention Cell



*Optional

OK Cancel Help

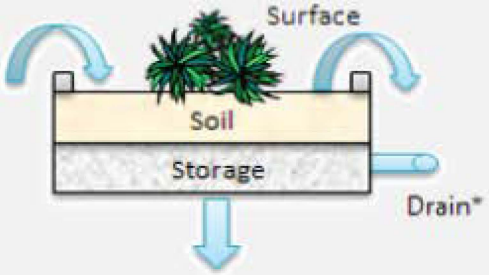
Surface | Soil | Storage | Drain

Thickness (in. or mm)	18
Porosity (volume fraction)	.4
Field Capacity (volume fraction)	0.2
Wilting Point (volume fraction)	0.1
Conductivity (in/hr or mm/hr)	5
Conductivity Slope	45
Suction Head (in. or mm)	1.5

LID Control Editor

Control Name: BF2

LID Type: Bio-Retention Cell



*Optional

OK Cancel Help

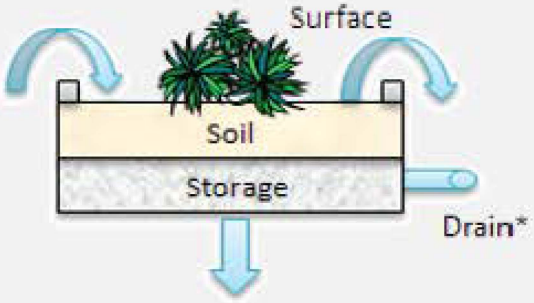
Surface | Soil | Storage | Drain

Thickness (in. or mm)	36
Void Ratio (Voids / Solids)	.67
Seepage Rate (in/hr or mm/hr)	.022
Clogging Factor	0

LID Control Editor

Control Name: BF2

LID Type: Bio-Retention Cell



*Optional

OK Cancel Help

Surface | Soil | Storage | Drain

Flow Coefficient* .16

Flow Exponent 0.5

Offset (in or mm) 6

Open Level (in or mm) 0

Closed Level (in or mm) 0

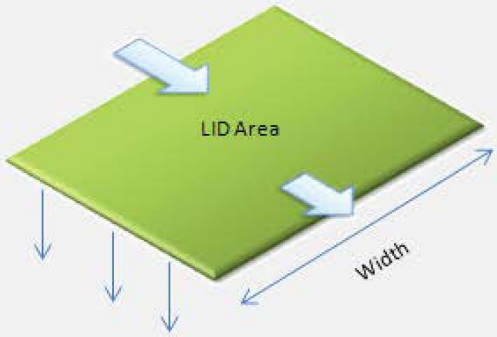
Control Curve

Drain Advisor

*Flow is in in/hr or mm/hr; use 0 if there is no drain.

LID Usage Editor

LID Control Name: BF3



Detailed Report File (Optional)

LID Occupies Full Subcatchment

Area of Each Unit (sq ft or sq m)	2570.04
Number of Units	1
% of Subcatchment Occupied	100.0
Surface Width per Unit (ft or m)	62
% Initially Saturated	0
% of Impervious Area Treated	100
% of Pervious Area Treated	0

Send Drain Flow To:
(Leave blank to use subcatchment outlet)

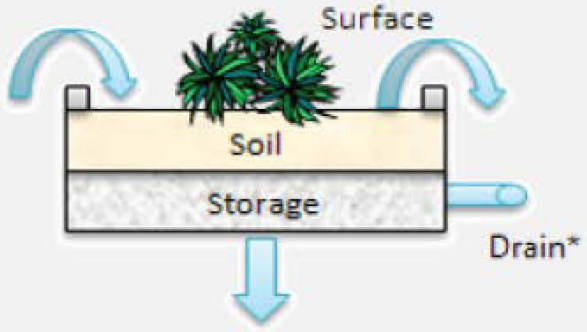
Return all Outflow to Pervious Area

OK Cancel Help

LID Control Editor

Control Name: BF3

LID Type: Bio-Retention Cell



*Optional

Surface | Soil | Storage | Drain

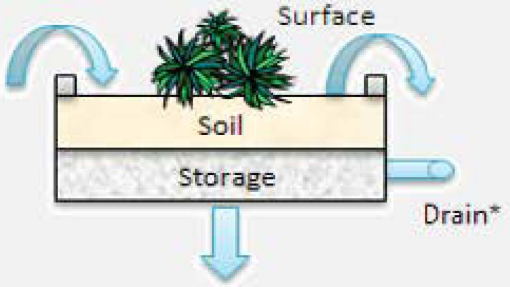
Berm Height (in. or mm)	18
Vegetation Volume Fraction	0.0
Surface Roughness (Mannings n)	0.1
Surface Slope (percent)	0

OK Cancel Help

LID Control Editor

Control Name: BF3

LID Type: Bio-Retention Cell



*Optional

OK Cancel Help

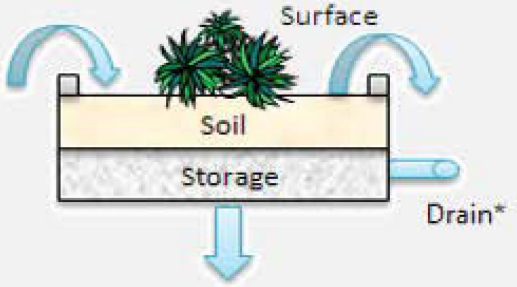
Surface | Soil | Storage | Drain

Thickness (in. or mm)	18
Porosity (volume fraction)	.4
Field Capacity (volume fraction)	0.2
Wilting Point (volume fraction)	0.1
Conductivity (in/hr or mm/hr)	5
Conductivity Slope	45
Suction Head (in. or mm)	1.5

LID Control Editor

Control Name: BF3

LID Type: Bio-Retention Cell



*Optional

OK Cancel Help

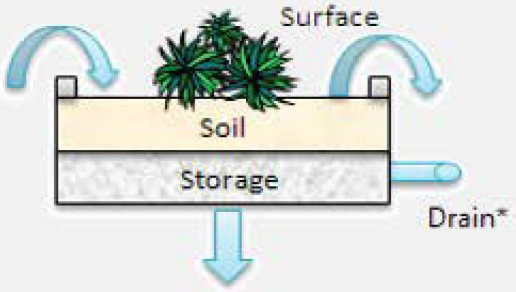
Surface | Soil | Storage | Drain

Thickness (in. or mm)	30.6
Void Ratio (Voids / Solids)	.67
Seepage Rate (in/hr or mm/hr)	.311
Clogging Factor	0

LID Control Editor

Control Name: BF3

LID Type: Bio-Retention Cell



*Optional

OK Cancel Help

Surface | Soil | Storage | Drain

Flow Coefficient* .29

Flow Exponent 0.5

Offset (in or mm) 3

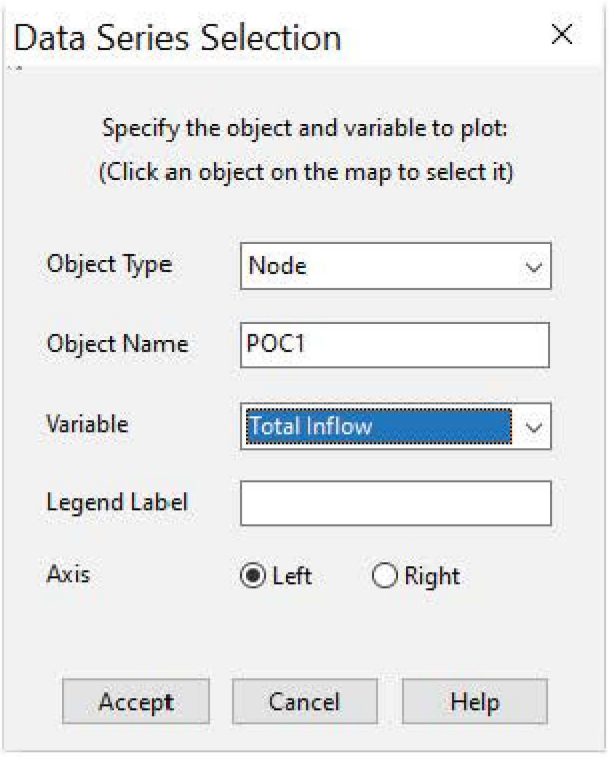
Open Level (in or mm) 0

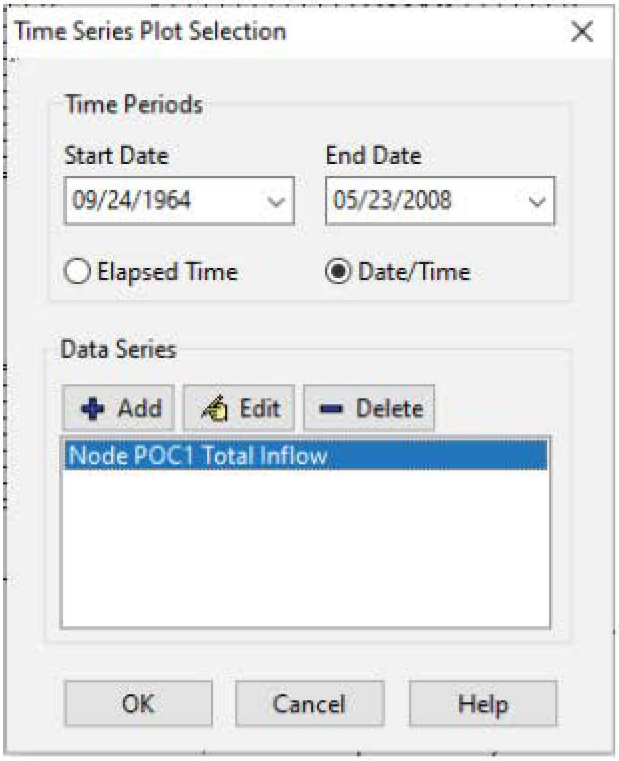
Closed Level (in or mm) 0

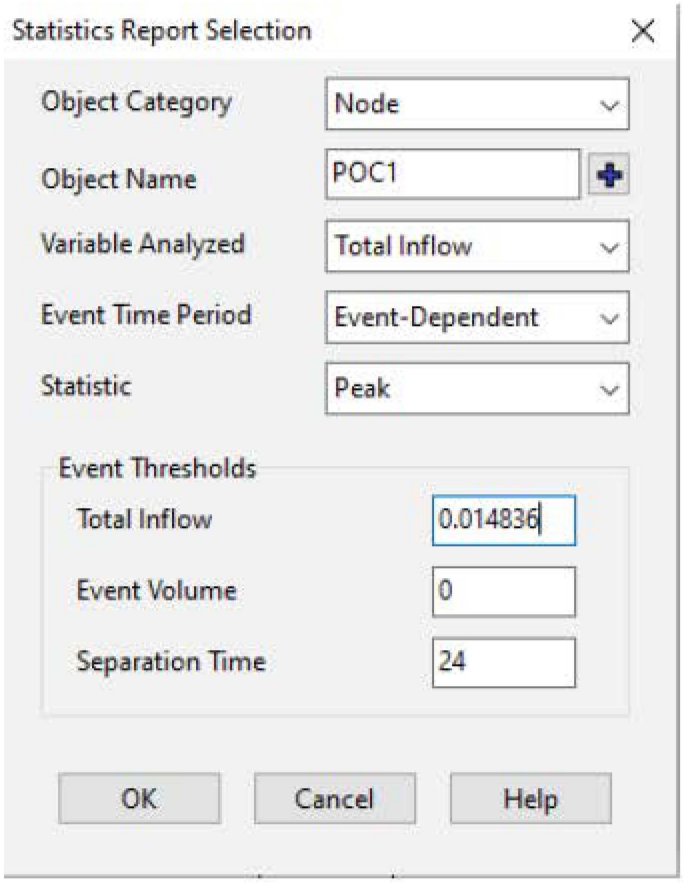
Control Curve

Drain Advisor

*Flow is in in/hr or mm/hr; use 0 if there is no drain.


Data Series Selection
Specify the object and variable to plot:
(Click an object on the map to select it)
Object Type
Node
Object Name
POC1
Variable
Total Inflow
Legend Label
Axis
Left
Right
Accept
Cancel
Help


Time Series Plot Selection
Time Periods
Start Date
09/24/1964
End Date
05/23/2008
Elapsed Time
Date/Time
Data Series
Add
Edit
Delete
Node POC1 Total Inflow
OK
Cancel
Help


Statistics Report Selection
Object Category
Node
Object Name
POC1
Variable Analyzed
Total Inflow
Event Time Period
Event-Dependent
Statistic
Peak
Event Thresholds
Total Inflow
0.014836
Event Volume
0
Separation Time
24
OK
Cancel
Help

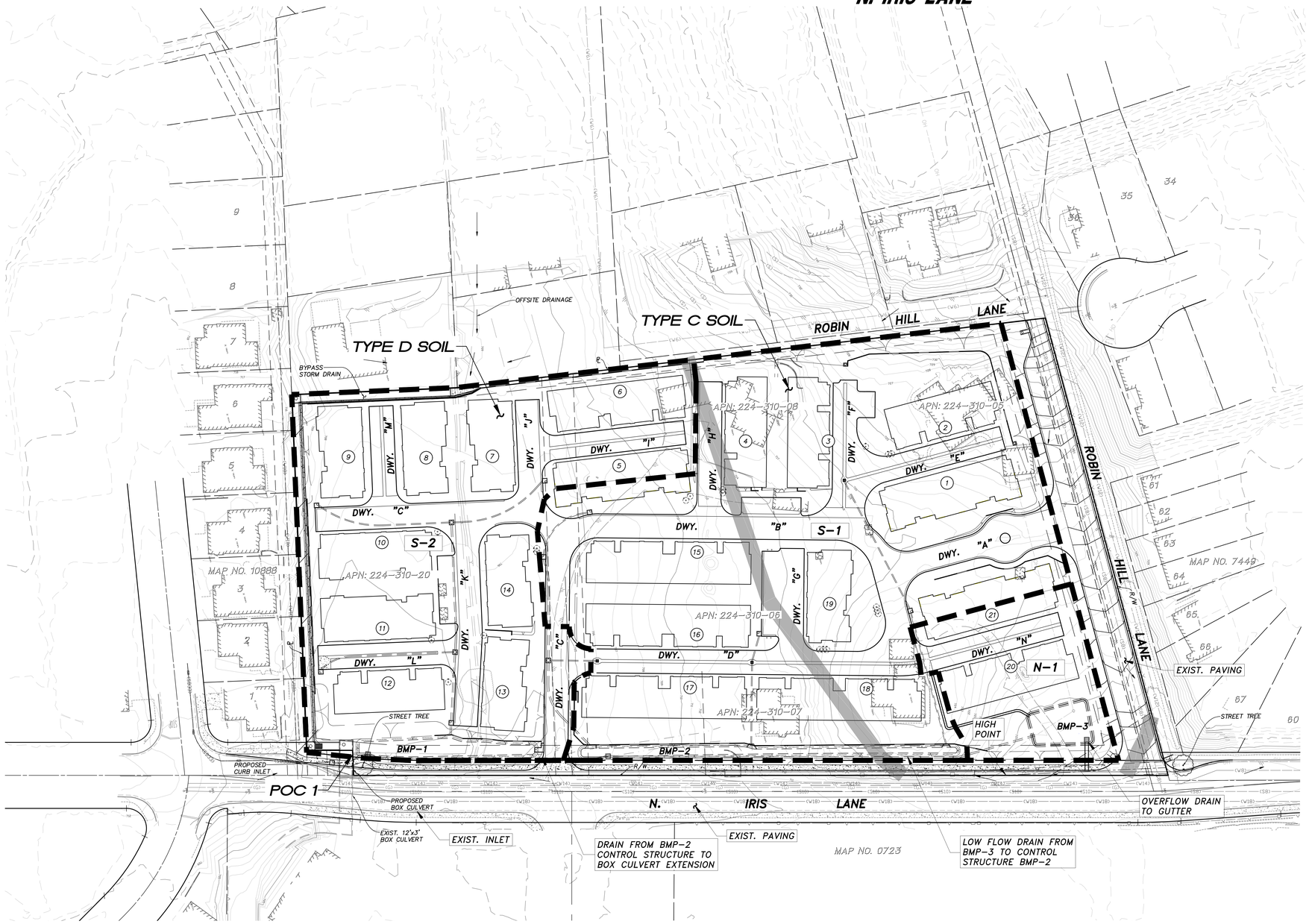
APPENDIX III: DRAIN COEFFICIENT CALCULATION SUMMARY

BASIN ID	**BF-1**	
DRAIN COEFF, C	0.20	
T, DRAIN TIME (HRS)	72	HR
D, DEPTH (IN)	43.2	IN
cg	0.6	
ALID	3790	
D	1.5	
g	32.2	

BASIN ID	**BF-2**	
DRAIN COEFF, C	0.16	
T, DRAIN TIME (HRS)	72	HR
D, DEPTH (IN)	57	IN
cg	0.6	
ALID	4574	
D	1.5	
g	32.2	

BASIN ID	**BF-3**	
DRAIN COEFF, C	0.29	
T, DRAIN TIME (HRS)	72	HR
D, DEPTH (IN)	51.6	IN
cg	0.6	
ALID	2570	
D	1.5	
g	32.2	

DMA AND HMP EXHIBIT FOR:
N. IRIS LANE



D.M.A. LEGEND

DESCRIPTION	SYMBOL
PROPERTY LINE/PROJECT BOUNDARY	
PROPOSED CURB AND GUTTER	
EXISTING CONTOUR	630
PROPOSED DMA LIMITS	
SOIL LIMITS	
DIRECTION OF DRAINAGE	
STORM DRAIN PIPE SIZE PER PLAN	SD
TREE WELL	
BASIN IDENTIFIER	E-5
BASIN AREA (AC.)	1.9600

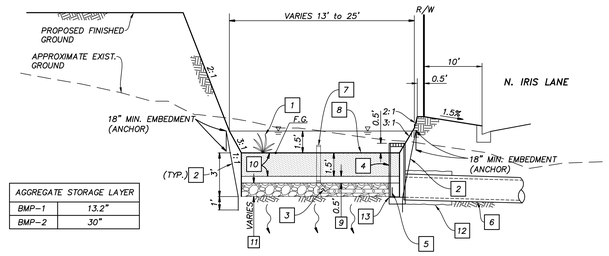
UNDERLYING HYDROLOGIC SOILS GROUP:	TYPE "C" & "D"
APPROXIMATE DEPTH TO GROUNDWATER:	GREATER THAN 10 FEET
EXISTING NATURAL HYDROLOGIC FEATURES:	N/A
POTENTIAL CRITICAL COARSE SEDIMENT YIELD AREAS:	N/A
EXISTING TOPOGRAPHY:	SHOWN
EXISTING IMPERVIOUS AREAS:	SHOWN
EXISTING DRAINAGE SYSTEM:	SHOWN
PROPOSED DRAINAGE SYSTEM:	SHOWN
PROPOSED DEMOLITION:	EXISTING HOUSES AND DRIVEWAYS
PROPOSED GRADING:	SHOWN
PROPOSED IMPERVIOUS SURFACES:	PAVING AND BUILDINGS
DMA AREAS:	SEE TABLE
POLLUTANT SOURCES:	PAVEMENT AND LANDSCAPE AREAS
STRUCTURAL SOURCE CONTROL:	SHOWN
INLET SIGNAGE:	CURB INLETS
TRASH ENCLOSURE CONTROLS:	PROVIDED
TREATMENT BMP:	SEE TABLE

SOURCE CONTROL BMPS

1. STORM DRAIN INLETS.
2. LANDSCAPE/OUTDOOR PESTICIDE USE.
3. FIRE SPRINKLER TEST WATER.
4. MISCELLANEOUS DRAIN OR WASH WATER.
5. PLAZAS, SIDEWALKS, AND PARKING LOTS.
6. MINIMIZE IMPERVIOUS AREA.

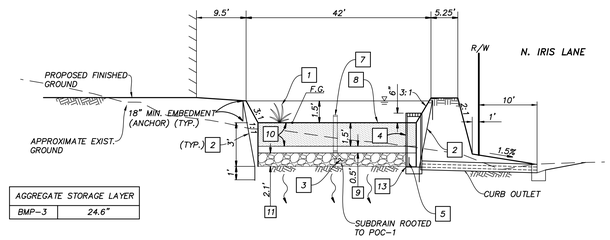
SITE DESIGN BMPS

7. RUNOFF COLLECTION.
8. LANDSCAPE WITH NATIVE OR DRAUGHT TOLERANT SPECIES.
10. INDOOR/STRUCTURAL PEST CONTROL.



AGGREGATE STORAGE LAYER	
BMP-1	13.2"
BMP-2	30"

A/3 SITE SECTION ~ BIOFILTRATION BASIN (BMP-1 AND BMP-2)
NOT TO SCALE



AGGREGATE STORAGE LAYER	
BMP-3	24.6"

B/3 SITE SECTION ~ BIOFILTRATION BASIN (BMP-3)
NOT TO SCALE

DMA & BMP SUMMARY TABLE

DMA NO	TOTAL AREA (SF)	IMPERVIOUS (SF)	IMPERVIOUS (%)	PERVIOUS (SF)	ADJUSTED IMPERVIOUS (SF)	DCV (CF)	SURFACE AREA REQUIRED * (SF)	SURFACE AREA PROVIDED (SF)	BMP TYPE / STANDARD	BMP ID
N1	25,054	17,538	70%	7,516	17,513	1,022	525	2,231	BIOFILTRATION PARTIAL PR-1	BMP-3
S1	166,590	116,613	70%	49,977	118,196	6,895	3,546	4,580	BIOFILTRATION PARTIAL PR-1	BMP-2
S2	111,841	78,289	70%	33,552	80,526	4,697	2,416	3,383	BIOFILTRATION PARTIAL PR-1	BMP-1
–	–	–		–	–	–	–			
TOTAL	303,486	212,440	70%	91,046	216,234	12,614	6,487	10,194		
–	–	–		–	–	–	–			
–	–	–		–	–	–	–			
–	–	–		–	–	–	–			
–	–	–		–	–	–	–			
TOTAL	303,486	212,440	70%	91,046	216,234	12,614				

BIOFILTRATION DETAIL NOTES

1. PLANTING.
2. 30 MIL. P.V.C. LINER. ALL JOINTS TO BE SEALED WITH 12" MIN. OVERLAP. SEAL ALL PENETRATIONS.
3. 6" SLOTTED P.V.C. SUBDRAIN (ASTM D-3034), 3" MIN. FROM BOTTOM.
4. OUTLET CONTROL STRUCTURE WITH GRATED TOP.
5. ORIFICE PLATE (SEE TABLE BELOW).
6. OUTLET PIPE.
7. SUBDRAIN CLEANOUT PER SDRSD SC-01. RIM = F.G. + 0.6'
8. INSTALL WELL AGED SHREDDED HARDWOOD MULCH THAT HAS BEEN STOCKPILED OR STORED FOR AT LEAST 12 MONTHS. MULCH MUST BE NON-FLOATING.
9. FILTER COURSE TO BE 3" CLEAN AND WASHED SAND (ASTM NO. 33) OVER 3" LAYER OF ASTM NO. 8 STONE.
10. SOIL MEDIA, INFILTRATION = (BSM SPECIFICATION PER APPENDIX G OF COUNTY OF SAN DIEGO L.I.D. HANDBOOK JUNE 2014)

PER COUNTY OF SAN DIEGO L.I.D. HANDBOOK:

BSM COMPOSITION	SAND	SANDY LOAM			
		SAND	SILT	CLAY	COMPOST
VOLUME	65%	20%			15%
WEIGHT	75-80%	10% MAX.		3% MAX.	9% MAX.[1]

9% COMPOST BY WEIGHT RESULTS IN APPROXIMATELY 5% ORGANIC MATTER BY WEIGHT.

BASIN	CONTROL ORIFICE
BMP-1	1.5"
BMP-2	1.5"
BMP-3	1.5"

11. AGGREGATE STORAGE LAYER ASTM NO. 57 ROCK.
12. 2-SACK SLURRY BACKFILL AROUND STORM DRAIN LINE, PIPE ZONE. SLURRY BACKFILL TO START AT STORM DRAIN BOX AND EXTEND AT LEAST 5 FEET BEYOND SLOPE FACE.
13. SEAL PVC LINER AROUND PIPES:
    USE A PIPE BOOT AND PVC SKIRT TO SEAL ALL LINER PENETRATIONS FOR PIPES, PVC SKIRT SHOULD BE SEALED TO THE PARENT LINER PER MANUFACTURER'S RECOMMENDATIONS (TYPICALLY A WEDGE WELDER). THE PIPE BOOT SLEEVE SHOULD BE ATTACHED TO THE PIPE USING BUTYL TAPE AND STAINLESS STEEL BAND CLAMP.

    ATTACH THE LINER TO CONCRETE STRUCTURES:
    1. PREPARE A PVC SKIRT FOR CONCRETE STRUCTURE.
    2. ATTACHED THE LINER TO THE CONCRETE STRUCTURE USING A STAINLESS STEEL BATTEN STRIP. ALSO ADHERE THE LINER TO THE CONCRETE USING A WATER PROOF ADHESIVE PER THE MANUFACTURE'S RECOMMENDATIONS (TYPICALLY A POLYURETHANE).
    3. THE PVC SKIRT TO BE SEALED TO THE PARENT LINER PER MANUFACTURER'S RECOMMENDATIONS (TYPICALLY A WEDGE WELDER).
14. EMBED LINER 12" VERTICAL.

DMA AND HMP EXHIBIT FOR:
N. IRIS LANE

GRAPHIC SCALE
SCALE: 1" = 40'
40' 0 40' 80' 120'

REGISTERED PROFESSIONAL ENGINEER
JASON PARKER
No. 68547
CIVIL
STATE OF CALIFORNIA

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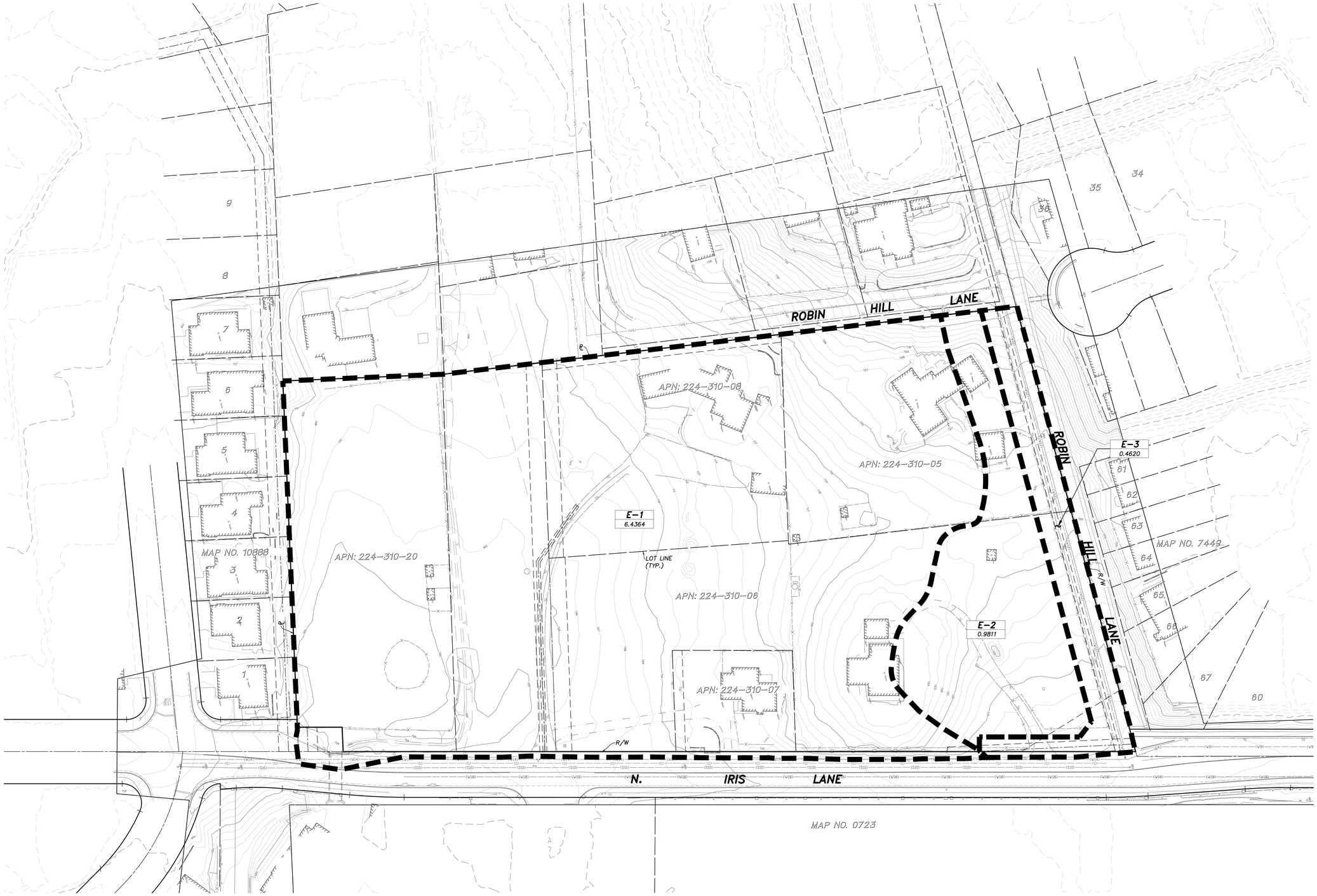
3990 Ruffin Road, Suite 120
San Diego, Ca. 92123
858-560-1141
858-560-8157 Fax

12-16-21

75280.25

E:\TIME & TIDE\75280 N. IRIS LANE\LDR\75280DMA.dwg PAT CHRISTIAN, PLOTTED BY: MARK GUNN ON 12/16/2021 2:54 PM

EXISTING DMA AND HMP EXHIBIT FOR:
N. IRIS LANE



EXISTING DMA AND HMP EXHIBIT FOR:
N. IRIS LANE

SCALE: 1" = 40'

GRAPHIC SCALE

40 0 40 80 120

REGISTERED PROFESSIONAL ENGINEER
AARON PARKER
No. 68547
CIVIL
STATE OF CALIFORNIA

SB&O INC.
PLANNING ENGINEERING SURVEYING
3990 Ruffin Road, Suite 120
San Diego, Ca. 92123
858-560-1141
858-560-8157 Fax

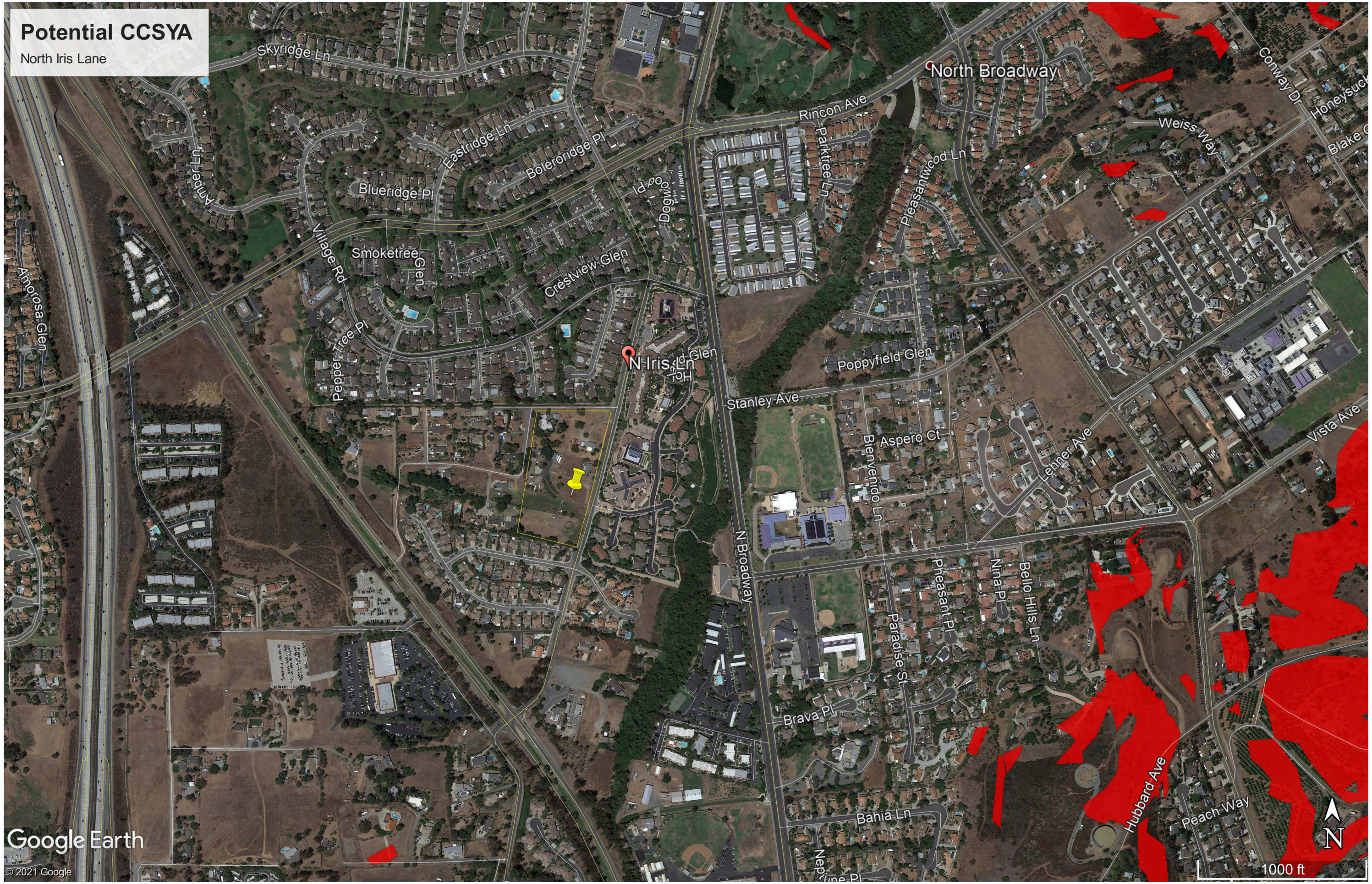
DATE 21

75280.65

FILE NAME: G:\75280 N. IRIS LANE\03 DWG\DA\75280103-EXIST DMA EXHIBIT.DWG, PLOTTED BY: JONATHAN ON 3/3/2021 10:59 AM

Potential CCSYA

North Iris Lane



ATTACHMENT 3

Structural BMP Maintenance Information

This is the cover sheet for Attachment 3.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 3a	Structural BMP Maintenance Plan (Required)	☒Included See Structural BMP Maintenance Information Checklist on the back of this Attachment cover sheet.
Attachment 3b	Draft Storm Water Control Facilities Maintenance Agreement (SWCFMA) (when applicable)	☐Included ☒Not Applicable for Preliminary

This page was left intentionally blank.

Use this checklist to ensure the required information has been included in the Structural BMP Maintenance Information Attachment:

See County BMP Maintenance Worksheets

Attachment 3a must identify:

- ☐Specific maintenance indicators and actions for proposed structural BMP(s). This must be based on Section 7.7 of the Storm Water Design Manual and enhanced to reflect actual proposed components of the structural BMP(s)
- ☐How to access the structural BMP(s) to inspect and perform maintenance
- ☐Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
- ☐Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
- ☐Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
- ☐Recommended equipment to perform maintenance
- ☐When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management

Attachment 3b: For all Structural BMPs, Attachment 3b must include a draft maintenance agreement in the City's standard format (PDP applicant to contact City staff to obtain the current maintenance agreement forms or download from City's website).

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BF-1
Biofiltration

BMP MAINTENANCE FACT SHEET
FOR
STRUCTURAL BMP BF-1 BIOFILTRATION

Biofiltration facilities are vegetated surface water systems that filter water through vegetation, and soil or engineered media prior to discharge via underdrain or overflow to the downstream conveyance system. Biofiltration facilities have limited or no infiltration. They are typically designed to provide enough hydraulic head to move flows through the underdrain connection to the storm drain system. Typical biofiltration components include:

- Inflow distribution mechanisms (e.g., perimeter flow spreader or filter strips)
- Energy dissipation mechanism for concentrated inflows (e.g., splash blocks or riprap)
- Shallow surface ponding for captured flows
- Side slope and basin bottom vegetation selected based on climate and ponding depth
- Non-floating mulch layer
- Media layer (planting mix or engineered media) capable of supporting vegetation growth
- Filter course layer consisting of aggregate to prevent the migration of fines into uncompacted native soils or the aggregate storage layer
- Aggregate storage layer with underdrain(s)
- Impermeable liner or uncompacted native soils at the bottom of the facility
- Overflow structure

Normal Expected Maintenance

Biofiltration requires routine maintenance to: remove accumulated materials such as sediment, trash or debris; maintain vegetation health; maintain infiltration capacity of the media layer; replenish mulch; and maintain integrity of side slopes, inlets, energy dissipators, and outlets. A summary table of standard inspection and maintenance indicators is provided within this Fact Sheet.

Non-Standard Maintenance or BMP Failure

If any of the following scenarios are observed, the BMP is not performing as intended to protect downstream waterways from pollution and/or erosion. Corrective maintenance, increased inspection and maintenance, BMP replacement, or a different BMP type will be required.

- The BMP is not drained between storm events. Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health, and surface ponding longer than approximately 96 hours following a storm event poses a risk of vector (mosquito) breeding. Poor drainage can result from clogging of the media layer, filter course, aggregate storage layer, underdrain, or outlet structure. The specific cause of the drainage issue must be determined and corrected.
- Sediment, trash, or debris accumulation greater than 25% of the surface ponding volume within one month. This means the load from the tributary drainage area is too high, reducing BMP function or clogging the BMP. This would require pretreatment measures within the tributary area draining to the BMP to intercept the materials. Pretreatment components, especially for sediment, will extend the life of components that are more expensive to replace such as media, filter course, and aggregate layers.
- Erosion due to concentrated storm water runoff flow that is not readily corrected by adding erosion control blankets, adding stone at flow entry points, or minor re-grading to restore proper drainage according to the original plan. If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction.

Other Special Considerations

Biofiltration is a vegetated structural BMP. Vegetated structural BMPs that are constructed in the vicinity of, or connected to, an existing jurisdictional water or wetland could inadvertently result in creation of expanded waters or wetlands. As such, vegetated structural BMPs have the potential to come under the jurisdiction of the United States Army Corps of Engineers, SDRWQCB, California Department of Fish and Wildlife, or the United States Fish and Wildlife Service. This could result in the need for specific resource agency permits and costly mitigation to perform maintenance of the structural BMP. Along with proper placement of a structural BMP, **routine maintenance is key to preventing this scenario**.

SUMMARY OF STANDARD INSPECTION AND MAINTENANCE FOR BF-1 BIOFILTRATION		
The property owner is responsible to ensure inspection, operation and maintenance of permanent BMPs on their property unless responsibility has been formally transferred to an agency, community facilities district, homeowners association, property owners association, or other special district. Maintenance frequencies listed in this table are average/typical frequencies. Actual maintenance needs are site-specific, and maintenance may be required more frequently. Maintenance must be performed whenever needed, based on maintenance indicators presented in this table. The BMP owner is responsible for conducting regular inspections to see when maintenance is needed based on the maintenance indicators. During the first year of operation of a structural BMP, inspection is recommended at least once prior to August 31 and then monthly from September through May. Inspection during a storm event is also recommended. After the initial period of frequent inspections, the minimum inspection and maintenance frequency can be determined based on the results of the first year inspections.		
Threshold/Indicator	**Maintenance Action**	**Typical Maintenance Frequency**
Accumulation of sediment, litter, or debris	Remove and properly dispose of accumulated materials, without damage to the vegetation or compaction of the media layer.	• Inspect monthly. If the BMP is 25% full* or more in one month, increase inspection frequency to monthly plus after every 0.1-inch or larger storm event. • Remove any accumulated materials found at each inspection.
Obstructed inlet or outlet structure	Clear blockage.	• Inspect monthly and after every 0.5-inch or larger storm event. • Remove any accumulated materials found at each inspection.
Damage to structural components such as weirs, inlet or outlet structures	Repair or replace as applicable	• Inspect annually. • Maintenance when needed.
Poor vegetation establishment	Re-seed, re-plant, or re-establish vegetation per original plans.	• Inspect monthly. • Maintenance when needed.
Dead or diseased vegetation	Remove dead or diseased vegetation, re-seed, re-plant, or re-establish vegetation per original plans.	• Inspect monthly. • Maintenance when needed.
Overgrown vegetation	Mow or trim as appropriate.	• Inspect monthly. • Maintenance when needed.
2/3 of mulch has decomposed, or mulch has been removed	Remove decomposed fraction and top off with fresh mulch to a total depth of 3 inches.	• Inspect monthly. • Replenish mulch annually, or more frequently when needed based on inspection.

*"25% full" is defined as ¼ of the depth from the design bottom elevation to the crest of the outflow structure (e.g., if the height to the outflow opening is 12 inches from the bottom elevation, then the materials must be removed when there is 3 inches of accumulation – this should be marked on the outflow structure).

SUMMARY OF STANDARD INSPECTION AND MAINTENANCE FOR BF-1 BIOFILTRATION (Continued from previous page)		
Threshold/Indicator	**Maintenance Action**	**Typical Maintenance Frequency**
Erosion due to concentrated irrigation flow	Repair/re-seed/re-plant eroded areas and adjust the irrigation system.	• Inspect monthly. • Maintenance when needed.
Erosion due to concentrated storm water runoff flow	Repair/re-seed/re-plant eroded areas, and make appropriate corrective measures such as adding erosion control blankets, adding stone at flow entry points, or minor re-grading to restore proper drainage according to the original plan. If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction.	• Inspect after every 0.5-inch or larger storm event. If erosion due to storm water flow has been observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed. If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction.
Standing water in BMP for longer than 24 hours following a storm event Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health	Make appropriate corrective measures such as adjusting irrigation system, removing obstructions of debris or invasive vegetation, clearing underdrains, or repairing/replacing clogged or compacted soils.	• Inspect monthly and after every 0.5-inch or larger storm event. If standing water is observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed.
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology	If mosquitos/larvae are observed: first, immediately remove any standing water by dispersing to nearby landscaping; second, make corrective measures as applicable to restore BMP drainage to prevent standing water. If mosquitos persist following corrective measures to remove standing water, or if the BMP design does not meet the 96-hour drawdown criteria due to release rates controlled by an orifice installed on the underdrain, the [City Engineer] shall be contacted to determine a solution. A different BMP type, or a Vector Management Plan prepared with concurrence from the County of San Diego Department of Environmental Health, may be required.	• Inspect monthly and after every 0.5-inch or larger storm event. If mosquitos are observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed.
Underdrain clogged	Clear blockage.	• Inspect if standing water is observed for longer than 24-96 hours following a storm event. • Maintenance when needed.

References

American Mosquito Control Association.
http://www.mosquito.org/
California Storm Water Quality Association (CASQA). 2003. Municipal BMP Handbook.
https://www.casqa.org/resources/bmp-handbooks/municipal-bmp-handbook
County of San Diego. 2014. Low Impact Development Handbook.
http://www.sandiegocounty.gov/content/sdc/dpw/watersheds/susmp/lid.html
San Diego County Copermittees. 2016. Model BMP Design Manual, Appendix E, Fact Sheet BF-1.
http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=250&Itemid=220

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BF-1
Biofiltration

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	
Property / Development Name:	Responsible Party Name and Phone Number:	
Property Address of BMP:	Responsible Party Address:	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 1 of 5			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Accumulation of sediment, litter, or debris Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove and properly dispose of accumulated materials, without damage to the vegetation ☐ If sediment, litter, or debris accumulation exceeds 25% of the surface ponding volume within one month (25% full*), add a forebay or other pre-treatment measures within the tributary area draining to the BMP to intercept the materials. ☐ Other / Comments:		
Poor vegetation establishment Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Re-seed, re-plant, or re-establish vegetation per original plans ☐ Other / Comments:		

*"25% full" is defined as ¼ of the depth from the design bottom elevation to the crest of the outflow structure (e.g., if the height to the outflow opening is 12 inches from the bottom elevation, then the materials must be removed when there is 3 inches of accumulation – this should be marked on the outflow structure).

BF-1
Biofiltration

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 2 of 5			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Dead or diseased vegetation Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove dead or diseased vegetation, re-seed, re-plant, or re-establish vegetation per original plans ☐ Other / Comments:		
Overgrown vegetation Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Mow or trim as appropriate ☐ Other / Comments:		
2/3 of mulch has decomposed, or mulch has been removed Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove decomposed fraction and top off with fresh mulch to a total depth of 3 inches ☐ Other / Comments:		

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 3 of 5			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Erosion due to concentrated irrigation flow Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Repair/re-seed/re-plant eroded areas and adjust the irrigation system ☐ Other / Comments:		
Erosion due to concentrated storm water runoff flow Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Repair/re-seed/re-plant eroded areas, and make appropriate corrective measures such as adding erosion control blankets, adding stone at flow entry points, or minor re-grading to restore proper drainage according to the original plan ☐ If the issue is not corrected by restoring the BMP to the original plan and grade, the [City Engineer] shall be contacted prior to any additional repairs or reconstruction ☐ Other / Comments:		

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 4 of 5			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Obstructed inlet or outlet structure Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Clear blockage ☐ Other / Comments:		
Underdrain clogged (inspect underdrain if standing water is observed for longer than 24-96 hours following a storm event) Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Clear blockage ☐ Other / Comments:		
Damage to structural components such as weirs, inlet or outlet structures Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Repair or replace as applicable ☐ Other / Comments:		

BF-1
Biofiltration

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR BF-1 BIOFILTRATION PAGE 5 of 5			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Standing water in BMP for longer than 24-96 hours following a storm event* Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Make appropriate corrective measures such as adjusting irrigation system, removing obstructions of debris or invasive vegetation, clearing underdrains, or repairing/replacing clogged or compacted soils ☐ Other / Comments:		
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Apply corrective measures to remove standing water in BMP when standing water occurs for longer than 24-96 hours following a storm event.** ☐ Other / Comments:		

*Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health, and surface ponding longer than approximately 96 hours following a storm event poses a risk of vector (mosquito) breeding. Poor drainage can result from clogging of the media layer, filter course, aggregate storage layer, underdrain, or outlet structure. The specific cause of the drainage issue must be determined and corrected.

**If mosquitos persist following corrective measures to remove standing water, or if the BMP design does not meet the 96-hour drawdown criteria due to release rates controlled by an orifice installed on the underdrain, the [City Engineer] shall be contacted to determine a solution. A different BMP type, or a Vector Management Plan prepared with concurrence from the County of San Diego Department of Environmental Health, may be required.

SD-1
Tree Wells

BMP MAINTENANCE FACT SHEET
FOR
SITE DESIGN BMP SD-1 TREE WELLS

Tree wells as site design BMPs are trees planted in configurations that allow storm water runoff to be directed into the soil immediately surrounding the tree. The tree may be contained within a planter box or structural cells. The surrounding area will be graded to direct runoff to the tree well. There may be features such as tree grates, suspended pavement design, or shallow surface depressions designed to allow runoff into the tree well. Typical tree well components include:

- Trees of the appropriate species for site conditions and constraints
- Available growing space based on tree species, soil type, water availability, surrounding land uses, and project goals
- Entrance/opening that allows storm water runoff to flow into the tree well (e.g., a curb opening, tree grate, or surface depression)
- Optional suspended pavement design to provide structural support for adjacent pavement without requiring compaction of underlying layers
- Optional root barrier devices as needed; a root barrier is a device installed in the ground, between a tree and the sidewalk, intended to guide roots down and away from the sidewalk in order to prevent sidewalk lifting from tree roots
- Optional tree grates; to be considered to maximize available space for pedestrian circulation and to protect tree roots from compaction related to pedestrian circulation; tree grates are typically made up of porous material that will allow the runoff to soak through
- Optional shallow surface depression for ponding of excess runoff
- Optional planter box drain

Normal Expected Maintenance

Tree health shall be maintained as part of normal landscape maintenance. Additionally, ensure that storm water runoff can be conveyed into the tree well as designed. That is, the opening that allows storm water runoff to flow into the tree well (e.g., a curb opening, tree grate, or surface depression) shall not be blocked, filled, re-graded, or otherwise changed in a manner that prevents storm water from draining into the tree well. A summary table of standard inspection and maintenance indicators is provided within this Fact Sheet.

Non-Standard Maintenance or BMP Failure

Tree wells are site design BMPs that normally do not require maintenance actions beyond routine landscape maintenance. The normal expected maintenance described above ensures the BMP functionality. If changes have been made to the tree well entrance / opening such that runoff is prevented from draining into the tree well (e.g., a curb inlet opening is blocked by debris or a grate is clogged causing runoff to flow around instead of into the tree well, or a surface depression has been filled so runoff flows away from the tree well), the BMP is not performing as intended to protect downstream waterways from pollution and/or erosion. Corrective maintenance will be required to restore drainage into the tree well as designed.

Surface ponding of runoff directed into tree wells is expected to infiltrate/evapotranspirate within 24-96 hours following a storm event. Surface ponding longer than approximately 24 hours following a storm event may be detrimental to vegetation health, and surface ponding longer than approximately 96 hours following a storm event poses a risk of vector (mosquito) breeding. Poor drainage can result from clogging or compaction of the soils surrounding the tree. Loosen or replace the soils to restore drainage.

Other Special Considerations

Site design BMPs, such as tree wells, installed within a new development or redevelopment project are components of an overall storm water management strategy for the project. The presence of site design BMPs within a project is usually a factor in the determination of the amount of runoff to be managed with structural BMPs (i.e., the amount of runoff expected to reach downstream retention or biofiltration basins that process storm water runoff from the project as a whole). When site design BMPs are not maintained or are removed, this can lead to clogging or failure of downstream structural BMPs due to greater delivery of runoff and pollutants than intended for the structural BMP. Therefore, the [City Engineer] may require confirmation of maintenance of site design BMPs as part of their structural BMP maintenance documentation requirements. Site design BMPs that have been installed as part of the project should not be removed, nor should they be bypassed by re-routing roof drains or re-grading surfaces within the project. If changes are necessary, consult the [City Engineer] to determine requirements.

SD-1
Tree Wells

SUMMARY OF STANDARD INSPECTION AND MAINTENANCE FOR SD-1 TREE WELLS		
The property owner is responsible to ensure inspection, operation and maintenance of permanent BMPs on their property unless responsibility has been formally transferred to an agency, community facilities district, homeowners association, property owners association, or other special district. Maintenance frequencies listed in this table are average/typical frequencies. Actual maintenance needs are site-specific, and maintenance may be required more frequently. Maintenance must be performed whenever needed, based on maintenance indicators presented in this table. The BMP owner is responsible for conducting regular inspections to see when maintenance is needed based on the maintenance indicators. During the first year of operation of a structural BMP, inspection is recommended at least once prior to August 31 and then monthly from September through May. Inspection during a storm event is also recommended. After the initial period of frequent inspections, the minimum inspection and maintenance frequency can be determined based on the results of the first year inspections.		
Threshold/Indicator	**Maintenance Action**	**Typical Maintenance Frequency**
Tree health	Routine actions as necessary to maintain tree health.	• Inspect monthly. • Maintenance when needed.
Dead or diseased tree	Remove dead or diseased tree. Replace per original plans.	• Inspect monthly. • Maintenance when needed.
Standing water in tree well for longer than 24 hours following a storm event Surface ponding longer than approximately 24 hours following a storm event may be detrimental to tree health	Loosen or replace soils surrounding the tree to restore drainage.	• Inspect monthly and after every 0.5-inch or larger storm event. If standing water is observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed.
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology	Disperse any standing water from the tree well to nearby landscaping. Loosen or replace soils surrounding the tree to restore drainage (and prevent standing water).	• Inspect monthly and after every 0.5-inch or larger storm event. If mosquitos are observed, increase inspection frequency to after every 0.1-inch or larger storm event. • Maintenance when needed
Entrance / opening to the tree well is blocked such that storm water will not drain into the tree well (e.g., a curb inlet opening is blocked by debris or a grate is clogged causing runoff to flow around instead of into the tree well; or a surface depression is filled such that runoff drains away from the tree well)	Make repairs as appropriate to restore drainage into the tree well.	• Inspect monthly. • Maintenance when needed.

References

American Mosquito Control Association.
http://www.mosquito.org/
County of San Diego. 2014. Low Impact Development Handbook.
http://www.sandiegocounty.gov/content/sdc/dpw/watersheds/susmp/lid.html
San Diego County Copermittees. 2016. Model BMP Design Manual, Appendix E, Fact Sheet SD-1.
http://www.projectcleanwater.org/index.php?option=com_content&view=article&id=250&Itemid=220

SD-1
Tree Wells

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	
Property / Development Name:	Responsible Party Name and Phone Number:	
Property Address of BMP:	Responsible Party Address:	

INSPECTION AND MAINTENANCE CHECKLIST FOR SD-1 TREE WELLS PAGE 1 of 2			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Dead or diseased tree Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Remove dead or diseased tree ☐ Replace per original plans ☐ Other / Comments:		
Standing water in tree well for longer than 24 hours following a storm event Surface ponding longer than approximately 24 hours following a storm event may be detrimental to tree health Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Loosen or replace soils surrounding the tree to restore drainage ☐ Other / Comments:		

SD-1
Tree Wells

Date:	Inspector:	BMP ID No.:
Permit No.:	APN(s):	

INSPECTION AND MAINTENANCE CHECKLIST FOR SD-1 TREE WELLS PAGE 2 of 2			
Threshold/Indicator	**Maintenance Recommendation**	**Date**	**Description of Maintenance Conducted**
Presence of mosquitos/larvae For images of egg rafts, larva, pupa, and adult mosquitos, see http://www.mosquito.org/biology Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Disperse any standing water from the tree well to nearby landscaping ☐ Loosen or replace soils surrounding the tree to restore drainage (and prevent standing water) ☐ Other / Comments:		
Entrance / opening to the tree well is blocked such that storm water will not drain into the tree well (e.g., a curb inlet opening is blocked by debris or a grate is clogged causing runoff to flow around instead of into the tree well; or a surface depression is filled such that runoff drains away from the tree well) Maintenance Needed? ☐ YES ☐ NO ☐ N/A	☐ Make repairs as appropriate to restore drainage into the tree well ☐ Other / Comments:		

ATTACHMENT 4

City of Escondido PDP Structural BMP Verification for Permitted Land Development Projects

Not Applicable for Preliminary Reports

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ATTACHMENT 5

Copy of Plan Sheets Showing Permanent Storm Water BMPs, Source Control, and Site Design

See DMA / HMP Exhibit

This is the cover sheet for Attachment 5.

Use this checklist to ensure the required information has been included on the plans:

The plans must identify:

- ☐Structural BMP(s) with ID numbers matching Step 6 Summary of PDP Structural BMPs
- ☐The grading and drainage design shown on the plans must be consistent with the delineation of DMAs shown on the DMA exhibit
- ☐Details and specifications for construction of structural BMP(s)
- ☐Signage indicating the location and boundary of structural BMP(s) as required by City staff
- ☐How to access the structural BMP(s) to inspect and perform maintenance
- ☐Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
- ☐Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
- ☐Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
- ☐Recommended equipment to perform maintenance
- ☐When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management
- ☐Include landscaping plan sheets showing vegetation requirements for vegetated structural BMP(s)
- ☐All BMPs must be fully dimensioned on the plans
- ☐When proprietary BMPs are used, site-specific cross section with outflow, inflow, and model number must be provided. Photocopies of general brochures are not acceptable.
- ☐Include all source control and site design measures described in Steps 4 and 5 of the SWQMP can be included as a separate exhibit, as necessary.

***Note: Plan sheets included in this attachment can be full size or half size.**

Appendix K
Transportation Study

N. Iris Lane (102 Multi-Family Units)
Southwest corner of N. Iris Ln at Robin Hill Ln (PHG20-0032)
Escondido, California

September 1, 2022

Vehicle Miles Traveled and Local Mobility Analysis

Prepared for:
Hallmark Development Corp.
740 Lomas Santa Fe Drive, Suite 204
Solana Beach, CA 92075

Prepared by Justin Rasas (RCE 60690) a principal with:

LOS Engineering, Inc.
11622 El Camino Real, Suite 100, San Diego, CA 92130
Phone 619-890-1253

Job #2011

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Executive Summary

This report includes a Vehicle Miles Traveled (VMT) analysis and Local Mobility Analysis (LMA). The VMT analysis determines if there is a potential California Environmental Quality Act (CEQA) transportation VMT impact, while the LMA determines if there are any traffic effects on the surrounding roadways based on City of Escondido General Plan requirements.

The project is a multi-family complex with 102 dwelling units. A zone change and annexation is proposed on a subject property of approximately 7.7 gross acres on the southwest corner of N. Iris Lane at Robin Hill Lane, from the County of San Diego into the City of Escondido. The proposed zoning is PD-R-18 resulting in a density of 13.2 DU/acre (102 units/ 7.7 acres), which is a reduction from the current County of San Diego zoning of 24 DU/acre. The existing site includes 4 single family dwelling units that will be removed. The project applicant is processing the following:

1) Zone Change to Urban III with a pre-zone designation of R3
2) General Plan Amendment

The **VMT analysis** is required to satisfy the CEQA guidelines that utilize VMT as the measure of mobility effectiveness for determining transportation impacts. The California Governor's Office of Planning and Research (OPR) Technical Advisory developed guidance on implementing Senate Bill 743 (SB 743) that shifts the transportation impact measure of effectiveness from Level of Service (LOS) to VMT.

The project VMT per Capita by Census Tract was obtained from the SANDAG ABM2+ Base Year 2016 screening map. The project is located within census tract 201.05 that has an existing VMT per capita of 18.4 that is at 97.3% of the regional mean of 18.9 VMT per capita. Therefore, the project being located in census tract 201.05 is expected to have similar VMT characteristics of the census tract, resulting in a VMT transportation impact because it is higher than 85% of the regional mean. The project VMT impact is mitigated to below a level of significance through implementation of the California Air Pollution Control Officers Associates (CAPCOA) T-1 VMT reduction measure and payment of **$67,500** to the City of Escondido for pedestrian improvements at five (5) intersections. These mitigation measures are calculated to reduce the project VMT to lower than 85% of the regional mean.

In addition to the above VMT mitigation measures, the project applicant proposes to implement Transportation Demand Management (TDM) strategies to further reduce single occupant vehicle use through promoting alternative modes of transportation. The following TDM plan will provide the means to disseminate information to residents to learn about and use alternative forms of transportation other than single occupancy vehicles. The following TDM elements (to be implemented by the developer at the time of product sales) will be provided during the sales phase and can be incorporated into the project conditions of approval: 1) Provide information about SANDAG's iCommute program (www.icommutesd.com) to encourage carpooling, and 2) Provide information about maps, routes, and schedules for public transit. The applicant will also construct sidewalks along the project frontage on N. Iris Ln (this will complete a missing sidewalk link in the community without taking a VMT credit) and along the project frontage on Robin Hill Ln.

This **LMA analysis** determines if there are any traffic effects caused by the project traffic that would trigger roadway and other multi-modal improvements. The LMA is based on the City of Escondido *Transportation Impact Analysis Guidelines*, April 21, 2021 and includes the analysis of pedestrian, bicycle, transit, and vehicular facilities.

Pedestrian facilities within the ¼-mile walking distance from the project site were evaluated. As part of the project, the applicant will install sidewalks along the project frontage on N. Iris Ln (approximately 850 ft) and along Robin Hill Ln (approximately 440 feet). The sidewalk to be constructed on the westside of N. Iris Ln along the project frontage will complete a missing section, thus improving pedestrian network connectivity for the neighborhood. No other off-site sidewalk improvements are proposed within a ¼-mile walking distance of the project entrance.

Bicycle facilities within a 1-mile bicycling distance from the project site were evaluated. There are existing bike lanes/marking within a 1-mile bicycling distance of the project site on Centre City Pkwy, Country Club Lane, Rincon Ave, El Norte Pkwy near the intersection of S. Iris Ln, and N. Broadway south of Rincon Ave. Within a 1-mile bicycling distance of the project site, N. Broadway north of Rincon Ave, and N. Iris Lane currently do not have bike lanes/markings as proposed in the City's Bicycle Master Plan. As part of the project, the applicant will install Class III bike marking along the project's frontage on N. Iris Ln.

Transit facilities within a ¼-mile walking distance from the project site were evaluated. There are no transit stops within ¼-mile walking distance; however, there are two transit stops just over a ¼-mile walking distance (approximately 1,500 feet away). These bus stops are on N. Broadway near Village Rd. The southbound bus stop has a bus stop sign, a bench, and a trash receptacle. The northbound bus stop has a bus stop sign, a bench with shelter, and a trash receptacle. Both bus stops are in good condition, thus no improvements are proposed.

Vehicular facilities included the analysis of four (4) intersections, and two (2) roadway segments under Existing, Existing plus Project, Existing + Cumulative, Existing + Cumulative + Project, Year 2035, and Year 2035 + Project Conditions. The 102 units are calculated to generate 816 Average Daily Trips (ADT) with 65 AM peak hour trips (13 inbound and 52 outbound) and 81 PM peak hour trips (57 inbound and 24 outbound). For each study scenario, the findings included:

1) Under existing conditions, the study intersections and segments were calculated to operate at LOS D or better except for N. Iris Ln from Robin Hill Ln to Centre City Pkwy (LOS E). Also, there is an existing long westbound left turn queue from N. Iris Ln to Centre City Pkwy.

2) Under existing plus project conditions, the study intersections and segments were calculated to operate at LOS D or better except for N. Iris Ln from Robin Hill Ln to Centre City Pkwy (LOS E). There is a calculated project traffic effect along the segment of N. Iris Ln from Robin Hill Ln to Centre City Pkwy. Additionally, the project will add traffic to the existing westbound left turn queue from N. Iris Ln to Centre City Pkwy. Project improvements are described below.

3) Under near term conditions, the study intersections and segments were calculated to operate at LOS D or better except for N. Iris Ln from Robin Hill Ln to Centre City Pkwy (LOS E). Also, there is a long westbound left turn queue from N. Iris Ln to Centre City Pkwy.

4) Under near term plus project conditions, the study intersections and segments were calculated to operate at LOS D or better except for N. Iris Ln from Robin Hill Ln to Centre City Pkwy (LOS E). There is a calculated project traffic effect along the segment of N. Iris Ln from Robin Hill Ln to Centre City Pkwy. Additionally, the project will add traffic to the near-term westbound left turn queue from N. Iris Ln to Centre City Pkwy. Project improvements are described below.

5) Under long term year 2035 conditions, the study intersections and segments were calculated to operate at LOS D or better except for N. Iris Ln from Robin Hill Ln to Centre City Pkwy (LOS E). Also, there is a long westbound left turn queue from N. Iris Ln to Centre City Pkwy.

6) Under long term year 2035 conditions, the study intersections and segments were calculated to operate at LOS D or better except for N. Iris Ln from Robin Hill Ln to Centre City Pkwy (LOS E). There is a calculated project traffic effect along the segment of N. Iris Ln from Robin Hill Ln to Centre City Pkwy. Also, the project will add traffic to the westbound left turn queue from N. Iris Ln to Centre City Pkwy. Project improvements are described below.

Based on the City of Escondido traffic significance criteria, the project is calculated to have a project effect on the segment of N. Iris Ln from Robin Hill Ln to Centre City Pkwy and will add traffic to an existing excessive westbound left turn queue from N. Iris Ln to Centre City Pkwy. This segment is operating at LOS E without project traffic; therefore, the proposed improvement is widening N. Iris along the project frontage as part of the project construction and contributing a fair share payment of **$6,975** toward widening the section of N. Iris Ln located northeast of Centre City Pkwy. The intersection of Centre City Pkwy at N. Iris Ln has an existing westbound to southbound left turn volume of 386 vehicles during the AM peak hour. This high left turn volume contributes to a lengthy left turn queue. Since this is an existing deficiency, the applicant will contribute an additional fair share payment of **$10,075** toward a city improvement of rephasing the operations to a split phase on Iris Lane and restriping the westbound approach from a left and through right configuration to a left and left-through-right configuration.

1.0 Introduction

The project is a multi-family complex with 102 dwelling units. A zone change and annexation is proposed on a subject property of approximately 7.7 gross acres on the southwest corner of N. Iris Lane at Robin Hill Lane from the County of San Diego into the City of Escondido. The proposed zoning is PD-R-18 resulting in a density of 13.2 DU/acre (102 units/ 7.7 acres) , which is a reduction from the current County of San Diego zoning of 24 DU/acre. The site is occupied by four (4) single family homes that will be removed. The location of the project is shown in **Figure 1**. The project site boundary is shown in **Figure 2** with a site plan shown in **Figure 3**. The project applicant is processing the following permits:

1) Zone Change to Urban III with a pre-zone designation of R3
2) General Plan Amendment

The purpose of this study is to comply with the California Environmental Quality Act (CEQA) requirements by providing a Vehicle Miles Traveled (VMT) analysis and to fulfill the City of Escondido non-CEQA discretionary/entitlements project requirements through preparing a Local Mobility Analysis (LMA). The LMA includes traffic, pedestrian, bicycle, and transit analyses. This report includes the following chapters:

1.0 Introduction
2.0 VMT Significance Criteria and LMA Project Effect Criteria
3.0 Vehicle Miles Traveled Analysis
4.0 Traffic Analysis
5.0 Pedestrian Analysis
6.0 Bicycle Analysis
7.0 Transit Analysis
8.0 Conclusions
9.0 References

Figure 1: Project Location

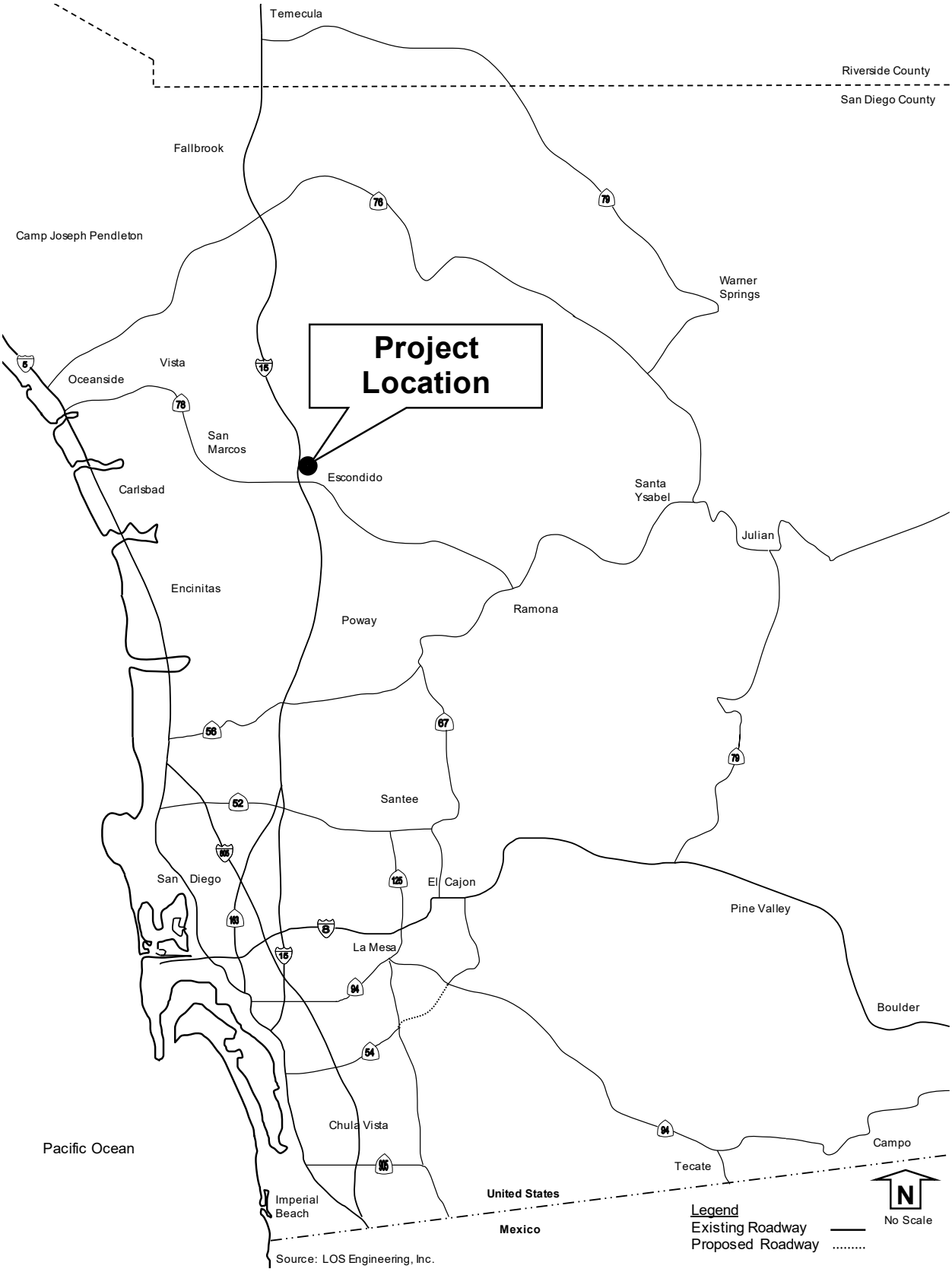


Figure 2: Project Boundary



Source: USGS

Figure 3: Site Plan



2.0 VMT Significance and LMA Project Effect Criteria

The City of Escondido *Transportation Impact Analysis Guidelines* ("City Guidelines") dated April 21, 2021 provide a comprehensive manual for the CEQA VMT significance criteria and for the discretionary/entitlements non-CEQA Local Mobility Analysis traffic effect criteria (excerpts in **Appendix A**).

2.1 Vehicle Miles Traveled Significance Criteria

The City Guidelines document significance thresholds for transportation VMT impacts based on the project type. For residential projects, the metric is VMT/capita. As shown in **Table 1**, the significance threshold for a transportation VMT impact is based on 15% below the regional average of VMT/Capita.

TABLE 1: CITY OF ESCONDIDO PROJECT THRESHOLDS FOR VMT TRANSPORTATION IMPACTS

Project Type	Metric	Significance Thresholds
Residential	VMT/Capita	15% below regional average

Source: The City of Escondido *Transportation Impact Analysis Guidelines* (April 21, 2021).

2.2 Local Mobility Analysis Study Area and Effect Criteria

The City Guidelines document the following modes and study criteria requirements for analysis based on the how far away from the project site individual modes of travel extend or project traffic will travel.

2.2.1 Traffic Study Area

The number of study segments and intersections is based on a threshold level of project trips as shown in **Table 2**.

TABLE 2: ADT THRESHOLDS FOR ROADWAY SEGMENTS TO BE INCLUDED IN THE LMA

Street Classification	Lanes	Cross Section (ft)	LMA Trigger Points (ADT generation)
Prime Arterial	(8 lanes) (6 lanes)	116/136 (NP) 106/126 (NP)	900 800
Major Road	(6 lanes) (4 lanes)	90/110 (NP) 82/102 (NP)	700 500
Collector	(4 lanes) (4 lanes)	64/84 (NP) (WP)	500 250
Local Collector and other	(2 lanes) (2 lanes)	42/66 (NP) (WP)	200 200

Source: City of Escondido *Transportation Impact Analysis Guidelines* April 2021

The number of study intersection by project trips is shown in **Table 3**.

TABLE 3: ADT THRESHOLDS FOR INTERSECTIONS TO BE INCLUDED IN THE LMA

Intersection Classification	LMA Trigger Points (AM or PM peak hour trips added to any leg)
Prime Arterial	50
Major Road	40
Collector	30
Local Collector	20

Source: City of Escondido *Transportation Impact Analysis Guidelines* April 2021

The study scenarios are required based on the City Guideline criteria:

1) Existing Conditions
2) Existing + Project Conditions
3) Near-Term Conditions (includes near term planned and approved projects)
4) Near-Term + Project Conditions
5) Long Term (future year) Conditions (if the project is not consistent with the General Plan)
6) Long Term (future year) + Project Conditions (if the project is not consistent with the GP)

A completed Scoping Agreement defining the study area based on the above criteria is included in **Appendix B**.

2.2.2 Traffic Effect Criteria

If a proposed project's traffic causes the values shown in the **Table 4** to be exceeded, the effects of the project are determined to justify improvements.

TABLE 4: CITY OF ESCONDIDO LEVEL OF SERVICE THRESHOLDS

Level of Service with Project	Allowable Change Due to Project		
	Roadway Segments		Intersections
	V/C	Speed (mph)	Delay (sec.)
D, E, or F	0.02	1	2

Notes: The Downtown Specific Plan identifies select roadway segments where LOS E is acceptable if adjacent intersection operations are LOS D or better. Transportation Improvement should be considered for any segment or intersection operating at LOS F. V/C: Volume to capacity ratio. The roadway capacity is the LOS E threshold.

2.3 Pedestrian Study Criteria

Documentation of existing and planned pedestrian facilities and any substandard or missing facilities (e.g., missing sidewalk, curb ramps, major obstructions) within a ¼-mile walking distance measured from each pedestrian access point as required on page 28 of the City Guidelines.

2.4 Bicycle Study Criteria

Documentation of existing and planned bicycle facilities and any substandard or missing facilities (e.g., bike lane gaps, obstructions) within a 1-mile bicycling distance measured from the centroid point of the parcel's linear frontage or from the center of the intersection formed by each project driveway as required on page 28 of the City Guidelines.

2.5 Transit Study Criteria

Documentation of transit amenities and connectivity to transit, especially for projects where the entire project site within a ½-mile walkshed from the centroid point of the parcel's linear frontage or to a major transit stop or a high-quality transit corridor. The analysis should identify the closest transit routes and stops to the project within ¼-mile walking distance and documentation of amenities at existing transit stops (e.g., shelters, maps, benches) as required on page 28 of the City Guidelines.

3.0 Vehicle Miles Traveled Analysis

A VMT analysis is required to satisfy the CEQA guidelines that utilize VMT as the measure of effectiveness for determining transportation impacts. The California Governor's Office of Planning and Research (OPR) Technical Advisory developed guidance on implementing Senate Bill 743 (SB 743) that shifts the transportation impact measure of effectiveness from Level of Service (LOS) to VMT.

The City of Escondido *VMT Exchange Program Documentation – Public Review Draft* ("City VMT Exchange Program") dated August 5, 2022 provides a comprehensive manual for implementation of a VMT Exchange program to provide mitigation options for projects with transportation VMT impacts. Excerpts from the Draft VMT Exchange Program are included in **Appendix C.** The process for using the exchange program includes the following steps.

1) Perform Transportation VMT Analysis

2) Apply On-Site Mitigation Measures

3) Calculate amount of VMT needed to reduce the impact

4) Choose VMT Exchange Projects/Programs

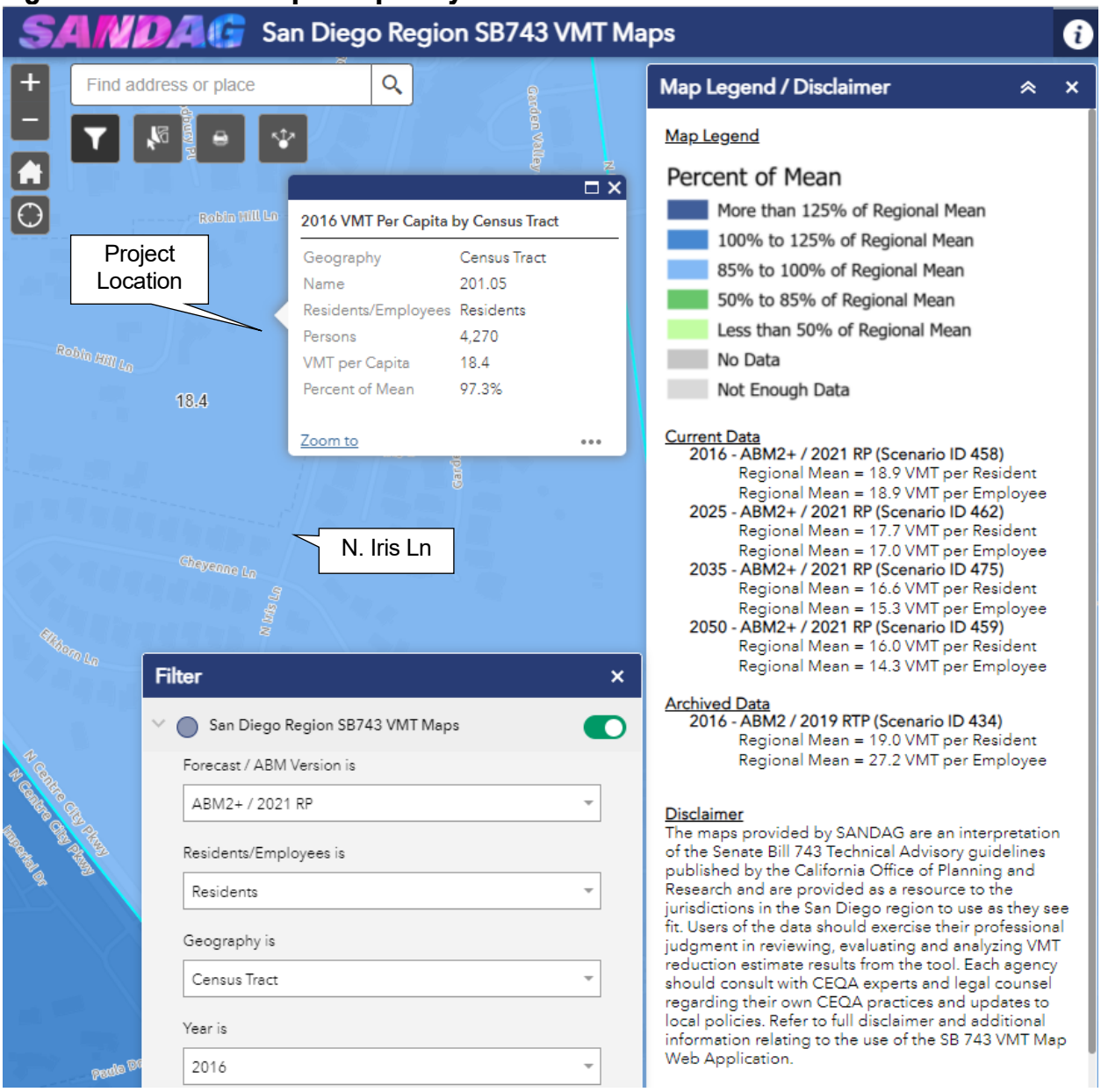
3.1 Transportation VMT Analysis

The project VMT per Capita by Census Tract was obtained from the SANDAG ABM2+ Base Year 2016 screening map. The project is located within census tract 201.05 that has an existing VMT per capita of 18.4 that is at 97.3% of the regional mean of 18.9 VMT per capita. The City Guidelines state on page 20:

> "The project's VMT/Capita will be considered the same as the VMT/capita of the census tract it is located in."

Therefore, the project being located in census tract 201.05 is expected to have similar VMT characteristics of the census tract resulting in a VMT transportation impact because it is higher than 85% of the regional mean. The VMT per Capita by Census Tract is shown in **Figure 4**.

Figure 4: SANDAG VMT per Capita by Census Tract



3.2 On-Site Mitigation Measures

The City Guidelines recommend use of VMT reduction methodologies by the California Air Pollution Control Officers Association (CAPCOA). The CAPCOA *Quantifying Greenhouse Gas Mitigation Measures A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures*, December 2021 ("GHG Handbook") was reviewed for applicability for on-site mitigation measures. The following CAPCOA on-site VMT reduction measure was applied (GHG Handbook excerpts included in **Appendix C**):

1) T-1: Increase Residential Density. Designing the Project with increased densities, where allowed by the General Plan and/or Zoning Ordinance reduces GHG emissions associated with traffic in several ways. Density is usually measured in terms of persons, jobs, or dwellings per unit area. Increased densities affect the distance people travel and provide greater options for the mode of travel they choose. This strategy also provides a foundation for implementation of many other strategies which would benefit from increased densities. For example, transit ridership increases with density, which justifies enhanced transit service.

VMT reduction measure T-1 is calculated based on the number of housing units per acre. The project with 102 housing units divided by the project site of approximately 7.7 acres equals 13.2 dwelling units per acre. T-1 requirements state that this measure is most accurately quantified when applied to larger developments and/or developments where the density if somewhat similar to the surrounding neighborhood. T-1 also defines key variables for residential density to use acres of developed land, not including streets, school sites, parks, and other undevelopable land. The SANDAG MGRA density with streets and other undevelopable land removed results in a surrounding residential density of 10.6 dwelling units per acre (**Appendix C**). The project at 13.2 du/ac is similar to the surrounding neighborhood density of 10.6 du/ac. The CAPCOA T-1 VMT reduction formula and calculation is shown in **Table 5**.

TABLE 5: CAPCOA VMT REDUCTION MEASURES

VMT Mitigation Measure	Scale of Application	VMT % Reduction Range	Formula and Calculation	Project VMT % Reduction
T-1. Increase Residential Density	Project/Site	0% to 30.0%	% VMT Reduction = ((B-C)/C) x -0.22 Where: B= project density = 13.2 du/ac C = surrounding density = 10.6 du/ac CAPCOA elasticity constant = -0.22. Calculation: ((13.2-10.6)/10.6) x -0.22 = -0.054	-5.4%

Source: CAPCOA December 2021

The project VMT per Capita after application of CAPCOA T-1 is 97.3% - 5.4% = 91.9%. The project continues to have a VMT impact and will require additional VMT reduction measures as mitigation.

3.3 Amount of VMT Needed to Reduce Impact

The transportation VMT impact can be mitigated to below a level of significance if the VMT is reduced to 85% or less of the Reginal Mean VMT/Capita. As shown in **Table 6**, at least 426 VMT is required to reduce the impact.

TABLE 6: VMT REDUCTION REQUIRED TO REDUCE IMPACT

Project Number of Dwelling Units	SANDAG Avg Household Size Person/Unit	Persons	Project VMT/ Capita	Project VMT	Mean VMT/ Capita	Percent of Mean
SANDAG Screenline Map VMT Percent of Mean and Project VMT						
102	3.2	326.4	18.40	6,006	18.9	97.3%
CAPCOA T-1 Increase Residential Density VMT % Reduction:						-5.4%
102	3.2	326.4	17.37	5,669	18.9	91.9%
85th Percentile Project VMT						
102	3.2	326.4	16.07	5,244	18.9	85.0%
Required VMT Reduction after CAPCOA On-Site Mitigation =				**426**		

SANDAG Average Household Size per dwelling unit from Mode Choice Report (Appendix C).

3.4 VMT Exchange Projects/Programs

The City of Escondido has pedestrian VMT reduction measures that are based on CAPCOA's T-18 Pedestrian Network Improvements (**Appendix C**). Providing sidewalks and an enhanced pedestrian network encourages people to walk instead of driving. The City's VMT Exchange Projects include:

- Bus Stop Shelters
- High-Visibility Crosswalks (HVC)
- Pedestrian Hybrid Beacons
- Pedestrian Signals
- Mid-Block Crossing Walks
- Pedestrian Refuge Islands
- Speed Tables
- Bulb-Outs (curb extensions)
- Curb Ramps (on all corners of an intersection)
- Roundabouts
- Mini-Circles
- Pedestrian-Only Connections and Districts
- Planter Strips with Street Trees (minimum 1 mile)

City staff established a reduction of up to 60 VMT per improvement per intersection based on an estimated number of new walking trips resulting from improved pedestrian experience using GHG

Handbook VMT reduction measures as a starting point. The city methodology for the VMT reductions are based on the following (City VMT Exchange Program, Appendix A page 7):

Pedestrian Network Improvements

2. Improve existing pedestrian infrastructure

The GHG Handbook does not provide a quantitative approach for determining the VMT reduction associated with pedestrian improvements or traffic calming. However, the GHG Handbook does document that (GHG Handbook, page 133):

> **Expanded Mitigation Options**
>
> When improving sidewalks, a best practice is to ensure they are contiguous and link externally with existing and planned pedestrian facilities. Barriers to pedestrian access and interconnectivity, such as walls, landscaping buffers, slopes, and unprotected crossings should be minimized. Other best practice features could include high-visibility crosswalks, pedestrian hybrid beacons, and other pedestrian signals, mid-block crossing walks, pedestrian refuge islands, speed tables, bulb-outs (curb extensions), curb ramps, signage, pavement markings, pedestrian-only connections and districts, landscaping, and other improvements to pedestrian safety (see Measure T-35, *Provide Traffic Calming Measures*).

Additionally, GHG Handbook Measure T-35 Provide Traffic Calming also describes improving the bicycle and pedestrian experience by reducing travel speeds, encouraging walking and biking. The measure is described as follows (GHG Handbook, page 53):

> **T-35. Provide Traffic Calming Measures**
>
> This measure requires projects to include pedestrian/bicycle safety and traffic calming measures above jurisdictional requirements. Roadways should also be designed to reduce motor vehicle speeds and encourage pedestrian and bicycle trips with traffic calming features. Traffic calming features may include marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers, and others. Providing traffic calming measures encourages people to walk or bike instead of using a vehicle. This mode shift will result in a decrease in vehicle miles traveled. In 2017, 3,904 people were killed and 277,160 injured by vehicle collisions in California; traffic calming can reduce injuries and death, which improves health (State of California et al., 2018). Traffic calming also promotes active transportation, which improves physical health.

As noted in the GHG Handbook, the improvements are intended to improve pedestrian experience and safety to encourage more people to choose walking instead of driving for nearby destinations. The previous version of the CAPCOA GHG Handbook did provide some limited research about the amount of VMT reduction associated with pedestrian improvements and traffic calming features. However, since the research was limited and not geographically diverse, the update GHG Handbook does not offer specific VMT quantification of these measures.

An engineering/planning judgement estimate was made assuming the number of new walking trips that would result daily from these types of improvements. The improvements are estimated to convert up to 25 short vehicle trips to walking trips per day. The average walking trip length is

0.6 miles one-way (based on the GHG Handbook) or 1.2 miles round-trip. Therefore, 25 additional walking trips reduces VMT by 1.2 miles *25 walking trips = 30 VMT per one pedestrian improvement.

In addition, planning/engineering judgement was used to establish what constitutes "one pedestrian improvement." For improvements at intersections, (such as enhancing the crosswalks, adding raised crosswalks, or installing median refuse islands) features that improve access for a walking desire line across two intersection legs is considered an improvement. This is logical because if you are walking and need to access the opposite corner of the intersection you would need to cross two legs of the intersection to continue to your desired destination. Therefore, to be inclusive of all walking desire lines the improvements should upgrade the pedestrian conditions on least two intersection legs to be considered one pedestrian improvement.

For mid-block locations, a single crossing provides access to all pedestrian desire lines; therefore, upgrading the mid-block location results in the same VMT reduction benefit as upgrading two legs of an intersection.

Curb ramp installation also encourages pedestrian activity for people who use mobility devices, have limited mobility, and for people who are pushing strollers, wagons, etc. Most intersections in Escondido have curb ramps; however, some intersections have incomplete (not all corners have them) or completely missing ramps. To offer flexibility and achieve the benefit of having curb ramps installed, the 30 VMT reduction per improvement was divided by four (4) to reflect a typical four-corner intersection (30/4=7.5, rounded to the nearest whole number = 8). Also note that directional curb ramps are preferred in Escondido, which results in two curb ramps per intersection corner. The 8 VMT reduced is "per corner" not "per ramp."

Based on the aforementioned city methodology, the proposed VMT reduction measures and city provided cost estimates are included in **Table 7**.

TABLE 7: CITY VMT REDUCTION MEASURES

Intersection	Improvement	City Cost Estimate	VMT Reduction
1) Centre City Pkwy at Iris Ln	Four High-Visibility Crosswalks (HVC) Countdown pedestrian heads 1 intersection upgrade	$16,000	60 VMT 60 VMT
2) El Norte at S. Iris Ln	Four High-Visibility Crosswalks (HVC) Countdown pedestrian heads 1 intersection upgrade	$14,000	60 VMT 60 VMT
3) Broadway at Vista Ave	Four High-Visibility Crosswalks (HVC) Countdown pedestrian heads 1 intersection upgrade	$26,000	60 VMT 60 VMT
4) El Norte at Mountain View	Countdown pedestrian heads 1 intersection upgrade	$4,000	60 VMT
5) Country Club at Broadway	Three High-Visibility Crosswalks (HVC)	$7,500	45 VMT
	Totals	**$67,500**	**465 VMT**

Source: City of Escondido draft VMT Exchange Program. Cost estimates provided by City staff.

The project transportation VMT impact is mitigated to below a level of significance with the VMT reduction added to the CAPCOA T-1 reduction resulting in a final VMT at 84.4%, which is less than the 85th percentile regional mean as shown in **Table 8**.

TABLE 8: PROJECT VMT MITIGATION RESULTS

Project Number of Dwelling Units	SANDAG Avg Household Size Person/Unit	Persons	Project VMT/ Capita	Project VMT	Mean VMT/ Capita	Percent of Mean
SANDAG Screenline Map VMT Percent of Mean and Project VMT						
102	3.2	326.4	18.40	6,006	18.9	97.3%
CAPCOA T-1 Increase Residential Density VMT % Reduction:						-5.4%
102	3.2	326.4	17.37	5,669	18.9	91.9%
85th Percentile Project VMT						
102	3.2	326.4	16.07	5,244	18.9	85.0%
Required VMT Reduction after CAPCOA On-Site Mitigation =				*426*		

City VMT Exchange Program Reduction Measures	Reduction
Centre City Pkwy/Iris Ln (HVC & count down ped timers)	-120
El Norte/S. Iris Ln (HVC & count down ped timers)	-120
Broadway/Vista Ave (HVC & count down ped timers)	-120
El Norte/Mountain View (count down ped timers)	-60
Country Club at Broadway (HVC)	-45
VMT Reduction	-465
Mitigation reduces VMT by at least 426?	Yes
Project Final VMT after CAPCOA T-1 mitigation (5,669-465) =	**5,204**

Dec 2021 CAPCOA, City 2022 VMT Reduction Options. Persons/Unit from SANDAG. HVC: High Visibility Crosswalks

3.5 Other VMT Reduction Measures

In addition to the proposed VMT measures, the project applicant proposes to implement Transportation Demand Management (TDM) strategies to further reduce single occupant vehicle use through promoting alternative modes of transportation. The following TDM plan will provide the means to disseminate information to residents to learn about and use alternative forms of transportation other than single occupancy vehicles. The following TDM elements (to be implemented by the developer at the time of product sales) will be provided during the sales phase and can be incorporated into the project conditions of approval.

1) Provide information about SANDAG's iCommute program (www.icommutesd.com) to encourage carpooling.

2) Provide information about maps, routes, and schedules for public transit.

The applicant will also construct sidewalks along the project frontage on N. Iris Ln (this will complete a missing sidewalk link in the community without taking a VMT credit) and along the project frontage on Robin Hill Ln.

3.6 VMT Mitigation Summary

The project VMT impact is mitigated to below a level of significance at through implementation of the CAPCOA T-1 VMT reduction measure and payment of **$67,500** to the City of Escondido for pedestrian improvements at five (5) intersections. These mitigation measures are calculated to reduce the project VMT to lower than 85% of the regional mean.

In addition to the above VMT mitigation measures, the project applicant proposes to implement Transportation Demand Management (TDM) strategies to further reduce single occupant vehicle use through promoting alternative modes of transportation. The following TDM plan will provide the means to disseminate information to residents to learn about and use alternative forms of transportation other than single occupancy vehicles. The following TDM elements (to be implemented by the developer at the time of product sales) will be provided during the sales phase and can be incorporated into the project conditions of approval: 1) Provide information about SANDAG's iCommute program (www.icommutesd.com) to encourage carpooling, and 2) Provide information about maps, routes, and schedules for public transit. The applicant will also construct sidewalks along the project frontage on N. Iris Ln (this will complete a missing sidewalk link in the community without taking a VMT credit) and along the project frontage on Robin Hill Ln.

4.0 Traffic Analysis

The traffic analysis study is based on the criteria outline in Section 2.1 and included the following intersections:

1) N. Iris Ln/Village Rd (un-signalized)
2) N. Iris Ln/Robin Hill Ln (un-signalized)
3) N. Iris Ln/Iris Glen Private Driveway (un-signalized)
4) Centre City Pkwy/Iris Lane (signalized)

And the following street segments:

1) N. Iris Ln from Village Rd to Robin Hill Ln
2) N. Iris Ln from Robin Hill Ln to Centre City Pkwy

4.1 Analysis Methodology

The traffic analyses prepared for this study were based on the *Highway Capacity Manual* (HCM) operations analysis using Level of Service (LOS) evaluation criteria. The operating conditions of the study intersections were measured using the HCM LOS designations, which ranges from A through F. LOS A represents the best operating condition and LOS F denotes the worst operating condition. The LOS criteria for each roadway component are described below.

4.1.1 Intersections

The study intersections were analyzed based on the **operational analysis** outlined in the 6th Edition HCM. This process defines LOS in terms of **average control delay** per vehicle, which is measured in seconds. LOS at the intersections was calculated using the computer software program Synchro 10 (Trafficware Corporation). The 6th Edition HCM LOS for the range of delay by seconds for intersections is shown in **Table 9**.

TABLE 9: INTERSECTION LEVEL OF SERVICE DEFINITIONS (6TH EDITION HCM)

Level of Service	Un-Signalized Control Delay for TWSC, AWSC, and Roundabout (sec/veh where v/c ≤ 1)	Signalized Control Delay (sec/veh where v/c ≤ 1)
A	0-10	≤ 10
B	> 10-15	> 10-20
C	> 15-25	> 20-35
D	> 25-35	> 35-55
E	> 35-50	> 55-80
F	> 50	> 80

Source: 6th Edition HCM. TWSC: Two Way Stop Control. AWSC: All Way Stop Control. For unsignalized intersections, the control delay is the worst movement delay in seconds/vehicle.

4.1.2 Street Segments

The street segments were analyzed based on the functional classification of the roadway using the City of Escondido Street Segment Average Daily Vehicle Trip Thresholds table. The roadway segment capacity and LOS standards used to analyze street segments are summarized in **Table 10**.

TABLE 10: STREET SEGMENT DAILY CAPACITY AND LOS (CITY OF ESCONDIDO)

Circulation Element Road Classification	Cross Sections (ft)	LOS A	LOS B	LOS C	LOS D	LOS E
Prime Arterial – 8 Lanes	116/136 (NP)	23,800	37,800	51,800	62,300	70,000
Prime Arterial – 6 Lanes	106/126 (NP)	20,400	32,400	44,400	53,400	60,000
Major Road – 6 Lanes	90/110(NP)	17,000	27,000	37,000	44,500	50,000
Major Road – 4 Lanes	82/102 (NP)	12,600	20,000	27,400	32,900	37,000
Collector – 4 Lanes	64/84 (NP)	11,600	18,500	25,300	30,400	34,200
Collector – 4 Lanes	(WP)	6,800	10,800	14,800	17,800	20,000
Local Collector – 2 Lanes	42/66 (NP)	5,100	8,100	11,100	13,400	15,000
Local Collector – 2 Lanes	(WP)	3,400	5,400	7,400	8,900	10,000

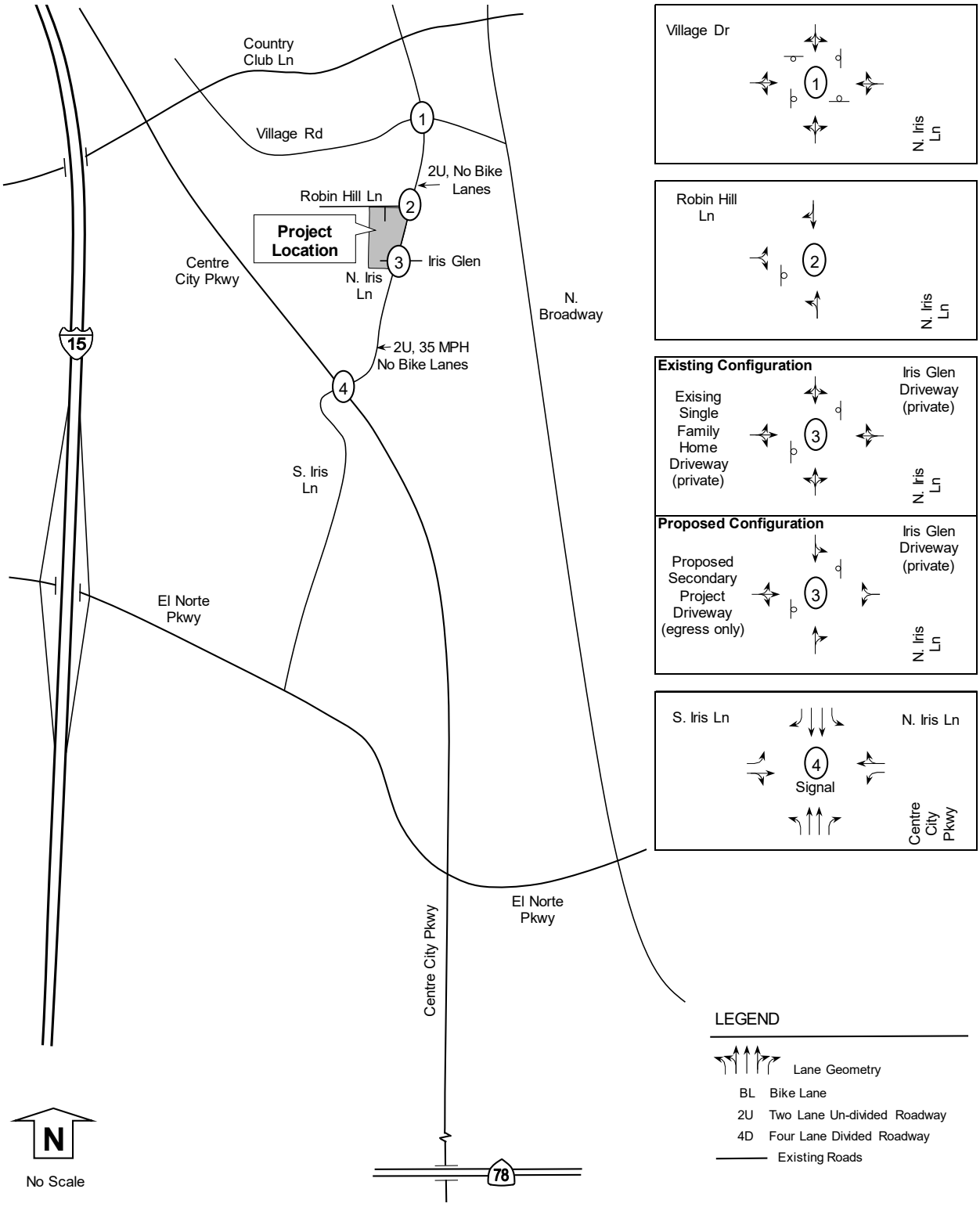
Source: City of Escondido *Transportation Impact Analysis Guidelines* April 21, 2021. NP: No Parking. WP: With Parking.

4.2 Existing Traffic Conditions

In the vicinity of the project, the following roadway was analyzed as part of this study with roadway conditions are shown in **Figure 5**.

N. Iris Lane from Village Rd to Centre City Pkwy is classified as a *Local Collector* in the City of Escondido 2012 General Plan (excerpt included in **Appendix D**). This segment of roadway is constructed as a 2-lane un-divided roadway. This segment is posted at 35 MPH with no bike lanes. For the purposes of this analysis, the segment of N. Iris Lane from Robin Hill Lane to Centre City Parkway was analyzed with a capacity of 10,000 ADT at LOS E due to two sections that are not constructed to the ultimate classification width even though the number of travel lanes match the classification. The sections currently not built to the final cross section is from Centre City Parkway to south of Elkhorn Lane (580 feet (both sides)), and from just north of Cheyenne Lane to Robin Hill Lane (880 feet (west side)).

Figure 5: Existing Roadway Conditions



4.3 Existing Traffic Volumes and LOS Analysis

Intersection counts from 7-9 AM and 4-6 PM were collected at the following locations with count dates noted in parentheses:

1) N. Iris Ln/Village Rd (10/7/2020)
2) N. Iris Ln/Robin Hill Ln (10/7/2020)
3) N. Iris Ln/Iris Glen minor leg movements for Meadowbrook Village (8/31/2021)
4) Centre City Pkwy/Iris Lane (5/3/2018 & 10/7/2020)

The following street segments were also counted over a 24-hour period:

1) N. Iris Ln from Village Rd to Robin Hill Ln (10/7/2020)
2) N. Iris Ln from Robin Hill Ln to Centre City Pkwy (5/3/2018 & 10/7/2020)

Due to the Covid Pandemic, historical year 2018 and current year 2020 counts were reviewed to determine which volumes should be used to represent existing conditions. All year 2020 counts collected above were lower than year 2018 counts as follows. ADTs were 35.7% lower. The intersection of Centre City Pkwy/Iris Ln was 92% lower in the AM and 16% lower in the PM. Therefore, the higher year 2018 counts were used to represent existing conditions for the following locations:

1) Intersection of Centre City Pkwy/Iris Lane (2018 data used), and
2) Segment of N. Iris Ln from Robin Hill Ln to Centre City Pkwy (2018 data used).

For the locations that did not have historical year 2018 counts available, a growth factor was applied to year 2020 counts to represent existing conditions. The growth factor was calculated by taking the reduction between year 2020 and year 2018 counts on the segment of N. Iris Ln between Robin Hill Ln and Centre City Pkwy. This segment had a 35.7% reduction in traffic volume. Therefore, a growth factor of 35.7% was applied to the following locations to represent existing conditions:

1) Intersection of N. Iris Ln/Village Rd (2020 data factored up by 35.7%),
2) Intersection of N. Iris Ln/Robin Hill Ln (2020 data factored up by 35.7%), and
3) Segment of N. Iris Ln from Village Rd to Robin Hill (2020 data factored up by 35.7%).

The turn moves entering and exiting Meadowbrook Village at N. Iris Ln/Iris Glen (minor leg movements) were counted on 8/31/21. These 8/31/21 turn moves were compared against the forecast turn moves in the Meadowbrook Village TIA to which the higher volumes from the TIA were used for existing conditions.

The historical data, calculated growth factors, and applied volumes are included in **Appendix E**. The existing weekday daily and peak hour volumes are shown in **Figure 6**.

The LOS calculated for the intersections and roadway segments are included in **Tables 11 and 12**. Intersection LOS worksheets are included in **Appendix F**.

Figure 6: Existing Volumes

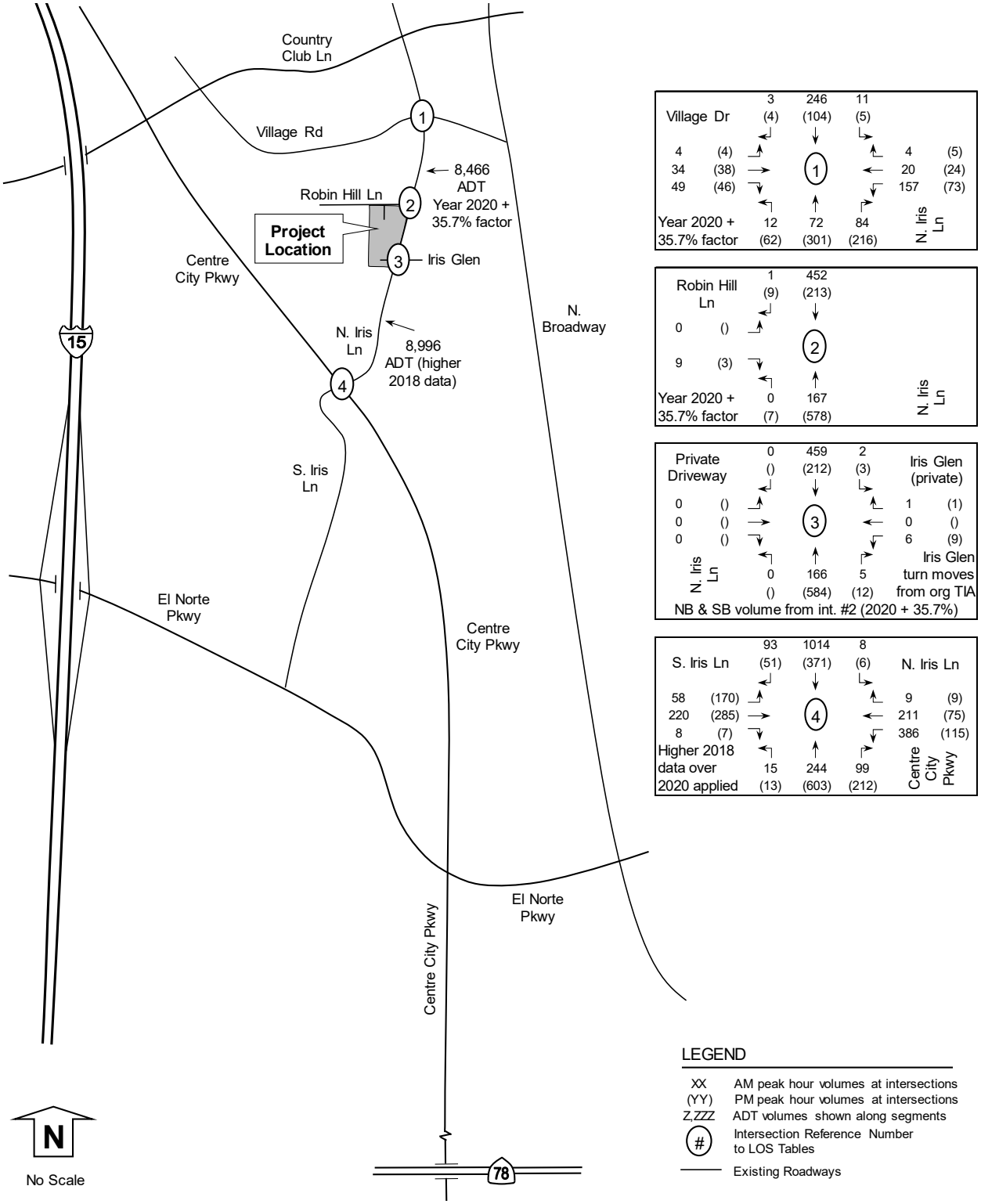


TABLE 11: EXISTING INTERSECTION LEVEL OF SERVICE

Intersection and (Analysis)[1]	Movement	Study Period	Existing Delay[2]	Existing LOS[3]
1) N. Iris Ln at	All	AM	10.3	B
Village Rd (U)	All	PM	17.6	C
2) N. Iris Ln at	EB	AM	11.5	B
Robin Hill Ln (U)	EB	PM	9.6	A
3) N. Iris Ln at	EB	AM	0.0	A
Iris Glen (U)	WB	AM	14.3	B
	EB	PM	0.0	A
	WB	PM	18.4	C
4) Centre City Pkwy	All	AM	36.2	D
at Iris Ln (S)	All	PM	22.8	C

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service.

TABLE 12: EXISTING SEGMENT VOLUMES AND LEVEL OF SERVICE

Segment	General Plan Classification	LOS E Capacity	Existing Daily Volume	Existing V/C	Existing LOS
N. Iris Lane					
Village Rd to Robin Hill Ln	2-Ln Local Coll.	15,000	8,466	0.564	C
Robin Hill Ln to Centre City Pkwy	2-Ln Local Coll.	10,000	8,996	0.900	**E**

Notes: Coll. = Collector. Daily volume is a 24 hour volume. V/C: Volume to Capacity Ratio. LOS: Level of Service.

Under existing conditions, the study intersections and segments were calculated to operate at LOS D or better except for N. Iris Ln from Robin Hill Ln to Centre City Pkwy (LOS E). Also, there is an existing long westbound left turn queue from N. Iris Ln to Centre City Pkwy.

4.4 Project Traffic Generation

The project traffic generation was calculated using SANDAG trip rates from the *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region*, April 2002, for the condominium/multi-family development classification. A trip credit was not applied for the existing four (4) single family homes to be conservative. The 102 units are calculated to generate 816 Average Daily Trips (ADT) with 65 AM peak hour trips (13 in and 52 out) and 81 PM peak hour trips (57 in and 24 out) as shown in **Table 13**.

TABLE 13: PROJECT TRAFFIC GENERATION

Proposed Land Use	Rate	Size & Units		ADT	%	Split	AM IN	AM OUT	%	Split	PM IN	PM OUT
Residential - Multi Family	8 /DU	**102**	DU	**816**	8%	0.2 0.8	**13**	**52**	10%	0.7 0.3	**57**	**24**

Source: SANDAG *Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region,* April 2002.

4.5 Project Construction Traffic Generation

Construction traffic includes demolition (removal of existing structures), site preparation (export of basted materials for offsite crushing), grading (soil import), paving, building construction, and architectural coating. Additionally, deliveries of concrete and materials will occur over different phases of activity.

Construction work does not start until 7 AM; however, workers arrive before 7 AM for pre-work task meetings or coordination. Since workers arrive before 7 AM, they will not be any construction worker traffic added to the 7-9 AM peak hour analysis. These workers will typically leave around 3:30 PM; however, a few workers (estimated at 10) may stay late due to unforeseeable circumstances (not anticipated to occur on a regular basis). To account for the unforeseeable circumstances, 10 construction workers are shown in the outbound construction PM peak hour. Work is anticipated to occur Monday through Friday with some potential Saturday work if required.

The highest number of construction workers occurs during the building construction phase. During this phase, there are 112 forecasted workers, and the vendor truck trips are forecasted at approximately 26 per day over an 8-hour period (about 3-4 trucks per hour inbound or 3-4 trucks per hour outbound, which is about 8 inbound and 8 outbound with a Passenger Car Equivalent [PCE] factor of 2 applied). The number of workers and vendor truck trips are from the California Emissions Estimator Model (CalEEMod) provided by LDN Consulting, Inc. As shown in **Table 14**, the highest number of construction workers results in a construction traffic generation of 328 ADT, 16 AM peak hour trips, and 26 PM peak hour trips, which is less than what was analyzed for the project (816 ADT, 65 AM and 81 PM); therefore, the project traffic generation analysis provides a conservative analysis over the temporary construction traffic.

TABLE 14: PROJECT CONSTRUCTION TRAFFIC GENERATION (HIGHEST PHASE)

Highest Concentration Construction Trip Generation	Construction Workers by Phase	Deliveries/ Trucks by Phase	ADT	AM Peak Hour 1hr btw 7-9		PM Peak Hour 1hr btw 4-6	
				IN	OUT	IN	OUT
Building Construction Workers	up to 112	na	224	0	0	0	10
Building Construction Deliveries(with PCE)	na	up to 26	104	8	8	8	8
		Totals:	**328**	**8**	**8**	**8**	**18**

Source: CalEEMod forecasted workers from LDN Consulting, Inc. Worker egress of 10 PM peak hour trips is not anticiapted to occur on a daily basis, rather it would only occur when there are unforeseeable circumstance where a few workers may remain later than normal to compete the work. PCE: Passenger Car Equivalent factor of 2.0.

The demolition, site preparation, and grading phases have fewer construction workers than during the building phase; however, there is a forecasted maximum of approximately 100 trucks per day that are required for either exporting or importing material. Over a typical 8-hour day, there would be about 13 trucks per hour entering and exiting the project site. Using a Passenger Car Equivalent (PCE) factor of 2.0 to convert one truck to two equivalent passenger cars, the AM peak hour is forecasted to have 13 inbound plus 13 outbound trucks, or 26 trucks in an hour. Multiplied by 2.0, the AM construction peak hour would have 26 inbound and 26 outbound, or 52 PCE vehicles, which is less than what was analyzed for the project with 65 AM vehicles; therefore, the project traffic generation analysis provides a conservative analysis over the temporary construction traffic.

4.6 Project Access

Robin Hill has a full access gated driveway with a secondary egress only gated driveway on N. Iris.

4.7 Project Trip Distribution and Assignment

The distribution was based on a SANDAG Series 14 Year 2035 Select Zone Assignment (SZA) traffic model run that incorporates local and regional trip attractions such as jobs, schools, and shopping. A small scale and large scale copy of the SZA are included in **Appendix G**. The project distribution is shown in **Figure 7** while the trip assignment is shown in **Figure 8.**

Figure 7: Project Distribution

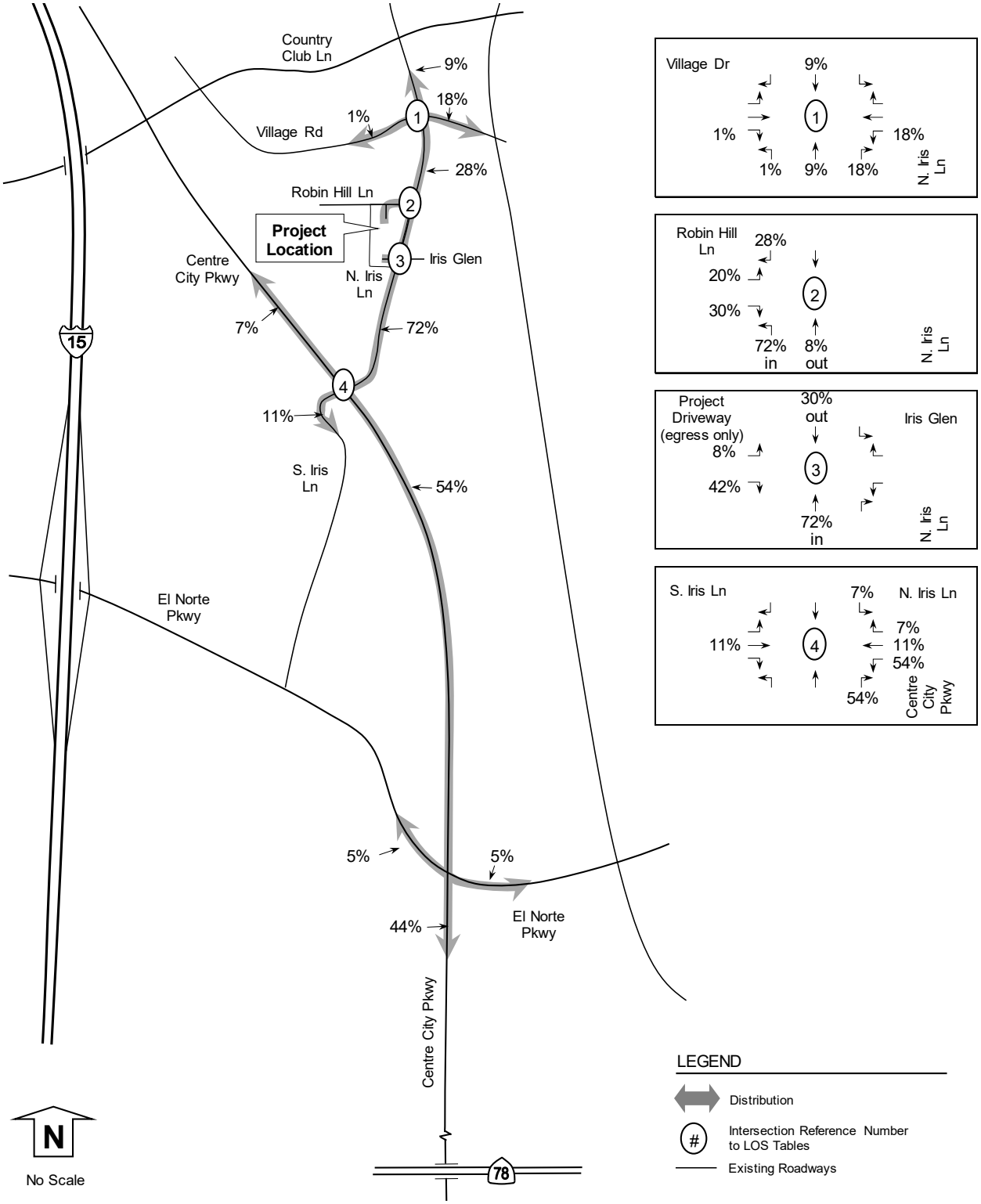
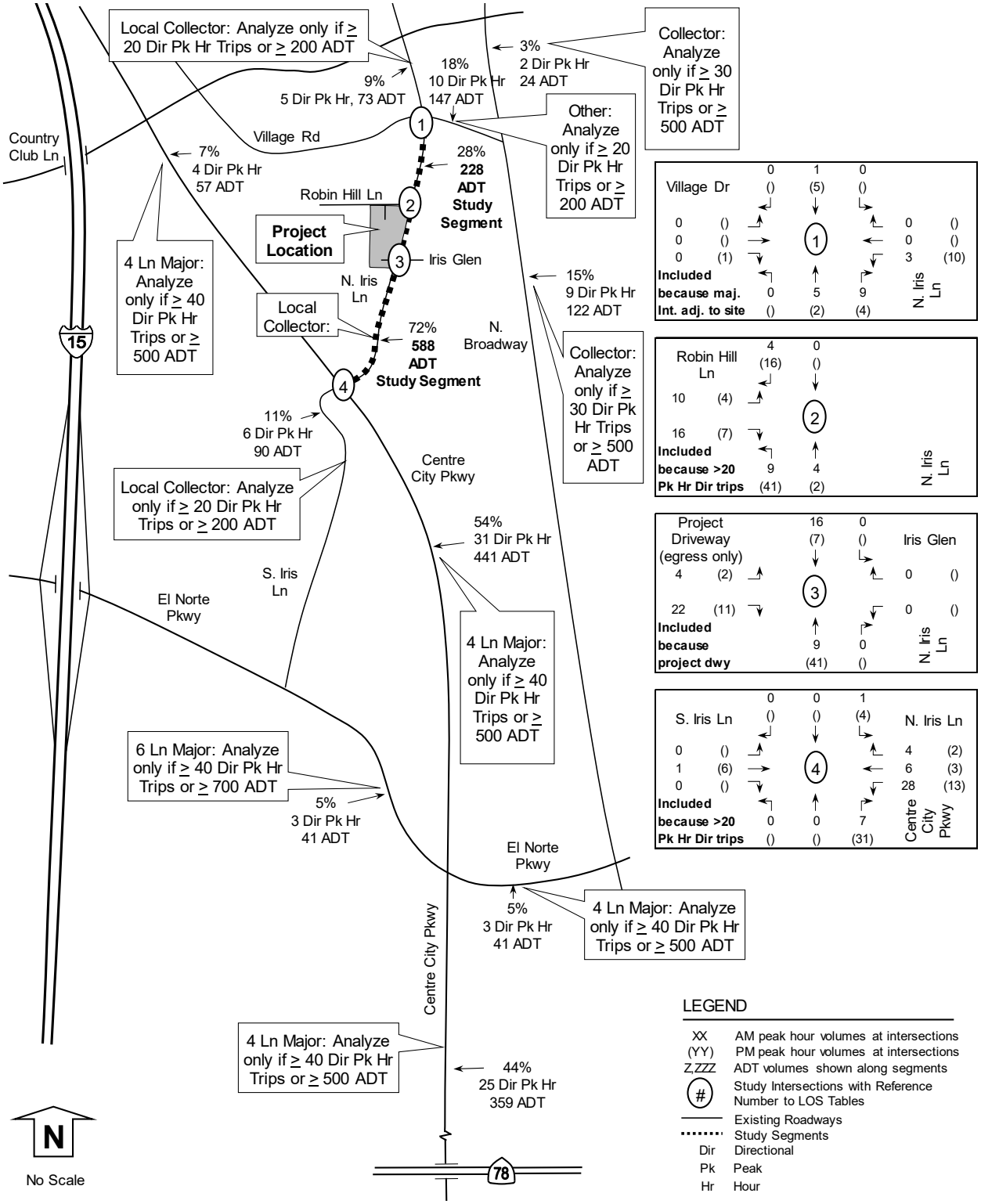


Figure 8: Project Assignment



4.8 Existing plus Project Conditions

This scenario accounts for the addition of project traffic onto existing conditions. The traffic volumes are shown in **Figure 9.** The LOS calculated for the study intersections and segments are included in **Tables 15 and 16**. Intersection LOS worksheets are included in **Appendix H.**

TABLE 15: EXISTING PLUS PROJECT INTERSECTION LEVEL OF SERVICE

Intersection and (Analysis)[1]	Movement	Study Period	Existing Delay[2]	Existing LOS[3]	Existing + Project Delay[2]	Existing + Project LOS[3]	Delta[4]	Effect?[5]
1) N. Iris Ln at	All	AM	10.3	B	10.5	B	0.2	No
Village Rd (U)	All	PM	17.6	C	18.4	C	0.8	No
2) N. Iris Ln at	EB	AM	11.5	B	12.8	B	1.3	No
Robin Hill Ln (U)	EB	PM	9.6	A	12.6	B	3.0	No
3) N. Iris Ln at	EB	AM	0.0	A	12.5	B	12.5	No
Iris Glen (U)	WB	AM	14.3	B	15.3	C	1.0	No
	EB	PM	0.0	A	11.2	B	11.2	No
	WB	PM	18.4	C	19.9	C	1.5	No
4) Centre City Pkwy	All	AM	36.2	D	36.6	D	0.4	No
at Iris Ln (S)	All	PM	22.8	C	23.7	C	0.9	No

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service. 4) Delta is the increase in delay from project. 5) Project Effect if project traffic exceeds threshold.

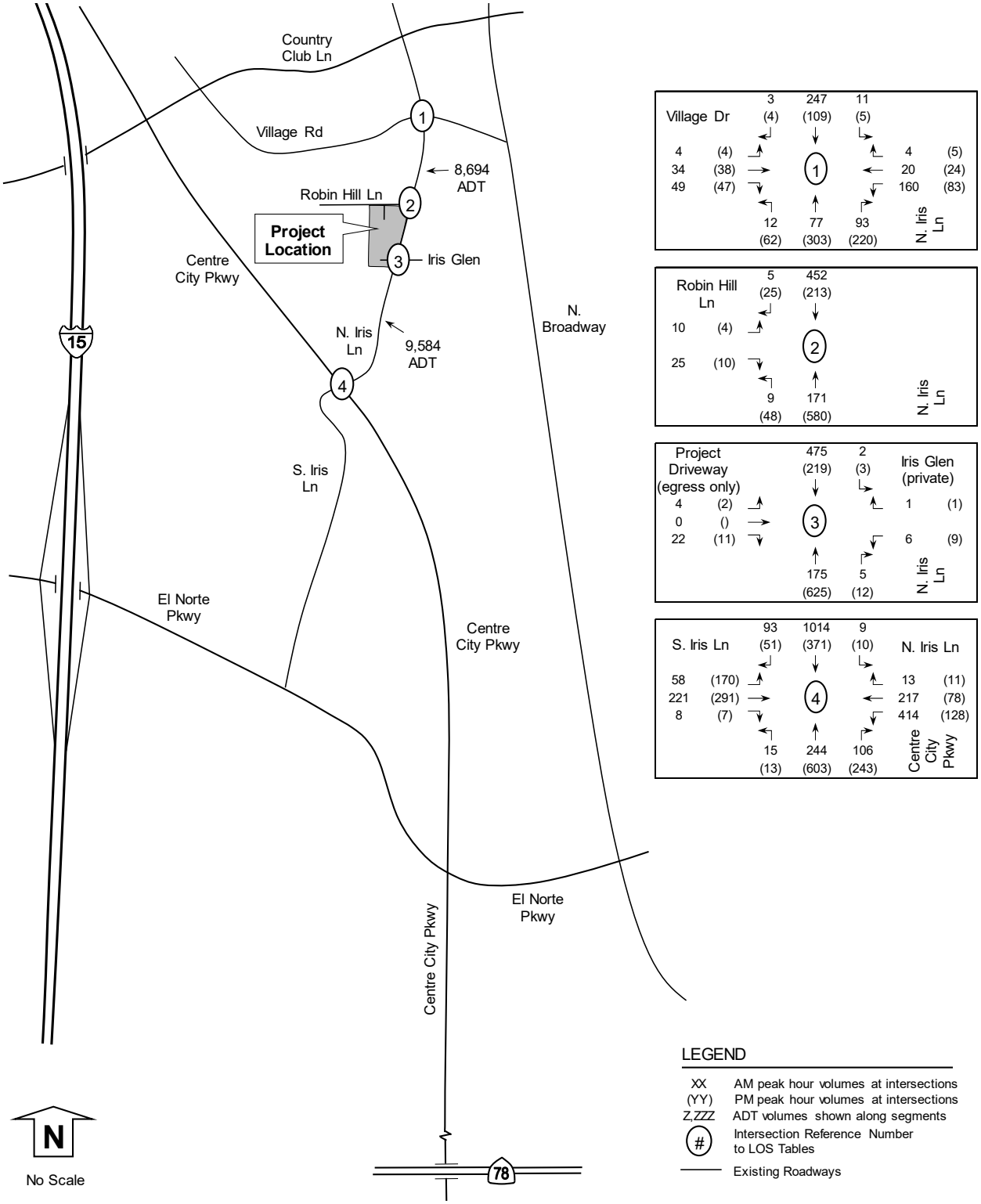
TABLE 16: EXISTING PLUS PROJECT SEGMENT VOLUMES AND LEVEL OF SERVICE

Segment	General Plan Classification	LOS E Capacity	Existing Daily Volume	Existing V/C	Existing LOS	Project Daily Volume	Existing + Project Daily Volume	Existing + Project V/C	Existing + Project LOS	Change in V/C	Project Effect?
N. Iris Lane											
Village Rd to Robin Hill Ln	2-Ln Local Coll.	15,000	8,466	0.564	C	228	8,694	0.580	C	0.015	No
Robin Hill Ln to Centre City Pkwy	2-Ln Local Coll.	10,000	8,996	0.900	**E**	588	9,584	0.958	**E**	0.059	**Yes**

Notes: Coll. = Collector. Daily volume is a 24 hour volume. V/C: Volume to Capacity Ratio. LOS: Level of Service. Effect: Yes or No.

Under existing plus project conditions, the study intersections and segments were calculated to operate at LOS D or better except for N. Iris Ln from Robin Hill Ln to Centre City Pkwy (LOS E). There is a calculated project traffic effect along the segment of N. Iris Ln from Robin Hill Ln to Centre City Pkwy. Additionally, the project will add traffic to the existing westbound left turn queue from N. Iris Ln to Centre City Pkwy. Project improvements are described in Section 4.14.

Figure 9: Existing plus Project Volumes



4.9 Near Term Cumulative Projects

Based on a review of City of Escondido on-line cumulative projects the following cumulative projects were determined to add traffic to the study area. Individual cumulative project assignments are included in **Appendix I**. The following cumulative project (referenced by city map # included in Appendix I) were included in this analysis.

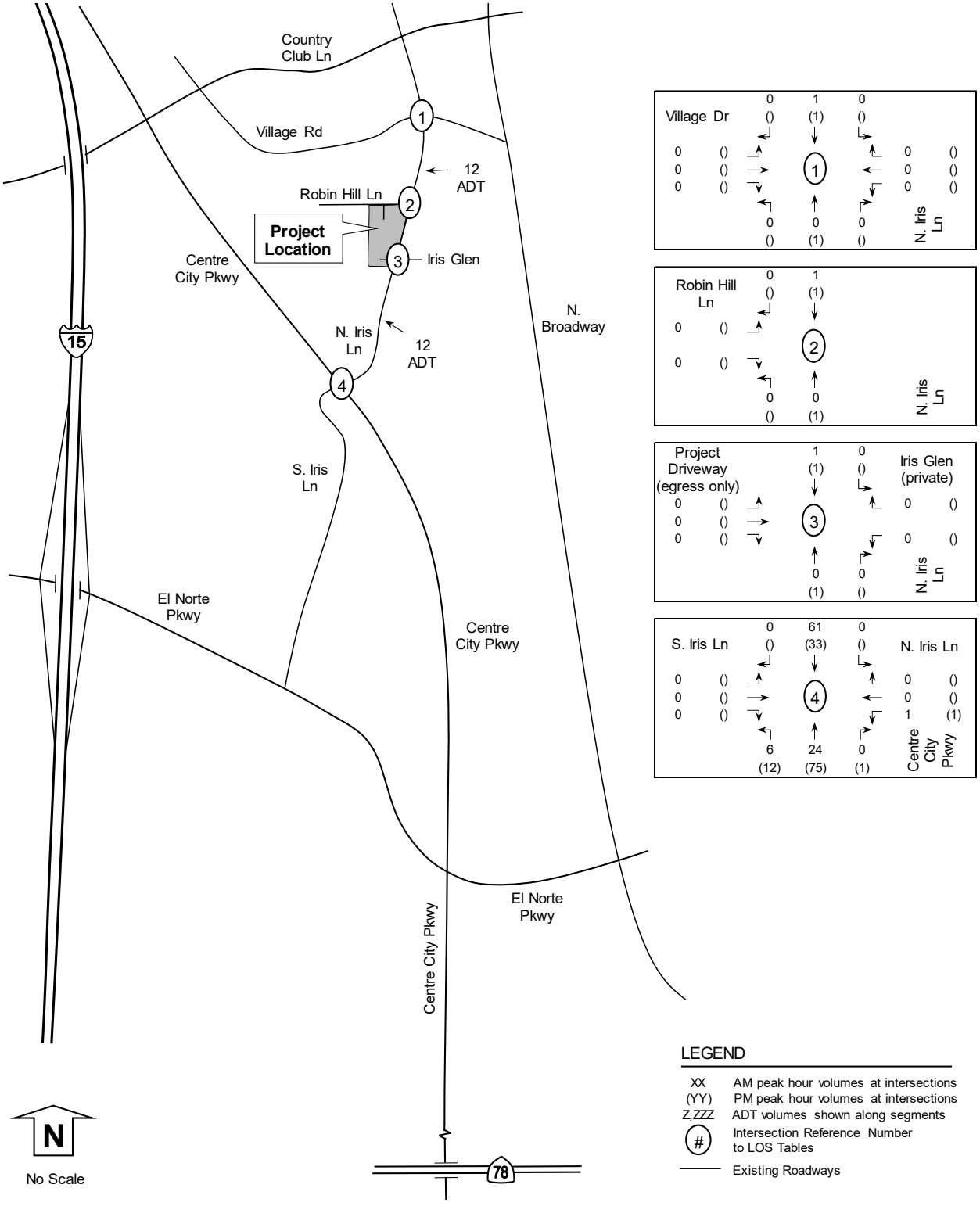
City Map #29: Escondido Country Club – The Villages. A mixed-use project with 392 single family homes, recreational amenities, and an urban farm generally located north of El Norte Parkway, west of I-15, along on both side of Country Club Lane.

City Map #109 & 136: Nutmeg Residences (137 townhomes and 97 single family homes) generally located on the southwest corner of Centre City Pkwy at Nutmeg St.

City Map #130: Assisted Living Residences (96 bed residential care facility) generally located on the east side of Centre City Pkwy south of Iris Lane.

The cumulative project volumes are shown in **Figure 10.**

Figure 10: Near Term Cumulative Project Volumes



4.10 Near Term Conditions

Near Term (existing plus cumulative) describes the anticipated roadway operations with the completion of the cumulative projects. The near term volumes are shown in **Figure 11**. The LOS calculated for the study intersections and segments are included in **Tables 17 and 18**. Intersection LOS worksheets are included in **Appendix J**.

TABLE 17: NEAR TERM INTERSECTION LEVEL OF SERVICE

Intersection and (Analysis)[1]	Movement	Peak Hour	Existing		Near Term (E+C)	
			Delay[2]	LOS[3]	Delay[2]	LOS[3]
1) N. Iris Ln at	All	AM	10.3	B	10.3	B
Village Rd (U)	All	PM	17.6	C	17.7	C
2) N. Iris Ln at	EB	AM	11.5	B	11.5	B
Robin Hill Ln (U)	EB	PM	9.6	A	9.6	A
3) N. Iris Ln at	EB	AM	0.0	A	0.0	A
Iris Glen (U)	WB	AM	14.3	B	14.3	B
	EB	PM	0.0	A	0.0	A
	WB	PM	18.4	C	18.5	C
4) Centre City Pkwy	All	AM	36.2	D	36.9	D
at Iris Ln (S)	All	PM	22.8	C	22.9	C

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service.

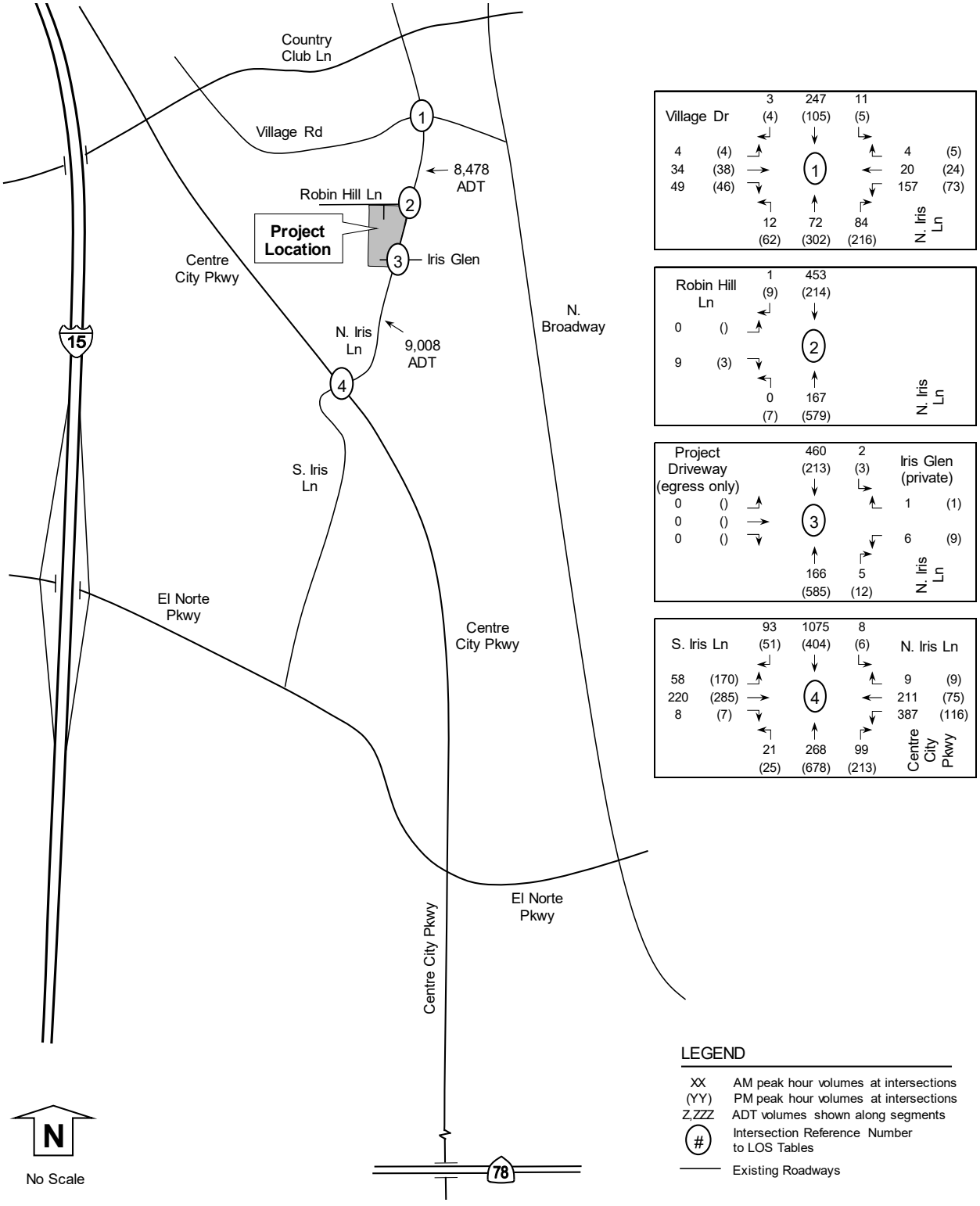
TABLE 18: NEAR TERM SEGMENT VOLUMES AND LEVEL OF SERVICE

Segment	General Plan Classification	LOS E Capacity	Existing Daily Volume	Existing V/C	Existing LOS	Cumulative Daily Volume	Near Term (E+C) Daily Volume	Near Term (E+C) V/C	Near Term (E+C) LOS
N. Iris Lane									
Village Rd to Robin Hill Ln	2-Ln Local Coll.	15,000	8,466	0.564	C	12	8,478	0.565	C
Robin Hill Ln to Centre City Pkwy	2-Ln Local Coll.	10,000	8,996	0.900	**E**	12	9,008	0.901	**E**

Notes: Coll. = Collector. Daily volume is a 24 hour volume. V/C: Volume to Capacity Ratio. LOS: Level of Service.

Under near term conditions, the study intersections and segments were calculated to operate at LOS D or better except for N. Iris Ln from Robin Hill Ln to Centre City Pkwy (LOS E). Also, there is a long westbound left turn queue from N. Iris Ln to Centre City Pkwy.

Figure 11: Near Term Volumes



4.11 Near Term plus Project Conditions

The near term plus project condition describes the anticipated roadway operations with the addition of project traffic. Near term plus project traffic volumes are shown in **Figure 12.** The LOS calculated for the study intersections and segments are included in **Tables 19 and 20**. Intersection LOS worksheets are included in **Appendix K**.

TABLE 19: NEAR TERM PLUS PROJECT INTERSECTION LEVEL OF SERVICE

Intersection and	Movement	Peak	Near Term (E+C)		Near Term + Project			
(Analysis)[1]		Hour	Delay[2]	LOS[3]	Delay[2]	LOS[3]	Delta[4]	Effect?[5]
1) N. Iris Ln at	All	AM	10.3	B	10.5	B	0.2	No
Village Rd (U)	All	PM	17.7	C	19.5	C	1.8	No
2) N. Iris Ln at	EB	AM	11.5	B	12.8	B	1.3	No
Robin Hill Ln (U)	EB	PM	9.6	A	12.6	B	3.0	No
3) N. Iris Ln at	EB	AM	0.0	A	12.5	B	12.5	No
Iris Glen (U)	WB	AM	14.3	B	15.3	C	1.0	No
	EB	PM	0.0	A	11.2	B	11.2	No
	WB	PM	18.5	C	19.9	C	1.4	No
4) Centre City Pkwy	All	AM	36.9	D	37.3	D	0.4	No
at Iris Ln (S)	All	PM	22.9	C	23.9	C	1.0	No

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service. 4) Delta is the increase in delay from project. 5) Effect if project traffic exceeds threshold.

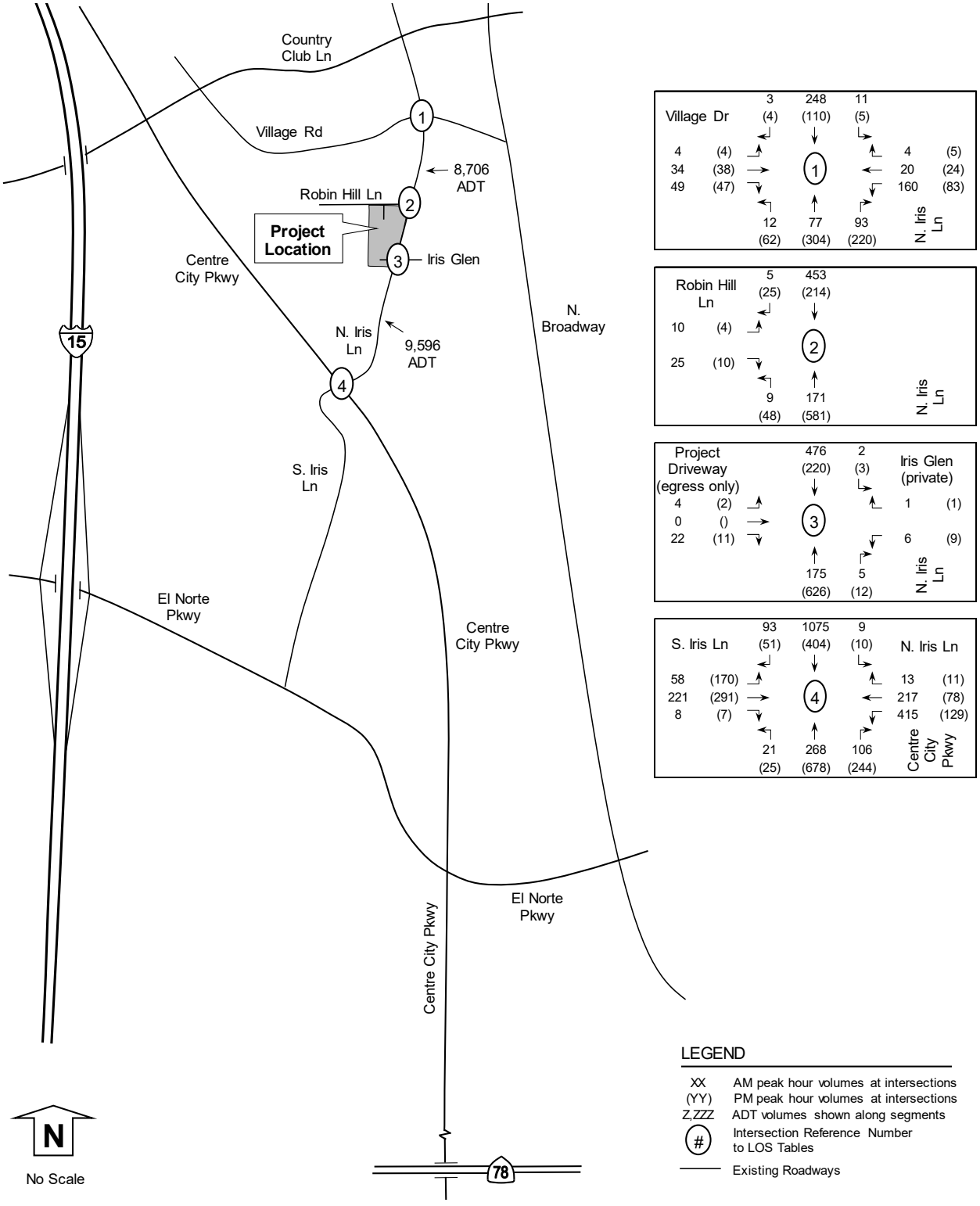
TABLE 20: NEAR TERM PLUS PROJECT SEGMENT VOLUMES AND LEVEL OF SERVICE

			Near Term			Project	Near Term + Project				
Segment	General Plan Classification	LOS E Capacity	Daily Volume	V/C	LOS	Daily Volume	Daily Volume	V/C	LOS	Change in V/C	Effect?
N. Iris Lane											
Village Rd to Robin Hill Ln	2-Ln Local Coll.	15,000	8,478	0.565	C	228	8,706	0.580	C	0.015	No
Robin Hill Ln to Centre City Pkwy	2-Ln Local Coll.	10,000	9,008	0.901	**E**	588	9,596	0.960	**E**	0.059	**Yes**

Notes: Coll. = Collector. Daily volume is a 24 hour volume. V/C: Volume to Capacity Ratio. LOS: Level of Service. Effect: Yes or No.

Under near term plus project conditions, the study intersections and segments were calculated to operate at LOS D or better except for N. Iris Ln from Robin Hill Ln to Centre City Pkwy (LOS E). There is a calculated project traffic effect along the segment of N. Iris Ln from Robin Hill Ln to Centre City Pkwy. Additionally, the project will add traffic to the near-term westbound left turn queue from N. Iris Ln to Centre City Pkwy. Project improvements are described in Section 4.14.

Figure 12: Near Term plus Project Volumes



4.12 Long Term Year 2035 Conditions

The year 2035 is used for the long term conditions in order to match the City's General Plan long term scenario. Long term (year 2035) conditions were analyzed using volumes from the following sources:

1) *City of Escondido General Plan*, May 2012
2) SANDAG Series 14 Horizon Year Volumes

Additionally, growth factors (described below) were used to forecast volumes that were not included in the above sources. The intersection year 2035 volumes sources or factoring included:

1) N. Iris Ln/Village Rd (2.2% growth factor, described below)
2) N. Iris Ln/Robin Hill Ln (2.2% growth factor)
3) N. Iris Ln/Iris Glen (2.2% growth factor to north and south through movements, no growth on minor legs that serve Meadowbrook Village and the proposed N. Iris Project)
4) Centre City Pkwy/Iris Lane (27.9% growth factor described below for north and south through movements on Centre City Pkwy and 2.2% on remaining movements because there is significantly less forecasted growth based on SANDAG forecasts on the minor street movements)

The segment year 2035 volume sources for factoring included:

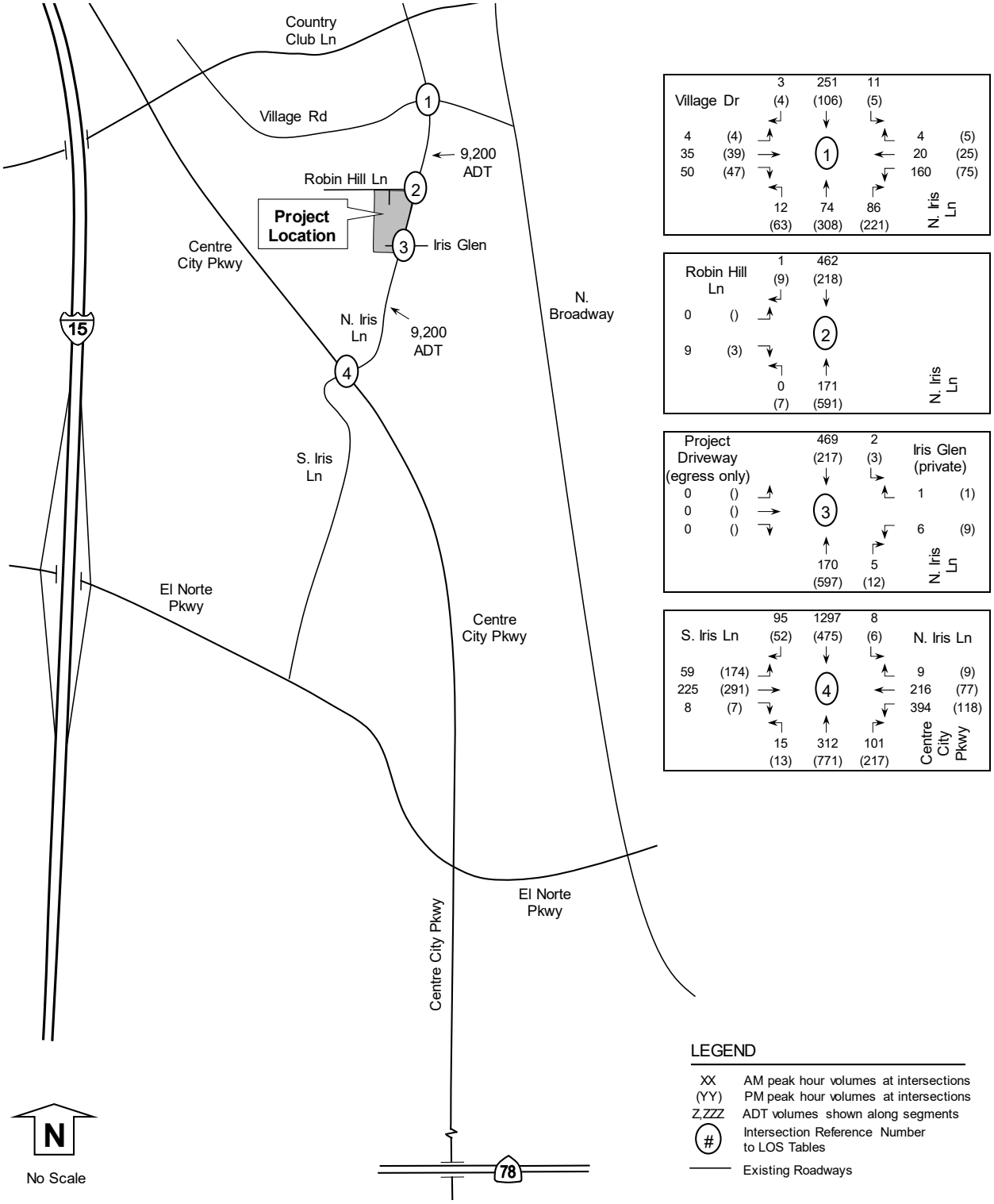
1) N. Iris Ln from Village Rd to Robin Hill Ln (SANDAG year 2050 volume)
2) N. Iris Ln from Robin Hill Ln to Centre City Pkwy (SANDAG year 2050 volume)

The 2.2% growth factor was calculated from the percent increase on N. Iris Ln between a year 2018 ADT of 8,996 and a year 2050 ADT of 9,200 from the SANDAG Series 14 model. The SANDAG year 2050 volume of 9,200 ADT was applied for N. Iris Ln because the City's General Plan Update had a year 2035 volume of 8,400 ADT, which was lower than the year 2018 volume of 8,996 ADT.

At Centre City Pkwy/Iris Lane, a 27.9% growth factor for northbound and southbound through movements was applied and a 2.2% growth factor on remaining movements was applied. The 2.2% represents the adjacent parcels served by Iris Lane and not the high through movements along Centre City Pkwy. Hence, the application of 2.2% to all intersection movements on N. Iris Ln at Village Rd and at Robin Hill Ln.

The long term volume sources and growth factors are included in **Appendix L**. Long term year 2035 volumes based on the aforementioned sources and growth factoring are shown in **Figure 13.**

Figure 13: Long Term Year 2035 Volumes



The LOS calculated for the study intersections and segments are included in **Tables 21 and 22**. Intersection LOS calculations are included in **Appendix M**.

TABLE 21: LONG TERM YEAR 2035 INTERSECTION LEVEL OF SERVICE

Intersection and (Analysis)[1]	Movement	Study Period	Year 2035 Delay[2]	Year 2035 LOS[3]
1) N. Iris Ln at	All	AM	10.5	B
Village Rd (U)	All	PM	18.7	C
2) N. Iris Ln at	EB	AM	11.6	B
Robin Hill Ln (U)	EB	PM	9.6	A
3) N. Iris Ln at	EB	AM	0.0	A
Iris Glen (U)	WB	AM	14.6	B
	EB	PM	0.0	A
	WB	PM	18.8	C
4) Centre City Pkwy	All	AM	42.5	D
at Iris Ln (S)	All	PM	23.5	C

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service.

TABLE 22: LONG TERM YEAR 2035 SEGMENT VOLUMES AND LEVEL OF SERVICE

Segment	General Plan Classification	LOS E Capacity	Year 2035 Daily Volume	Year 2035 V/C	Year 2035 LOS
N. Iris Lane					
Village Rd to Robin Hill Ln	2-Ln Local Coll.	15,000	9,200	0.613	C
Robin Hill Ln to Centre City Pkwy	2-Ln Local Coll.	10,000	9,200	0.920	**E**

Notes: Coll. = Collector. Daily volume is a 24 hour volume. V/C: Volume to Capacity Ratio. LOS: Level of Service.

Under Long Term Year 2035 conditions, the study intersections and segments were calculated to operate at LOS D or better except for N. Iris Ln from Robin Hill Ln to Centre City Pkwy (LOS E). Also, there is a long westbound left turn queue from N. Iris Ln to Centre City Pkwy.

4.13 Long Term Year 2035 plus Project Conditions

The Long Term Year 2035 with the project conditions were analyzed by adding the project traffic onto Year 2035 volumes. The Year 2035 volumes plus Project traffic are shown in **Figure 14.** The LOS calculated for the study intersections and segments are included in **Tables 23 and 24**. LOS calculations are included in **Appendix N**.

TABLE 23: LONG TERM YEAR 2035 PLUS PROJECT INTERSECTION LEVEL OF SERVICE

Intersection and	Movement	Study	Year 2035		Year 2035 + Project			
(Analysis)[1]		Period	Delay[2]	LOS[3]	Delay[2]	LOS[3]	Delta[4]	Effect?[5]
1) N. Iris Ln at	All	AM	10.5	B	10.6	B	0.1	No
Village Rd (U)	All	PM	18.7	C	20.8	C	2.1	No
2) N. Iris Ln at	EB	AM	11.6	B	12.9	B	1.3	No
Robin Hill Ln (U)	EB	PM	9.6	A	12.7	B	3.1	No
3) N. Iris Ln at	EB	AM	0.0	A	12.6	B	12.6	No
Iris Glen (U)	WB	AM	14.6	B	15.6	C	1.0	No
	EB	PM	0.0	A	11.3	B	11.3	No
	WB	PM	18.8	C	20.4	C	1.6	No
4) Centre City Pkwy	All	AM	42.5	D	43.4	D	0.9	No
at Iris Ln (S)	All	PM	23.5	C	24.6	C	1.1	No

Notes: 1) Intersection Analysis - (S) Signalized, (U) Unsignalized. 2) Delay - HCM Average Control Delay in seconds. 3) LOS: Level of Service. 4) Delta is the increase in delay from project. 5) Project Effect if project traffic exceeds threshold.

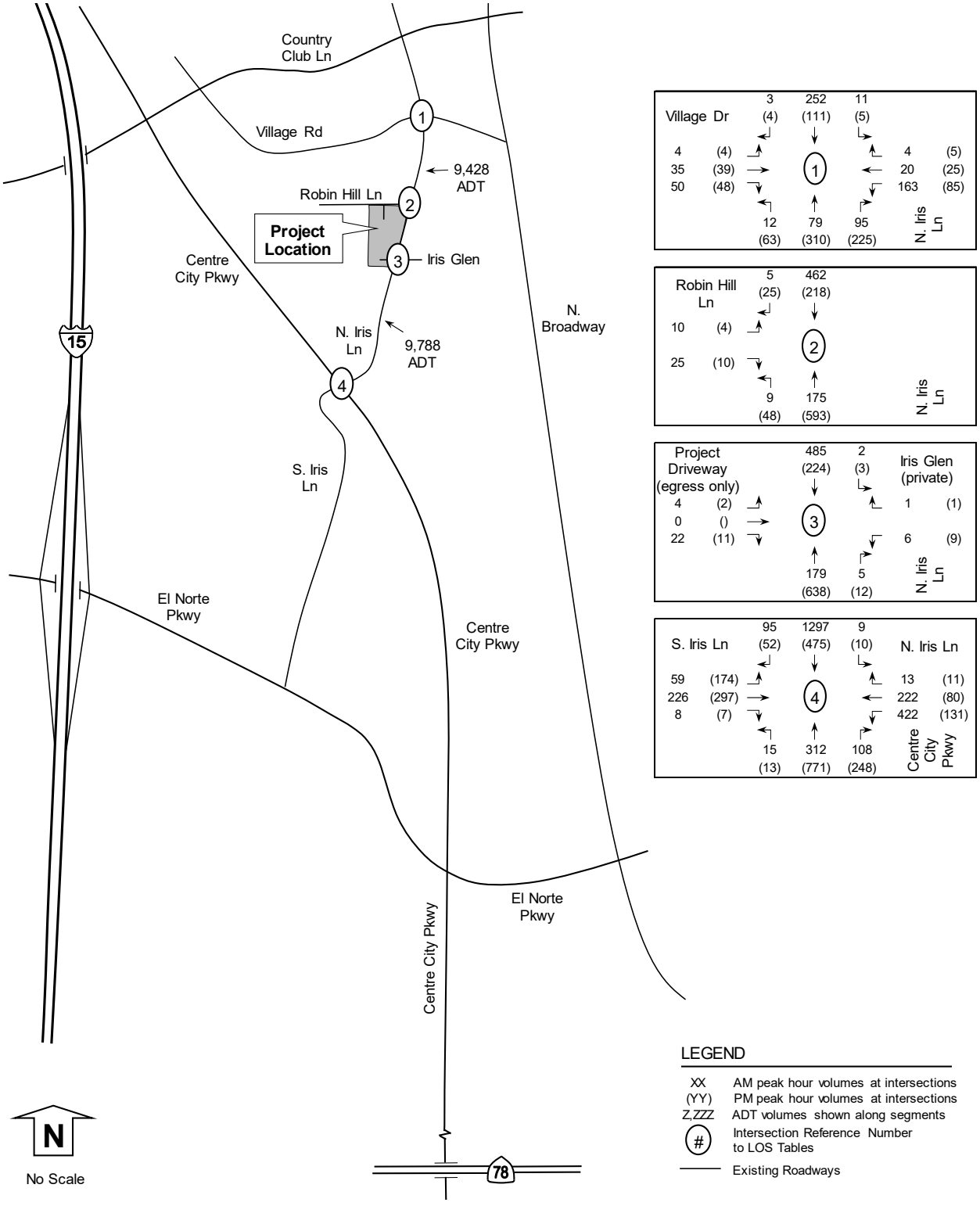
TABLE 24: LONG TERM YEAR 2035 PLUS PROJECT SEGMENT VOLUMES AND LEVEL OF SERVICE

Segment	General Plan Classification	LOS E Capacity	Year 2035 Daily Volume	Year 2035 V/C	Year 2035 LOS	Project Daily Volume	Year 2035 + Project Daily Volume	Year 2035 + Project V/C	Year 2035 + Project LOS	Change In V/C	Effect?
N. Iris Lane											
Village Rd to Robin Hill Ln	2-Ln Local Coll.	15,000	9,200	0.613	C	228	9,428	0.629	C	0.015	No
Robin Hill Ln to Centre City Pkwy	2-Ln Local Coll.	10,000	9,200	0.920	**E**	588	9,788	0.979	**E**	0.059	**Yes**

Notes: Coll. = Collector. Daily volume is a 24 hour volume. V/C: Volume to Capacity Ratio. LOS: Level of Service. Effect? Yes or No.

Under Long Term Year 2035 plus project conditions, the study intersections and segments were calculated to operate at LOS D or better except for N. Iris Ln from Robin Hill Ln to Centre City Pkwy (LOS E). There is a calculated project traffic effect along the segment of N. Iris Ln from Robin Hill Ln to Centre City Pkwy. Also, the project will add traffic to the westbound left turn queue from N. Iris Ln to Centre City Pkwy. Project improvements are described in Section 4.14.

Figure 14: Long Term Year 2035 plus Project Volumes



4.14 Project Off-Site Improvements

Based on the City of Escondido traffic significance criteria, the project is calculated to have a project effect on the segment of N. Iris Ln from Robin Hill Ln to Centre City Pkwy and will add traffic to an existing excessive westbound left turn queue from N. Iris Ln to Centre City Pkwy.

4.14.1 Segment of N. Iris Ln from Robin Hill Ln to Centre City Pkwy

The project effect is calculated to occur under existing, near-term, and horizon year conditions. This segment is operating at LOS E without project traffic; therefore, the proposed improvement includes: 1) widening N. Iris Ln along the project frontage, and 2) a fair share toward the widening of N. Iris Ln for approximately 280 linear feet northeast of Centre City Pkwy. The fair share is calculated at 6.5% resulting in a fee requirement of **$10,075** (**Appendix O**). As shown in **Table 25,** the project effect is eliminated with the increased capacity associated with the widening to the ultimate 2-lane classification.

TABLE 25: N. IRIS LN FROM ROBIN HILL LN TO CENTRE CITY PKWY OPERATIONS WITHOUT AND WITH IMPROVEMENT

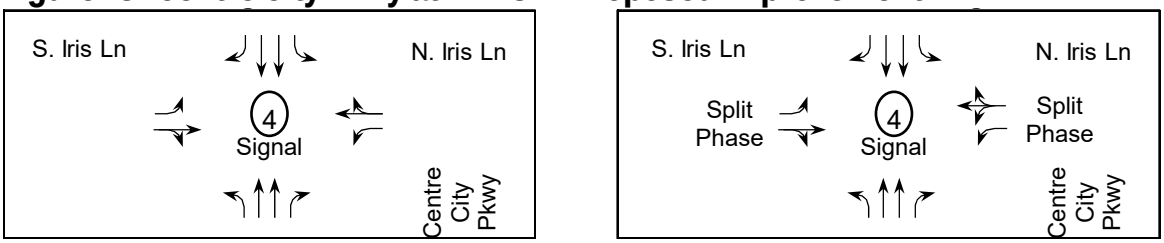
	Without Improvement (Current Conditions)					*With Improvement to Ultimate Street Classification*				
	LOS E Capacity	**Daily Volume**	**V/C**	**LOS**	**Project Effect?**	**LOS E Capacity**	**Daily Volume**	**V/C**	**LOS**	**Project Effect?**
		Existing + Project					Existing + Project			
N. Iris Lane										
Robin Hill Ln to Centre City Pkwy	10,000	9,584	0.958	**E**	**Yes**	15,000	9,584	0.639	C	No
		Near-Term + Project					Near-Term + Project			
N. Iris Lane										
Robin Hill Ln to Centre City Pkwy	10,000	9,596	0.960	**E**	**Yes**	15,000	9,596	0.640	C	No
		Year 2035 + Project					Year 2035 + Project			
N. Iris Lane										
Robin Hill Ln to Centre City Pkwy	10,000	9,788	0.979	**E**	**Yes**	15,000	9,788	0.653	C	No

Notes: Daily volume is a 24 hour volume. V/C: Volume over Capacity. LOS: Level of Service.

4.14.2 Intersection of Centre City Pkwy/N. Iris Ln

The intersection of Centre City Pkwy at N. Iris Ln has an existing westbound to southbound left turn volume of 386 vehicles during the AM peak hour (from N. Iris Ln to Centre City Pkwy). This high left turn volume contributes to a long left turn queue. Since this is an existing deficiency, the applicant will contribute a fair share toward a city improvement of modifying the intersection operations to a split phase on Iris Lane and restriping the westbound approach (on N. Iris Ln) from a left and through right configuration to a left and left-through-right configuration as shown in **Figure 15**. This will permit a dual westbound left turn movement thereby increasing opportunities for left turns.

Figure 15: Centre City Pkwy at N. Iris Ln Proposed Improvement



A fair share is calculated at 3.1% resulting in a fee requirement of **$6,975** (**Appendix O**). The intersection delay and LOS without and with the improvement of modifying the intersection operations to a split phase on Iris Lane and restriping the westbound approach is shown in **Table 26** with LOS worksheets included in **Appendix P**.

TABLE 26: CENTRE CITY PKWY AT IRIS LN LOS WITHOUT AND WITH IMPROVEMENT

Intersection &	Move-	Study	Without Improvement		With Improvement		
Scenario	ment	Period	Delay[1]	LOS[2]	Delay[1]	LOS[2]	Delta[3]
Existing + Project							
4) Centre City Pkwy	All	AM	36.6	D	34.6	D	-2.0
at Iris Ln (S)	All	PM	23.7	C	19.8	B	-3.9
Existing + Cumualtive + Project							
4) Centre City Pkwy	All	AM	37.3	D	36.3	D	-1.0
at Iris Ln (S)	All	PM	23.9	C	20.4	C	-3.5
Horizon Year + Project							
4) Centre City Pkwy	All	AM	43.4	D	43.2	D	-0.2
at Iris Ln (S)	All	PM	24.6	C	21.2	C	-3.4

Notes: 1) Delay - HCM Average Control Delay in seconds. 2) LOS: Level of Service. 3) Delta is the change in delay from intersection phasing and striping improvement.

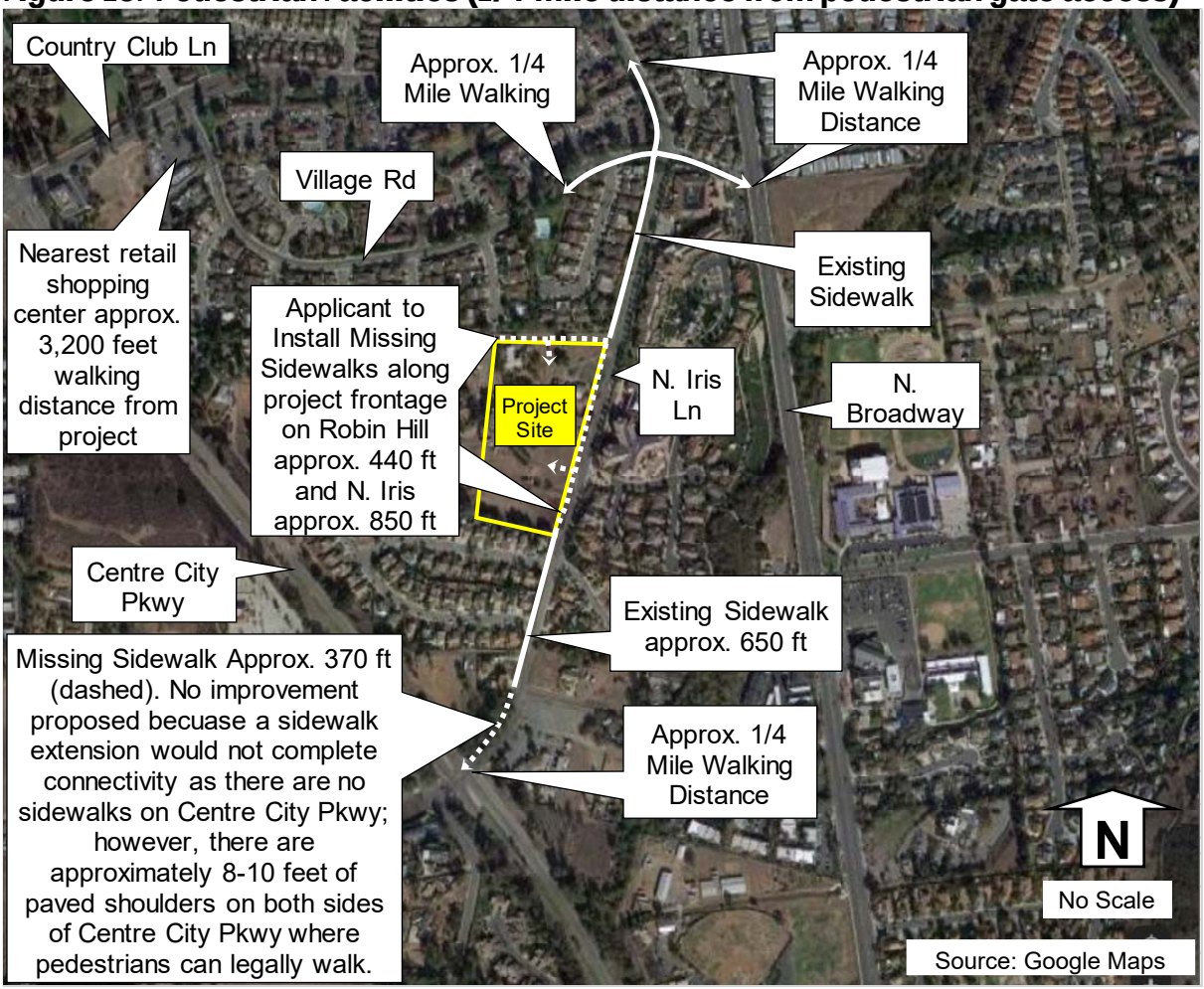
5.0 Pedestrian Analysis

Existing and planned pedestrian facilities with any substandard or missing facilities (e.g., missing sidewalk, curb ramps, major obstructions) within a ¼-mile walking distance measured from the pedestrian access points were documented as required on page 28 of the City Guidelines.

There are no sidewalks on the west side of N. Iris Ln along the project frontage nor are there any sidewalks along Robin Hill Ln along the project frontage. There is an existing sidewalk on the west side of N. Iris Ln from the southern property boundary extending to the south approximately 650 feet (this section has intersection curb ramps). From this section of sidewalk, there is no sidewalk down to Centre City Parkway, a distance of approximately 370' on the west side of N Iris. On the east side, there is no sidewalks from south of Elkhorn to Centre City Parkway, a distance of approximately 600 feet. There is an existing sidewalk on the west side of N. Iris Ln from the northern property boundary extending to the north for more than ¼ mile. The westside sidewalk on N. Iris Ln north of Robin Hill has intersection curb ramps; however, there are three power poles within the sidewalk walking area along this segment.

As part of the project, the applicant will install sidewalks along the project frontage on Robin Hill Ln (approx. 440 ft) and on N. Iris Ln (approx. 850 ft). The sidewalk to be constructed on the westside of N. Iris Ln along the project frontage will complete a missing sidewalk section improving connectivity for the neighborhood. No other off-site sidewalk improvements are proposed. While there are missing sidewalks on N. Iris Ln within ¼ mile of the project site, the missing segment would not provide a connection to a completed sidewalk network because Centre City Parkway does not have sidewalks; however, there are appeoximately 8-10 feet of paved shoulders on both sides of Centre City Pkwy where pedestrians can legally walk. The pedestrian facilities are shown in **Figure 16**.

Figure 16: Pedestrian Facilities (1/4-mile distance from pedestrian gate access)



6.0 Bicycle Analysis

Existing and planned bicycle facilities with any substandard or missing facilities (e.g., bike lane gaps, obstructions) within a 1-mile bicycling distance measured from the centroid point of the parcel's linear frontage or from the center of the intersection formed by each project driveway was documented as required on page 28 of the City Guidelines. Excerpts from the City of Escondido *Bicycle Master Plan* are included in **Appendix Q**. **Figure 17** shows the existing and proposed within a 1-mile bicycling distance from the project site. The existing and proposed bike lanes/routes included:

1) Centre City Pkwy within a 1-mile bicycling distance of the site has existing Class II bike lanes.

2) Country Club Lane/Rincon Ave has existing Class II bike lanes within a 1-mile bicycling distance of the site.

3) El Norte Pkwy near the intersection of S. Iris Ln within a 1-mile bicycling distance of the project site has existing Class III bike lanes or bike sharrows.

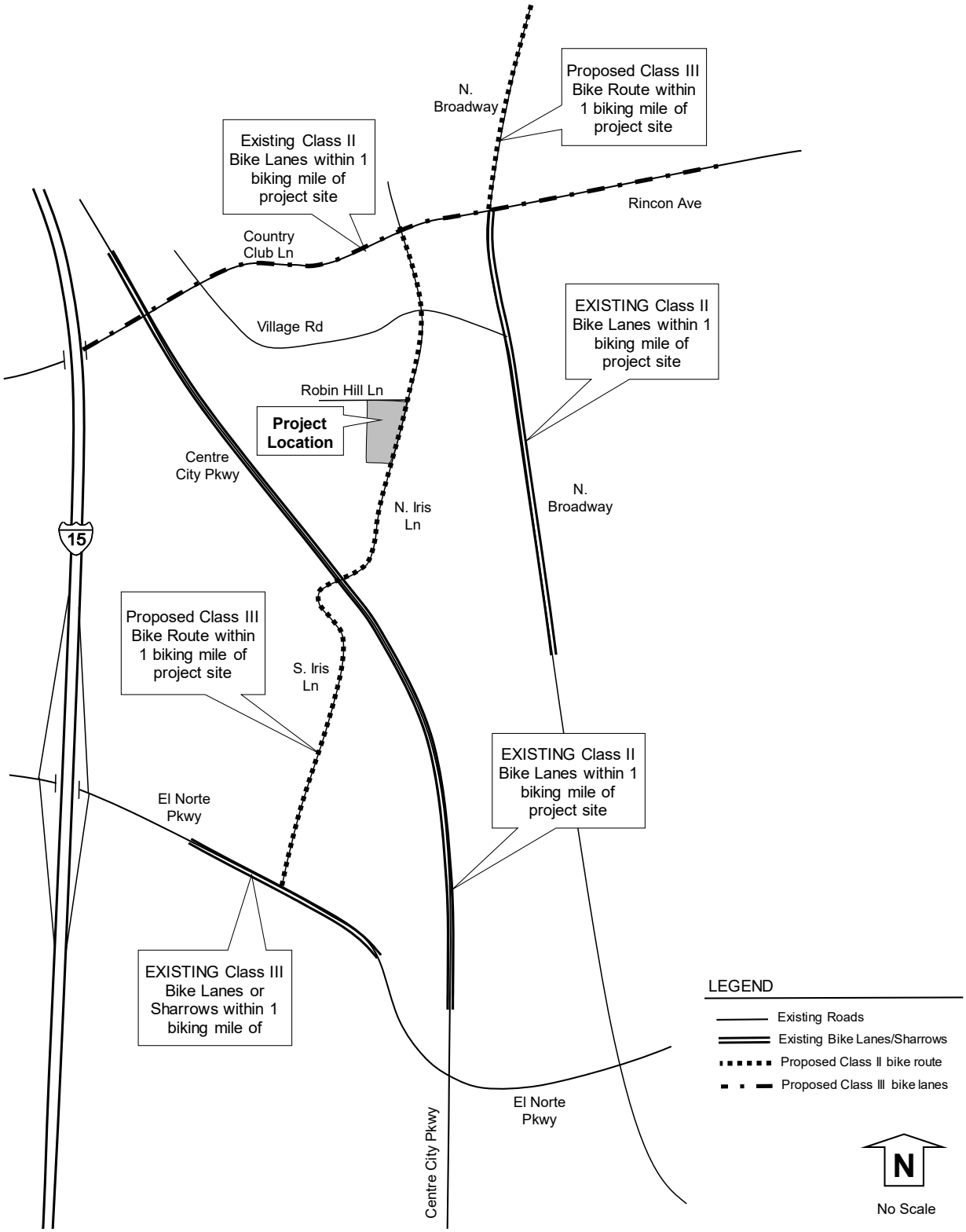
4) N. Broadway south of Rincon Ave within a 1-mile bicycling distance of the project site has existing Class II bike lanes.

5) N. Broadway north of Rincon Ave within a 1-mile bicycling distance of the site has proposed Class III bike markings. There were no observed Class III bike markings along this segment.

6) N. Iris Lane within a 1-mile bicycling distance of the project site has proposed Class III bike markings. There were no observed Class III bike markings along this segment.

As part of the project, the applicant will install Class III bike marking along the project's frontage on N. Iris Ln

Figure 17: Existing and Proposed Bicycle Facilities (1-mile from project)



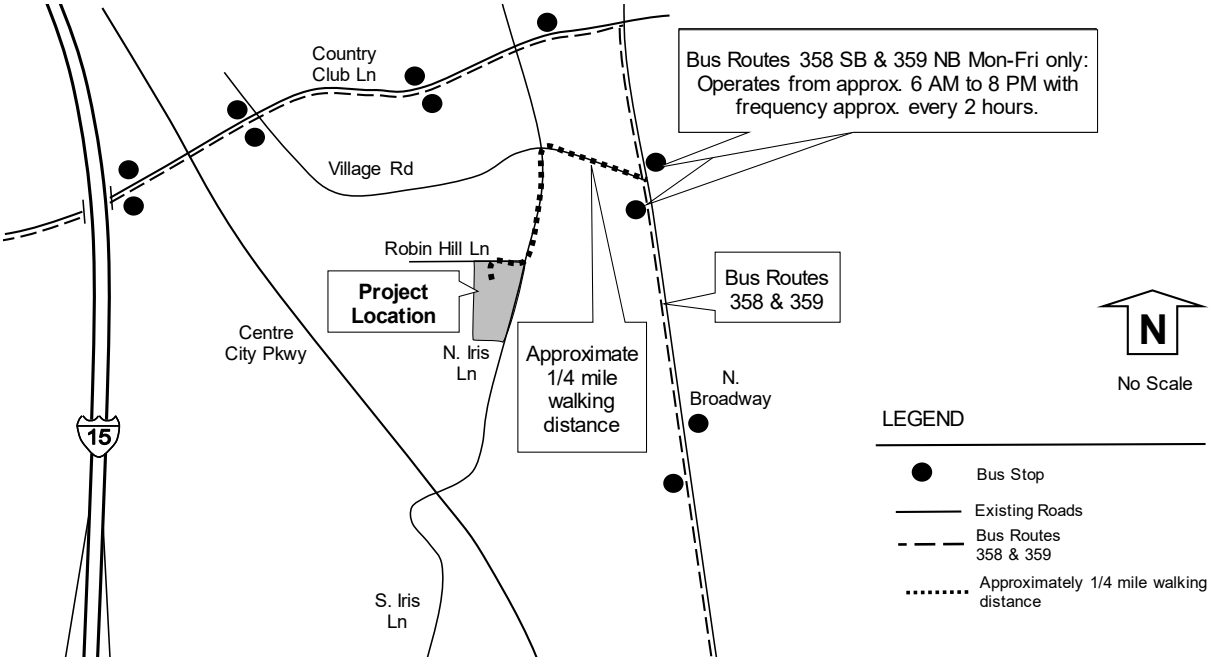
7.0 Transit Analysis

Existing transit amenities and potential connectivity to transit within a ¼-mile walkshed from the centroid point of the parcel was documented as required on page 28 of the City Guidelines.

North County Transit District (NCTD) provides bus service as Route 358 and 359 along N. Broadway with bus stops near N. Broadway at Village Rd as shown in **Figure 18**. No bus service is provided along the project frontage. A bus route map and bus frequency details are included in **Appendix R**. Bus Route 358 runs southbound on N. Broadway and Route 359 runs northbound on N. Broadway. These routes operate Monday through Friday from approximately 6 AM to 8 PM with a service frequency of approximately two hours. There is no weekend service on these two routes. The main destination/connection of these routes is the Escondido Transit Center that provides connections with Routes 305, 308, 350, 351/352, 353, 354, 355/357, 356, FLEX 371/372, 388, MTS 235, 280, SPRINTER, Greyhound, and RTA 217. Additional destinations include Escondido Civic Center, Kaiser Permanente, Regal Cinemas, Escondido Senior Center, Escondido High School, YMCA, Vons, and Stater Brothers.

There are no transit stops within ¼-mile walking distance; however, the two transit stops noted above are just over a ¼-mile walking distance (approximately 1,500 feet away). These bus stops are on N. Broadway near Village Rd. The southbound bus stop has a bus stop sign, a bench, and a trash receptacle. The northbound bus stop has a bus stop sign, a bench with shelter, and a trash receptacle. Both bus stops are in good condition, thus no improvements are proposed.

Figure 18: Existing Bus Stops and Routes



8.0 Conclusion

This report included a Vehicle Miles Traveled (VMT) analysis and Local Mobility Analysis (LMA). The VMT analysis determined if there is a potential California Environmental Quality Act (CEQA) transportation VMT impact, while the LMA determined if there are any traffic effects on the surrounding roadways based on City of Escondido General Plan requirements.

The project is a multi-family complex with 102 dwelling units. A zone change and annexation is proposed on a subject property of approximately 7.7 gross acres on the southwest corner of N. Iris Lane at Robin Hill Lane, from the County of San Diego into the City of Escondido. The proposed zoning is PD-R-18 resulting in a density 13.2 DU/acre (102 units/ 7.7 acres), which is a reduction from the current County of San Diego zoning of 24 DU/acre. The existing site includes 4 single family dwelling units that will be removed. The project applicant is processing the following:

1) Zone Change to Urban III with a pre-zone designation of R3
2) General Plan Amendment

The **VMT analysis** is required to satisfy the CEQA guidelines that utilize VMT as the measure of mobility effectiveness for determining transportation impacts. The California Governor's Office of Planning and Research (OPR) Technical Advisory developed guidance on implementing Senate Bill 743 (SB 743) that shifts the transportation impact measure of effectiveness from Level of Service (LOS) to VMT.

The project VMT per Capita by Census Tract was obtained from the SANDAG ABM2+ Base Year 2016 screening map. The project is located within census tract 201.05 that has an existing VMT per capita of 18.4 that is at 97.3% of the regional mean of 18.9 VMT per capita. Therefore, the project being located in census tract 201.05 is expected to have similar VMT characteristics of the census tract, resulting in a VMT transportation impact because it is higher than 85% of the regional mean. The project VMT impact is mitigated to below a level of significance through implementation of the California Air Pollution Control Officers Associates (CAPCOA) T-1 VMT reduction measure and payment of **$67,500** to the City of Escondido for pedestrian improvements at five (5) intersections. These mitigation measures are calculated to reduce the project VMT to lower than 85% of the regional mean.

In addition to the above VMT mitigation measures, the project applicant proposes to implement Transportation Demand Management (TDM) strategies to further reduce single occupant vehicle use through promoting alternative modes of transportation. The following TDM plan will provide the means to disseminate information to residents to learn about and use alternative forms of transportation other than single occupancy vehicles. The following TDM elements (to be implemented by the developer at the time of product sales) will be provided during the sales phase and can be incorporated into the project conditions of approval: 1) Provide information about SANDAG's iCommute program (www.icommutesd.com) to encourage carpooling, and 2) Provide information about maps, routes, and schedules for public transit. The applicant will also construct sidewalks along the project frontage on N. Iris Ln (this will complete a missing sidewalk link in the community without taking a VMT credit) and along the project frontage on Robin Hill Ln.

This **LMA analysis** determines if there are any traffic effects caused by the project traffic that would trigger roadway and other multi-modal improvements. The LMA is based on the City of Escondido *Transportation Impact Analysis Guidelines*, April 21, 2021 and includes the analysis of pedestrian, bicycle, transit, and vehicular facilities.

Pedestrian facilities within the ¼-mile walking distance from the project site were evaluated. As part of the project, the applicant will install sidewalks along the project frontage on N. Iris Ln (approximately 850 ft) and along Robin Hill Ln (approximately 440 feet). The sidewalk to be constructed on the westside of N. Iris Ln along the project frontage will complete a missing section, thus improving pedestrian network connectivity for the neighborhood. No other off-site sidewalk improvements are proposed within a ¼-mile walking distance of the project entrance.

Bicycle facilities within a 1-mile bicycling distance from the project site were evaluated. There are existing bike lanes/marking within a 1-mile bicycling distance of the project site on Centre City Pkwy, Country Club Lane, Rincon Ave, El Norte Pkwy near the intersection of S. Iris Ln, and N. Broadway south of Rincon Ave. Within a 1-mile bicycling distance of the project site, N. Broadway north of Rincon Ave, and N. Iris Lane currently do not have bike lanes/markings as proposed in the City's Bicycle Master Plan. As part of the project, the applicant will install Class III bike marking along the project's frontage on N. Iris Ln.

Transit facilities within a ¼-mile walking distance from the project site were evaluated. There are no transit stops within ¼-mile walking distance; however, there are two transit stops just over a ¼-mile walking distance (approximately 1,500 feet away). These bus stops are on N. Broadway near Village Rd. The southbound bus stop has a bus stop sign, a bench, and a trash receptacle. The northbound bus stop has a bus stop sign, a bench with shelter, and a trash receptacle. Both bus stops are in good condition, thus no improvements are proposed.

Vehicular facilities included the analysis of four (4) intersections, and two (2) roadway segments under Existing, Existing plus Project, Existing + Cumulative, Existing + Cumulative + Project, Year 2035, and Year 2035 + Project Conditions. The 102 units are calculated to generate 816 Average Daily Trips (ADT) with 65 AM peak hour trips (13 inbound and 52 outbound) and 81 PM peak hour trips (57 inbound and 24 outbound). For each study scenario, the findings included:

1) Under existing conditions, the study intersections and segments were calculated to operate at LOS D or better except for N. Iris Ln from Robin Hill Ln to Centre City Pkwy (LOS E). Also, there is an existing long westbound left turn queue from N. Iris Ln to Centre City Pkwy.

2) Under existing plus project conditions, the study intersections and segments were calculated to operate at LOS D or better except for N. Iris Ln from Robin Hill Ln to Centre City Pkwy (LOS E). There is a calculated project traffic effect along the segment of N. Iris Ln from Robin Hill Ln to Centre City Pkwy. Additionally, the project add traffic to the existing westbound left turn queue from N. Iris Ln to Centre City Pkwy. Project improvements are described below.

3) Under near term conditions, the study intersections and segments were calculated to operate at LOS D or better except for N. Iris Ln from Robin Hill Ln to Centre City Pkwy (LOS E). Also, there is a long westbound left turn queue from N. Iris Ln to Centre City Pkwy.

4) Under near term plus project conditions, the study intersections and segments were calculated to operate at LOS D or better except for N. Iris Ln from Robin Hill Ln to Centre City Pkwy (LOS E). There is a calculated project traffic effect along the segment of N. Iris Ln from Robin Hill Ln to Centre City Pkwy. Additionally, the project will add traffic to the near-term westbound left turn queue from N. Iris Ln to Centre City Pkwy. Project improvements are described below.

5) Under long term year 2035 conditions, the study intersections and segments were calculated to operate at LOS D or better except for N. Iris Ln from Robin Hill Ln to Centre City Pkwy (LOS E). Also, there is a long westbound left turn queue from N. Iris Ln to Centre City Pkwy.

6) Under long term year 2035 conditions, the study intersections and segments were calculated to operate at LOS D or better except for N. Iris Ln from Robin Hill Ln to Centre City Pkwy (LOS E). There is a calculated project traffic effect along the segment of N. Iris Ln from Robin Hill Ln to Centre City Pkwy. Also, the project will add traffic to the westbound left turn queue from N. Iris Ln to Centre City Pkwy. Project improvements are described below.

Based on the City of Escondido traffic significance criteria, the project is calculated to have a project effect on the segment of N. Iris Ln from Robin Hill Ln to Centre City Pkwy and will add traffic to an existing excessive westbound left turn queue from N. Iris Ln to Centre City Pkwy. This segment is operating at LOS E without project traffic; therefore, the proposed improvement is widening N. Iris along the project frontage as part of the project construction and contributing a fair share payment of **$6,975** toward widening the section of N. Iris Ln located northeast of Centre City Pkwy. The intersection of Centre City Pkwy at N. Iris Ln has an existing westbound to southbound left turn volume of 386 vehicles during the AM peak hour. This high left turn volume contributes to a lengthy left turn queue. Since this is an existing deficiency, the applicant will contribute an additional fair share payment of **$10,075** toward a city improvement of rephasing the operations to a split phase on Iris Lane and restriping the westbound approach from a left and through right configuration to a left and left-through-right configuration.

9.0 References

California Air Pollution Control Offices Association (CAPCOA) *Quantifying Greenhouse Gas Mitigation Measures A Resource for Local Government to Assess Emission Reductions from Greenhouse Gas Mitigation Measures*, December 2021

City of Escondido *General Plan,* May 2012.

City of Escondido *Transportation Impact Analysis Guidelines,* April 21, 2021.

City of Escondido *VMT Exchange Program Documentation – Public Review Draft,* August 5, 2022.

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Appendix A

Excerpts from the City of Escondido Transportation Impact Analysis Guidelines

Transportation Impact Analysis Guidelines

Adopted by City Council
April 21, 2021

Prepared by: FEHR PEERS

1. Introduction

1.1 Background

Under the California Environmental Quality Act ("CEQA"), all phases of a project must be considered when evaluating its impact on the environment: planning, acquisition, development, and operation. The determination of whether a project may have a significant effect on the environment calls for careful judgment on the part of the public agency ("Lead Agency") involved. Thresholds of significance, as defined in California Environmental Quality Act Guidelines ("CEQA Guidelines") section 15064.7(a), may assist lead agencies in determining whether a project may cause a significant impact. In the past, CEQA review of a project's transportation impacts focused primarily on metrics related to vehicle delay and Level of Service ("LOS"). These analysis requirements involved a quantitative analysis to determine whether a project may have a significant impact on the roadway network pursuant to CEQA.

CEQA Changes

On September 27, 2013, Governor Jerry Brown signed Senate Bill 743 ("SB 743") into law and started a process intended to fundamentally change transportation impact analysis as part of CEQA compliance. A key element of this law is the elimination of auto delay, LOS, and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant impacts under CEQA. The change was to balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and the reduction of greenhouse gas emissions.

As a result, the Governor's Office of Planning and Research ("OPR") updated CEQA Guidelines to establish new criteria for determining the significance of transportation impacts. Based on feedback from the public, public agencies, and various organizations, OPR recommended that Vehicle Miles Traveled ("VMT") be the primary metric for evaluating transportation impacts under CEQA. VMT refers to the amount and distance of automobile travel attributable to a project. Pursuant to CEQA Guidelines section 15064, transportation projects that reduce, or have no impact on, vehicle miles traveled should be presumed to cause a less than significant transportation impact. Other relevant considerations may include the effects of the project on transit and non-motorized travel.

SB 743 does not prevent a city or county from continuing to analyze local mobility in terms of delay or LOS as part of other plans (e.g., general plans); studies; congestion management plans; or transportation improvement plans, but these metrics may no longer constitute the basis for CEQA transportation impacts as of July 1, 2020.

City General Plan Goals and Policies

The City of Escondido's ("City's") General Plan (Adopted 2012) forms the foundation upon which all land use decisions in the City are based. The General Plan includes goals and policies that guide the City's growth, and many of these policies relate to and support the intent of SB 743. The City has also adopted

specific greenhouse gas ("GHG") reduction targets and has completed a climate action plan ("CAP") that identifies policies and programs designed to meet those targets. Among other things, approaches for reducing GHGs in the transportation sector address vehicle efficiency and low-carbon fuels, as well as measures designed to reduce annual VMT. VMT-reduction measures include alternatives to passenger vehicle travel, land use policies that incentivize compact development, and incentives and disincentives aimed at changing individual behavior through transportation demand management ("TDM") practices.

SB 743-Related General Plan Policies

The General Plan goals and policies that are most consistent with the intent of SB 743 are those regarding planned improvements, including districts that contain a mix of uses, an accessible and integrated multi-modal network, and improvements that enhance connectivity to major transit stations. For example, promoting integrated transportation and land use decisions that enhance smart growth development, requiring sidewalks along all classified streets designated on the Circulation Plan, requiring larger new developments to provide connections to existing and proposed bicycle routes, and encouraging employers to offer incentives to their employees to promote carpooling and other alternative modes are among the existing City of Escondido policies that align with SB 743.

The General Plan requires analysis of a project's impacts to roadway level of service and implementation of measures necessary to reduce impacts to level of service below specified thresholds. A Local Mobility Analysis is required for General Plan conformance and to evaluate the effects of a proposed development project on traffic operations.

1.2 Purpose

The City of Escondido's goal is to achieve a safe, efficient, accessible, and sustainable transportation system that meets the needs of all users. Transportation improvements and mitigation from proposed land development projects should be consistent with City-adopted plans and policies, as well as regional and state environmental and legislative requirements. The Transportation Impact Analysis Guidelines ("TIAG") provides criteria on how projects should be evaluated for consistency related to the City's transportation goals, policies, and plans, and through procedures established under CEQA. The TIAG establishes the contents and procedures for preparing a Transportation Impact Analysis in the City of Escondido.

The purpose of the TIAG (and a Transportation Impact Analysis) is to inform land use and development decisions by providing qualitative and quantitative criteria to assess the transportation system within the vicinity of a land development project. The TIAG aids in determining appropriate mitigation under CEQA, as well as site-specific improvements to the transportation system to accommodate project traffic.

Reasons to perform a Transportation Impact Analysis:

- Provide public agencies with a mechanism for managing transportation impacts of land development projects.

- Provide applicants with transportation-related site planning recommendations.
- Provide a method for analyzing the transportation effects of development projects.
- Establish a framework for transportation mitigation measures and project conditions for land development.
- Implement CEQA and General Plan policies.

1.3 Objectives

The following objectives are intended to provide consistency between local, regional, and state policies in forecasting, describing, and analyzing the effects of land development on transportation and circulation for all transportation modes and users:

- Provide clear direction to applicants and consultants to better meet expectations, increase the efficiency of the review process, and minimize delays.
- Provide scoping procedures and recommendations for early coordination during the planning/ discretionary phases of a land development project.
- Provide guidance in determining when, what type, and how to prepare a Transportation Impact Analysis.
- Help achieve consistency, uniformity, and accuracy in the preparation of a Transportation Impact Analysis.
- Promote quality assurance in transportation studies by agreeing to the assumptions, data requirements, study scenarios, and analysis methodologies.
- Provide consistency and equity in the identification of measures to mitigate the transportation impacts generated by land development.
- Assist City staff in developing objective recommendations and project conditions of approval as part of the land development discretionary review process.
- Help to ensure that City transportation studies are in conformance with all applicable City, region and state regulations, including legislative requirements as part of CEQA.

1.4 CEQA vs. Non-CEQA Transportation Analysis

The City TIAG is a comprehensive manual for both CEQA VMT analysis and discretionary/entitlement non-CEQA Local Mobility Analysis ("LMA"). The TIAG provides guidance for the two elements of transportation analyses needed to comprehensively assess the potential effects from new development to the City's roadway and mobility system.

CEQA Transportation Analysis (VMT Analysis)

CEQA requires VMT analysis for compliance with state policies to evaluate a project's potential impacts related to VMT significance criteria. The VMT analysis will:

- Enable proposed development projects to comply with current CEQA requirements as a result of the implementation of SB 743.
- Outline the City's VMT significance thresholds, screening criteria, and methodology for conducting the transportation VMT analysis.
- Help determine if mitigation is required to offset a project's significant VMT impacts.
- Identify VMT reduction measures and strategies to mitigate potential impacts below a level of significance.
- Reduce the need to widen or build roads through effective use of the existing transportation network and maximizing the use of alternative modes of travel throughout the City.

Non-CEQA Transportation Analysis (Local Mobility Analysis)

An LMA is required by the City of Escondido to assess transportation effects and ensure orderly development, public safety, adequate infrastructure, and consistency with the General Plan. The LMA analysis will:

- Specify the City's screening criteria, study area, and methodologies to assess the potential need for off-site operation improvements to the project study area transportation network.
- Ensure that the local transportation facilities will have sufficient capacity to accommodate the project's demand on various modes of travel, and that improvements identified by the City are constructed when needed consistent with the City's adopted standards and policies.
- Ensure consistency with transportation planning documents (such as bicycle and pedestrian planning efforts).
- Establish measures of effectiveness to maintain vehicular LOS consistent with the City's General Plan Mobility and Infrastructure Element, as may be amended from time to time.
- Facilitate site project access and roadway frontage infrastructure improvements to serve the project vicinity.
- Identify project-level design features, standards, and/or conditions appropriate to, and as applied to facilitate General Plan consistency review and make determinations on new land use development projects. General Plan consistency findings, when required by State law or by the City's Municipal or Zoning Code, shall be based upon the implementation of the recommended design features, standards, and/or conditions and be the basis to make one or more findings to disapprove, approve, or conditionally approve a land use development project application.

1.5 Process Overview

The TIAG is intended for the use by City staff, project applicants, consultants, other agencies/jurisdictions, the general public, and decision makers to evaluate transportation effects of proposed land development and infrastructure projects going through the environmental or discretionary planning/entitlement processes within the jurisdiction of the City of Escondido.

The following summarizes the typical process for completing a Transportation Impact Analysis in the City of Escondido:

Step 1 – Complete Part 1 of the Scoping Agreement: The applicant will complete and submit a scoping agreement to City staff to determine if a Transportation Impact Analysis is required. If the project is screened out, a technical memorandum is required to document the decision, screening process, and justification for why an analysis is not required. If not screened out, the applicant must complete Part 2 of the Scoping Agreement and the project proceeds to Step 2.

Step 2 – Determine Study Requirements: The consultant will meet or coordinate with City staff regarding the scoping agreement items including the proposed project description, location, site plan, site access, estimated trip generation and trip distribution, study area, methodology requirements, and any other specific issues to be addressed in the Transportation Impact Analysis.

Step 3 – Conduct Transportation Impact Analysis and Submit Draft: The consultant will prepare the Transportation Impact Analysis consistent with the requirements established in Step 2 (and as outlined in the TIAG) and will submit a draft to the City. The City will provide written comments on the draft study. During this process, the consultant may request a meeting with City staff to clarify study requirements or comments received on the draft study.

Step 4 – Submit Final Transportation Impact Analysis: The consultant will address all City comments and produce a Final Transportation Impact Analysis to be approved by staff. Multiple iterations of study review may be necessary to adequately address all staff comments. It is critical that staff and the consultant coordinate closely during review process to ensure productive and efficient communications in achieving the mutual goal to finalize the Transportation Impact Analysis. A record identifying how each comment was addressed should also accompany the Final Transportation Impact Analysis. Depending on whether the Transportation Impact Analysis included a VMT analysis, the final mitigation recommendations or improvements will be in the CEQA Findings or the discretionary Conditions of Approval.

It should be noted that the City may update the TIAG on an as-needed basis to reflect the best state of practice methodologies and changes in CEQA requirements. As such, the City will continually review the TIAG for applicability and coordinate with other jurisdictions and professionals to ensure the most recent guidance and best practices are being applied for land development review and transportation analysis. Additional information regarding the applicability of the procedures outlined in this document for various project types are provided in **Chapter 2**.

The TIAG is not binding on any decision maker and should not be substituted for the use of independent professional judgment and evaluation of evidence in the record. The City also reserves the right to request further, project-specific information in its evaluation that may not be identified or described in this document.

City Review and Outside Agency Coordination

Transportation Studies will be reviewed by appropriate City of Escondido staff.

If a project will affect another agency or jurisdiction, such as the California Department of Transportation ("Caltrans"), San Diego Association of Governments (SANDAG), San Diego Metropolitan Transit System (MTS), North County Transit District (NCTD), or neighboring cities, coordination with that agency or jurisdiction may be required and will be identified during the scoping process. City of Escondido staff can provide guidance and contact information for other agencies or jurisdictions.

2. Transportation Impact Analysis Initiation

The applicant should first complete the Transportation Impact Scoping Agreement (form in Appendix A) and coordinate with City staff to determine the Transportation Impact Analysis requirements.

2.1 Types of Transportation Studies

CEQA and LMA requirements should be determined separately, as CEQA VMT analysis and/or LMA may apply to any type of transportation study. The following types of transportation studies (or a combination) may be required:

- **No Transportation Analysis Required**: If CEQA does not apply to a project (e.g., is screened out or the project is ministerial) and the project meets LMA screening criteria, a Transportation Impact Analysis is not required. A technical memorandum accompanied by the completed Part 1 of the Scoping Agreement is required to document justification for why an analysis is not required.
- **Detailed CEQA VMT Analysis and LMA Required**: Transportation studies that include both a CEQA VMT analysis and LMA are required for projects that are not screened out based on the City's screening criteria.
- **LMA Only Required**: Transportation studies only require an LMA when the project meets CEQA VMT screening criteria in **Section 3.3**. The findings of the VMT screening analysis must be documented in the Transportation Impact Analysis. A technical memorandum accompanied by the completed Part 1 of the Scoping Agreement is required to document justification for why transportation CEQA analysis is not required.

2.2 Determining Study Requirements

Scoping Agreement

The consultant will prepare a Scoping Agreement (Appendix A) before coordinating with the City to ensure all information needed to determine the study requirements are compiled, including the key items outlined below.

Project Location

- Project location and vicinity map
- Zoning and General Plan land use designation of the project site (to demonstrate consistency)

Detailed Project Description

- Land uses and intensities.
- Gross and developable acreage or building square footage or number of proposed residential units.
- Number of parking spaces: vehicle (including accessible spaces), bicycle (racks and secure storage), motorcycle, and electric vehicle (EV).

Site Plan

- Driveway locations and access type (e.g., full access, partial access, right in/out only).
- Pedestrian access, bicycle access, and on-site pedestrian circulation.
- Location/distance of nearest existing transit stop (measure as walking distance to project entrance/or middle of parcel).
- Location of any planned sidewalks or bikeways identified in the Bicycle Master Plan and other City planning documents within ¼ mile of the project location.

Trip Generation

The consultant should identify the number of new daily and peak hour driveway vehicle-trips added by the project as described in this section.

Trip generation rates are commonly expressed in trips per unit of development – for example, trips per housing unit or trips per thousand square feet – and are derived by averaging trip generation data collected from existing land uses.

For the City of Escondido, the following trip generation sources should be used:

- The current version of SANDAG's *(Not So) Brief Guide of Vehicle Traffic Generation Rates for the San Diego Region*. The SANDAG guide provides average trip generation rates for a wide variety of land use categories.
- If the proposed use is not included in SANDAG's *(Not So) Brief Guide of Vehicle Traffic Generation Rates for the San Diego Region*, City staff, at their sole discretion, may consider an applicable rate published by the Institute of Transportation Engineers ("ITE") in the most recent edition of the *ITE Trip Generation Manual*.
- Where uses are not included in either the SANDAG or ITE documents, trip generation should be derived from locally observed data that includes trip generation samples from at least three similar facilities at the City's discretion. The facilities selected as samples, and the timing and methods of data collection, must be approved by City staff prior to data collection.
- For existing facilities that are being expanded, trip generation should be determined by surveying the existing use to generate a project-specific trip generation rate. The survey of the existing use should be conducted using driveway counts or SANDAG/ITE published rates at the City's discretion.

- The most detailed project information should be used to determine a project's trip generation estimate. For example, if the project's building square footage and the project acreage are both known, the building square footage is more detailed; therefore, it should be used to estimate the trip generation.

Trip Reductions

Reasonable reductions to trip rates may also be considered, including the following (as shown on the trip generation process shown on **Figure 1**):

Internal Capture

For mixed-use development projects, it is appropriate to estimate the interaction between the project uses. For example, for a project that has retail, residential, and office uses, with compatible supporting land uses within a ¼ mile walking distance, trip reductions may be used. Most trip generation data is for stand-alone, single land uses and does not account for the interaction between land uses for a mixed-use development project.

Trip internalization for mixed-use developments (if applicable) should be calculated using state of the practice methodologies. The *ITE Trip Generation Handbook* provides a procedure for calculating internal trips for mixed-use projects. SANDAG's mixed-use trip generation or ("MXD") methodology may also be considered. The consultant may also propose a method for determining adjustments to trip generation for mixed-use projects, with approval from City staff.

Trip generation adjustments to account for internal capture should be applied to the raw trip generation calculated for each land use.

Alternative Modes

Most trip generation data is based on suburban locations with primarily auto trips. Transit, bicycling, and walking is not generally captured in the trip generation data. For projects that will have alternative modes, transit use, bicycling, and walking may be specifically acknowledged to reduce the trip generation (after the internal capture step) with proper justification and subject to the approval of City staff.

Accounting for alternative modes includes considerations for project proposed (or required) TDM measures. Consultant should propose the alternative modes reduction factor for the project to be reviewed and approved by City staff.

SANDAG trip reduction factors may also be considered for developments within ¼ mile walking distance to a local transit station.

Pass-By & Diverted Trips

Properly estimating the number of pass-by trips is important because even though pass-by trips do not add extra trips to the surrounding roadway system, such trips impact the traffic at the driveways and all the turning movements expected at these driveways. The percentage of pass-by and diverted link trips

should be estimated based on data provided by ITE or actual surveys of similar land uses. The pass-by reduction should not exceed 10% of the adjacent street volume.

Typically, pass-by trips will not be added to the study intersections (except for accounting for them at project driveways). Typically, diverted link trips are added to all study intersections along with the net new project trips, unless there is specific justification to demonstrate where the trips are diverting from.

Credit for Existing Uses

For redevelopment projects, it may be appropriate to apply a "trip credit" to account for vehicle trips being generated by an existing use that will be redeveloped. Traffic counts should be performed to determine the appropriate trip credit. The "trip credit" should be applied after internal capture and alternative modes are accounted for. The existing use should be operating at the time of data collection or be in operation within the last six months prior to submitting discretionary permits as demonstrated to the satisfaction of the City Engineer.

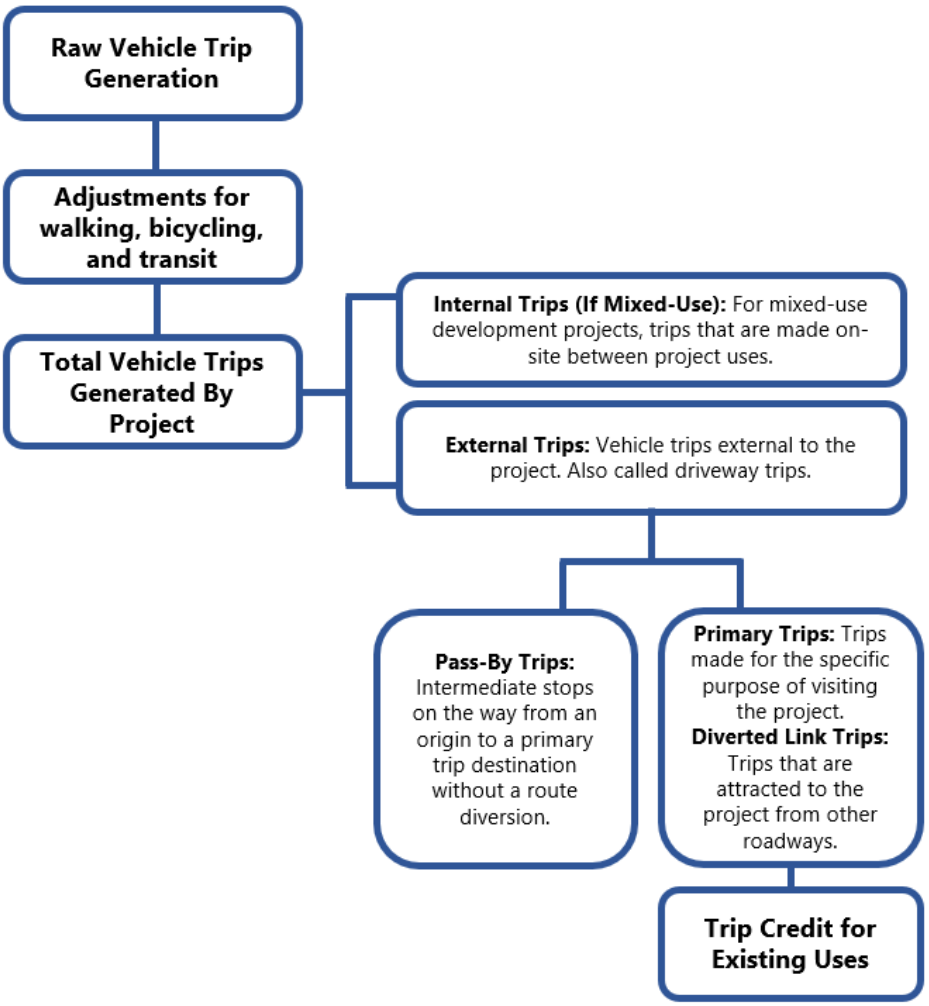
Truck Traffic

For projects that anticipate the generation of significant truck traffic (typically a project that that estimates that truck traffic will account for 25% or more of the total project trip generation), all truck trips should be converted to passenger car equivalents ("PCE") for the capacity analysis. Typically, the PCE factor that should be applied is 2.5 passenger cars for each truck trip.

Other Jurisdictions

Caltrans or adjacent jurisdictions may use different trip reduction rates. Early consultation with reviewing agencies is strongly recommended.

Figure 1: Trip Generation Calculation Process



Trip Distribution

The following describes the procedure for assigning project trips to the roadway network. Trip distribution can be determined from zip code data, census data, market research, travel demand models, existing travel patterns, or the locations of complementary land uses. Trip distribution assumptions should be consistent for developments of the same use in the same areas. Trip distribution for the City of Escondido can be estimated using two methods:

- Manual estimation using existing traffic volumes, location of complementary land uses, and engineering judgement. The trip distribution should be clearly communicated on a map that shows the percent of project traffic on each roadway in the vicinity of the project site. Manual estimation is generally appropriate for projects that generate fewer than 2,400 daily trips.

- Use the current version of the SANDAG Regional Travel Demand Model to perform a select zone analysis. The SANDAG Regional Travel Demand Model should generally be used to determine the trip distribution for projects that generate 2,400 or greater daily trips.

3. CEQA Requirements for Transportation VMT

3.1 Overview

SB 743 changes the focus of transportation impact analysis in CEQA from measuring impacts to drivers, to measuring the impact of driving. The change is being made by replacing LOS with VMT and providing streamlined review of land use and transportation projects that will help reduce future VMT growth. This shift in transportation impact focus is expected to better align transportation impact analysis and mitigation outcomes with the State's goals to reduce GHG emissions, encourage infill development, and improve public health through more active transportation.

In January 2019, the Natural Resources Agency finalized updates to the CEQA Guidelines including the incorporation of SB 743 modifications. The OPR published its latest Technical Advisory on Evaluating Transportation Impacts in CEQA to the California Natural Resources Agency in December 2018. This Technical Advisory provides recommendations on how to evaluate transportation impacts under SB 743. These changes include elimination of auto delay, LOS, and other similar measures of vehicular capacity or traffic congestion as a basis for determining significant CEQA transportation impacts. The OPR guidance recommends the use of VMT as the preferred CEQA transportation metric. To comply with the new legislation, the City of Escondido has identified VMT analysis methodology, establishment of VMT thresholds for CEQA transportation impacts, and identification of possible mitigation strategies. SB 743 includes the following two legislative intent statements:

1. Ensure that the environmental impacts of traffic, such as noise, air pollution, and safety concerns, continue to be properly addressed and mitigated through the California Environmental Quality Act.
2. More appropriately balance the needs of congestion management with statewide goals related to infill development, promotion of public health through active transportation, and reduction of GHG emissions.

VMT is a metric that accounts for the number of vehicle trips generated and the length or distance of those trips. VMT does not directly measure traffic operations but instead is a measure of network use or efficiency, especially if expressed as a function of population or employment (e.g., VMT/capita). VMT tends to increase as land use density decreases and travel becomes more reliant on the use of the automobile due to the long distances between origins and destinations. VMT can also serve as a proxy for impacts related to energy use, air pollution emissions, GHG emissions, safety, and roadway maintenance. The relationship between VMT and energy or emissions is based on fuel consumption. The traditional use of VMT in environmental impact analysis is to estimate mobile air pollution emissions, GHGs, and energy consumption.

3.2 Metrics and Methodology for Calculating VMT

In general, transportation VMT analysis for CEQA should be conducted using the SANDAG Regional Travel Demand Model. The model outputs can be used to produce VMT/capita, VMT/employee, and Total VMT.

There may be special circumstances under which other tools and techniques should be used to perform VMT analysis. There are some unique land uses that are not appropriately modeled using the SANDAG model, such as uses that have the majority of their activity on the weekends (the SANDAG Model produces weekday results). The applicant's consultant should coordinate with City staff if a VMT estimate tool other than the SANDAG Model is proposed for use.

Summary of Metrics by Project Type

The following summarizes the appropriate metric for various types of projects. Detailed definitions of the metrics follow.

- **Residential**: VMT/capita
- **General Employment**: VMT/employee
- **Industrial Employment**: VMT/employee
- **Regional Retail, Regional Recreational, or Regional Public Facilities**: Change in total VMT (using the boundary method)
- **Mixed-Use**: Each project component evaluated per the appropriate metric based on land use type (e.g., residential, employment, and retail)
- **Transportation Project**: Change in total VMT (using the boundary method)
- Unique circumstances may require alternate metrics

VMT per Capita

VMT/capita is established by summing up total daily VMT generated by residents of a geographic area and dividing by the population of that geographic area. Total daily VMT includes all trip tours made by residents: home-based and non-home-based trip tours (i.e., all VMT for a resident for the entire day regardless of trip purpose or origin/destination).

To analyze the VMT/capita for a proposed project, total daily VMT generated by project residents is divided by the project resident population.

SANDAG has a procedure to produce VMT/capita; however, the SANDAG procedure to produce this metric only includes VMT generated within the SANDAG region by residents of the SANDAG region. If a project is expected to produce consistent travel outside of the SANDAG region, the VMT outside of the regional should be included in the analysis. To account for VMT generated by residents of the SANDAG region traveling outside of the region, the SANDAG model data should be appended with the VMT that occurs by SANDAG region residents outside of the region. The steps necessary to include VMT from all trips that enter or exit the SANDAG region are explained in the Trip Length Adjustment in Appendix G.

VMT per Employee

VMT/employee is established by summing the total daily VMT generated by resident employees[1] of a geographic area and dividing by the number of employees of that geographic area. Total daily VMT includes all trip tours made by employees, not just work-related trips (i.e., all VMT for a resident for the entire day regardless of trip purpose or origin/destination). Employees whose work location is specified as home are not included in the calculations. To analyze the VMT/employee for a proposed project, the total daily VMT produced by the project's employees is divided by the total number of employees.

The procedure developed by SANDAG to calculate VMT/employee by TAZ only accounts for VMT generated within the SANDAG region by employees who are also residents of the SANDAG region. Employees that live outside of the region and travel into the SANDAG region for work are not accounted for because of the nature of the calculation.

Total VMT

Total VMT can be calculated by either of two methods – the Boundary Method or the Origin-Destination Method.

Boundary Method

Total daily VMT (Boundary Method) within a given area can be measured by multiplying the daily volume on every roadway segment by the length of every roadway segment within the area. This is called Boundary Method VMT. Examples of Total VMT (Boundary Method) are VMT within the SANDAG region, VMT within a defined planning area, or VMT within the market area to be served by the project.

This metric is used to analyze regional retail, service, recreational, regional public facilities, and transportation infrastructure projects.

Origin-Destination Method

Total daily VMT (Origin-Destination Method) within a given area can be calculated directly from model outputs by multiplying the origin-destination (O-D) trip matrix by the final assignment skims (O-D Method VMT). The total VMT value should be appended to include VMT from all trips that enter or exit the SANDAG region.

This metric is used to evaluate a regional project if that project is expected to draw trips from outside the region (e.g., an amusement park).

Other VMT Metrics

There may be circumstances where other types of VMT metrics may be appropriate, such as projects that draw people from outside of the SANDAG region. One of these is the VMT/service population metric. VMT/service population is established by dividing the total VMT with at least one trip end in a geographic

[1] Resident employees both live and work in the SANDAG region.

area by the population plus employment of that geographic area. The total VMT includes all internal VMT, internal-to-external, and external-to-internal VMT (i.e., all VMT regardless of geographic boundaries). Since this metric combines VMT for residents and employees and reflects how accessible all land uses are (e.g., geographies with higher density, more shopping, and more jobs will have lower VMT/service population) it can be useful to understand a variety of project types. To analyze the VMT/service population for a proposed project, the project's total VMT (using the origin-destination method) is divided by the project population plus employment. Use of an alternate metric, such as VMT/service population, should be used only when standard metrics are not applicable and after coordinating with City staff in advance.

Trip Length Adjustments

Trip length adjustments for trips leaving the SANDAG Model Area can be made by using the California Statewide Travel Demand Model (CSTDM). Information on adjusting trip lengths is provided in Appendix G.

3.3 VMT Analysis for Land Use Projects

Screening Criteria for CEQA VMT Analysis

The requirements to prepare a detailed transportation VMT analysis apply to all land development projects, except those that meet at least one of the screening criteria. A project that meets at least one of the screening criteria below would be presumed to have a less than significant VMT impact due to project characteristics and/or location.

Projects screened out shall still evaluate connectivity to existing sidewalks on adjacent key land uses (e.g., schools for residential projects, transit for employment uses) and propose improvements to address connectivity gaps in a manner proportionate to the project size and demand.

1. Small Residential and Employment Projects

Projects generating 200 or fewer net new daily vehicle trips may be presumed to have a less-than-significant impact absent substantial evidence to the contrary. Trips are based on the number of vehicle trips calculated using SANDAG's *(Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region* or ITE trip generation rates with any alternative modes/location-based adjustments applied.

2. Projects Located in a Transit-Accessible Area

Projects located within a half-mile walking distance of an existing major transit stop or an existing stop along a high-quality transit corridor[2] may be presumed to have a less-than-significant impact absent substantial evidence to the contrary. Distance to transit should be determined along an ADA-accessible

[2] Major transit stop: a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods. High quality transit corridor: a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute periods.

path of travel, not "as the crow flies" measurements. Note that SPRINTER Light Rail stations are considered major transit stops. A map of existing major transit stops and existing stops along high-quality transit corridors is provided in **Appendix B**.

The presumption of a less-than-significant impact near these transit stops may **not** be appropriate if the project:

- Has a Floor Area Ratio of less than 0.75
- Includes more parking for use by residents, customers, or employees of the project than required by the City
- Is inconsistent with SANDAG's most recent Sustainable Communities Strategy or the land use growth assumption accommodated by the Land Use Element portion of the General Plan
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units
- Does not have basic walking and biking access to transit (e.g., sidewalks connecting to transit stops)

3. Projects in a VMT-Efficient Area

A VMT-efficient area is any area within the City with an average VMT/capita or VMT/employee below the thresholds as compared to the baseline regional average for the census tract it is located within, as provided on the SANDAG website.[3]

Residential projects located within a VMT-efficient area may be presumed to have a less-than-significant impact absent substantial evidence to the contrary. A VMT-efficient area for residential projects is any area with an average VMT/capita 15% below the baseline regional average for the census tract it is located within.

Employment projects located within a VMT-efficient area may be presumed to have a less-than-significant impact absent substantial evidence to the contrary. A VMT-efficient area for employment projects (excluding industrial employment projects) is any area with an average VMT/employee 15% below the baseline regional average for the census tract it is located within.

[3] The VMT/Capita and VMT/Employee screening maps are created using information from the current version of the SANDAG model at the time a project notice of preparation (NOP) is produced. The current web address is: https://sandag.maps.arcgis.com/apps/webappviewer/index.html?id=5b4af92bc0dd4b7babbce21a7423402a. As SANDAG updates the model to reflect development and planning throughout the region, the screening maps will be updated and may change resulting in development that may have at one time been screened to no longer be screened and vice versa. As the model is updated, earlier versions of the model will also cease to be supported by SANDAG, meaning that model runs can no longer be completed with the previous versions of the model. If a project begins the transportation study process using one version of the model that becomes unsupported during the process, the project can utilize model outputs from the older model version, as long as no additional modeling work will be done. Projects cannot complete their transportation analysis using multiple model versions.

Industrial Employment projects located within a VMT-efficient area may be presumed to have a less-than-significant impact absent substantial evidence to the contrary. A VMT-efficient area for industrial employment projects is any area with an average VMT/employee at or below the baseline regional average for the census tract it is located within.

Mixed-Use projects located within a VMT-efficient area for each of its land uses may be presumed to have a less-than-significant impact absent substantial evidence to the contrary. Refer to the appropriate section for each land use included as a part of the mixed-use project to determine the definition of a VMT-efficient area for each land use.

4. Locally-Serving Retail Projects

Local serving retail projects less than 50,000 square feet that are expected to draw at least 75% of customers from the local area (based on a market study and/or qualitative information provided by the applicant) may be presumed to have a less than significant impact absent substantial evidence to the contrary. Local serving retail generally improves the convenience of shopping close to home and has the effect of reducing vehicle travel.

5. Locally-Serving Public Facilities

Public facilities that serve the surrounding community or public facilities that are passive use may be presumed to have a less-than-significant impact absent substantial evidence to the contrary. The following are considered locally serving facilities:

- Transit centers
- Public schools
- Libraries
- Post offices
- Park-and-ride lots
- Police and fire facilities
- Parks and trailheads
- Government offices
- Passive public uses, including communication and utility buildings, water sanitation, and waste management
- Other public uses as shown in **Appendix C** or determined by City staff

6. Redevelopment Projects with Lower Total VMT

A redevelopment project may be presumed to have a less-than-significant impact absent substantial evidence to the contrary if the proposed project's total project VMT is less than the existing land use's total VMT and the CEQA action includes closing the existing land use.

For projects that meet one of the screening criteria for CEQA VMT analysis, a detailed VMT analysis is not necessary. The Transportation Impact Analysis must include a technical memorandum to document the screening process and findings, including attaching screening maps, market studies, evaluation of sidewalk gaps and proposed improvements, or other relevant supporting data. Additionally, the Transportation Impact Analysis must include a conclusion that the transportation impact is presumed to be less than significant in accordance with criterion b, Section XVII of *Appendix G* to the CEQA Guidelines.

VMT Thresholds of Significance

Projects that do not meet the above screening criteria must include a detailed evaluation of the VMT produced by the project. The significant thresholds and specific VMT metrics used to measure VMT are described by land use type below.

- **Residential**: 15% below regional average VMT/capita
- **Employment**: 15% below regional average VMT/employee
- **Industrial Employment**: At or below regional average VMT/employee
- **Mixed-Use**: Each project component evaluated per the appropriate metric based on land use type (e.g., residential, employment, and retail)
- **Regional Retail, Regional Recreational, or Regional Public Facilities**: A net increase in total regional VMT using the boundary method

Appendix C provides a list of unique project types and which land use category is appropriate for VMT analysis purposes.

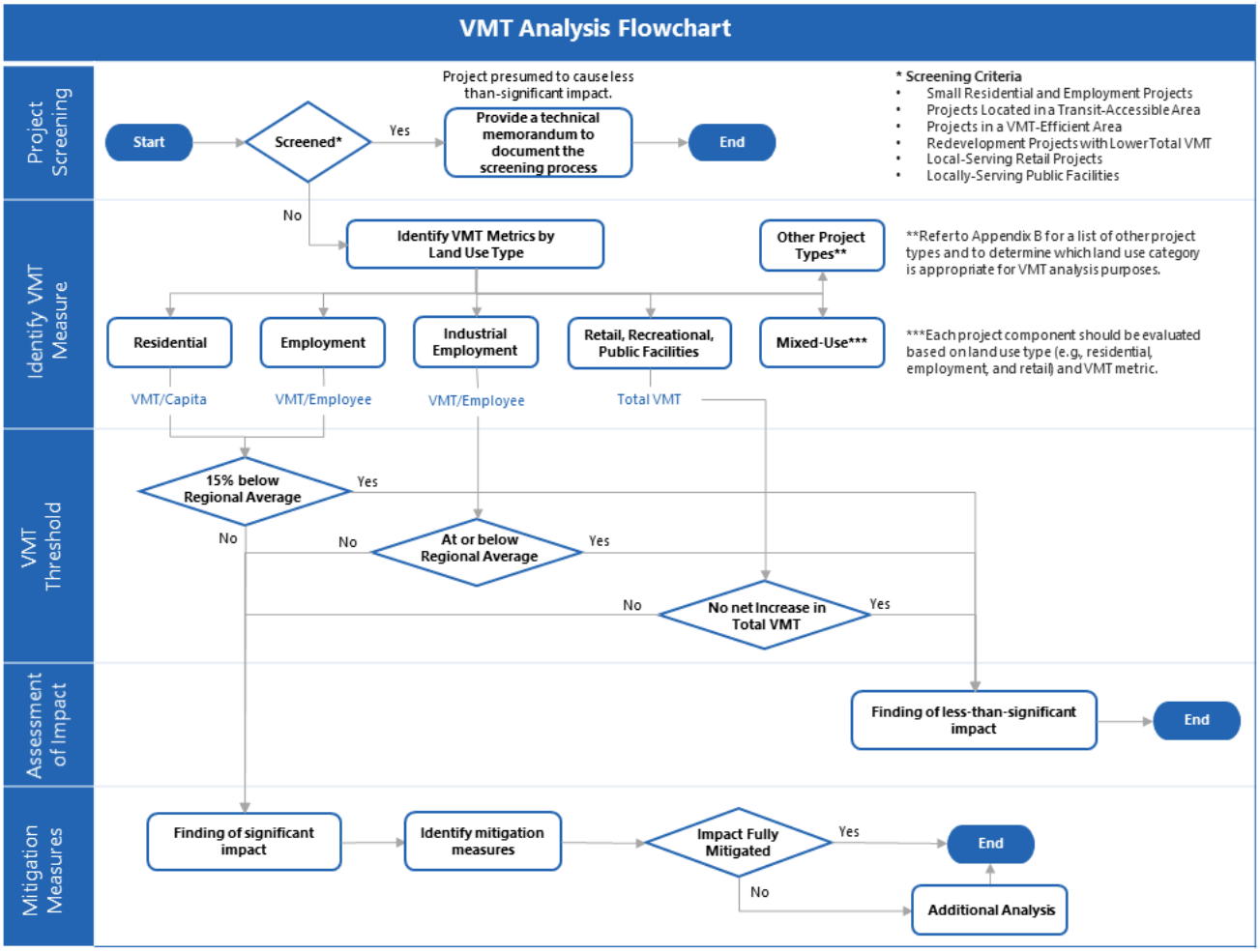
Specific Plans or General Plan Amendments: The land use plan should be compared to the region overall. Comparison to the region is appropriate because large land use plans can have an effect on regional VMT (akin to how a regional retail project affects regional VMT). The significance thresholds described above apply to specific plans or General Plan Amendments. In addition, plan buildout/cumulative analysis is needed.

Additional information regarding the significance thresholds presented here is provided in **Appendix D**.

VMT Analysis Procedures

For projects that are not screened and must provide a detailed evaluation of the VMT produced by the project, guidance is provided below on how to conduct transportation VMT analysis by project type. In addition, **Figure 2** displays the VMT analysis process.

Figure 2: VMT Analysis Process



Note that there may be unique circumstances that require use of tools/techniques other than the SANDAG Regional Travel Demand Model. Use of a tool other than the SANDAG Model should be discussed and documented with City staff in advance.

Residential Projects

For projects that generate fewer than 2,400 daily unadjusted driveway trips: Identify the location of the project on SANDAG's VMT/capita map. The project's VMT/capita will be considered the same as the VMT/capita of the census tract it is located in. Compare the project's VMT/capita to the threshold to determine if the impact is significant, or input the project into the SANDAG Regional Travel Demand Model to determine the project's VMT/capita.

For projects that generate 2,400 or greater daily unadjusted driveway trips: Input the project into the SANDAG Regional Travel Demand Model for SANDAG to provide the project's VMT/capita. To perform

the analysis, all project land uses should be inputted, and the VMT/capita should be determined using the same method/scripts that SANDAG utilizes to calculate the VMT/capita metric. Note that there may be some circumstances where use of the screening maps or other sketch modeling tools are appropriate for larger projects.

Employment Projects

For projects that generate fewer than 2,400 daily unadjusted driveway trips: Identify the location of the project on SANDAG's VMT/employee map. The project's VMT/Employee will be considered the same as the VMT/Employee of the census tract it is located in. Alternatively, the project's VMT can be determined by inputting the project into the SANDAG Regional Travel Demand Model in the manner previously described. Compare the project's VMT/Employee to the threshold to determine if the impact is significant.

For projects that generate 2,400 or greater daily unadjusted driveway trips: Input the project into the SANDAG Regional Travel Demand Model to determine the project's VMT/Employee. To perform the analysis, all project land uses should be inputted, and the VMT/Employee should be determined using the same method/scripts that SANDAG utilizes to develop the VMT/Employee metric. Note that there may be some circumstances where use of the screening maps or other sketch modeling tools are appropriate for larger projects.

Retail Projects

Calculate the change to area VMT using the SANDAG Travel Demand Model (or other appropriate sketch model as coordinated with City Staff). To calculate the change in area VMT, the regional retail component of the project should be inputted into the travel demand model (year that is used to determine the VMT thresholds). The "with project regional retail" area VMT produced by the model run is compared to the "no project" area VMT.

Mixed-Use Projects

Evaluate each individual project component per the appropriate metric based on land use type (e.g., residential, employment, and retail) as described above.

Other Projects

Input the project into the SANDAG Regional Travel Demand Model for SANDAG to provide the project's applicable VMT metric. To perform the analysis, all project land uses should be inputted, and the VMT metric that is appropriate based on the land use type should be determined using the methodology described in **Section 3.2**.

VMT Reductions

If the project includes transportation demand management (TDM) measures, the reduction in VMT due to each measure shall be calculated and can be applied to the project analysis. See **Section 3.5** for resources for determining the reduction in VMT due to TDM measures.

The VMT reductions associated with project TDM should be applied to the appropriate metrics based on the project land uses. If the project does not include any TDM, then no reduction is taken.

The resulting VMT values should be compared to the appropriate threshold (described previously under **VMT Thresholds of Significance**) to determine whether the project results in a significant CEQA transportation impact due to VMT.

3.4 VMT Analysis for Transportation Projects

Projects that result in an increase in additional motor vehicle capacity (such as constructing a new roadway or adding more vehicle travel lanes to an existing roadway) has the potential to increase vehicle travel, referred to as "induced vehicle travel."

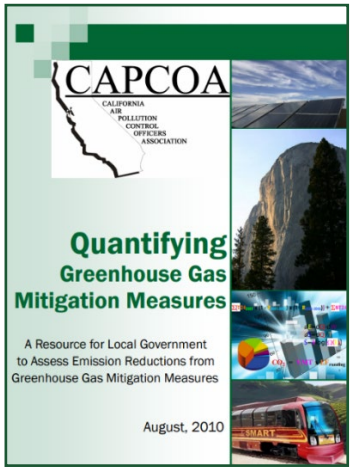
Appendix E contains a list of transportation projects that, absent substantial evidence to the contrary, do not require an induced travel/VMT analysis since they typically do not cause substantial or measurable increases in VMT.

For all other projects, a VMT analysis must be done. To calculate the change in area VMT (boundary method), the project should be inputted into the travel demand model. The "with project" area VMT produced by the model run is compared to the "no project" area VMT. A net increase in area VMT indicates that the project has a significant impact.

3.5 VMT Reduction and Mitigation Measures

To mitigate VMT impacts, the project applicant must reduce VMT, which can be done by either reducing the number of automobile trips generated by the project or by reducing the distance that people drive. The following strategies are available to achieve this:

1. Modify the project's built environment characteristics to reduce VMT generated by the project.
2. Implement TDM measures to reduce VMT generated by the project.



CAPCOA Quantification Report, which includes quantification of VMT reducing measures.



SANDAG Mobility Management Guidebook, which includes recommendations of VMT-reducing measures.

Strategies that reduce single-occupant automobile trips or reduce travel distances are called TDM strategies. There are several resources for determining the reduction in VMT due to TDM measures, such as the California Air Pollution Control Officers Association ("CAPCOA") *Quantifying Greenhouse Gas*

Mitigation Measures (2010) (Quantification Report) and the SANDAG *Mobility Management Guidebook*/ VMT Reduction Calculator Tool.

- CAPCOA Quantification Report
- SANDAG *Mobility Management Guidebook*/VMT Reduction Calculator Tool

Both resources above include equations that address the diminishing value or decreased effectiveness of TDM measures when those measures are used in combination. The equation below should be used by applicants to accurately quantify the effectiveness of a proposed TDM program.

$$\text{Total VMT Reduction} = (1 - P_a) * (1 - P_b) * (1 - P_c) * \ldots$$

where:

P_x = percent reduction of each VMT reduction strategy

Additionally, applicants should be aware of limits to overall program effectiveness (i.e., VMT reduction) that may be achieved from TDM strategies dependent on the project's land use context. Projects that are in urban areas have a higher limit of effectiveness (i.e., they can result in higher VMT reductions) than those in suburban areas. The formula defines the particular conditions that lead to different ways that the TDM measure may be applied or how a TDM measure might be applied in different circumstances. That is, to proposed effective and appropriate TDM measures is based on the project's size, location, and land uses for varying levels of implementation.

Special attention should be given to ensuring that measures are not double-counted through the transportation analysis process. For example, if a project identifies telecommuting as a reduction strategy, care should be taken to identify the level of telecommuting that has already been assumed as part of the travel demand model through coordination with SANDAG modeling staff or review of SANDAG model documentation available on SANDAG's website.

An example VMT reduction calculation is provided below showing quantified TDM measures for a sample mixed-use development project is provided in **Appendix H**. The City of Escondido is currently evaluating VMT Mitigation Strategies that could include, among other things, a VMT Exchange Program or VMT Mitigation Bank. Until such a program is adopted, applicants should reach out to City staff to identify candidate VMT mitigation projects within the City of Escondido that can be analyzed to mitigate VMT impacts. Pursuant to the City's Climate Action Plan, mitigation is required to be local.

3.6 Cumulative VMT Impacts

Since VMT is a composite metric that will continue to be generated over time, a key consideration for cumulative scenarios is whether the rate of VMT generation gets better or worse in the long term. If the rate is trending down over time consistent with expectations for air pollutant and GHGs, then the project level analysis may suffice. However, the trend direction must be supported with substantial evidence. A project would result in a significant project-generated VMT impact under cumulative conditions if the applicable cumulative project-generated VMT thresholds are exceeded.

Measuring the project's effect on VMT is necessary especially under cumulative conditions to fully explain the project's impact. A project effect on VMT under cumulative conditions would be considered significant if the cumulative link-level boundary VMT/capita or VMT/employee for the San Diego region increases under the "plus project" condition compared to the "no project" condition.

Please note that the cumulative "no project" condition shall reflect the adopted Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS); as such, if a project is consistent with the regional RTP/SCS, then the cumulative impacts shall be considered less than significant.

4. Local Mobility Analysis

4.1 Overview

The authority for requiring non-CEQA transportation analysis and potentially requiring project improvement conditions to address identified deficiencies lies in the City's project review authority and General Plan policies to promote orderly development, promote public safety, and ensure land development site planning and needed infrastructure are adequate.

The LMA evaluates the effects of a proposed development project on traffic operations and safety for the roadway network in the proximate area of the project. The LMA will:

- Specify the City's screening criteria, study area, and methodologies to assess the potential need for off-site operation improvements to the project study area transportation network.
- Ensure that the local transportation facilities will have sufficient capacity to accommodate the project's demand on various modes of travel, and that improvements identified by the City are constructed when needed, consistent with the City's adopted standards and policies.
- Ensure consistency with transportation planning documents (such as bicycle and pedestrian planning efforts).
- Establish measures of effectiveness to maintain vehicular LOS consistent with the City's General Plan Mobility and Infrastructure Element, as may be amended from time to time.
- Facilitate site project access and roadway frontage infrastructure improvements to serve the project vicinity.

Detailed information on the analysis methodologies, standards, and thresholds are discussed in the following sections. As discussed previously and in **Section 2.3**, all projects will be required to coordinate with City staff prior to project initiation to ensure an efficient review process.

4.2 Requirements

The required study scenarios and scope will vary depending on the total number of daily trips the project is anticipated to generate. Both the analysis scenarios and the facilities that need to be analyzed are to be confirmed with City staff (see **Sections 1.5 and 2.2**) prior to conducting an LMA through the scoping process.

The LMA should use the current state-of-the-practice analysis methodologies to analyze traffic conditions. General requirements for analysis in the LMA are outlined below:

Vehicle

The City's General Plan (2012) establishes a goal of LOS C for all City streets; however, due to overall citywide traffic conditions, LOS D was considered acceptable. If the existing LOS is D or worse, preservation of the existing LOS must be maintained, or acceptable mitigation must be identified.

Currently the approved level of service standards for different street segments based on their classifications and average daily vehicle trips (ADT) within the City of Escondido are provided in **Table 1**.

Table 1: City of Escondido Level of Service Standards:
Street Segments Average Daily Vehicle Trip Thresholds

Street Classification	Lanes	Cross Sections	Level of Service				
			A	B	C	D	E
Prime Arterial	(8 lanes)	116/136 (NP)	23,800	37,800	51,800	62,300	70,000
	(6 lanes)	106/126 (NP)	20,400	32,400	44,400	53,400	60,000
Major Road	(6 lanes)	90/110 (NP)	17,000	27,000	37,000	44,500	50,000
	(4 lanes)	82/102 (NP)	12,600	20,000	27,400	32,900	37,000
Collector	(4 lanes)	64/84 (NP)	11,600	18,500	25,300	30,400	34,200
	(4 lanes)	(WP)	6,800	10,800	14,800	17,800	20,000
Local Collector	(2 lanes)	42/66 (NP)	5,100	8,100	11,100	13,400	15,000
		(WP)	3,400	5,400	7,400	8900	10,000

Source: City of Escondido former Traffic Impact Analysis Guidelines.
Notes:
NP: No Parking, WP: With Parking
The following V/C Ratios were utilized for determining Existing and Future Level of Service (rounded to the nearest hundredth).

Level of Service	(V/C Ratio)
A - Less than or Equal to	0.00 to 0.34
B - Less than or Equal to	0.35 to 0.54
C - Less than or Equal to	0.55 to 0.74
D - Less than or Equal to	0.75 to 0.89
E - Less than or Equal to	0.90 to 1.00

Trip generation should be determined following the guidelines outlined in **Section 2.2**. Based on the adopted 2013 General Plan with a goal of LOS C, an LMA must be prepared for any project that generates and adds more than 2% of the ADT to any street segments operating at LOS C or worse within the preliminary study area identified by the City staff. Based on this threshold, **Table 2** contains the trigger-points for a required LMA within the City of Escondido for each street classification.

Table 2: ADT Thresholds for Roadway Segments to Trigger Local Mobility Analysis for New Development

Street Classification	Lanes	Cross Sections (ft.)	LMA Trigger-Points (ADT generation)
Prime Arterial	(8 lanes)	116/136 (NP)	900
	(6 lanes)	106/126 (NP)	800
Major Road	(6 lanes)	90/110 (NP)	700
	(4 lanes)	82/102 (NP)	500
Collector	(4 lanes)	64/84 (NP)	500
	(4 lanes)	(WP)	250
Local Collector and other	(2 lanes)	42/66 (NP)	200
	(2 lanes)	(WP)	200

Source: City of Escondido former Traffic Impact Analysis Guidelines.
Notes:
2% of ADT for LOS C has been used as a guide to calculate the trigger point values
NP: No Parking, WP: With Parking

An LMA should be undertaken for any type of development that generates daily trips more than the above-mentioned trigger points. Certain types of projects that generate fewer than 500 ADTs may be considered by the City staff for an LMA waiver only where the affected segments and intersections operate at LOS C or better. On the contrary, City staff may require an LMA for any kind of development if the possible traffic effect of the project is believed to be considerable. At a minimum, the study area should include at least all site access points and major intersections (signalized and un-signalized) adjacent to the site in the study area. **Table 3** provides the peak hour trip thresholds for determining if an intersection should be included in the LMA. The thresholds represent the sum of all trips (inbound and outbound) added to any leg of the intersection.

Table 3: ADT Thresholds for Intersections to be included in the LMA

Intersection Classification	LMA Trigger Points (AM or PM peak hour trips added to any leg)
Prime Arterial	50
Major Road	40
Collector	30
Local Collector	20

Source: City of Escondido former Traffic Impact Analysis Guidelines.
Notes:
Study area can be expanded by City Engineer

At isolated intersections that are not heavily congested, deterministic methods that apply HCM equations for each intersection in isolation can be used. The current version of the Highway Capacity Manual reflects current state-of-the-practice methodology. There are several software packages that use deterministic methods such as Synchro, Vistro (previously Traffix), and Highway Capacity Software. The HCM methodology assigns a LOS grade to an intersection based on estimated delay.

For intersections that are closely spaced, have a unique geometry, or are part of a congested corridor, micro-simulation analysis should be performed. Micro-simulation can more accurately evaluate intersections with unique characteristics or in congested systems because the method accounts for how intersections within a system interact with one another. For example, if a vehicle queue extends from an intersection and blocks a different intersection, micro-simulation will account for that condition, whereas deterministic methods will not. Micro-simulation should also be considered when determining required turn lane storage if the analyst believes deterministic methods are not producing reasonable maximum or 95th percentile queue lengths. There are several micro-simulation software packages such as SimTraffic (which is a module of Synchro) and Vissim.

Signalized intersections, all-way-stop intersections, and roundabouts should have the entire intersection average vehicle delay reported. Minor side-street stop intersections should have the worst-case movement average vehicle delay reported.

It is recommended that the methodology and software proposed for use is coordinated with City staff. City staff may also request the consultant provide micro-simulation electronic files for review.

Active Transportation

Pedestrian: The pedestrian analysis should document existing and planned pedestrian facilities and any substandard or missing facilities (e.g., missing sidewalk, curb ramps, major obstructions) within a ¼-mile walking distance measured from each pedestrian access point (e.g., driveways, on-site sidewalk connections to the street). Planned facilities should be determined based on relevant planning documents (e.g., General Plan, other City planning documents).

Bicycle: The bicycle analysis should document existing and planned bicycle facilities and any substandard or missing facilities (e.g., bike lane gaps, obstructions) within a one-mile bicycling distance measured from the centroid point of the parcel's linear frontage or from the center of the intersection formed by each project driveway. Planned facilities should be determined based on relevant planning documents (e.g., General Plan, Bicycle Master Plan).

Transit: The transit analysis should focus on transit amenities and connectivity to transit, especially for projects where the entire project site within a half-mile walkshed from the centroid point of the parcel's linear frontage to a major transit stop or a high-quality transit corridor [4]. The analysis should identify the closest transit routes and stops to the project within ¼-mile walking distance and documentation of amenities at existing transit stops (e.g., shelters, maps, benches). Evaluation of transit amenities should be completed considering the requirements in the latest North County Transit District (NCTD) Bus Stop Development Handbook and improved where demand of the project warrants such improvement. A sample of the amenity requirements is provided in **Appendix F**. Project applicants should always

[4] Major transit stop: a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods. High quality transit corridor: a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute periods.

coordinate with City and NCTD staff to determine appropriate transit amenities and applicable guidelines. The analysis should include discussion on the quality of the nearby transit facilities, including frequency of service, connections to hubs, etc.

Site Access and Circulation

The LMA should address the following site-specific topics, where applicable:

- Appropriate access management standards for median openings and spacing between major driveway connections
- Potential sight distance problems
- Potential pedestrian or bicycle conflicts
- Relationship of internal circulation facilities to public streets
- Sufficiency of driveway length at major entrances
- On-site circulation as it impacts the public roadway system or access to public transportation and bicycle/pedestrian network
- Potential for shared access among developments, including alternate access roads.

Data Collection and Study Periods

- Traffic counts should be collected for each of the study locations and should be no more than two years old unless older counts are demonstrated to be still valid for Existing Conditions. Counts older than four years old must be updated. Coordination with City staff is required to determine appropriate use of any historic data.
- The LMA should provide tables and map figures of the traffic count data. Technical Appendices should include original traffic count data sheets.
- Traffic counts should typically be conducted during a.m. and p.m. peak periods on weekdays (Tuesdays, Wednesdays, or Thursdays), unless approved by City staff. For typical commute hours, the peak hours will fall between 7 and 9 a.m. and between 4 and 6 p.m.
- Other peak hours, off-peak, or special event peak periods, may also be required depending on the project location and type of use. Projects involving or located near schools may need to evaluate traffic during the associated school hours of operation (e.g., morning drop-off and afternoon dismissal times). If the study necessitates a weekend analysis, Saturday from 11 a.m. to 1 p.m. will be the analyzed peak period. The need for analysis during non-typical commute times should be established with City staff during the scoping process.
- Traffic data should not be collected on weeks that include a holiday and non-school session time periods, unless approved by City staff.

Other Data Collection Considerations

Other considerations in data collection documentation and analysis should incorporate all applicable components that relate to the transportation network, which may include:

- Speed limits and average/85th percentile vehicle speed
- Parking characteristics (on-street parking presence and type, bus stops)
- Signing (static, dynamic, or variable) and pavement markings
- School zone
- Signal phasing and timing plans
- Intersection control type
- Right turn and left turn treatments
- Railroad crossing location
- Ramp metering
- Pedestrian counts
- Bicycle counts
- Transit stops (type, frequency/schedule, dwell time, trip length, bus blockage)
- Roadway classification (functional class, rural/urban designation, access class, area type)
- Cross section elements (number, width and purpose of lanes, shoulder type and width, median type and width, pavement type and rating condition, cross slope, sidewalk, bicycle lane)
- Geometry (horizontal and vertical alignment, storage lengths, intersection/interchange configurations, auxiliary lanes)
- Pedestrian and bicycle accommodation
- Transit (location, position, proportions with shelters and benches)
- Roadside (clear zone width, lateral clearance, driveway counts)

Study Scenarios

The following scenarios should be evaluated for the LMA:

- Existing Conditions
- Existing Plus Project Conditions
- Near Term Conditions (includes near term planned and approved projects)
- Near Term Plus Project Conditions
- Long Term (future year) Conditions (if the project is not consistent with the GP)
- Long Term (future year) Plus Project Conditions (if the project is not consistent with the GP)
- Special Scenarios (e.g., a phased project analysis)

Trip generation and distribution should be determined following the guidelines outlined in **Section 2.2**.

4.3 Identifying Transportation Improvements

In general, a project should consider feasible improvements to accommodate the addition of the proposed project's vehicular, pedestrian, and bicycle traffic, and both the transit access and increased demand for transit services and facilities.

The following sections provide guidance for identifying when a transportation improvement is necessary by facility type:

Vehicle

The following thresholds shall be used to identify if a project is responsible to make transportation operational improvements. If at any time the project causes the values in **Table 4** below to be exceeded on a roadway segment or at an intersection that is operating at a LOS D or worse, the project shall identify improvements to achieve the desired LOS/delay. Below are the proposed thresholds for determining when improvements are needed to a roadway segment or an intersection. The Downtown Specific Plan identifies select roadway segment locations where LOS E is considered acceptable if adjacent intersection operations are LOS D or better. Coordination with City staff for projects within the Downtown Specific Plan is required.

Table 4: Level of Service Thresholds

Level of Service with Project	Allowable Change due to Project		
	Roadway Segments		Intersections
	V/C	Speed Reduction (mph)	Delay (sec/veh)
D, E, or F	0.02	1	2

Notes:
The Downtown Specific Plan identifies select roadway segments where LOS E is acceptable if adjacent intersection operations are LOS D or better.
Transportation improvements should be considered for any segment or intersection operating on LOS F.
V/C: Volume-to-capacity ratio. The roadway capacity is the LOS E threshold as defined in Table 1.

Where existing segments or intersections operate at LOS F, projects should consider measures to reduce any impact or make improvements to a failing facility.

Active Transportation

Pedestrian: The project should construct sidewalks to close sidewalk gaps adjacent to the project site.

The project should remove sidewalk obstructions that limit the pedestrian accessible route to less than four feet in width adjacent to the project site.

The project should construct curb ramps and meet ADA accessibility standards for any intersections adjacent to the project site.

Consideration should be made for traffic calming and pedestrian-related signal timing changes (e.g., leading pedestrian interval signal timing, pedestrian signal head upgrades, installation of accessible signal features) to accommodate an increase in pedestrian demand on roadways and intersections adjacent to the project site.

Bicycle: The project should construct (or preserve space for) any planned bicycle facility pursuant to the City's Bicycle Master Plan, other planning documents, and City design standards.

The project may consider upgrading adjacent bicycle facilities by adding upgraded treatments (e.g., adding buffers or protected bike lanes, where appropriate) to accommodate an increase in bicycle demand.

The project should construct any planned bicycle facilities adjacent to the project frontage to be consistent with the City's Mobility and Infrastructure Element, the Bicycle Master Plan, and other applicable City documents, and through coordination with the City. (This might not be appropriate for short segments.)

Appendix H: VMT Mitigation Sample Calculation

VMT Mitigation Sample Calculation

As shown, each VMT reduction strategy is calculated individually then combined in the equation to determine the overall VMT reduction. The sum of all strategies results in a total of 11.6%; however, the overall VMT reduction is calculated using the multiplicative formula to account for the fact that some strategies are redundant or duplicative in nature.

Land Use Strategies

- **Land Use/Diversity:** 5.0% **P_a = 5.0%**

Travel & Commute Services for Residents

- **Neighborhood/Site Enhancements:** 3.0% **P_b = 3.0%**
  - Pedestrian/Bicyclist Trails Network: 2.0%
  - Electric Bike-Share Program: 0.6%
  - Car-share Program: 0.4%
  - Category % VMT Reduction = 1 – (1 – 2.0%) * (1 – 0.6%) * (1 – 0.4%)= 3.0%
- **Transit System Improvements Strategies:** 1.2% **P_c = 1.2%**
  - Network Expansion (through Local Shuttle Service): 0.9%
  - Service Frequency/Speed Increase (through Local Shuttle Service): 0.3%
  - Category % VMT Reduction = 1 – (1 – 0.9%) * (1 – 0.3%) = 1.2%
- **Commute Trip Reduction (CTR) for residents (home based work):** 2.0% **P_d = 2.0%**
  - Ridesharing Support Features for Residents: 0.6%
  - Transit Fare Subsidy for Residents: 0.9%
  - TDM Program Marketing for Residents: 0.5%
  - Category % VMT Reduction = 1 – (1 – 0.6%) * (1 – 0.9%) * (1-0.5%) = 2.0%

Commute Services for Employees

- **Commute Trip Reduction (CTR) for employees:** 0.4% **P_e = 0.4%**
  - Transit Fare Subsidy for Employees: 0.3%
  - TDM Program Marketing for Employees: 0.1%
  - Category % VMT Reduction = 1 – (1 – 0.3%) * (1-0.1%) = 0.4%

$$\text{Total VMT Reduction} = (1 - P_a) * (1 - P_b) * (1 - P_c) * (1 - P_d) * (1 - P_e)$$

P_x = percent reduction of each VMT reduction strategy

Total VMT Reduction = (1 – 5.0%) * (1 – 3.0%) * (1 – 1.2%) * (1 – 2.0%) * (1 – 0.4%) = **11**

Appendix B

Scoping Agreement

PART 1

General Project Information and Description

Project Information

Project Name: N. Iris Lane 102 Multi-Family Units

Project Location: Southwest corner of N. Iris Ln at Robin Hill Ln

Project Description

Land Uses and Intensities: Residential 102 Multi-Family Units on 7.7 acres (13.3 du/acre)

Gross and Developable Acreage: Gross 7.7 acres, Net 7.0 acres

Building Square Footage or Number of Dwelling Units: 102

Vehicle Parking Spaces: 2 in each garage and 26 outside guest spaces

Bicycle Parking Spaces: within each garage space available to store bikes

Motorcycle Spaces: 0

Electric Vehicle Spaces: 3 (part of 26 outside spaces)

Project Applicant:

Name: Hallmark Development Corp. Attn: Ms. Mariana McGrain

Address: 740 Lomas Santa Fe Dr, STE 204 Solana Beach, CA 92075

Telephone and Email: 858-481-3310 x107 mmcgrain@hallmarkcommunities.com

Consultant

Firm: LOS Engineering, Inc.

Project Manager: Justin Rasas, P.E.

Address: 11622 El Camino Real STE 100 San Diego CA 92130

Telephone and Email: 619-890-1253 justin@losengineering.com

Project Trip Generation

Source: SANDAG	**Pass-by Trips:** 0
Total Daily Trips*: 816	**Diverted Trips:** 0
Internal Capture Rate: 0	**Trip Credit:** 0
Alternative Modes: None	**Net New Daily Trips:** 816

*If truck traffic accounts for 25% or more of project trips, then a Passenger Car Equivalent (PCE) factor of 2.5 should be applied to all truck trips.

General Plan Consistency

Is this project consistent with the General Plan? ☐ Yes ☐ No

Site Plan

Attach 11x17 copies of the project location/vicinity map and site plan containing the following:
• Driveway locations and access type
• Pedestrian access, bicycle access, and on-site pedestrian circulation
• Location and distance to nearest existing transit stop (measure as walking distance to project entrance or middle of parcel)
• Location of planned or proposed pedestrian or bicycle improvements within ¼ mile of the project identified in the General Plan Mobility and Infrastructure Element or the Bicycle Master Plan

CEQA Transportation Analysis Screening

Project Type Screening Criteria for CEQA Vehicle Miles Travelled (VMT) Analysis

1) Select the Land Uses that apply to your project 2) Answer the questions for each Land Use that applies to your project *(if "Yes" in any land use category below then that land use (or a portion of the land use) is screened from CEQA VMT Analysis; If a project is screened out, a technical memorandum is still required to document the screening process)*	Screened Out Yes	Not Screened Out No
☐ **1. Small Residential and Employment Projects:**		
a. Does the project result in 200 daily trips or less?	☐	▣
☐ **2. Project is Located in a Transit-Accessible Area:**		
a. Is the project located within a half-mile walking distance of an existing major transit stop or an existing stop along a high-quality transit corridor?	☐	▣
b. Additional project features:		
i. Does the project have a Floor Area Ratio ≥ 0.75?	☐	☐
ii. Does project include the least amount of parking required for residents, customers, or employees (i.e. not more than required)?	☐	☐
iii. Is the project consistent with SANDAG's most recent Sustainable Communities Strategy or the City of Escondido General Plan?	☐	☐
iv. Does the project replace affordable residential units with a greater number of moderate- or high-income residential units?	☐	☐
v. Does the project have basic walking and biking access to transit (e.g., sidewalks connecting to transit stops)?	☐	☐
☐ **3. Project is in a VMT-Efficient Area:**		
a. Is the project in a VMT/Capita or VMT/Employee Efficient Area per SANDAG screening maps?	☐	▣
☐ **4. Locally-Serving Retail Project:**		
a. Is the project less than 50,000 square feet and expected to draw at least 75% of customers from the local area?	☐	▣
☐ **5. Locally Serving Public Facility:**		
a. Is the project a locally serving public facility?	☐	▣
☐ **6. Redevelopment Project:**		
a. Does the project result in a net decrease in total Project VMT than the existing use?	☐	▣

Non-CEQA Local Mobility Analysis

Local Mobility Analysis (LMA) Requirement

1) Select the Street Classifications for each street in the study area 2) Answer the questions for each Street Classification that applies to your project	Yes	No
☐ **1. Prime Arterial:**		
a. Does the project add 900 ADT or more to any segment classified as 8-lane Prime Arterial?	☐	☒
b. Does the project add 800 ADT or more to any segment classified as 6-lane Prime Arterial?	☐	☒
☐ **2. Major Road:**		
a. Does the project add 700 ADT or more to any segment classified as 6-lane Major Road?	☐	☒
b. Does the project add 500 ADT or more to any segment classified as 4-lane Major Road?	☐	☒
☐ **3. Collector:**		
a. Does the project add 500 ADT or more to any segment classified as 4-lane Collector without parking?	☐	☒
b. Does the project add 250 ADT or more to any segment classified as 4-lane Collector with parking?	☐	☒
☒ **4. Local Collector and other:**		
a. Does the project add 200 ADT or more to any segment classified as 2-lane Local Collector or any other classifications?	☒	☐

Certain types of projects which generate less than 500 ADT may be considered by the City staff for an LMA waiver only where the affected segments and intersections operate at LOS C or better.
Please briefly explain why your project might be eligible for an LMA waiver.

PART 2

Trip Distribution and Trip Assignment

☒ **Select Zone (Model Series 14)**	Projects that generate greater than 2,400 daily trips
☐ **Manual Estimation**	Projects that generate less than 2,400 daily trips

Provide an exhibit detailing the project's trip distribution and trip assignment.
Provide a table with the project's daily trip assignment for each street segment in the study area.

Study Intersections and Roadway Segments (NOTE: Subject to change based of staff review)

1.	N. Iris Ln at Village Rd	**6.**	
2.	N. Iris Ln at Robin Hill Rd	**7.**	
3.	N. Iris Ln at Centre City Pkwy	**8.**	
4.		**9.**	
5.		**10.**	

Attach a separate page if the number of study locations exceeds 10.

Other Jurisdictions

Is this project located within one mile of another Local Jurisdiction? ☐ **Yes** ☐ **No**

If yes, name of Jurisdiction:

Specific Issues to be addressed within the Study

(in addition to requirements described in the Guidelines – to be filled out by City Staff)

1.	
2.	
3.	
4.	
5.	

Recommended by:

Justin Rasas, P.E.	6/30/21
Consultant's Representative	Date

Scoping Agreement Submitted on _____ Date

Scoping Agreement Re-submitted on _____ Date

Approved Scoping Agreement:

_____ _____

City of Escondido Transportation Specialist — Date

Appendix C

VMT Support Materials and Calculations

City of Escondido VMT Exchange Program Documentation – Public Review Draft

Prepared for:
City of Escondido

August 5, 2022

FEHR PEERS

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Program Overview

Introduction

The following VMT Exchange Program Documentation provides the City of Escondido (City) with the technical basis for implementation of a VMT Exchange program to provide programmatic mitigation options to projects with transportation VMT impacts. The VMT Exchange program provides a list of community-based transportation projects and programs that can be selected to be full or partial mitigation for a transportation VMT impact pursuant to the California Environmental Quality Act (CEQA). The program has co-benefits in that it supports the City's future transportation needs and assists the City in reaching its Climate Action Plan (CAP) goals.

The Program offers a variety of VMT reducing projects and programs, such as constructing bicycle and pedestrian facilities, improving transit stops, funding a City run circulator shuttle, and funding commute trip reducing programs for City staff and residents/employees within Escondido. The program will be implemented over time and the projects available for programmatic mitigation will be expanded as city resources and/or new options become available. This initial program offers applicants the ability to construct City bicycle, pedestrian, and transit supportive infrastructure in exchange for VMT reduction that can be applied to their project. In the future, additional programmatic mitigation options such as a circulator shuttle and commute trip reduction programs may become available.

The VMT Exchange Program projects and programs are not already part of funded programs; therefore, meet the concept of additionality[1] – these projects/programs are in addition to what would have been implemented through other planning and capital improvement programs.

The VMT Exchange Program is a voluntary program that is designed to offer discretionary projects a programmatic option for reducing transportation VMT impacts either to less than significant or by providing mitigation to the extent feasible. A discretionary project with a significant transportation VMT impact may also choose to mitigate the impact using site specific mitigation measures outside of the VMT Exchange Program or a combination of site-specific measures plus use of the VMT Exchange Program.

The project/program list provided in the document is a live table that will be updated periodically to reflect the addition of VMT reducing projects and/or to reflect current research on the project/program's effectiveness at reducing VMT.

[1] Additionality is the requirement that the VMT reductions/exchange program projects would not have occurred absent inclusion in the exchange program. Additional information is provided in the UC Berkely publication, "Implementing SB 743, An Analysis of Vehicle Miles Traveled Banking and Exchange Frameworks," August 2018.

Background

SB 743 was made into law in 2013 fundamentally changing transportation impact analysis required for CEQA compliance. According to the new law, vehicle miles of travel (VMT) replaced auto level of service (LOS) and other similar measures of vehicular capacity or traffic congestion for determining significant impacts.

Transportation Demand Management (TDM) strategies have traditionally been utilized to change travel behavior as a way of reducing VMT. TDMs are generally most effective in urban areas where a project site is accessible through multiple travel modes (i.e., walking, bicycling, transit, and personal micro-mobility vehicles) offering similar travel times and convenience. On the other hand, TDM strategies are less effective in low-density suburban and rural areas where travel modes are more reliant upon personal automobiles. In these types of areas, a program-based approach to mitigation is typically more effective than applying strategies to a project site only. Following is a review of three common program-based approaches[2]:

- **Transportation Impact Fee Program** – is a traditional impact fee program in compliance with the Mitigation Fee Act[3]. The nexus for the fee program would be a VMT reduction goal consistent with the CEQA threshold established by a lead agency for SB 743 purposes. The City of Los Angeles is the first city in California to complete a nexus study for this type of program. The main difference from a fee program based on a metric such as vehicle level of service (LOS) is that the VMT reduction nexus results in a capital improvement program (CIP) consisting largely of transit, bicycle, and pedestrian projects. These types of fee programs are time-consuming to develop, monitor, and maintain but are recognized as an acceptable form of CEQA mitigation if they can demonstrate that the CIP projects will be fully funded and implemented.
- **VMT Mitigation Exchange** – relies on a developer agreeing to implement a predetermined VMT reducing project or proposing a new one. The project may be located in the vicinity of the project or elsewhere in the community, and possibly outside the community. The Exchange needs to have a facilitating entity that can match the VMT generator (the development project) with a VMT reducing project or action. The facilitating entity could be the lead agency or another entity that can provide the match and ensure through substantial evidence that the VMT reduction is valid. This option provides the most flexibility for mitigation project selection and is also the least complex to set up. Implementation is completed on a project-by-project basis, similar to typical mitigation measures.

  VMT Mitigation Bank – attempts to create a monetary value for VMT reduction such that a developer could purchase VMT reduction credits. The money exchanged for credits could be

[2] For more detail on each program, see VMT Mitigation Through Banks and Exchanges Understanding New Mitigation Approaches, Fehr & Peers, January 2020 (Draft)

[3] The Mitigation Fee Act: (Gov. Code, §66000) establishes requirements for local entities when imposing development fees. https://leginfo.legislature.ca.gov/faces/codes_displayText.xhtml?lawCode=GOV&division=1.&title=7.&part=&chapter=5.&article=

applied to local, regional, or state-level VMT reduction projects or actions. Like all VMT mitigation, substantial evidence would be necessary that the projects covered by the Bank would achieve expected VMT reductions and some form of monitoring may be required. This is more complicated than a simple exchange and requires more time and effort to set up and implement. The verification of how much VMT reduction is associated with each dollar or credit and tracking mitigation completion are more difficult parts of the program.

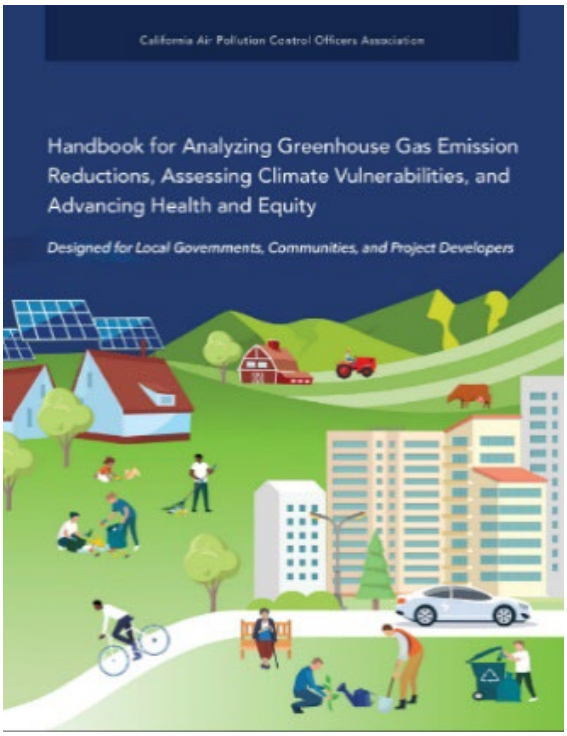
The option that best fits the needs of Escondido currently is an exchange program. The City will serve as the facilitating entity and will be responsible for administering the program and verifying that the agreed upon exchange projects are completed.

Project Identification

Selected projects in this program reflect the most recent development patterns in the area as well as the policy direction set in the City's General Plan and other planning documents. All selected projects are estimated to result in a reduction in the number of vehicle trips in their area of influence or target population.

Following is a list of planning documents reviewed that assisted in developing the initial VMT exchange program project/program list:

- General Plan (2012)
- Climate Action Plan (2021)
- Bicycle Master Plan (2012)
- Capital Improvement Program (2021-2022)
- Downtown Specific Plan (2013)
- Village Specific Plan (2017)
- East Valley Specific Plan – Draft (2021)
- Escondido Creek Trail Master Plan (2012)
- El Caballo Park Master Plan (2014)
- Grape Day Park Master Plan – Draft (2015)
- North County Transit District Project List (2021)
- Caltrans North County Project List (2021)



Nexus Methodology

The purpose of the nexus analysis is to:

- Provide justification for creating the VMT exchange program.
- Establish the relationship between the VMT exchange program individual projects/programs and the VMT reductions associated.

The VMT Exchange Program is a voluntary program that provides programmatic mitigation options to discretionary development projects that have a significant transportation VMT impact. The individual exchange projects/programs listed in this VMT Exchange Program reduce existing citywide VMT, offsetting a significant environmental impact due to the increase in VMT caused by a particular development project. Therefore, there is a direct benefit to the development project applicant utilizing the program to reduce the development project's significant transportation VMT impact. In addition, the program offers opportunities to reduce VMT through

encouragement of active transportation, transit use and other VMT reducing strategies near population centers, where they can serve the largest community benefit. Encouraging active transportation is also one of the legislative intents of SB 743.

The program establishes quantifiable benefits associated with VMT reduction strategies. There are several resources for determining the reduction in VMT associated with the individual projects/programs in this VMT Exchange Program. For this VMT Exchange Program, the VMT reduction for each individual project/program is calculated based on the California Air Pollution Control Officers (*CAPCOA) 2021 Handbook for Analyzing Greenhouse Gas Emission Reduction, Assessing Climate Vulnerabilities, and Advancing Health and Equity (GHG Handbook)*. The GHG Handbook provides the most current collection of research and documentation on TDM effectiveness at reducing VMT. In addition, the program references research compiled for the first version of the CAPCOA GHG Handbook (*Quantifying Greenhouse Gas Mitigation Measures*, 2010).

This study is designed to provide the necessary technical analysis to support the estimated VMT reductions. Technical information provided should be maintained and reviewed periodically to ensure that it reflects current planning documents, new potential projects/programs, updated TDM research, and updates to the SANDAG Regional Travel Model. Selected output from the SANDAG Regional Travel Demand Model (Activity Based Model 2+, Base Year, Regional Plan Version) was used in the TDM effectiveness calculations.

During the periodic review process, City staff will administratively incorporate minor amendments to the exchange project list such as adding new bicycle, pedestrian, or transit exchange projects. Adding new programs (such as those described for future updates including a citywide commute trip reduction program or circulator shuttle service) are considered major amendments that would require City Council approval.

Funds collected for projects/programs identified in this VMT Exchange Program cannot be used for maintenance of existing facilities.. All project/programs listed in this exchange program are additional to the roadway network; they do not exist today and are not contained in a funded improvement program. Note that upgrading an existing facility beyond standard requirements is an eligible project of this VMT Exchange Program.

VMT Exchange Program: Individual Projects/Programs

This section provides a description of the VMT reducing project and program types included in this VMT Exchange Program. The projects are separated into two categories: Early Action and Future. Initially, only bicycle, pedestrian, and transit supportive infrastructure/capital projects will be available as part of this exchange program. Once the program is established and additional City staff resources are available, other types of VMT reduction programs (circulator shuttle, commute trip reduction programs, etc.) may be offered. A sample of these future projects/programs are discussed in the "Future Exchange Program Options" section of this document.

The process for a developer to choose a project or program from the list is as follows:

1. Communicate with Development Services Staff that the development project has a significant transportation VMT impact, as indicated in the completed Scoping Agreement, and that the applicant would like to utilize the Exchange Program for full or partial mitigation of the impact.
2. Development Services Staff will discuss options with the applicant. The available VMT reducing projects from the Exchange will be reviewed and identified based on the following priorities:
    a. The exchange project is near the development project (within a ½ mile travel distance from the development project) and connects the project or existing community to an existing bicycle or transit corridor.
    b. If an exchange project is not available that meets priority (a), identify an exchange project that facilitates bicycle or pedestrian access to a key destination (park, school, community center, shopping) within ½ mile travel distance from the development project.
    c. If an exchange project is not available that meets priorities (a) and (b), then expand the geography to citywide, first identifying an exchange project that connects existing communities to an existing bicycle or transit corridor and then expanding to an exchange project that facilitates bicycle or pedestrian access to a key destination (park, school, community center, shopping).

Early Action Exchange Program Projects

Table 1 provides the list of individual projects/programs, associated VMT reduction, and approximate construction costs for the early action exchange projects. **Appendix A** provides detailed calculation worksheets for each reduction strategy.

Pedestrian Network Projects

1. Increase Sidewalk Coverage

The objective of this measure is to increase access to surrounding land uses by providing new sidewalks, pedestrian bridges, and multi-use paths. A list of specific sidewalk project opportunities located near school areas and high activity pedestrian areas are identified and included in the Exchange Program.

Developers may select locations other than ones identified in this document; however, selected locations must be reviewed by the City Staff before applying VMT reductions to ensure that they are comparable to locations identified in this document and would result in increased pedestrian activity and meet the priority conditions stated above.

Note: While not a part of the VMT Exchange Program, development projects may take VMT reduction credit for construction of sidewalk along the project frontage (exterior edges of the project) if the new sidewalk fills a gap in the pedestrian network such that pedestrian connectivity is created. Sidewalks that are wholly contained within a development project (and therefore only serve the development project) are not eligible for VMT credit as part of the exchange program.

2. Improve Existing Pedestrian Infrastructure

The objective of this measure is to improve the existing pedestrian network through the implementation of measures that improve walking safety and quality that encourage people to walk instead of drive.

Such measures include installation of High-Visibility Crosswalks (HVC), pedestrian hybrid beacons, pedestrian signals, mid-block crosswalks, pedestrian refuge islands, speed tables, bulb-outs (curb extensions), curb ramps (at all corners of an intersection), roundabouts and mini-circles, pedestrian-only connections and districts, and planter strips with street trees (minimum 1 mile). Applicants must also demonstrate that the implementation of select measures will benefit a location that has existing pedestrian activity in consultation with City staff per the priority conditions stated above.

Applicants may propose pedestrian improvements other than the measures provided above, however, the applicant will need to demonstrate how the improvement encourages walking and may need to provide a VMT reduction study to justify the VMT reduction applied, if different from Table 1.

Bicycle Network Improvements

3. Increase Bike Facility Coverage

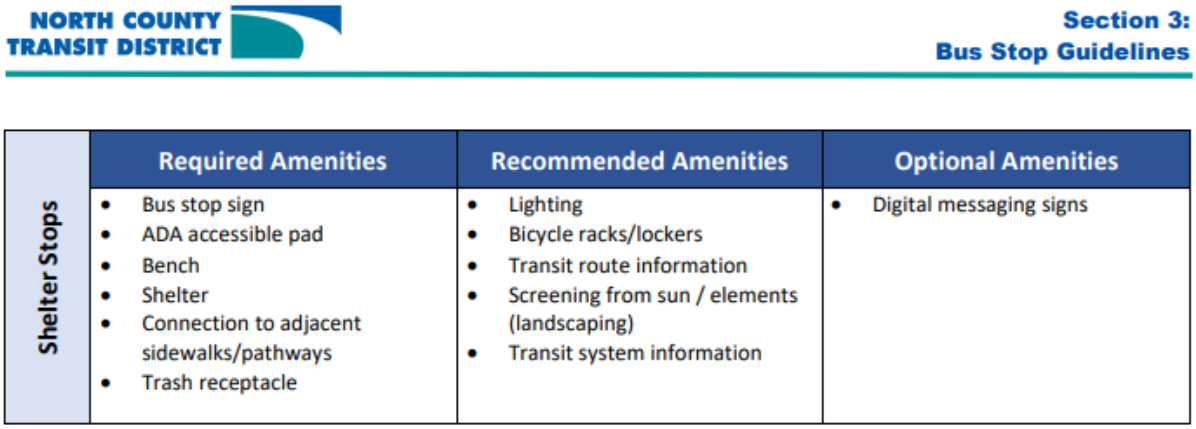
The objective of this measure is to increase access to surrounding land uses by increasing the number bicycle facilities or quality of existing bicycle facilities. Applicants may select a location from the bicycle network gaps/opportunities identified in the 2012 Bicycle Master Plan or any other planning document (General Plan, Specific Plan, …)if the selected location is not already funded by a different source. The City may require the applicant to provide evidence on how the construction of the proposed bicycle facility will connect existing bicycle facilities or land use origins/destinations per the priorities established above such that the project would be anticipated to increase bicycling and thereby resulting in reducing VMT.

Note: While not a part of the VMT Exchange Program, development projects may take VMT reduction credit for construction of bike lanes along the project frontage (exterior edges of the project) if the new bike lanes fill a gap in the bicycle network such that bicycle connectivity is created. Bicycle facilities that are wholly contained within a development project (and therefore only serve the development project) are not eligible for VMT credit as part of the exchange program.

Transit Supportive Improvements

4. Upgrade Bus Stops

The objective of this measure is to improve the quality of bus service by providing bus shelter improvements such as lighting, transit route information, bicycle racks/lockers, benches, shelters or other improvements that help enhance the bus service user's comfort and experience. VMT reduction for such improvements should meet North County Transit District's (NCTD's) standards for providing a bus shelter (NCTD Bus Stop Development Handbook, March 2018[4]) or receive approval from NCTD. The selected bus shelter locations shall be identified through consultation with City and NCTD Staff and/or selected from the locations included on NCTD's priority list (to the extent that the list is available).



[4] https://lfportal.nctd.org/weblink/0/edoc/118390/2018%20Bus%20Stop%20Development%20Handbook.pdf

Table 1: VMT Exchange Program Early Action Project List

#	Project	Unit	Daily VMT Reduction	Cost [a]
Pedestrian Network Improvements				
1. Increase Sidewalk Coverage				
1.1	Rose Elementary: E. Lincoln Avenue between N. Rose Street and Thomas Way (North side)	850 feet	49 VMT	$170,000
1.2	Rose Elementary: N. Rose Street between E. Lincoln Avenue and E. El Norte Parkway (East side)	1750 feet	101 VMT	$349,000
1.3	Rincon Middle School: Conway Drive between Rincon Avenue and Lehner Avenue (Both side)	3800 feet	219 VMT	$756,000
1.4	Rincon Middle School: N. Ash Street between Spur Court to the City Limits (Both sides)	2250 feet	130 VMT	$448,000
1.5	Felicita Elementary: S. Redwood Street between 13th Avenue and 15th Avenue (West side)	700 feet	41 VMT	$140,000
1.6	Felicita Elementary: S. Redwood Street between 15th and W. Felicita Avenue (Both sides)	1150 feet	66 VMT	$229,000
1.7	Felicita Elementary: 15th Avenue between Tulip Street and Centre City Parkway (Both sides)	2250 feet	130 VMT	$448,000
1.8	Felicita Elementary: 13th Avenue between S. Redwood Street and South Quince Street (South sides)	400 feet	23 VMT	$80,000
1.9	Hidden Valley Middle School: S. Citrus Avenue between La Ramada Lane and Patterson Road (East side)	950 feet	55 VMT	$189,000
1.10	Farr Elementary: Farr Avenue between North Ash St and North Fig Str (North side)	1100 feet	64 VMT	$219,000
1.11	Conway Elementary School: Sheridan Avenue between N. Ash Street and Fallsview Place (North sides)	950 feet	55 VMT	$189,000
1.12	Escondido High School: Sheridan Avenue between Taft Street and N. Elm Street (Both sides)	2100 feet	121 VMT	$418,000
1.13	Calvin Christian School: Vista Avenue between N. Ash Street and Bello Hills Lane (South side)	920 feet	53 VMT	$183,000
1.14	N. Ash Street between Rincon Avenue and Madison Avenue	Various	303 VMT per 1 mile of new sidewalk	$1,050,000 per 1 mile
1.15	Stanley Avenue between N. Broadway Street and Conway Street	Various	303 VMT per 1 mile of new sidewalk	$1,050,000 per 1 mile
1.16	Other locations [b]	Various	303 VMT per 1 mile of new sidewalk	$1,050,000 per 1 mile

Table 1: VMT Exchange Program Early Action Project List

#	Project	Unit	Daily VMT Reduction	Cost [a]
2. Improve Existing Pedestrian Infrastructure				
2.1	Intersection High-Visibility Crosswalks (HVC)	2 legs striped as HVC	30 VMT	$5,000-$10,000
		4 legs striped as HVC	60 VMT	
		3 legs striped as HVC for T-intersection	45 VMT	
2.2	Intersection Pedestrian Refuge Islands	2 Islands	30 VMT	$20,000-$60,000
		4 islands	60 VMT	
		3 islands for T-Intersection	45 VMT	
2.3	Intersection Raised Crosswalk (If HVC are also installed, VMT reduction is NOT doubled)*	2 raised crosswalks	30 VMT	$20,000-$60,000
		4 raised crosswalks	60 VMT	
		3 raised crosswalks for T-Intersection	45 VMT	
2.4	Intersection Pedestrian Signal Upgrades (countdown pedestrian heads plus accessible pedestrian signals (APS))	1 Intersection Upgrade (whole intersection)	60 VMT per intersection	Varies

Table 1: VMT Exchange Program Early Action Project List

#	Project	Unit	Daily VMT Reduction	Cost [a]
2.5	Install Intersection Curb Ramps (Directional Ramps Preferred).	1 Corner	8 VMT per corner improved	$10,000
2.6	Install Curb-Extensions (bulb-outs).	1 Intersection Approach	8 VMT per intersection approach	Varies based on location and drainage considerations
2.7	Upgrade Existing or Install New Mid-Block Crossing with HVC and Rapid Rectangular Flashing Beacons (RRFBs)/Pedestrian Hybrid Beacon (PHB) (or other pedestrian activated crossing signals) as determined appropriate by the City's Crosswalk Policy	1 HVC Mid-Block Crossing with RRFB or PHB	30 VMT per mid-block crossing with RRFB or PHB	$30,000-$50,000
2.8	Mid-Block Crossing Pedestrian Refuge Island and other improvements as determined appropriate by the City's Crosswalk Policy.	1 Island	30 VMT per unit	$10,000-20,000
2.9	Mid-Block Crossing Raised Crosswalk and other improvements as determined appropriate by the City's Crosswalk Policy	1 Raised Crosswalk	30 VMT per unit	$10,000-20,000

Table 1: VMT Exchange Program Early Action Project List

#	Project	Unit	Daily VMT Reduction	Cost [a]
2.10	Traffic calming (traffic circles, speed tables, other speed reduction features) as identified in the City's Traffic Management Toolbox[5]	Each device	30 VMT per each device (max 60 VMT per block)	Varies
2.11	Other pedestrian improvements may be identified through consultation with City staff.	1 measure	30 VMT per measure as reviewed/ approved by City Staff	Varies by measure
Bicycle Network Improvements				
3. Increase Bike Facility Coverage				
3.1	New Class I or Class IV Bikeway	1 mile (bi-directional)	107 VMT	Varies
3.2	New Class II Bike Lane	1 mile (bi-directional)	71 VMT	Varies
3.3	Upgrade Bicycle facility from (Class II to Class I or IV; Class III to Class I, II, or IV)	1 mile (bi-directional)	36 VMT	Varies
Transit Supportive Improvements				
4. Upgrade Bus Stops				
4.1	Upgrade an Existing Bench Stop to Shelter Stop if all NCTD criteria are met). Upgrade must include all required amenities for shelter stops per the NCTD Bus Stop Development Book.	1 upgrade	50 VMT	$10,000-25,000 per shelter

a. Cost associated to each improvement is estimates based on historical data and previous projects that Fehr and Peers has conducted around the San Diego Region.
b. Selected location must be reviewed by City staff to ensure that VMT benefits are comparable to similar locations identified by the City.

[5] https://www.escondido.org/Data/Sites/1/media/Engineering/TrafficManagementToolbox.pdf

Future Exchange Program Options

The following provides a summary of additional TDM-type programs/projects that the City could consider integrating into the exchange program based on demand for exchange projects and as time/resources are available. Including these items into the exchange program will require additional evaluation to determine the implementation logistics and to develop the mechanism for the City to collect funding and allocate for these purposes.

Table 2 summarizes possible programs/projects to include in the exchange program with initial estimates of VMT reduction and cost of these options.

Trip Reduction Marketing

1. Implement Trip Reduction Marketing (Future)

The objective of this measure is to fund programs that aim to reduce VMT and GHG emissions through education and marketing of trip reduction strategies. Following is a selection of example programs that could apply to the City of Escondido:

- Marketing programs (e.g. Escondido Transport Options campaign) focusing on educating and informing commuters on the benefits of alternative travel options (carpooling, transit, walking, biking, …).
- Programs that provide information on commuting resources through digital/online platforms (e.g. Install strategically located kiosks with information on commute alternatives or/and use wayfinding applications or newsletters to share commute information).
- Periodic regional events that promote and encourage commute alternatives to driving alone, such as Bike to Work Month, Dump the Pump, Rideshare Week, Walk and Bike to School Day, and other similar events.

Applicants would provide general funding to the City for the administration and management of trip reduction marketing to City residents and employees.

2. Fund City Employee Trip Reduction Program (Future)

The City could administer and manage a trip reduction program specifically designed to reduce driving by city staff. Applicants would provide general funding to the City for the program. The program could include ride-share matching, free-ride-home programs, commute trip planning services, commute "gamification[6]"/incentives for not driving, etc. Public Transit/Shuttle Improvement

[6] Gamification is the application of typical elements of game playing (e.g. point scoring, competition with others, rules of play) to other areas of activity, typically as a technique to encourage participation.

3. Downtown Escondido On-Demand Shuttle (Future)

The objective of this measure is to provide funding for the upfront capital investment and continued operation of a Downtown Escondido on-demand shuttle. The service could provide zero-emission electric vehicles for on-demand free rides around the downtown area. Beyond an initial capital investment, the program requires continuous funding per month to stay operational.

Table 2: VMT Exchange Program Future Programs

#	Project	Unit	Daily VMT Reduction	Estimated Cost
Trip Reduction Marketing				
1. Implement Trip Reduction Marketing				
1.1	Fund marketing programs (e.g. Escondido Transport Options campaign) that focuses on educating and informing commuters on alternative travel options (carpooling, transit, walking, biking, …).	Employee (1-year program – funding for 30 years[7])	Varies	$3,450 per VMT [a] $115 per VMT per year
1.2	Fund programs that provide information on commuting resources though digital/online platforms (e.g. Install strategically located kiosks with information on commute alternatives or/and use way finding applications or newsletters to share commute information).	Employee (1-year program – funding for 30 years)	Varies	$3,450 per VMT [a] $115 per VMT per year
1.3	Fund annual regional events that promote and encourage commute alternatives to driving alone such as Bike to Work Month, Dump the Pump, Rideshare Week, Walk and Bike to School Day, and other similar events.	Employee (1-year program – funding for 30 years)	Varies	$3,450 per VMT [a] $115 per VMT per year
2. Fund City Employee Trip Reduction Program				
2.1	Fund programs that incentivize City employees to commute using alternative modes of transportation.	Employee (1-year program – funding for 30 years)	Varies	$3,450 per VMT [a] $115 per VMT per year
Shuttle Improvement				
3. Downtown Escondido On-Demand Shuttle				
3.1	Fund a program that increase access within downtown are during peak commute hours through implementation of intra-city shuttles that run within the downtown area [c]	minimum 2 shuttles for 1 month – funding for 1 year	Varies (Each shuttle reduces 26 daily VMT)	$4,900 per shuttle per month [b] ($4,524 per VMT)

[7] 30 years was used as a timeframe because it is a common planning horizon and commonly used in CEQA mitigation and monitoring programs for monitoring mitigation measures.

Table 2: VMT Exchange Program Future Programs

#	Project	Unit	Daily VMT Reduction	Estimated Cost

a. City of Escondido has approximately 700 staff and employees. Assuming one support staff to run the program ($75,000 salary + benefits) and average of $50 per employee marketing material, the city would require funding of approximately $110,000 to operate the program each year, which results in (700 x 1.37 VMT reduction per employee) 959 daily VMT reduction. Average cost to reduce 1 daily VMT is calculated at $115 for 1 year. For a 30-year program, the cost is $3,450 ($115*30 years).

b. According to a 2019 article on the San Diego Union-Tribune ([update]), City of San Diego operates a 22 all-electric vehicle service (FRED) that moves people around the San Diego downtown area for free, the service was reported to move an average of 17,500 passengers per month (27 passengers served per day per shuttle). The average cost of operation is also reported at $6 per passenger or $4,900 per month per shuttle (27 passengers*$6/day*30days). According to SANDAG Regional Model, trips that occur within Escondido downtown area have an average length of approximately 0.5 mile per trip. Assuming that trips occur by single-occupant vehicles, 26 VMT translates to 52 individual passengers that could be served by minimum 2 shuttles. This results in a cost of $4,900 per month reducing 13 daily VMT per shuttle = $377/month to reduce 1 daily VMT. If the program requires funding the shuttle for 1 year, the cost is $4,524 per VMT ($377*12 months per year).

Using the Exchange Program

This section provides instructions to applicants on utilizing the VMT Exchange program, defined variables necessary to perform the calculations, and provides a sample calculation.

Process for Using the Exchange Program

1. Perfrom Transportation VMT Analysis

- Determine VMT/capita, VMT/Employee, or Total VMT (depending on project type).
- Perform impact analsyis to determine if there is a significant VMT impact. If there is an impact, move to Step 2.

2. Apply On-Site Mitigation Measures

- Identify any on-site mitigation measures through consultation with City staff.
- Calculate their effectiveness at reducing the project's VMT.
- If after applying on-site measures there is still a significant impact, move to Step 3.

3. Calculate amount of VMT needed to reduce the impact.

- For residential and employment projects that use an efficiency metric (i.e. VMT/capita or VMT/employee), a cacluation must be performed to determine how much total VMT reduction would be needed to meet the VMT threshold.
- To calculate the amount of VMT reduction needed, use standard persons per household and standard number of employees as defined in the section below. Multiply the project VMT/capita or VMT/employee by the standard to get a total VMT value. Multipy the threshold by the same standard to get the total VMT needed to meet the threshold. The difference in these two values is the amount of VMT reduction needed to elminate the VMT impact.
- For a project that uses "total VMT" as the threshold, any amount of total VMT above existing VMT needs to be reduced.
- Move to Step 4.

4. Choose VMT Exchange Projects/Programs

- Select projects or programs from the VMT Exchange, Table 1 that total the amount of VMT needed to reduce the project impact (or that reduce the impact to the extent feasible).

Standard Household Size and Number of Employees

The following standard values will be applicable to all projects utilizing the VMT Exchange Program. The values will be reviewed and updated periodically.

Standard Household Size

The average household size in Escondido as reported in the City's 2021-2029 Housing Element (March 2021) is 3.21 persons per household (US Census Bureau American Community Survey 2014-2018). For purposes of the VMT Exchange Program, the average number of bedrooms per household is two (2). Therefore, the average number of people per bedroom is 1.6. The following persons per household should be applied to perform the VMT reduction needed calculation in Step 3:

- Studio: 1.0 persons per unit
- Single/Multi-Family Residences: 1.6 persons per bedroom or 3.2 persons per unit – whichever results in a lower population.

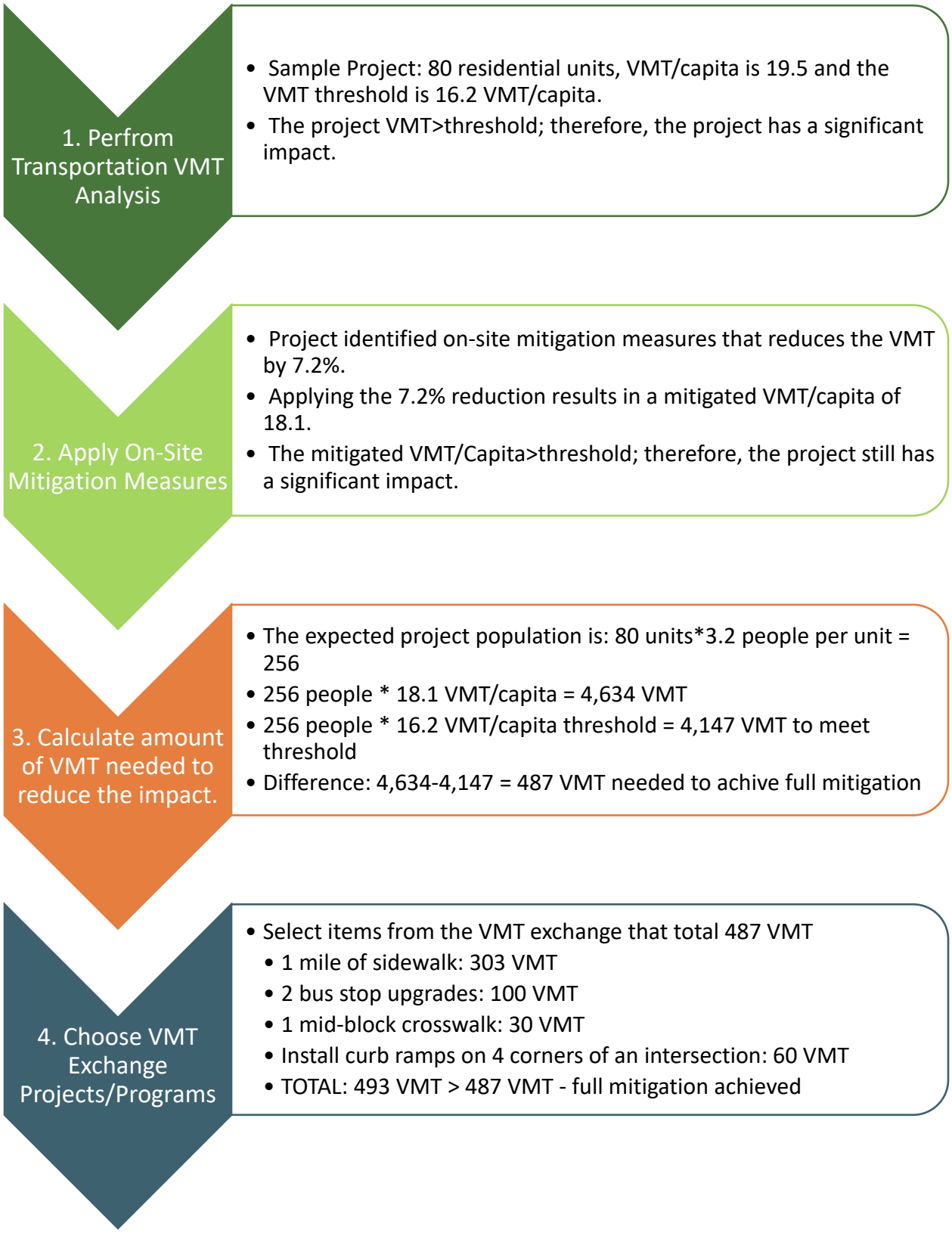
Standard Number of Employees by Employment Use

SANDAG uses a standard number of employees per square foot of employment use, provided by use. For purposes of calculating expected number of employees for purposes of applying the VMT Exchange Program, the SANDAG data will be used. A sample of commonly used employment types is provided below (see Attachment B for a comprehensive list of employment uses):

- Hotel (Low-Rise): 1,850 square feet per employee
- Light Industrial: 1,200 square feet per employee
- Low Rise Office (less than or equal to 100,000SF): 200 square feet per employee

Sample Calculation

The following provides a sample calculation for using the VMT Exchange Program


1. Perfrom Transportation VMT Analysis
• Sample Project: 80 residential units, VMT/capita is 19.5 and the VMT threshold is 16.2 VMT/capita.
• The project VMT>threshold; therefore, the project has a significant impact.
2. Apply On-Site Mitigation Measures
• Project identified on-site mitigation measures that reduces the VMT by 7.2%.
• Applying the 7.2% reduction results in a mitigated VMT/capita of 18.1.
• The mitigated VMT/Capita>threshold; therefore, the project still has a significant impact.
3. Calculate amount of VMT needed to reduce the impact.
• The expected project population is: 80 units*3.2 people per unit = 256
• 256 people * 18.1 VMT/capita = 4,634 VMT
• 256 people * 16.2 VMT/capita threshold = 4,147 VMT to meet threshold
• Difference: 4,634-4,147 = 487 VMT needed to achive full mitigation
4. Choose VMT Exchange Projects/Programs
• Select items from the VMT exchange that total 487 VMT
• 1 mile of sidewalk: 303 VMT
• 2 bus stop upgrades: 100 VMT
• 1 mid-block crosswalk: 30 VMT
• Install curb ramps on 4 corners of an intersection: 60 VMT
• TOTAL: 493 VMT > 487 VMT - full mitigation achieved

Appendix A
VMT Reduction Calculations

Early Action Exchange Program Projects

Pedestrian Network Improvements

1. Increase sidewalk coverage

Source:

- *Handbook for Analyzing Greenhouse Gas Emission Reduction, Assessing Climate Vulnerabilities, and Advancing Health and Equity (GHG Handbook), 2021, Measure T-18*

$$\mathrm{A} = \left(\frac{\mathrm{C}}{\mathrm{B}} - 1\right) \times \mathrm{D} = \left(\frac{15.5 \text{ mile}}{14.5 \text{ mile}} - 1\right) \times -0.05 \approx -0.34\%$$

Parameter		Quantity
A	Percent reduction of VMT (Max allowed = 6.4%)	
B	Average sidewalk length in 0.6-mile radius in the City of Escondido[1]	14.5 mile
C	Average sidewalk length in 0.6-mile radius in the City of Escondido + 1-mile new sidewalk	15.5 mile
D	The elasticity of VMT with respect to the ratio of sidewalks-to-streets	-0.05

1. The City of Escondido maintains approximately 300 miles of streets. Assuming roughly 80% of the streets have sidewalks on both sides, total sidewalks are estimated at 300 X 2-side X 80% = 480 miles of sidewalks. The City of Escondido has a land area of 37.34 square miles of land. It is estimated that Escondido has an approximate density of (480 miles of sidewalk / 37.34 square miles of land =) 12.85 miles of sidewalk per square mile of land. The GHG handbook recommends a study area of a 0.6-mile radius (1.13 square miles) to calculate VMT reduction achieved from increasing sidewalk coverage. A study area is estimated to have an average of (1.13 square miles x 12.85 miles of sidewalks / square mile of land =) 14.5 miles of sidewalk.

Walking is typically an alternative for short trips and may not replace trips that are longer than 1 mile. The reduction is applied only on the VMT generated from all trips that start and end in the City of Escondido and the trip length is shorter than 1 mile. The average VMT reduction per mile of new sidewalks is calculated as below:

Total VMT in Escondido from Trips that are < 1 mile (per SANDAG ABM2+ Model 2016 Base Year) = 89,090

$$\text{Average VMT reduction} = \mathrm{A} \times \text{Total VMT} = 0.34\% \times 89{,}090 \text{ VMT} = \frac{303 \text{ VMT reduced}}{1 \textit{ mile of new sidewalk}}$$

The purpose of this calculation is to create the average amount of VMT reduced by adding one mile of sidewalk within Escondido. This calculation uses Escondido specific assumptions about sidewalk density, sidewalk coverage, and VMT within Escondido (for only trips that are less than 1 mile long). The total VMT from trips that start and end in Escondido that are less than 1 mile long is sourced from the SANDAG AMB 2+ Regional Travel Demand Model for the 2016 base year. In addition, only VMT associated with trips that are shorter than 1 mile are included because adding sidewalks will primarily affect shorter trips. In other words, converting a car trip to a walking trip will only be possible for short car trips.

The GHG Handbook, Measure T-18 information is provided on the following pages for reference.

T-18. Provide Pedestrian Network Improvement



GHG Mitigation Potential



Up to 6.4% of GHG emissions from vehicle travel in the plan/community

Co-Benefits (icon key on pg. 34)

Climate Resilience

Improving pedestrian networks increases accessibility of outdoor spaces, which can provide health benefits and thus improve community resilience. This can also improve connectivity between residents and resources that may be needed in an extreme weather event.

Health and Equity Considerations

Ensure that the improvements also include accessibility features to allow for people of all abilities to use the network safely and conveniently. Ensure that sidewalks connect to nearby community assets, such as schools, retail, and healthcare.

Measure Description

This measure will increase the sidewalk coverage to improve pedestrian access. Providing sidewalks and an enhanced pedestrian network encourages people to walk instead of drive. This mode shift results in a reduction in VMT and GHG emissions.

Subsector

Neighborhood Design

Locational Context

Urban, suburban, rural

Scale of Application

Plan/Community

Implementation Requirements

The GHG reduction of this measure is based on the VMT reduction associated with expansion of sidewalk coverage expansion, which includes not only building of new sidewalks but also improving degraded or substandard sidewalk (e.g., damaged from street tree roots). However, pedestrian network enhancements with non-quantifiable GHG reductions are encouraged to be implemented, as discussed under *Expanded Mitigation Options*.

Cost Considerations

Depending on the improvement, capital and infrastructure costs may be high. However, improvements to the pedestrian network will increase pedestrian activity, which can increase businesses patronage and provide a local economic benefit. The local municipality may achieve cost savings through a reduction of cars on the road leading to lower infrastructure and roadway maintenance costs.

Expanded Mitigation Options

When improving sidewalks, a best practice is to ensure they are contiguous and link externally with existing and planned pedestrian facilities. Barriers to pedestrian access and interconnectivity, such as walls, landscaping buffers, slopes, and unprotected crossings should be minimized. Other best practice features could include high-visibility crosswalks, pedestrian hybrid beacons, and other pedestrian signals, mid-block crossing walks, pedestrian refuge islands, speed tables, bulb-outs (curb extensions), curb ramps, signage, pavement markings, pedestrian-only connections and districts, landscaping, and other improvements to pedestrian safety (see Measure T-35, *Provide Traffic Calming Measures*).

GHG Reduction Formula

$$A = \left(\frac{C}{B} - 1\right) \times D$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from household vehicle travel in plan/community	0–6.4	%	calculated
User Inputs				
B	Existing sidewalk length in study area	[ ]	miles	user input
C	Sidewalk length in study area with measure	[ ]	miles	user input
Constants, Assumptions, and Available Defaults				
D	Elasticity of household VMT with respect to the ratio of sidewalks-to-streets	-0.05	unitless	Frank et al. 2011

Further explanation of key variables:

- (B and C) – Sidewalk length should be measured on both sides of the street. For example, if one 0.5-mile-long street has full sidewalk coverage, the sidewalk length would be 1.0 mile. If there is only sidewalk on one side of the street, the sidewalk length would be 0.5 mile. The recommended study area is 0.6 mile around the pedestrian network improvement. This represents a 6- to 10-minute walking time.
- (D) – A study found that a 0.05 percent decrease in household vehicle travel occurs for every 1 percent increase in the sidewalk-to-street ratio (Frank et al. 2011; Handy et al. 2014).

GHG Calculation Caps or Maximums

Measure Maximum

(A_{max}) The percent reduction in GHG emissions (A) is capped at 3.4 percent, which is based on the following assumptions:

- 35.2 percent of vehicle trips are short trips (2 mile or less, average of 1.29 miles) and thus could easily shift to walking (FHWA 2019).
- 64.8 percent of vehicle trips are longer trips that are unlikely to shift to walking (2 miles or more, average of 10.93 miles) (FHWA 2019).
- So $A_{max} = \frac{35.2\% \times 1.29 \text{ miles}}{64.8\% \times 10.93 \text{ miles}} = 6.4\%$

Subsector Maximum

($\sum A_{max_{T\text{-}18 \text{ through } T\text{-}22\text{-}C}} \leq 10\%$) This measure is in the Neighborhood Design subsector. This subcategory includes Measures T-18 through T-22-C. The VMT reduction from the combined implementation of all measures within this subsector is capped at 10 percent.

Example GHG Reduction Quantification

The user reduces household VMT by improving the pedestrian network in the study area. In this example, the existing sidewalk length (B) is 9 miles, and the sidewalk length with the measure (C) would be 10 miles. With these conditions, the user would reduce GHG emissions from household VMT within the study area by 0.6 percent.

$$A = \left(\frac{10 \text{ miles}}{9 \text{ miles}} - 1\right) \times -0.05 = -0.6\%$$

Quantified Co-Benefits

Improved Local Air Quality

The percent reduction in GHG emissions (A) would be the same as the percent reduction in NO_X, CO, NO_2, SO_2, and PM. Reductions in ROG emissions can be calculated by multiplying the percent reduction in GHG emissions (A) by an adjustment factor of 87 percent. See *Adjusting VMT Reductions to Emission Reductions* above for further discussion.

Energy and Fuel Savings

The percent reduction in vehicle fuel consumption would be the same as the percent reduction in GHG emissions (A).

VMT Reductions

The percent reduction in household VMT would be the same as the percent reduction in GHG emissions (A).

Improved Public Health

Users are directed to the Integrated Transport and Health Impact Model (ITHIM) (CARB et al. 2020). The ITHIM can quantify the annual change in health outcomes associated with active transportation, including deaths, years of life lost, years of living with disability, and incidence of community and individual disease.

Sources

- California Air Resources Board (CARB), California Department of Public Health (CDPH), and Nicholas Linesch Legacy Fund. 2020. Integrated Transport and Health Impact Model. Available: https://skylab.cdph.ca.gov/HealthyMobilityOptionTool-ITHIM/#Home. Accessed: September 17, 2021.
- Federal Highway Administration (FHWA). 2019. *2017 National Household Travel Survey Popular Vehicle Trip Statistics*. Available: https://nhts.ornl.gov/vehicle-trips. Accessed: January 2021.

- Frank, L., M. Greenwald, S. Kavage, and A. Devlin. 2011. *An Assessment of Urban Form and Pedestrian and Transit Improvements as an Integrated GHG Reduction Strategy*. WSDOT Research Report WA-RD 765.1, Washington State Department of Transportation. April. Available: www.wsdot.wa.gov/research/reports/fullreports/765.1.pdf. Accessed: January 2021.
- Handy, S., S. Glan-Claudia, and M. Boarnet. 2014. *Impacts of Pedestrian Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions: Policy Brief*. September. Available: https://ww2.arb.ca.gov/sites/default/files/2020-06/Impacts_of_Pedestrian_Strategies_on_Passenger_Vehicle_Use_and_Greenhouse_Gas_Emissions_Policy_Brief.pdf. Accessed: January 2021.

Pedestrian Network Improvements

2. Improve existing pedestrian infrastructure

The GHG Handbook does not provide a quantitative approach for determining the VMT reduction associated with pedestrian improvements or traffic calming. However, the GHG Handbook does document that (GHG Handbook, page 133):

> **Expanded Mitigation Options**
>
> When improving sidewalks, a best practice is to ensure they are contiguous and link externally with existing and planned pedestrian facilities. Barriers to pedestrian access and interconnectivity, such as walls, landscaping buffers, slopes, and unprotected crossings should be minimized. Other best practice features could include high-visibility crosswalks, pedestrian hybrid beacons, and other pedestrian signals, mid-block crossing walks, pedestrian refuge islands, speed tables, bulb-outs (curb extensions), curb ramps, signage, pavement markings, pedestrian-only connections and districts, landscaping, and other improvements to pedestrian safety (see Measure T-35, *Provide Traffic Calming Measures*).

Additionally, GHG Handbook Measure T-35 Provide Traffic Calming also describes improving the bicycle and pedestrian experience by reducing travel speeds, encouraging walking and biking. The measure is described as follows (GHG Handbook, page 53):

> **T-35. Provide Traffic Calming Measures**
>
> This measure requires projects to include pedestrian/bicycle safety and traffic calming measures above jurisdictional requirements. Roadways should also be designed to reduce motor vehicle speeds and encourage pedestrian and bicycle trips with traffic calming features. Traffic calming features may include marked crosswalks, count-down signal timers, curb extensions, speed tables, raised crosswalks, raised intersections, median islands, tight corner radii, roundabouts or mini-circles, on-street parking, planter strips with street trees, chicanes/chokers, and others. Providing traffic calming measures encourages people to walk or bike instead of using a vehicle. This mode shift will result in a decrease in vehicle miles traveled. In 2017, 3,904 people were killed and 277,160 injured by vehicle collisions in California; traffic calming can reduce injuries and death, which improves health (State of California et al., 2018). Traffic calming also promotes active transportation, which improves physical health.

As noted in the GHG Handbook, the improvements are intended to improve pedestrian experience and safety to encourage more people to choose walking instead of driving for nearby destinations. The previous version of the CAPCOA GHG Handbook did provide some limited research about the amount of VMT reduction associated with pedestrian improvements and traffic calming features. However, since the research was limited and not geographically diverse, the update GHG Handbook does not offer specific VMT quantification of these measures.

An engineering/planning judgement estimate was made assuming the number of new walking trips that would result daily from these types of improvements. The improvements are estimated to convert up to

25 short vehicle trips to walking trips per day. The average walking trip length is 0.6 miles one-way (based on the GHG Handbook) or 1.2 miles round-trip. Therefore, 25 additional walking trips reduces VMT by 1.2 miles *25 walking trips = 30 VMT per one pedestrian improvement.

In addition, planning/engineering judgement was used to establish what constitutes "one pedestrian improvement." For improvements at intersections, (such as enhancing the crosswalks, adding raised crosswalks, or installing median refuse islands) features that improve access for a walking desire line across two intersection legs is considered an improvement. This is logical because if you are walking and need to access the opposite corner of the intersection you would need to cross two legs of the intersection to continue to your desired destination. Therefore, to be inclusive of all walking desire lines the improvements should upgrade the pedestrian conditions on least two intersection legs to be considered one pedestrian improvement.

For mid-block locations, a single crossing provides access to all pedestrian desire lines; therefore, upgrading the mid-block location results in the same VMT reduction benefit as upgrading two legs of an intersection.

Curb ramp installation also encourages pedestrian activity for people who use mobility devices, have limited mobility, and for people who are pushing strollers, wagons, etc. Most intersections in Escondido have curb ramps; however, some intersections have incomplete (not all corners have them) or completely missing ramps. To offer flexibility and achieve the benefit of having curb ramps installed, the 30 VMT reduction per improvement was divided by four (4) to reflect a typical four-corner intersection (30/4=7.5, rounded to the nearest whole number = 8). Also note that directional curb ramps are preferred in Escondido, which results in two curb ramps per intersection corner. The 8 VMT reduced is "per corner" not "per ramp."

Bicycle Network Improvements

3. Increase bike facility coverage

Source:

- *Handbook for Analyzing Greenhouse Gas Emission Reduction, Assessing Climate Vulnerabilities, and Advancing Health and Equity, 2021, Measure T-19-A*

$$A = -B \times \left(\frac{\frac{F}{I} \times (C + D) \times E_i \times G}{H} \right)$$

Parameter		Quantity
A	Percent reduction of VMT (Max allowed = 0.8%)	
B	Percent of plan/community VMT on parallel roadway	100%
C	Active transportation adjustment factor	0.0014
	(Assumptions: average ADT = 12k-24k, facility length = 1 mile)	
D	Credit for key destinations near project	0.0005
	(Assumptions: number of key destinations within 0.5 mile = 3	
E_1	Growth factor adjustment for facility type (New Class I or Class IV bikeway)	1.54
E_2	Growth factor adjustment for facility type (New Class II bike lane)	1.00
E_3	Growth factor adjustment for facility type (Convert Class II to IV)	0.54
F	Annual days of use of new facility (San Diego)	323
G	Existing regional average one-way bicycle trip length (mile – San Diego)	2.0
H	Existing regional average one-way vehicle trip length (mile – San Diego)	19.1
I	Days per year	365

VMT reduction per mile of bike facility is estimated in the following table per facility type. The reduction is applied only on the VMT generated from all trips that start and end in the City of Escondido and the trip length is shorter than 3 miles.

	Facility Type		
	E_1	E_2	E_3
Percent reduction of VMT (A)	0.03%	0.02%	0.01%
VMT reduction per mile of bike facility (A X Total VMT)	107 VMT	71 VMT	36 VMT

Bicycling is typically an alternative for short trips and may not replace trips that are longer than 3 miles. The reduction is applied only on the VMT generated from all trips that start and end in the City of Escondido and the trip length is shorter than 3 miles. The average VMT reduction per mile of bicycle facility is calculated as below:

Total VMT in Escondido from Trips that are < 3 mile (per SANDAG ABM2+ Model 2016 Base Year) = 355,000 VMT

$$\text{Average VMT reduction } = \text{A } \times \text{Total VMT} = .03\% \times 355{,}000 \text{ VMT} = \frac{107 \text{ VMT reduced}}{1 \textit{ mile of new class I or IV bikeway}}$$

$$\text{Average VMT reduction } = \text{ A } \times \text{Total VMT} = .02\% \times 355{,}000 \text{ VMT} = \frac{71 \text{ VMT reduced}}{1 \textit{ mile of new class II bikeway}}$$

$$\text{Average VMT reduction } = \text{A } \times \text{Total VMT} = .01\% \times 355{,}000 \text{ VMT} = \frac{36 \text{ VMT}}{1 \textit{ mile of converted class II to class I or IV bikeway}}$$

The purpose of this calculation is to create the average amount of VMT reduced by adding one mile of bikeway (or converting 1 mile of bike lanes to bike path or cycle track) within Escondido. This calculation uses Escondido specific assumptions about VMT within Escondido (for only trips that are less than 3 miles long). The total VMT from trips that start and end in Escondido that are less than 3 miles long is sourced from the SANDAG AMB 2+ Regional Travel Demand Model for the 2016 base year. Only VMT associated with trips that are shorter than 3 miles are included because adding bikeways will primarily affect shorter trips. In other words, converting a car trip to a bicycling trip will only be possible for short car trips.

The GHG Handbook, Measure T-19A information is provided on the following pages for reference.

T-19-A. Construct or Improve Bike Facility



GHG Mitigation Potential



Up to 0.8% of GHG emissions from vehicles parallel roadways

Co-Benefits (icon key on pg. 34)



Climate Resilience

Constructing and improving bike facilities can incentivize more bicycle use and decrease vehicle use, which have health benefits and can thus improve community resilience. This can also improve connectivity between residents and resources that may be needed in an extreme weather event.

Health and Equity Considerations

Prioritize low-income and underserved areas and communities with lower rates of vehicle ownership or fewer transit options. Make sure that the bicycle facility connects to a larger existing bikeway network that accesses destinations visited by low-income or underserved communities.

Measure Description

This measure will construct or improve a single bicycle lane facility (only Class I, II, or IV) that connects to a larger existing bikeway network. Providing bicycle infrastructure helps to improve biking conditions within an area. This encourages a mode shift on the roadway parallel to the bicycle facility from vehicles to bicycles, displacing VMT and thus reducing GHG emissions. When constructing or improving a bicycle facility, a best practice is to consider local or state bike lane width standards. A variation of this measure is provided as T-19-B, *Construct or Improve Bike Boulevard*.

Subsector

Neighborhood Design

Locational Context

Urban, suburban

Scale of Application

Plan/Community. This measure reduces VMT on the roadway segment parallel to the bicycle facility (i.e., the corridor). An adjustment factor is included in the formula to scale the VMT reduction from the corridor level to the plan/community level.

Implementation Requirements

The bicycle lane facility must be either Class I, II, or IV. Class I bike paths are physically separated from motor vehicle traffic. Class IV bikeways are protected on-street bikeways, also called cycle tracks. Class II bike lanes are striped bicycle lanes that provide exclusive use to bicycles on a roadway.

Cost Considerations

Capital and infrastructure costs for new bike facilities may be high. The local municipality may achieve cost savings through a reduction of cars on the road leading to lower infrastructure and roadway maintenance costs.

Expanded Mitigation Options

Implement alongside Measures T-22-A, T-22-B, and/or T-22-C to ensure that micromobility users can ride safely along bicycle lane facilities and not have to ride along pedestrian infrastructure, which is a risk to pedestrian safety.

GHG Reduction Formula

$$A = -B \times \frac{\frac{F}{I} \times (C + D) \times E \times G}{H}$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from displaced vehicles on roadway parallel to bicycle facility	0–0.8	%	calculated
User Inputs				
B	Percent of plan/community VMT on parallel roadway	0–100	%	user input
C	Active transportation adjustment factor	Table T-19.1	unitless	CARB 2020
D	Credits for key destinations near project	Table T-19.2	unitless	CARB 2020
E	Growth factor adjustment for facility type	Table T-19.3	unitless	CARB 2020
Constants, Assumptions, and Available Defaults				
F	Annual days of use of new facility	Table T-19.4	days per year	NOAA 2017
G	Existing regional average one-way bicycle trip length	Table T-10.1	miles per trip	FHWA 2017
H	Existing regional average one-way vehicle trip length	Table T-10.1	miles per trip	FHWA 2017
I	Days per year	365	days per year	standard

Further explanation of key variables:

- (B) – The percent of total plan/community VMT within the roadway parallel to the bike facility should represent the expected total VMT generated by all land use in that area, including office, residences, retail, schools, and other uses. The most appropriate source for this data is from a local travel demand forecasting model. An alternate method uses VMT per worker or VMT per resident as calculated for SB 743 compliance and screening purposes multiplied by the population in the area.
- (C, D, and E) – The active transportation adjustment factor, key destination credit, and growth factor adjustment should be looked up by the user in Tables T-19.1 through T-19.3 in Appendix C. The active transport adjustment factor is based on the existing annual average daily traffic (AADT) of the facility, length of the proposed bike facility, and the city population. The key destination credit is based on the number of key destinations within 0.5-mile of the facility. The growth factor is based on the type of proposed bicycle facility.
- (F) – The annual days of use for the new facility should be looked up by users in Table T-19.4 based on the county in which the project is located. The days of use is based on the number of days per year where there is no rainfall (i.e., <=0.1 inches) (NOAA 2017).

- (G and H) – Ideally, the user will calculate bicycle and vehicle trip lengths for the corridor at a scale no larger than the surrounding census tract. Potential data sources include the U.S. Census, California Household Travel Survey (preferred), or local survey efforts. If the user is not able to provide a project-specific value using one of these data sources, they have the option to input regional average one-way bicycle and vehicle trip lengths for one of the six most populated CBSAs in California provided in Table T-10.1 in Appendix C (FHWA 2017).

GHG Calculation Caps or Maximums

Measure Maximum

(A_{max}) For projects that use CBSA data from Table T-10.1 in Appendix C, the maximum percent reduction in GHG emissions (A) is 0.8 percent. This is based on a neighborhood project the size of a large corridor (B = 100%) within the CBSA of Sacramento-Roseville-Arden-Arcade that uses the highest values for (C, D, and E) in Tables T-19.1 through T-19.3 and annual use days for Sacramento County (F) in Table T-19.4. This maximum scenario is presented in the below example quantification.

(C_{max}) The active transportation adjustment factor (C) was determined for roadways with AADT ranging from 1 to 30,000 (CARB 2020). Roadways with AADT greater than 30,000 are generally not appropriate for bicycle facilities. Care should be taken by the user in interpreting the results from this equation for a project roadway with AADT greater than 30,000.

Subsector Maximum

($\sum A_{max_{T\text{-}18 \text{ through } T\text{-}22\text{-}C}} \leq 10\%$) This measure is in the Neighborhood Design subsector. This subcategory includes Measures T-18 through T-22-C. The VMT reduction from the combined implementation of all measures within this subsector is capped at 10 percent.

Example GHG Reduction Quantification

The user reduces VMT by constructing a bicycle facility that displaces vehicle trips with bicycle trips. In this example, the following assumptions are made to obtain inputs from Tables T-19.1 through T-19.3 in Appendix C:

- Percent of plan/community VMT on parallel roadway (B) = 100%. The project would establish a bike corridor the whole length of a central commercial thoroughfare. It is assumed this main street makes up the entire neighborhood.
- Active transportation adjustment factor (C) = 0.0207. Existing AADT on the roadway parallel to the proposed bicycle facility is 10,000, the facility length is 2.5 miles, and the project site is in a university town with a population of 200,000.
- Key destination credit (D) = 0.003. There are 10 key destinations within 0.25 mile of the project site.
- Growth factor adjustment (E) = 1.54. The bike facility would be a new Class IV bikeway.

The project is within the Sacramento-Roseville-Arden-Arcade CBSA and the user does not have project-specific values for average bicycle and vehicle trip lengths. Accordingly, the inputs of 2.9 miles and 10.9 miles, respectively (G and H), from Table T-10.1 in Appendix C are assumed. The user would displace GHG emissions from project study area VMT by 0.8 percent.

$$A = -100\% \times \left(\frac{\frac{307 \text{ days}}{365 \text{ days}} \times (0.0207 + 0.003) \times 1.54 \times 2.9 \text{ miles}}{10.9 \text{ miles}} \right) = -0.8\%$$

Quantified Co-Benefits

Improved Local Air Quality

The percent reduction in GHG emissions (A) would be the same as the percent reduction in NO_X, CO, NO_2, SO_2, and PM. Reductions in ROG emissions can be calculated by multiplying the percent reduction in GHG emissions (A) by an adjustment factor of 87 percent. See *Adjusting VMT Reductions to Emission Reductions* above for further discussion.

Energy and Fuel Savings

The percent reduction in vehicle fuel consumption would be the same as the percent reduction in GHG emissions (A).

VMT Reductions

The percent reduction in VMT would be the same as the percent reduction in GHG emissions (A).

Improved Public Health

Users are directed to the ITHIM (CARB et al. 2020). The ITHIM can quantify the annual change in health outcomes associated with active transportation, including deaths, years of life lost, years of living with disability, and incidence of community and individual disease.

Sources

- California Air Resources Board (CARB). 2020. *Quantification Methodology for the Strategic Growth Council's Affordable Housing and Sustainable Communities Program*. September. Available: https://ww2.arb.ca.gov/sites/default/files/classic/cc/capandtrade/auctionproceeds/draft_sgc_ahsc_qm_091620.pdf. Accessed: January 2021.
- California Air Resources Board (CARB), California Department of Public Health (CDPH), and Nicholas Linesch Legacy Fund. 2020. Integrated Transport and Health Impact Model. Available: https://skylab.cdph.ca.gov/HealthyMobilityOptionTool-ITHIM/#Home. Accessed: September 17, 2021.
- Federal Highway Administration (FHWA). 2017. *National Household Travel Survey–2017 Table Designer*. Travel Day PT by TRPTRANS by HH_CBSA. Available: https://nhts.ornl.gov/. Accessed: January 2021.

- National Oceanic and Atmospheric Administration (NOAA). 2021. *Global Historical Climatology Network–Daily (GHCN-Daily), Version 3*. 2015-2019 Average of Days Per Year with Precipitation >0.1 Inches. Available: https://www.ncei.noaa.gov/access/search/data-search/daily-summaries?bbox=38.922,-120.071,38.338,-119.547&place=County:1276&dataTypes=PRCP&startDate=2015-01-01T00:00:00&endDate=2019-01-01T23:59:59. Accessed: May 2021.

Transit Supportive Improvements

4. Upgrade Bus Stops

The GHG Handbook does not provide a quantitative approach for determining the VMT reduction associated with bus stop improvements. However, the GHG Handbook does include an qualitative measure documenting that improving bus stop locations enhances users' experience and can lead to increased ridership (GHG Handbook, page 55):

> **T-46. Improve Transit Access, Safety, and Comfort**
>
> This measure requires projects improve transit access and safety through sidewalk/crosswalk safety enhancements, bus shelter improvements, improved lighting, and other features. Work with the community to determine barriers to use, most desired improvements, and other access challenges.

A nominal reduction of 50 VMT per bus shelter upgrade is assumed to be achieved from this improvement. The average vehicle trip length in Escondido is 6.1 miles one-way (or 12.2 miles round trip), based on the base year (2016) ABM2+ SANDAG Model. A planning/engineering judgement assumption is applied assuming that upgrading a bus stop to provide a bus shelter (and required amenities) would encourage approximately 4-5 additional bus riders per day, it would result in a reduction of 49-61 VMT (12.2*4=49 and 12.2*5=61). 50 VMT was selected as a conservative assumption.

FUTURE PROGRAMS

The following summarizes the estimated effectiveness of several programs that may be considered in the future for inclusion into the VMT Exchange program.

Trip Reduction Marketing

1. Implement trip reduction marketing

Source:

- *Handbook for Analyzing Greenhouse Gas Emission Reduction, Assessing Climate Vulnerabilities, and Advancing Health and Equity, 2021, Measure T-7*

$$A = B \times C \times D = 1 \times 0.04 \times 1 = -4\%$$

Parameter		Quantity
A	Percent reduction in GHG emissions from project/site employee commute VMT (Max allowed = 4%)	-4%
B	Percent of employees eligible for program[1]	100%
C	Percent reduction in employee commute vehicle trips	-4%
D	The adjustment from vehicle trips to VMT	1.0

1. Eligible employees are usually 100 percent. Employees who might not be able to participate include night-time employees or jobs that require employees to drive to work.

VMT reduction achieved from implementation of trip reduction marketing is calculated as below. The estimated reduction applies to all work-related trips that occur within the City of Escondido.

$$\text{VMT reduction} = \frac{4\% \times \text{City of Escondido Total Work Related VMT}}{\text{Total number of employees in the City of Escondido}} = \frac{4\% \times 1{,}824{,}574 \text{ VMT}}{53{,}288}$$
$$= 1.37 \text{ VMT/Employee}$$

The City of Escondido Total Work Related VMT and number of employees is sourced from the SANDAG ABM 2+ Regional Travel Demand Model for the 2016 base year.

2. Fund City employees trip reduction program

VMT reduction calculated for this strategy is similar to measure 4 on a per-employee basis. The average fund associated with such a program is approximately $5,000. The effectiveness is only applicable if a program is fully funded. Partially funded programs would require the City of Escondido to complete the funding for the program to become effective.

Public Transit/Shuttle Improvement

3. Downtown Escondido on-demand Shuttle

Source:

- *Handbook for Analyzing Greenhouse Gas Emission Reduction, Assessing Climate Vulnerabilities, and Advancing Health and Equity, 2021, Measure T-25*

$$\mathrm{A} = -1 \times \frac{C - B}{B} \times \mathrm{D} \times \mathrm{E} \times \mathrm{F} \times \mathrm{G} = -1 \times 1 \times 2.4\% \times 0.7 \times 57.8\% \times 1 = 0.97\%$$

Parameter		Quantity
A	Percent reduction in GHG emissions from plan/community VMT (Max allowed = 4.6%)	
B	Total transit service miles or service hours in plan/community before expansion[1]	
C	Total transit service miles or service hours in plan/community after expansion[1]	
D	Transit mode share in plan/community (San Diego)	2.4%
E	The elasticity of transit demand with respect to service miles or service hours	0.7
F	Statewide mode shift factor	57.8%
G	The adjustment from vehicle trips to VMT	1.0

1. Considering that no shuttle service is running to/from the downtown area, the expansion in shuttle service miles is assumed to be 100%.

VMT reduction achieved from implementation of providing funding for intra-city shuttle program is calculated as below. The estimated reduction applies to all trips that occur between all TAZs that fall inside Escondido downtown area.

$$\text{VMT reduction} = 0.97\% \times \text{VMT from trips start and end in downtown} = 0.97\% \times 2{,}696 = 26 \text{ VMT}$$

Appendix B

Standard Number of Square Feet Per Employee by Land Use (SANDAG)

SANDAG Land Use Codes, Definitions, and Square Feet Per Employee Conversions

Land Use Codes and Definitions

lu_code	land use	description	source
1501	Hotel (Low-Rise)	Hotels, motels, and other transient accommodations with three or less floors. Commonly found along freeways and prime commercial areas.	SANDAG
1502	Hotel (High-Rise)	Hotels and motels that have four or more floors. Primarily found in downtown areas and near tourist attractions.	SANDAG
1503	Resort	Resorts with hotel accommodations that usually contain recreation areas. Examples of resorts would be La Costa Health Spa, Lawrence Welk, and the Olympic Resort in Carlsbad near the airport.	SANDAG
2001	Heavy Industry	Shipbuilding, airframe, and aircraft manufacturing. Usually located close to transportation facilities and commercial areas. Parcels are typically large, 20-50 acres.	SANDAG
2101	Industrial Park	Office/industrial uses clustered into a center. The primary uses are industrial but may include high percentages of other uses in service or retail activities.	SANDAG
2103	Light Industry - General	All other industrial uses and manufacturing not included in the categories above. These are not located inside of parks but are usually along major streets or clustered in certain areas. Includes manufacturing uses such as lumber, furniture, paper, rubber, stone, clay, and glass; as well as light industrial uses as auto repair services and recycling centers. Mixed commercial and office uses (if not large enough to be identified separately) are also included. General industrial areas are comprised of 75 percent or more of industrial uses (manufacturing, warehousing, and wholesale trade).	SANDAG
2104	Warehousing	Usually large buildings located near freeways, industrial, or strip commercial areas.	SANDAG
2105	Public Storage	Public self-storage buildings are typically long, rectangular and closely spaced. Also includes RV and boat storage areas.	SANDAG
2201	Extractive Industry	Mining, sand and gravel extraction, salt evaporation.	SANDAG
2301	Scrap Yards/Auto Dismantling/Landfill	The landscape should show visible signs of the activity. Also include auto wrecking/dismantling and recycling centers.	SANDAG
6001	Office (High-Rise)	High rise buildings with more than four stories containing banking, offices for business and professional services (finance, insurance, real estate), some retail activities and restaurants.	SANDAG
6002	Office (Low-Rise)	Low rise buildings with less than five stories containing banking, offices for business and professional services (finance, insurance, real estate), some retail activities and restaurants.	SANDAG
6003	Government Office/Civic Center	Large government office buildings or centers (outside of military reservations) and civic centers, or city halls of local governments. Also includes the Chamber of Commerce buildings and DMV Offices.	SANDAG
6502	Hospital - General	Hospitals not included above.	SANDAG
6509	Other Health Care	Medical centers and buildings or offices, health care services, and other health care facilities. Smaller medical offices and facilities may be included within office, strip commercial, or other surrounding uses.	SANDAG

6802	Other University or College		SANDAG
6803	Junior College	Includes trade or vocational schools.	SANDAG
6804	Senior High School	9 - 12	SANDAG
6805	Junior High School or Middle School	6 - 8	SANDAG
6806	Elementary School	K - 7	SANDAG

Employment Density by Land Use Code (square feet per employee)

lu_code	description	Value_per_unit
1501	Hotel (Low-Rise)	1850
1502	Hotel (High-Rise)	1350
1503	Resort	550
2001	Heavy Industry	250
2101	Industrial Park	1050
2103	Light Industry - General	1200
2104	Warehousing	1550
2105	Public Storage	15000
2201	Extractive Industry	150
2301	Scrap Yards/Auto Dismantling/Landfill	800
6001	Office (High-Rise - greater than 100000 SF)	300
6002	Office (Low-Rise - less or equal to 100000 SF)	200
6003	Government Office/Civic Center	200
6007	Medical Office	400
6008	Medical Office (greater than 100000 SF)	200
6502	Hospital - General	450
6509	Other Health Care	500
6802	Other University or College	250
6803	Junior College	150

6804	Senior High School	650
6805	Junior High School or Middle School	700
6806	Elementary School	700

California Air Pollution Control Officers Association

Handbook for Analyzing Greenhouse Gas Emission Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity

Designed for Local Governments, Communities, and Project Developers

Final Draft

December 2021

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Transportation

Fossil-fuel powered vehicles are the primary source of GHG emissions within the transportation sector. On-road vehicles traditionally use gasoline and diesel fuel and release emissions based on the amount of fuel combusted and the emission factor of the engine. Cleaner-fueled and electric powered vehicles can also generate GHG emissions, but often at far lower intensities.



Transportation emissions can be reduced by improving the emissions profile of the vehicle fleet or by reducing VMT. Most of the measures quantified in this Handbook aim to reduce VMT and encourage mode shifts from single-occupancy vehicles to shared (e.g., transit) or active modes of transportation (e.g., bicycle). This can be accomplished by coordinating trip reduction or incentive programs; optimizing the land use of the project study area; enhancing road, bike and pedestrian networks; implementing parking policies; or improving transit systems.

WHAT'S ELASTICITY?

Elasticity refers to how much one variable changes, relative to a change in another variable. For example, the elasticity of a VMT reduction measure would measure how much VMT is reduced in proportion to the increase in bicycle lanes.

Most of the emission reductions are determined by evaluating the *elasticity* of a measure relative to the amount of VMT that may be reduced by the measure. A few transportation measures are aimed at improving the emissions profile of the vehicle fleet. These measures promote alternative fuels and vehicle types. The emission reductions from these measures are based on the improved emission factors and on changes to the assumed vehicle fleet mix.

This section provides guidance for combining emission reductions from transportation measures and adjusting VMT reductions to expected GHG savings. The measure factsheets and quantification methods for individual measures follow. Use the graphic on the following page to click on an individual measure to navigate directly to the measure's factsheet.

Selecting and Combining Transportation Measures

Depending on how VMT has been quantified for a project or program, users should exercise caution when selecting transportation measures to avoid double counting VMT benefits that may already be accounted for in the model used to produce the unmitigated or baseline VMT estimate. For example, regional travel demand models are generally sensitive to built environment and transit service variables (e.g., density, proximity to transit). VMT estimates developed for a project or program that use such models may, therefore, already account for VMT reductions associated with certain measures in this Handbook (e.g., T-1, *Increase Residential Density*).





Transportation

LAND USE

- T-1. Increase Residential Density
- T-2. Increase Job Density
- T-3. Provide Transit-Oriented Development
- T-4. Integrate Affordable and Below Market Rate Housing
- T-17. Improve Street Connectivity

TRIP REDUCTION PROGRAMS

- T-5. Implement Commute Trip Reduction Program (Voluntary)
- T-6. Implement Commute Trip Reduction Program (Mandatory Implementation and Monitoring)
- T-7. Implement Commute Trip Reduction Marketing
- T-8. Provide Ridesharing Program
- T-9. Implement Subsidized or Discounted Transit Program
- T-10. Provide End-of-Trip Bicycle Facilities
- T-11. Provide Employer-Sponsored Vanpool
- T-12. Price Workplace Parking
- T-13. Implement Employee Parking Cash-Out
- T-23. Provide Community-Based Travel Planning

PARKING OR ROAD PRICING/MANAGEMENT

- T-14. Provide Electric Vehicle Charging Infrastructure
- T-15. Limit Residential Parking Supply
- T-16. Unbundle Residential Parking Costs from Property Cost
- T-24. Implement Market Price Public Parking (On-Street)

NEIGHBORHOOD DESIGN

- T-18. Provide Pedestrian Network Improvement
- T-19-A. Construct or Improve Bike Facility
- T-19-B. Construct or Improve Bike Boulevard
- T-20. Expand Bikeway Network
- T-21-A. Implement Conventional Carshare Program
- T-21-B. Implement Electric Carshare Program
- T-22-A. Implement Pedal (Non-Electric) Bikeshare Program
- T-22-B. Implement Electric Bikeshare Program
- T-22-C. Implement Scootershare Program

TRANSIT

- T-25. Extend Transit Network Coverage or Hours
- T-26. Increase Transit Service Frequency
- T-27. Implement Transit-Supportive Roadway Treatments
- T-28. Provide Bus Rapid Transit
- T-29. Reduce Transit Fares

CLEAN VEHICLES AND FUELS

- T-30. Use Cleaner-Fuel Vehicles

Interactions between transportation measures are complex and sometimes counterintuitive, whereby combining measures can have a substantive impact on reported emission reductions. To safeguard the accuracy and reliability of the methods, while maintaining their ease of use, the following rules should be followed when combining reductions achieved by transportation measures.

Combining Measures Across Scales

The first level of organization for the transportation measures is the scale of application. There are 16 quantified measures at the Project/Site scale that can be combined with each other and 17 quantified measures at the Plan/Community scale that can be combined with each other.[4] *The GHG reductions of transportation measures from different scales of application should never be combined.* While it may be possible that a user's project involves measures that affect vehicle trips or VMT at both scales, it is likely that combining the percent reduction from measures of different scales would not be valid. This rule does not apply to non-transportation measures that calculate the emissions reduction in terms of absolute emissions.

[4] There is one additional quantified transportation measure: Measure T-30, *Use Cleaner-Fuel Vehicles*. All below discussion related to combining measures and determining maximums does not apply to this measure, which is part of the Clean Vehicles and Fuels subsector.

Combining Measures within a Subsector

The second level of organization for the transportations measures is the subsector. Transportation measures are separated into six subsectors: Land Use, Neighborhood Design, Trip Reduction Programs, Parking Management, Transit, Parking or Road Pricing/Management, and Clean Vehicles and Fuels.

Effectiveness levels for multiple measures within a subsector may be multiplied to determine a combined effectiveness level. Because the combination of measures and independence of measures are complicated, this Handbook recommends that measure reductions within a subsector be multiplied unless the user can provide substantial evidence indicating that emission reductions are independent of one another and that they should therefore be added. This will take the following form:

$$\text{Reduction}_{\text{subsector}} = 1 - [(1 - A) \times (1 - B) \times (1 - C)]$$

Where A, B, and C are the individual measure reduction percentages for the measures to be combined in each subsector.

Each measure has a maximum allowable reduction, discussed in the quantification methods for each measure. The user should calculate the reduction from each measure, compare it to the individual measure maximum, and use the lower value of the two in the equation above.

In addition, each subsector has a maximum allowable reduction. These were derived by combining the maximum allowable reduction of each individual non–mutually-exclusive measure within the subsector using the above formula (see table below for more details). The subsector maximum is intended to ensure that emissions are not double counted when measures within the subsector are combined. The subsector maximums are provided in the below table by scale of application.

Scale	Subsector	Quantified Measures [a]	Subsector Maximum [b, c, d, e, f]
P/S	Land Use	4	65%
	Neighborhood Design	—	—
	Trip Reduction Programs	9	45% commute VMT
	Parking or Road Pricing/ Management	3	35%
	Transit	—	—
P/C	Land Use	1	30%
	Neighborhood Design	9	10%
	Trip Reduction Programs	1	2.3% commute VMT
	Parking or Road Pricing/ Management	1	30%
	Transit	5	15%

P/S = project/site; P/C = plan/community; VMT = vehicle miles traveled.

[a] Excludes Measure T-30, *Use Cleaner-Fuel Vehicles*, within the Clean Vehicles and Fuels subsector and all supporting or non-quantified measures from other subsectors.

[b] — = no measure within the subsector at the specified scale.

[c] Where a subsector consists of only one measure, the subsector maximum listed is the individual measure maximum.

[d] Most maximums were conservatively rounded down to the nearest multiple of five or whole number.

[e] Measure T-1 and Measure T-2 were assumed to be mutually exclusive for the purpose of deriving a project's single land use type maximum emissions reduction. More specifically, residential density (T-1) only applies to residential development, and job density only applies to commercial development (T-2). Similarly, Measure T-26 and Measure T-27 were assumed to be mutually exclusive with Measure T-28 for the purpose of deriving a plan/community's total transit-related emissions reduction. Measure T-28 accounts for the VMT reduction associated with increased transit frequency (T-26) and decreased transit travel time from transit supportive roadway treatments (T-27). It was assumed that bus rapid transit (BRT) (T-28) would cover all of the community's transit routes, and therefore no additional frequency or time improvements would be attainable (T-26 and T-27).
[f] Measures within the Trip Reduction Programs primarily reduce VMT from *employee commute* trips, whereas all other measures reduce VMT from *all* trips associated with the relevant land use type.

The user should calculate the reduction from each subsector, compare it to the corresponding sector maximum, and use the lower value of the two.

Combining Measures Across Subsectors

There is limited research directly analyzing the combined VMT impact on a project/site or plan/community from implementation of all, or a majority, of the non–mutually-exclusive transportation sector measures provided in this Handbook. However, a University of California, Davis study compared household VMT across different place types in California and found that the difference in average VMT in single-family suburban neighborhoods and central city neighborhoods was approximately 70 percent.[5] Central city neighborhoods are more likely to have implemented transportation strategies like those measures included in the Handbook, when compared to suburban neighborhoods. The Handbook therefore adopts 70 percent as a maximum for the combined VMT impact from the following four subsectors: Land Use, Neighborhood Design, Parking or Road Pricing/Management, and Transit.

$$\text{Reduction}_{\text{multi-subsector}} = 1 - [(1 - \text{Land}) \times (1 - \text{Design}) \times (1 - \text{Parking}) \times (1 - \text{Transit})] \leq 70\%$$

Note that this multi-subsector maximum purposefully excludes the Trip Reduction Program subsector. This is because measures in the Trip Reduction Program subsector are often implemented at the Project/Site scale based on the individual employer and are not as directly correlated with place type as the other subsectors. For example, all central city neighborhoods have a high residential and commercial density (i.e., Measure T-1 and Measure T-2 from the Land Use subsector), and most single-family suburban neighborhoods have low density. Conversely, not all employers in a central city neighborhood provide their employees with discounted transit passes (Measure T-9 from the Trip Reduction Program subsector), and the same is equally likely for the much smaller group of employers in a single-family suburban neighborhood.

Limitations of Maximums and Caps

The words *maximum* and *cap* are used interchangeably to describe either the highest percent reduction in GHG emissions or the highest expected value for a variable in the GHG reduction formula. Each subsector has a maximum allowable reduction and individual measures have a maximum allowable reduction, which is often based on one or more of the capped GHG reduction variables. In most instances, these values are a rule of thumb, or practical approximation, to limit the unrealistic influence of multiplicative measure variables. Where the

[5] Salon, D. 2014. *Quantifying the Effect of Local Government Actions on VMT.* Institute of Transportation Studies, University of California, Davis. Prepared for the California Air Resources Board and the California Environmental Protection Agency. February. Available: https://ww2.arb.ca.gov/sites/default/files/classic/research/apr/past/09-343.pdf. Accessed: October 2021.

T-1. Increase Residential Density



GHG Mitigation Potential



Up to 30.0% of GHG emissions from project VMT in the study area

Co-Benefits (icon key on pg. 34)



Climate Resilience

Increased density can put people closer to resources they may need to access during an extreme weather event. Increased density can also shorten commutes, decreasing the amount of time people are on the road and exposed to hazards such as extreme heat or flooding.

Health and Equity Considerations

Neighborhoods should include different types of housing to support a variety of household sizes, age ranges, and incomes.

Measure Description

This measure accounts for the VMT reduction achieved by a project that is designed with a higher density of dwelling units (du) compared to the average residential density in the U.S. Increased densities affect the distance people travel and provide greater options for the mode of travel they choose. Increasing residential density results in shorter and fewer trips by single-occupancy vehicles and thus a reduction in GHG emissions. This measure is best quantified when applied to larger developments and developments where the density is somewhat similar to the surrounding area due to the underlying research being founded in data from the neighborhood level.

Subsector

Land Use

Locational Context

Urban, suburban

Scale of Application

Project/Site

Implementation Requirements

This measure is most accurately quantified when applied to larger developments and/or developments where the density is somewhat similar to the surrounding neighborhood.

Cost Considerations

Depending on the location, increasing residential density may increase housing and development costs. However, the costs of providing public services, such as health care, education, policing, and transit, are generally lower in more dense areas where things are closer together. Infrastructure that provides drinking water and electricity also operates more efficiently when the service and transmission area is reduced. Local governments may provide approval streamlining benefits or financial incentives for infill and high-density residential projects.

Expanded Mitigation Options

When paired with Measure T-2, *Increase Job Density*, the cumulative densification from these measures can result in a highly walkable and bikeable area, yielding increased co-benefits in VMT reductions, improved public health, and social equity.

GHG Reduction Formula

$$A = \frac{B - C}{C} \times D$$

GHG Calculation Variables

ID	Variable	Value	Unit	Source
Output				
A	Percent reduction in GHG emissions from project VMT in study area	0–30.0	%	calculated
User Inputs				
B	Residential density of project development	[ ]	du/acre	user input
Constants, Assumptions, and Available Defaults				
C	Residential density of typical development	9.1	du/acre	Ewing et al. 2007
D	Elasticity of VMT with respect to residential density	-0.22	unitless	Stevens 2016

Further explanation of key variables:

- (C) – The residential density of typical development is based on the blended average density of residential development in the U.S. forecasted for 2025. This estimate includes apartments, condominiums, and townhouses, as well as detached single-family housing on both small and large lots. An acre in this context is defined as an acre of developed land, not including streets, school sites, parks, and other undevelopable land. If reductions are being calculated from a specific baseline derived from a travel demand forecasting model, the residential density of the relevant transportation analysis zone should be used instead of the value for a typical development.
- (D) – A meta-regression analysis of five studies that controlled for self-selection found that a 0.22 percent decrease in VMT occurs for every 1 percent increase in residential density (Stevens 2016).

GHG Calculation Caps or Maximums

Measure Maximum

(A_{max}) The percent reduction in GHG emissions (A) is capped at 30 percent. The purpose for the 30 percent cap is to limit the influence of any single built environmental factor (such as density). Projects that implement multiple land use strategies (e.g., density, design, diversity) will show more of a reduction than relying on improvements from a single built environment factor.

Subsector Maximum

($\sum A_{max_{T\text{-}1 \text{ through } T\text{-}4}} \leq 65\%$) This measure is in the Land Use subsector. This subcategory includes Measures T-1 through T-4. The VMT reduction from the combined implementation of all measures within this subsector is capped at 65 percent.

Example GHG Reduction Quantification

The user reduces VMT by increasing the residential density of the project study area. In this example, the project's residential density would be 15 du per acre (B), which would reduce GHG emissions from project VMT by 14.2 percent.

$$A = \frac{15 \frac{du}{ac} - 9.1 \frac{du}{ac}}{9.1 \frac{du}{ac}} \times -0.22 = -14.2\%$$

Quantified Co-Benefits

Improved Local Air Quality

The percent reduction in GHG emissions (A) would be the same as the percent reduction in NO_X, CO, NO_2, SO_2, and PM. Reductions in ROG emissions can be calculated by multiplying the percent reduction in GHG emissions (A) by an adjustment factor of 87 percent. See *Adjusting VMT Reductions to Emission Reductions* above for further discussion.

Energy and Fuel Savings

The percent reduction in vehicle fuel consumption would be the same as the percent reduction in GHG emissions (A).

VMT Reductions

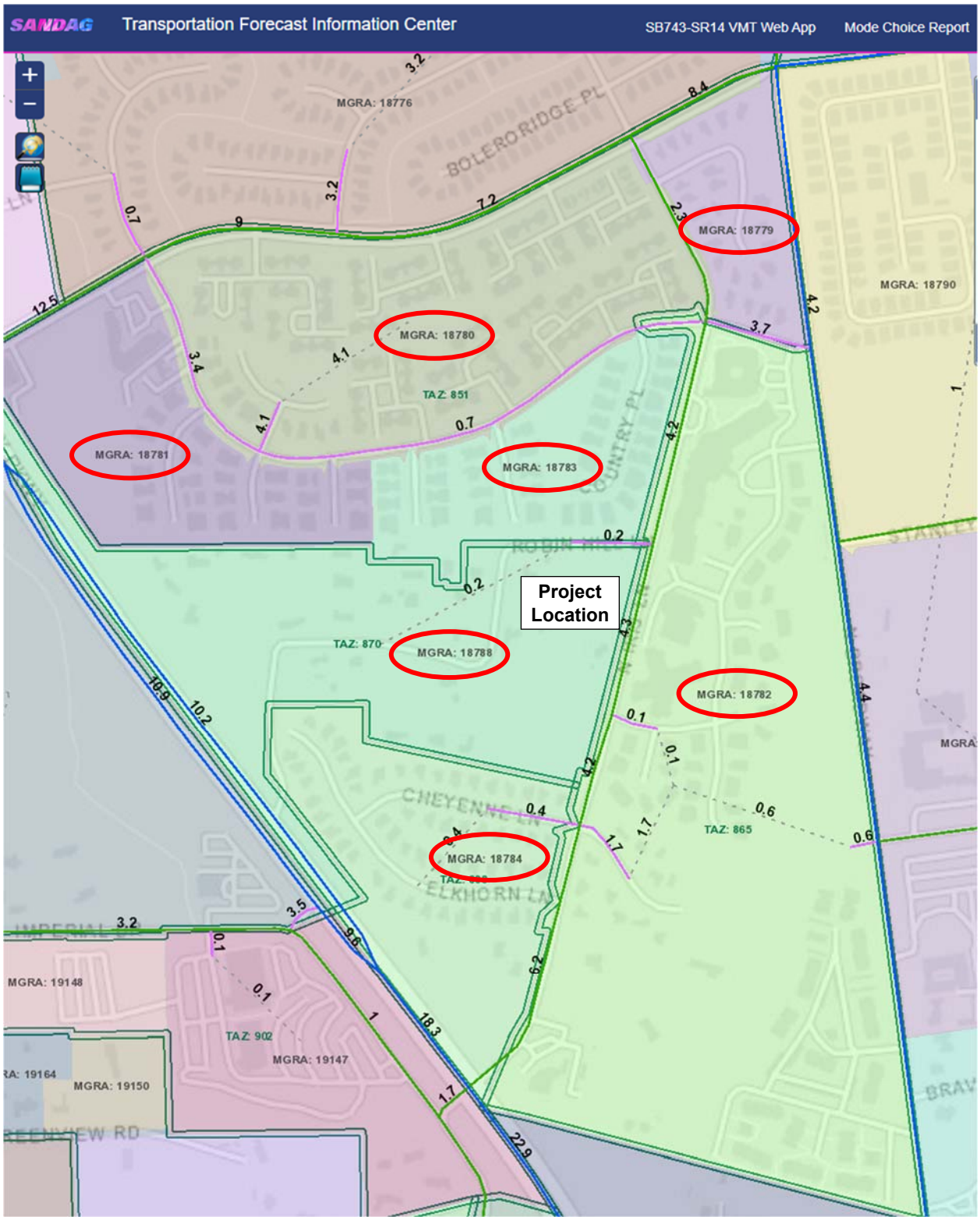
The percent reduction in VMT would be the same as the percent reduction in GHG emissions (A).

Sources

- Ewing, R., K. Bartholomew, S. Winkelman, J. Walters, and D. Chen. 2007. *Growing Cooler: The Evidence on Urban Development and Climate Change*. October. Available: https://www.nrdc.org/sites/default/files/cit_07092401a.pdf. Accessed: January 2021.
- Stevens, M. 2016. Does Compact Development Make People Drive Less? *Journal of the American Planning Association* 83:1(7–18), DOI: 10.1080/01944363.2016.1240044. November. Available: https://www.researchgate.net/publication/309890412_Does_Compact_Development_Make_People_Drive_Less. Accessed: January 2021.

CAPCOA Dec 2021 T-1 Surrounding Residential Density Calculations

Surrounding MGRAs: 18,779; 18,780; 18,781; 18,782; 18,783; 18,784; 18,788.



CAPCOA T-1 defines key variables for residential density to use acres of developed land, not including streets, school sites, parks, and other undevelopable land. The SANDAG MGRA land use documenting single family and multi-family number of units along with the area of land those units are built upon were used for this calculation. As shown below, this results in a surrounding residential density of 10.6 Dwelling Units per Acre.

SANDAG MGRA Data

data source _id	yr	mgra	lu	lu_name	emp_ total	emp _dist	acres	hs_sf	hs_ mf	hs_ mh	tot_ pop	hh_ pop
42	2016	18779	101	Single Family Residential	13	13	3.708	25	0	0	67	67
42	2016	18780	101	Single Family Residential	3	3	10.76	211	0	0	560	560
42	2016	18781	101	Single Family Residential	194	0	5.148	49	0	0	119	119
42	2016	18782	102	Multi-Family Residential	90	8	14.79	0	227	0	641	641
42	2016	18782	101	Single Family Residential	90	0	2.878	16	0	0	641	641
42	2016	18783	101	Single Family Residential	3	3	7.627	72	0	0	199	199
42	2016	18784	101	Single Family Residential	1	1	9.582	57	0	0	156	156
42	2016	18788	101	Single Family Residential	0	0	9.972	26	0	0	79	79
Total Acres (less streets, parks, and other undevelopable land): 64.47												
Total Dwelling Units (single family & multi-family):								456	227	=	**683**	**Du**
Residential Density = 10.6 Du/Acre												

CAPCOA T-1 requirements state that this measure is most accurately quantified when applied to larger developments and/or developments where the density if somewhat similar to the surrounding neighborhood. **The project at 13.2 du/ac is similar to the surrounding neighborhood density of 10.6 du/ac.**

SANDAG

Mode Choice Report

Report Generated	Scenario ID	Scenario Name	ABM Version
4/20/2022	458	2016	version_14_2_2

Jurisdiction: Escondido

Demographics

Metric	Amount
Population	148,763
Households	46,554
Employed Residents	61,947
Employees	53,707

3.20
Average Household Size

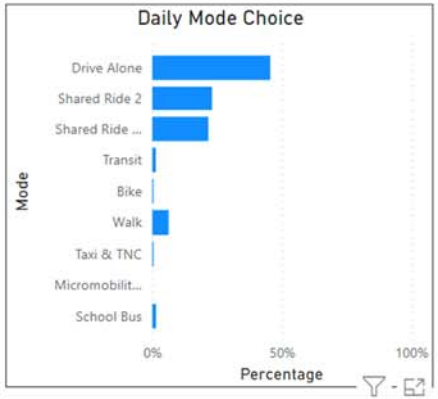
Study Area Trips: Escondido

Metric	Person Trips
Intra-zonal	11,512
Inter-zonal	425,107
Inter-Jurisdictional	431,300
Total	**867,919**

1.33%
Intra-Zonal Percentage

Daily Mode Choice

Mode	Percentage	Person Trips
Drive Alone	45.5%	394,936
Shared Ride 2	23.0%	199,906
Shared Ride 3+	21.6%	187,565
Transit	1.3%	11,647
Bike	0.3%	2,706
Walk	6.3%	54,732
Taxi & TNC	0.5%	4,003
Micromobility & Microtransit	0.0%	0
School Bus	1.4%	12,424
Total	**100.0%**	**867,919**

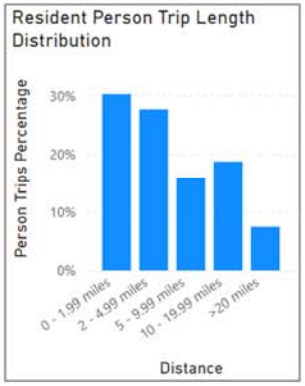


Average Trip Lengths

Metric	Miles
Resident Person Trip Length	7.1
Resident Vehicle Trip Length	8.2
All Model Person Trip Length	7.3
All Model Vehicle Trip Length	8.1
Resident Round-Trip Commuter Tour Length	29.8
Employee Round-Trip Commuter Tour Length	25.8

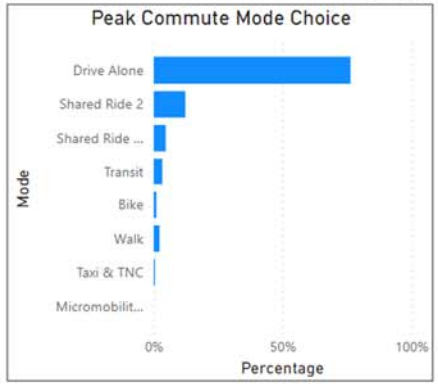
Vehicular Internal Capture Rate

Metric	Percentage
Study Area Internal Vehicle Capture Rate	42.1%



Peak Commute Mode Choice

Mode	Percentage	Person Trips
Drive Alone	76.4%	48,359
Shared Ride 2	12.2%	7,745
Shared Ride 3+	4.6%	2,926
Transit	3.3%	2,093
Bike	1.0%	629
Walk	2.2%	1,394
Taxi & TNC	0.2%	144
Micromobility & Microtransit	0.0%	0
Total	**100.0%**	**63,290**



Appendix D

City of Escondido General Plan Excerpts

City of Escondido

GENERAL PLAN

MAY 2012

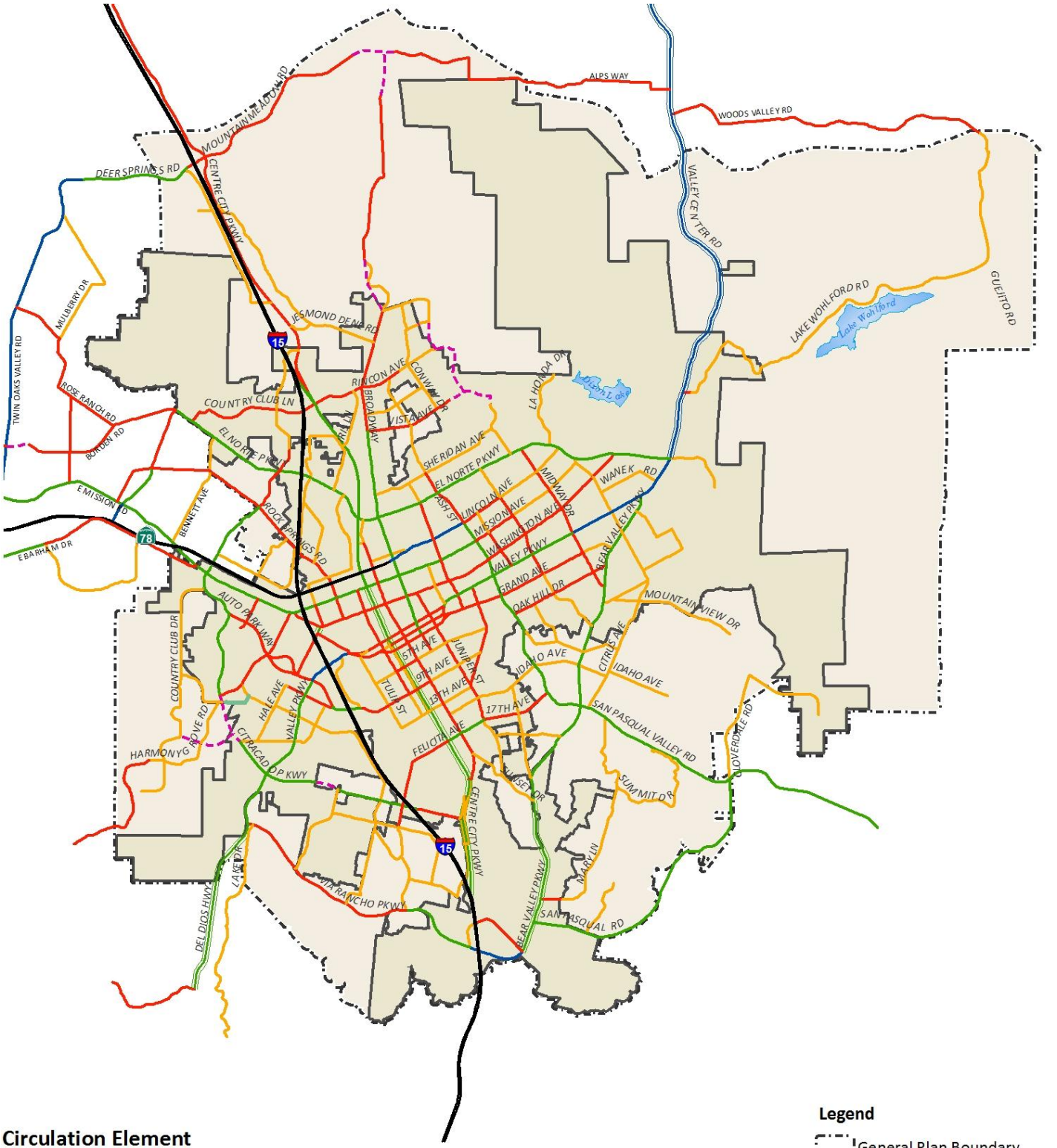
Resolution 2012-52











Circulation Element

- Freeway
- Super Prime Arterial
- Prime Arterial
- Super Major Road
- Major Road
- Collector
- Local Collector
- Future Alignment

Legend

- General Plan Boundary
- City Limits
- Lakes

0 0.5 1 Miles

Escondido General Plan

Circulation Diagram

Figure III-6

Appendix E

Historical Count Data, Current Count Data, and Growth Factor Calculations

Growth Factor Calculations for Pandemic Traffic Volume Adjustments

Segment volumes trends were compared between 2018 and 2020 counts:

	2018	2020	Percent Change	Applied ADT
Iris Lane				
Village Rd to Robin Hill Ln	No Data	6,239	Not Applicable	**8,466**
Robin Hill Ln to Centre City Pkwy	8,996	6,628	-35.7%	**8,996**

Because the intersections on Iris Lane at Robin Hill Ln and at Village Rd did not have historical counts, the above reduction of 35.7% along Iris Lane was the basis for a 35.7% growth factor for the two noted intersections and one segment on Iris Lane between Village Rd and Robin Hill Lane to estimate non-pandemic existing conditions.

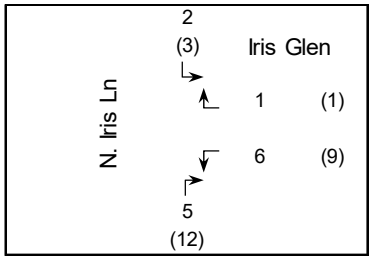
Intersection volume trends were compared between 2018 and 2020 counts:

Loc & Date	Total Vol	Pk Hr	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
Centre City/Iris Ln														
5/3/2018	2,365	AM	15	244	99	8	1014	93	58	220	8	386	211	9
10/7/2020	1,234	AM	4	181	54	8	446	60	43	64	11	225	131	7
	-92%	**AM**												
5/3/2018	1,917	PM	(13)	(603)	(212)	(6)	(371)	(51)	(170)	(285)	(7)	(115)	(75)	(9)
10/7/2020	1,649	PM	(14)	(470)	(201)	(4)	(349)	(38)	(135)	(240)	(13)	(111)	(67)	(7)
	-16%	**PM**												

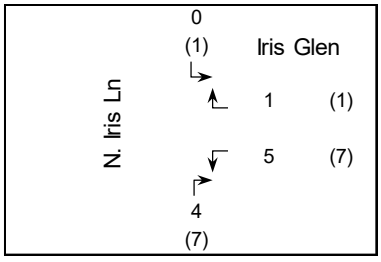
Due to the above reductions, the higher year 2018 volumes were used to represent non-pandemic existing conditions at Centre City Pkwy/Iris Ln.

The intersection of N. Iris Ln/Iris Glen serves the gated community of Meadowbrook Village. The higher turn moves between the original LLG traffic study and the 8/31/21 turn moves were applied as shown below (data included at the end of this appendix section).

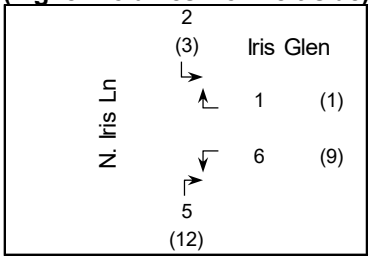
Meadowbrook TIA Traffic Forecast



Turnmoves collected on 8/31/21



Applied volumes (higher volumes from left side)



PO Box 1178
Corona, CA 92880
951-268-6268

Location: Escondido
N/S: Centre City Parkway
E/W: Iris Lane

Date: 5/3/2018
Day: THURSDAY
Project # 143-18341

TURNING MOVEMENT COUNT

Count Period: **7:00 AM to 9:00 AM**
Peak Hour: **7:15 AM to 8:15 AM**

Vehicle Counts

	Centre City Parkway Northbound			Centre City Parkway Southbound			Iris Lane Eastbound			Iris Lane Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	3	47	17	4	215	21	14	39	5	82	36	2	485
7:15 AM	5	56	27	1	267	19	15	80	3	87	46	3	609
7:30 AM	4	60	32	3	270	20	26	64	1	97	43	4	624
7:45 AM	4	76	21	3	257	29	13	51	3	108	70	1	636
8:00 AM	2	52	19	1	220	25	4	25	1	94	52	1	496
8:15 AM	3	65	18	1	248	22	14	16	4	60	26	2	479
8:30 AM	2	71	13	0	191	15	7	13	2	55	18	0	387
8:45 AM	3	62	19	2	139	13	11	20	1	53	14	1	338
TOTAL VOLUMES:	26	489	166	15	1807	164	104	308	20	636	305	14	4054

AM Peak Hr Begins at: 715 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	15	244	99	8	1014	93	58	220	8	386	211	9	2365

PEAK HR FACTOR:	0.886	0.951	0.730	0.846	0.930

Bicycle Counts

	Centre City Parkway Northbound			Centre City Parkway Southbound			Iris Lane Eastbound			Iris Lane Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	1	0	0	2	0	0	0	0	1	0	0	4

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	2	0	0	0	0	1	0	0	3

Pedestrian Counts

	Centre City Parkway North Leg	Centre City Parkway South Leg	Iris Lane East Leg	Iris Lane West Leg	TOTAL
7:00 AM	0	0	0	0	0
7:15 AM	0	0	0	0	0
7:30 AM	0	1	0	0	1
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	1	0	0	1

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	0	1	0	0	1

PO Box 1178
Corona, CA 92880
951-268-6268

Location: Escondido
N/S: Centre City Parkway
E/W: Iris Lane

Date: 5/3/2018
Day: THURSDAY
Project # 143-18341

TURNING MOVEMENT COUNT

Count Period: **4:00 PM to 6:00 PM**
Peak Hour: **4:45 PM to 5:45 PM**

Vehicle Counts

	Centre City Parkway Northbound			Centre City Parkway Southbound			Iris Lane Eastbound			Iris Lane Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	1	125	62	1	103	13	36	62	3	37	23	2	468
4:15 PM	2	118	48	3	90	15	39	47	2	35	18	3	420
4:30 PM	2	142	53	2	94	11	30	44	0	29	15	2	424
4:45 PM	7	143	51	1	88	12	35	77	3	26	14	3	460
5:00 PM	2	115	37	0	99	17	48	62	2	40	22	4	448
5:15 PM	2	186	55	4	105	12	43	71	1	28	14	1	522
5:30 PM	2	159	69	1	79	10	44	75	1	21	25	1	487
5:45 PM	1	126	46	1	87	11	35	62	9	34	23	1	436
TOTAL VOLUMES:	19	1114	421	13	745	101	310	500	21	250	154	17	3665

PM Peak Hr Begins at: 445 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	13	603	212	6	371	51	170	285	7	115	75	9	1917

PEAK HR FACTOR:	0.852	0.884	0.963	0.754	0.918

Bicycle Counts

	Centre City Parkway Northbound			Centre City Parkway Southbound			Iris Lane Eastbound			Iris Lane Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	1	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	1	0	0	0	0	0	0	0	0	0	2

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian Counts

	Centre City Parkway North Leg	Centre City Parkway South Leg	Iris Lane East Leg	Iris Lane West Leg	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	1	0	1	2
4:30 PM	0	0	0	1	1
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	1	0	1
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	0	1	1	2	4

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	0	0	1	0	1

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

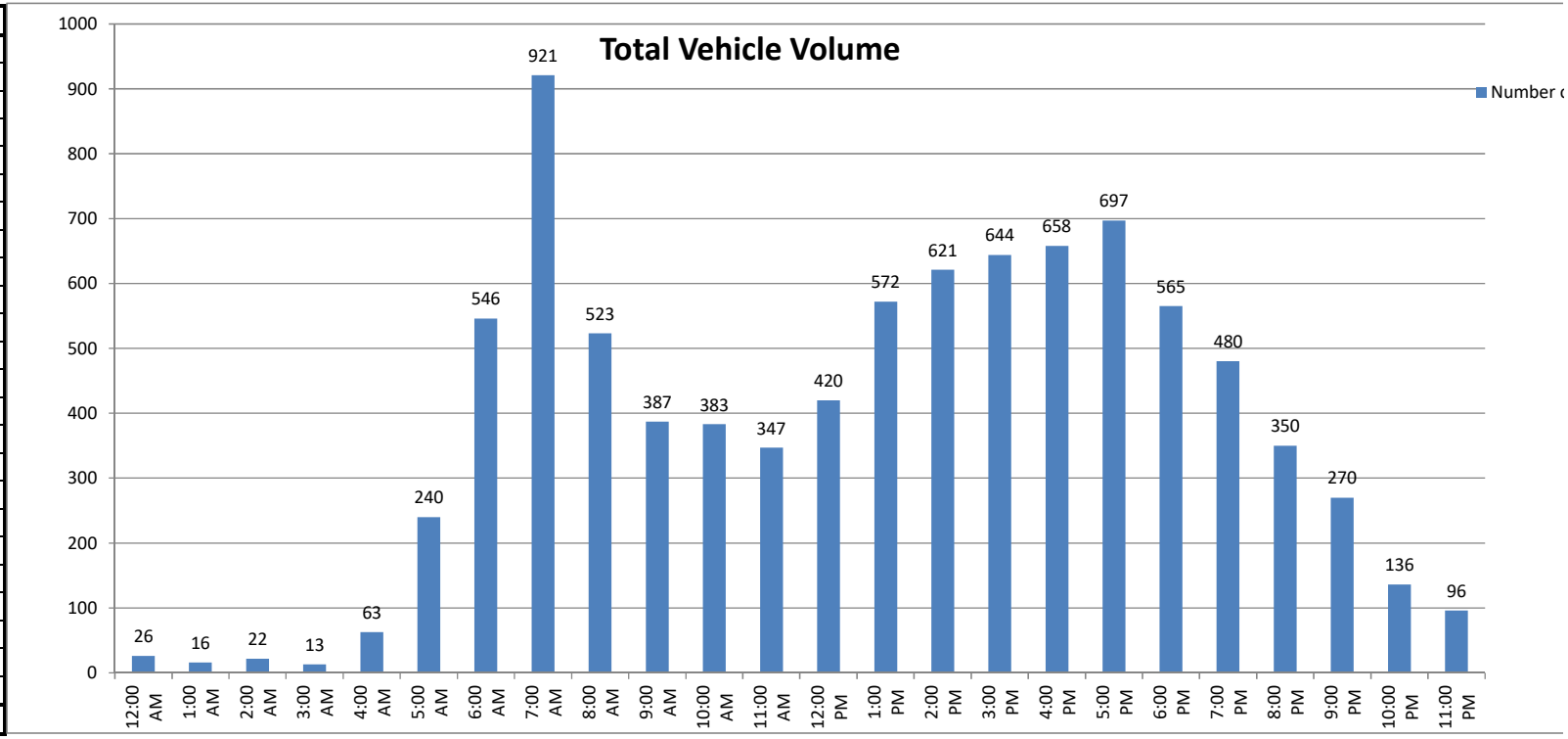
24 Hour Volume Plot

Iris Lane

NE/ Centre City Parkway

5/3/2018

Start Time	5/3/2018
12:00 AM	26
1:00 AM	16
2:00 AM	22
3:00 AM	13
4:00 AM	63
5:00 AM	240
6:00 AM	546
7:00 AM	921
8:00 AM	523
9:00 AM	387
10:00 AM	383
11:00 AM	347
12:00 PM	420
1:00 PM	572
2:00 PM	621
3:00 PM	644
4:00 PM	658
5:00 PM	697
6:00 PM	565
7:00 PM	480
8:00 PM	350
9:00 PM	270
10:00 PM	136
11:00 PM	96
Total	8996



Volumes represent the combined totals for both directions

PO Box 1178
Corona, CA 92880
951-268-6268

Location: Escondido
N/S: North Iris Lane
E/W: Village Road

Date: 10/7/20
Day: WEDNESDAY
Project # 143-20375

TURNING MOVEMENT COUNT

Count Period: **7:00 AM to 9:00 AM**
Peak Hour: **7:15 AM to 8:15 AM**

Vehicle Counts

	North Iris Lane Northbound			North Iris Lane Southbound			Village Road Eastbound			Village Road Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	8	13	4	30	0	0	3	13	22	3	0	96
7:15 AM	0	15	10	0	49	0	0	9	9	28	2	1	123
7:30 AM	1	10	14	1	47	0	0	5	12	27	4	0	121
7:45 AM	4	14	24	5	44	1	2	6	9	27	7	2	145
8:00 AM	4	14	14	2	41	1	1	5	6	34	2	0	124
8:15 AM	1	19	13	3	30	1	1	6	9	15	5	2	105
8:30 AM	2	16	17	1	31	1	0	6	9	15	2	1	101
8:45 AM	2	15	15	1	28	1	0	2	3	15	0	1	83
TOTAL VOLUMES:	14	111	120	17	300	5	4	42	70	183	25	7	898

AM Peak Hr Begins at: 715 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	9	53	62	8	181	2	3	25	36	116	15	3	513

PEAK HR FACTOR:	0.738	0.955	0.889	0.931	0.884

Bicycle Counts

	North Iris Lane Northbound			North Iris Lane Southbound			Village Road Eastbound			Village Road Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	2	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	2	1	0	0	0	0	0	0	0	2	0	5

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian Counts

	North Iris Lane North Leg	North Iris Lane South Leg	Village Road East Leg	Village Road West Leg	TOTAL
7:00 AM	0	4	0	1	5
7:15 AM	2	0	0	0	2
7:30 AM	0	1	1	0	2
7:45 AM	1	0	0	3	4
8:00 AM	0	0	0	2	2
8:15 AM	3	0	0	1	4
8:30 AM	0	0	0	2	2
8:45 AM	0	0	1	0	1
TOTAL VOLUMES:	6	5	2	9	22

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	3	1	1	5	10

PO Box 1178
Corona, CA 92880
951-268-6268

Location: Escondido
N/S: North Iris Lane
E/W: Village Road

Date: 10/7/20
Day: WEDNESDAY
Project # 143-20375

TURNING MOVEMENT COUNT

Count Period: **4:00 PM to 6:00 PM**
Peak Hour: **4:45 PM to 5:45 PM**

Vehicle Counts

	North Iris Lane Northbound			North Iris Lane Southbound			Village Road Eastbound			Village Road Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	14	45	31	0	24	3	1	7	8	16	8	1	158
4:15 PM	10	39	41	1	21	1	2	4	6	21	7	0	153
4:30 PM	9	44	44	1	21	1	0	5	5	16	3	0	149
4:45 PM	11	45	33	1	17	2	2	6	5	16	3	1	142
5:00 PM	11	63	48	0	21	0	0	10	7	11	6	1	178
5:15 PM	11	52	42	1	22	1	1	4	8	14	5	0	161
5:30 PM	13	62	36	2	17	0	0	8	14	13	4	2	171
5:45 PM	9	35	28	0	18	0	0	6	5	17	5	0	123
TOTAL VOLUMES:	88	385	303	6	161	8	6	50	58	124	41	5	1235

PM Peak Hr Begins at: 445 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	46	222	159	4	77	3	3	28	34	54	18	4	652

PEAK HR FACTOR:	0.875	0.875	0.739	0.950	0.916

Bicycle Counts

	North Iris Lane Northbound			North Iris Lane Southbound			Village Road Eastbound			Village Road Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	1	1	0	0	0	0	3	0	0	2	0	7

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	1	0	0	0	0	0	2	0	0	2	0	5

Pedestrian Counts

	North Iris Lane North Leg	North Iris Lane South Leg	Village Road East Leg	Village Road West Leg	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	1	1	0	1	3
4:30 PM	5	0	1	0	6
4:45 PM	0	1	1	0	2
5:00 PM	3	0	0	0	3
5:15 PM	3	0	0	4	7
5:30 PM	0	1	1	0	2
5:45 PM	0	0	0	1	1
TOTAL VOLUMES:	12	3	3	6	24

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	6	2	2	4	14

PO Box 1178
Corona, CA 92880
951-268-6268

Location: Escondido
N/S: North Iris Lane
E/W: Robin Hill Lane

Date: 10/7/20
Day: WEDNESDAY
Project # 143-20375

TURNING MOVEMENT COUNT

Count Period: **7:00 AM to 9:00 AM**
Peak Hour: **7:15 AM to 8:15 AM**

Vehicle Counts

	North Iris Lane Northbound			North Iris Lane Southbound			Robin Hill Lane Eastbound			Robin Hill Lane Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	1	18	0	0	63	0	2	0	1	0	0	0	85
7:15 AM	0	24	0	0	86	0	0	0	1	0	0	0	111
7:30 AM	0	25	0	0	86	1	0	0	4	0	0	0	116
7:45 AM	0	44	0	0	81	0	0	0	1	0	0	0	126
8:00 AM	0	30	0	0	80	0	0	0	1	0	0	0	111
8:15 AM	1	34	0	0	56	0	0	0	1	0	0	0	92
8:30 AM	0	34	0	0	56	0	0	0	0	0	0	0	90
8:45 AM	1	32	0	0	43	0	0	0	0	0	0	0	76
TOTAL VOLUMES:	3	241	0	0	551	1	2	0	9	0	0	0	807

AM Peak Hr Begins at: 715 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	123	0	0	333	1	0	0	7	0	0	0	464

PEAK HR FACTOR:	0.699	0.960	0.438	0.000	0.921

Bicycle Counts

	North Iris Lane Northbound			North Iris Lane Southbound			Robin Hill Lane Eastbound			Robin Hill Lane Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM	0	2	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	3	0	0	0	0	0	0	0	0	0	0	3

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	0	0	0	0	0	0	0	0	0

Pedestrian Counts

	North Iris Lane North Leg	North Iris Lane South Leg	Robin Hill Lane East Leg	Robin Hill Lane West Leg	TOTAL
7:00 AM	0	0	1	0	1
7:15 AM	0	0	1	0	1
7:30 AM	0	0	0	1	1
7:45 AM	0	0	0	1	1
8:00 AM	0	0	0	0	0
8:15 AM	0	0	1	0	1
8:30 AM	0	0	0	0	0
8:45 AM	0	0	0	0	0
TOTAL VOLUMES:	0	0	3	2	5

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	0	0	1	2	3

PO Box 1178
Corona, CA 92880
951-268-6268

Location: Escondido
N/S: North Iris Lane
E/W: Robin Hill Lane

Date: 10/7/20
Day: WEDNESDAY
Project # 143-20375

TURNING MOVEMENT COUNT

Count Period: **4:00 PM to 6:00 PM**
Peak Hour: **4:45 PM to 5:45 PM**

Vehicle Counts

	North Iris Lane Northbound			North Iris Lane Southbound			Robin Hill Lane Eastbound			Robin Hill Lane Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	89	0	0	47	1	0	0	2	0	0	0	139
4:15 PM	1	87	0	0	46	0	3	0	1	0	0	0	138
4:30 PM	1	97	0	0	42	0	1	0	4	0	0	0	145
4:45 PM	4	90	0	0	36	2	0	0	0	0	0	0	132
5:00 PM	1	122	0	0	36	2	0	0	0	0	0	0	161
5:15 PM	0	110	0	0	43	2	0	0	1	0	0	0	156
5:30 PM	0	104	0	0	42	1	0	0	1	0	0	0	148
5:45 PM	1	73	0	0	38	1	0	0	0	0	0	0	113
TOTAL VOLUMES:	8	772	0	0	330	9	4	0	9	0	0	0	1132

PM Peak Hr Begins at: 445 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	5	426	0	0	157	7	0	0	2	0	0	0	597

PEAK HR FACTOR:	0.876	0.911	0.500	0.000	0.927

Bicycle Counts

	North Iris Lane Northbound			North Iris Lane Southbound			Robin Hill Lane Eastbound			Robin Hill Lane Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	2	0	0	0	0	0	0	0	0	0	0	2

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	1	0	0	0	0	0	0	0	0	0	0	1

Pedestrian Counts

	North Iris Lane North Leg	North Iris Lane South Leg	Robin Hill Lane East Leg	Robin Hill Lane West Leg	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	1	0	1
4:45 PM	1	0	1	0	2
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	4	0	4
5:45 PM	0	0	0	0	0
TOTAL VOLUMES:	1	0	6	0	7

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	1	0	5	0	6

PO Box 1178
Corona, CA 92880
951-268-6268

Location: Escondido
N/S: Centre City Parkway
E/W: North Iris Lane

Date: 10/7/20
Day: WEDNESDAY
Project # 143-20375

TURNING MOVEMENT COUNT

Count Period: **7:00 AM to 9:00 AM**
Peak Hour: **7:15 AM to 8:15 AM**

Vehicle Counts

	Centre City Parkway Northbound			Centre City Parkway Southbound			North Iris Lane Eastbound			North Iris Lane Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	1	48	8	0	96	12	7	11	3	39	26	1	252
7:15 AM	2	37	10	4	113	17	8	13	2	52	35	2	295
7:30 AM	0	44	12	2	118	14	9	20	1	63	40	1	324
7:45 AM	2	47	22	0	104	13	14	18	3	50	29	2	304
8:00 AM	0	53	10	2	111	16	12	13	5	60	27	2	311
8:15 AM	4	44	20	2	98	15	11	19	2	42	21	1	279
8:30 AM	1	54	20	1	97	7	9	14	0	51	12	1	267
8:45 AM	3	45	13	0	95	10	12	19	1	35	10	1	244
TOTAL VOLUMES:	13	372	115	11	832	104	82	127	17	392	200	11	2276

AM Peak Hr Begins at: 715 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	4	181	54	8	446	60	43	64	11	225	131	7	1234

PEAK HR FACTOR:	0.842	0.959	0.843	0.873	0.952

Bicycle Counts

	Centre City Parkway Northbound			Centre City Parkway Southbound			North Iris Lane Eastbound			North Iris Lane Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:15 AM	0	1	2	0	0	0	0	0	0	0	0	0	3
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES:	0	1	2	1	2	0	0	0	0	0	0	0	6

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	0	0	0	1	0	0	0	0	0	0	0	1

Pedestrian Counts

	Centre City Parkway North Leg	Centre City Parkway South Leg	North Iris Lane East Leg	North Iris Lane West Leg	TOTAL
7:00 AM	0	0	1	0	1
7:15 AM	0	0	0	0	0
7:30 AM	0	0	0	0	0
7:45 AM	0	0	0	0	0
8:00 AM	0	0	0	0	0
8:15 AM	0	0	0	0	0
8:30 AM	0	0	0	0	0
8:45 AM	0	1	0	0	1
TOTAL VOLUMES:	0	1	1	0	2

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	0	0	0	0	0

PO Box 1178
Corona, CA 92880
951-268-6268

Location: Escondido
N/S: Centre City Parkway
E/W: North Iris Lane

Date: 10/7/20
Day: WEDNESDAY
Project # 143-20375

TURNING MOVEMENT COUNT

Count Period: **4:00 PM to 6:00 PM**
Peak Hour: **4:30 PM to 5:30 PM**

Vehicle Counts

	Centre City Parkway Northbound			Centre City Parkway Southbound			North Iris Lane Eastbound			North Iris Lane Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	3	112	33	1	83	13	29	50	2	33	19	1	379
4:15 PM	3	114	58	0	96	10	28	45	2	29	22	5	412
4:30 PM	5	123	50	1	84	13	29	42	0	24	19	5	395
4:45 PM	1	103	51	2	81	11	40	52	3	29	14	1	388
5:00 PM	2	119	50	1	83	6	33	85	6	26	17	1	429
5:15 PM	6	125	50	0	101	8	33	61	4	32	17	0	437
5:30 PM	2	93	54	1	78	6	29	52	1	24	17	1	358
5:45 PM	6	79	34	1	72	9	33	49	4	23	17	1	328
TOTAL VOLUMES:	28	868	380	7	678	76	254	436	22	220	142	15	3126

PM Peak Hr Begins at: 430 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	14	470	201	4	349	38	135	240	13	111	67	7	1649

PEAK HR FACTOR:	0.946	0.897	0.782	0.944	0.943

Bicycle Counts

	Centre City Parkway Northbound			Centre City Parkway Southbound			North Iris Lane Eastbound			North Iris Lane Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	1
4:30 PM	0	0	1	0	1	0	0	0	0	0	0	0	2
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	0	2	0	1	0	0	0	0	0	0	0	0	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES:	0	3	1	1	1	0	1	0	0	0	0	0	7

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:	0	1	1	0	1	0	0	0	0	0	0	0	3

Pedestrian Counts

	Centre City Parkway North Leg	Centre City Parkway South Leg	North Iris Lane East Leg	North Iris Lane West Leg	TOTAL
4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	1	1
TOTAL VOLUMES:	0	0	0	1	1

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:	0	0	0	0	0

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

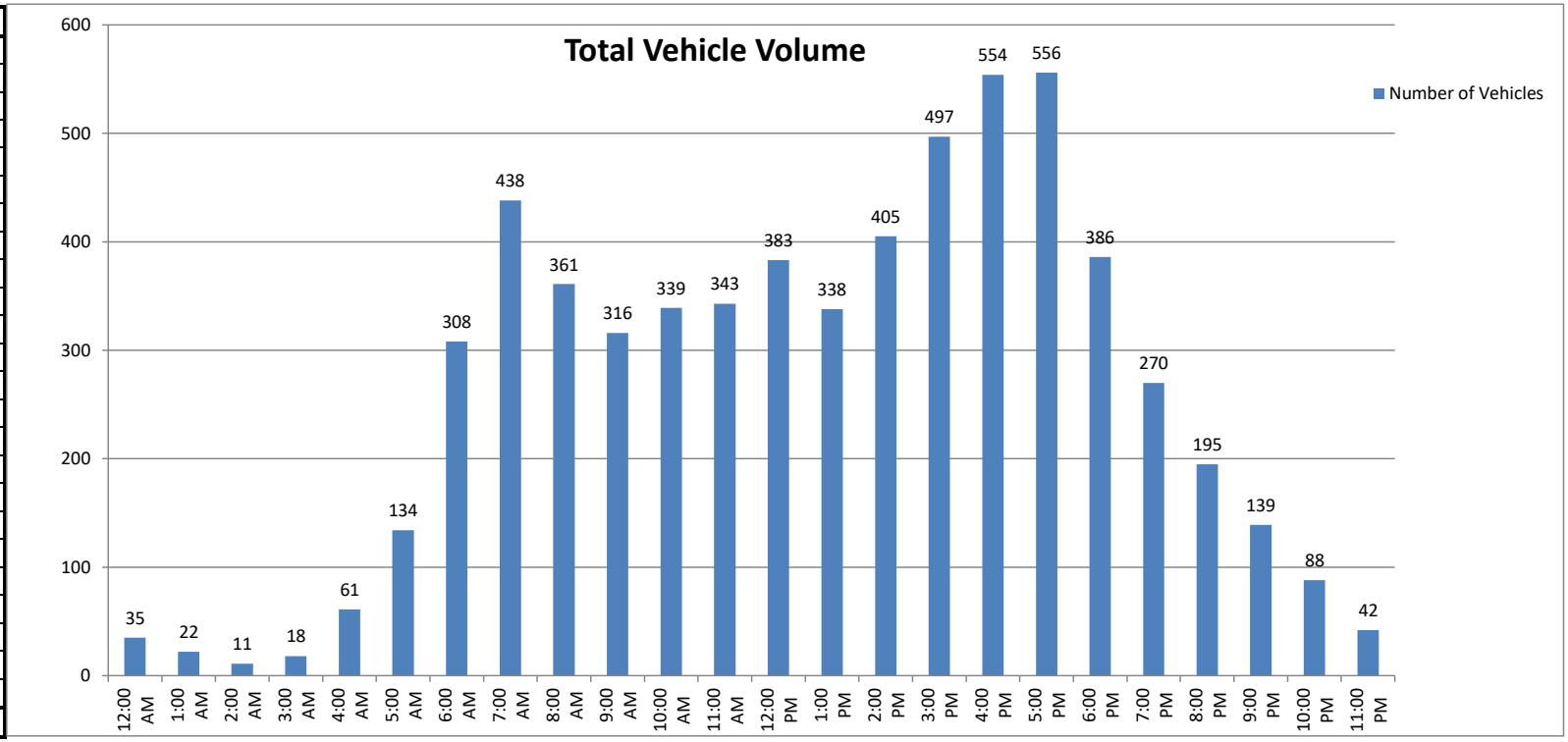
24 Hour Volume Plot

North Iris Lane

B/ Village Road - Robin Hill Lane

10/7/2020

Start Time	10/7/2020
12:00 AM	35
1:00 AM	22
2:00 AM	11
3:00 AM	18
4:00 AM	61
5:00 AM	134
6:00 AM	308
7:00 AM	438
8:00 AM	361
9:00 AM	316
10:00 AM	339
11:00 AM	343
12:00 PM	383
1:00 PM	338
2:00 PM	405
3:00 PM	497
4:00 PM	554
5:00 PM	556
6:00 PM	386
7:00 PM	270
8:00 PM	195
9:00 PM	139
10:00 PM	88
11:00 PM	42
Total	6239



Volumes represent the combined totals for both directions

Counts Unlimited, Inc.
PO Box 1178
Corona, CA 92878

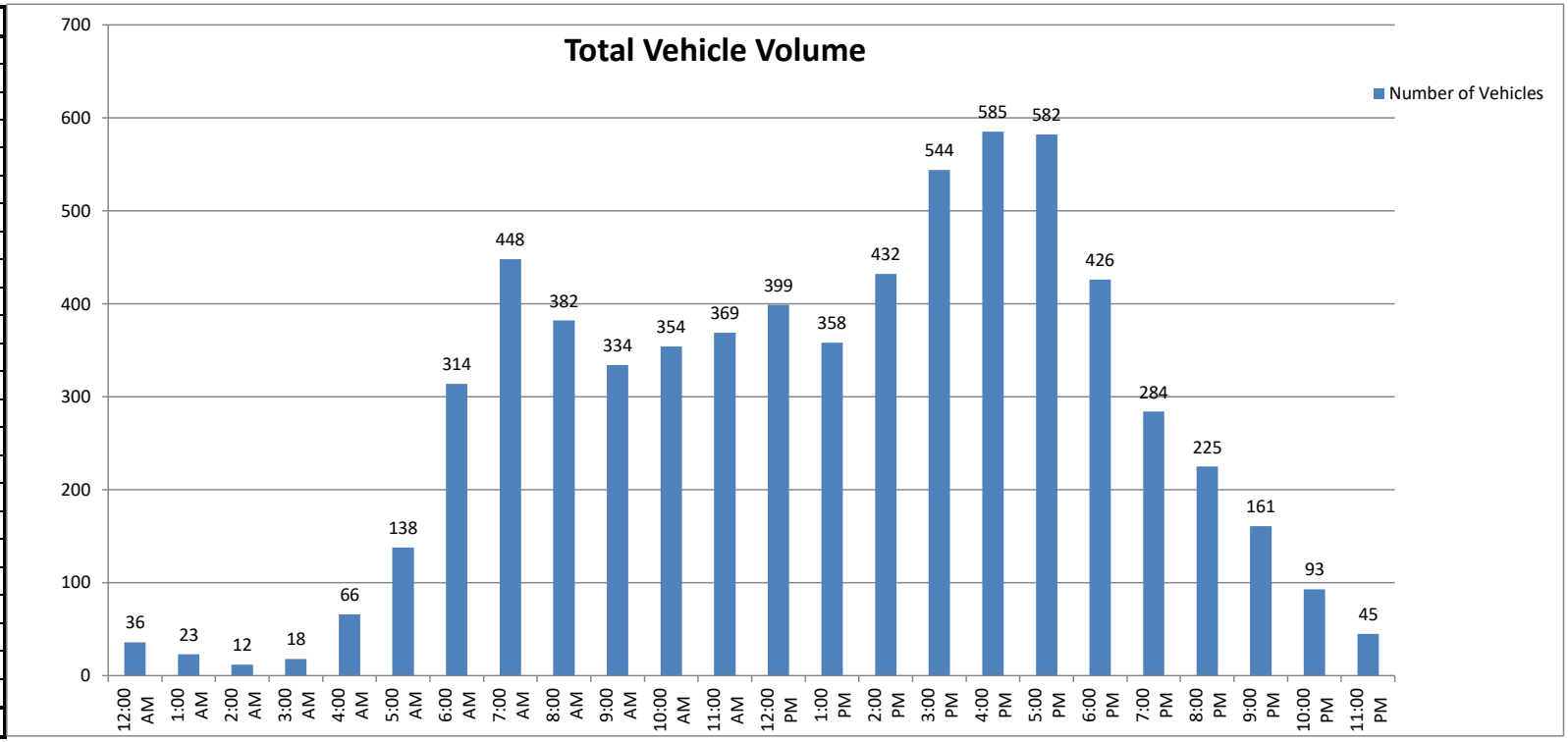
24 Hour Volume Plot

North Iris Lane

B/ Robin Hill Lane - Centre City Parkway

10/7/2020

Start Time	10/7/2020
12:00 AM	36
1:00 AM	23
2:00 AM	12
3:00 AM	18
4:00 AM	66
5:00 AM	138
6:00 AM	314
7:00 AM	448
8:00 AM	382
9:00 AM	334
10:00 AM	354
11:00 AM	369
12:00 PM	399
1:00 PM	358
2:00 PM	432
3:00 PM	544
4:00 PM	585
5:00 PM	582
6:00 PM	426
7:00 PM	284
8:00 PM	225
9:00 PM	161
10:00 PM	93
11:00 PM	45
Total	6628

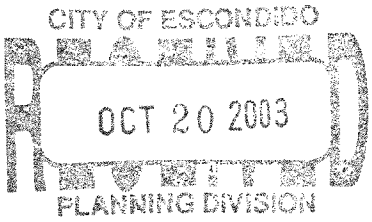


Volumes represent the combined totals for both directions

TRAFFIC IMPACT ANALYSIS
GLENBROOK VILLAGE
ESCONDIDO, CALIFORNIA

February 27, 2003
Revised: October 15, 2003

Prepared for:
Masson & Associates



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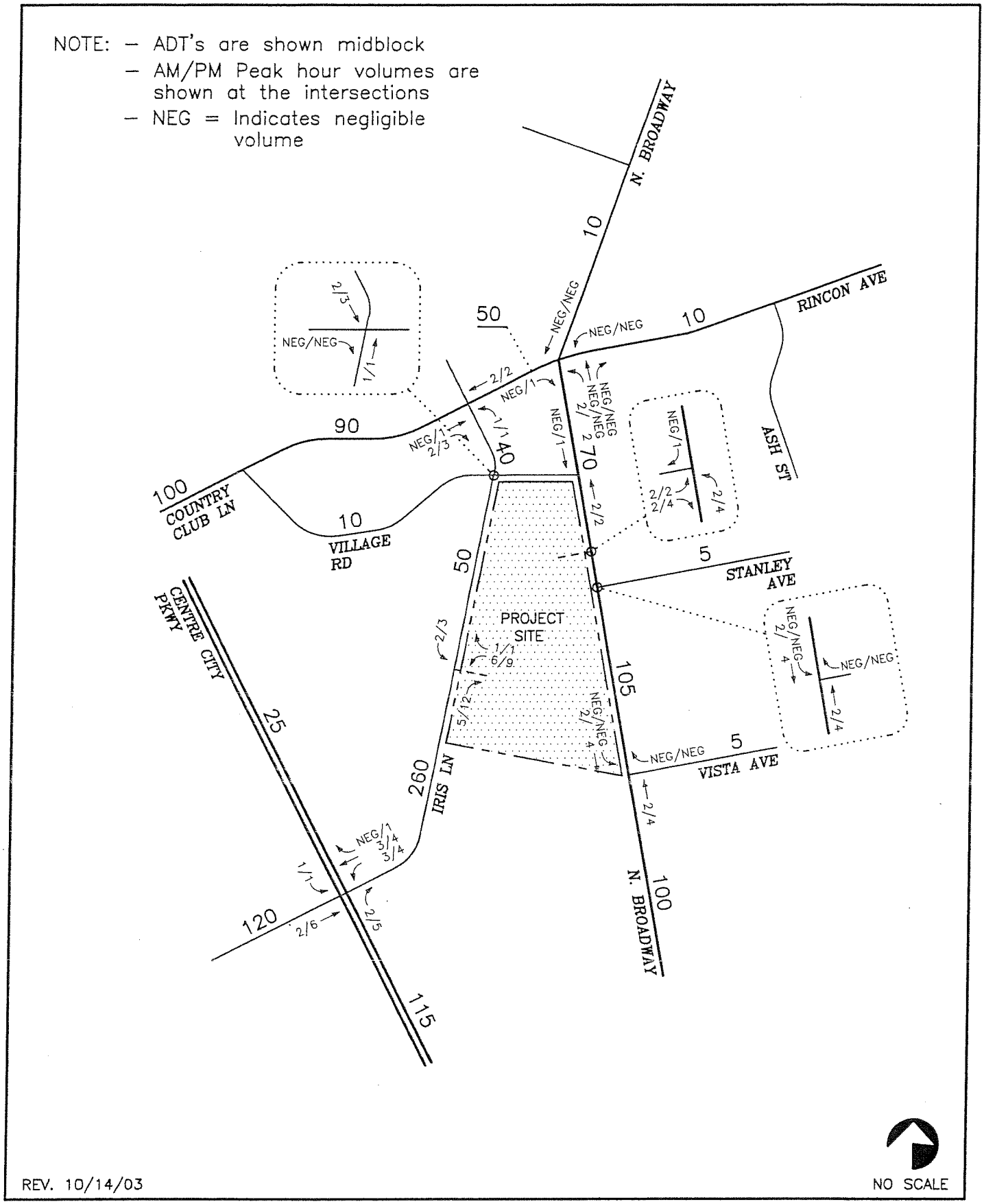


FIG1178.DWG

Figure 7a

SENIOR RESIDENTIAL COMPLEX PROJECT TRAFFIC VOLUMES AM/PM PEAK HOURS & ADT's

LINSCOTT LAW & GREENSPAN ENGINEERS

PO Box 1178
Corona, CA 92880
951-268-6268

Location: Escondido
N/S: N Iris Lane
E/W: Iris Glen

Date: 8/31/2021
Day: TUESDAY
Project # 143-21383

TURNING MOVEMENT COUNT

Count Period: **7:00 AM to 9:00 AM**
Peak Hour: **7:30 AM to 8:30 AM**

Vehicle Counts

	N Iris Lane Northbound			N Iris Lane Southbound			Iris Glen Eastbound			Iris Glen Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM			0	0						4	0	0	4
7:15 AM			0	0						2	0	0	2
7:30 AM			1	0						0	0	0	1
7:45 AM			3	0						1	0	0	4
8:00 AM			0	0						2	0	1	3
8:15 AM			0	0						2	0	0	2
8:30 AM			0	0						2	0	0	2
8:45 AM			0	0						0	0	0	0
TOTAL VOLUMES:			4	0						13	0	1	18

AM Peak Hr Begins at: 730 AM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:			4	0						5		1	10

PEAK HR FACTOR:						

Bicycle Counts

	N Iris Lane Northbound			N Iris Lane Southbound			Iris Glen Eastbound			Iris Glen Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
7:00 AM													
7:15 AM													
7:30 AM													
7:45 AM													
8:00 AM													
8:15 AM													
8:30 AM													
8:45 AM													
TOTAL VOLUMES:													

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:													

Pedestrian Counts

	N Iris Lane North Leg	N Iris Lane South Leg	Iris Glen East Leg	Iris Glen West Leg	TOTAL
7:00 AM					0
7:15 AM					0
7:30 AM					0
7:45 AM					0
8:00 AM					0
8:15 AM					0
8:30 AM					0
8:45 AM					0
TOTAL VOLUMES:					0

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:					

PO Box 1178
Corona, CA 92880
951-268-6268

Location: Escondido
N/S: N Iris Lane
E/W: Iris Glen

Date: 8/31/2021
Day: TUESDAY
Project # 143-21383

TURNING MOVEMENT COUNT

Count Period: **4:00 PM to 6:00 PM**
Peak Hour: **4:30 PM to 5:30 PM**

Vehicle Counts

	N Iris Lane Northbound			N Iris Lane Southbound			Iris Glen Eastbound			Iris Glen Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM			1	1						0	0	0	2
4:15 PM			2	0						0	0	0	2
4:30 PM			3	0						1	0	1	5
4:45 PM			1	1						2	0	0	4
5:00 PM			2	0						2	0	0	4
5:15 PM			1	0						2	0	0	3
5:30 PM			2	1						1	0	0	4
5:45 PM			2	0						3	0	0	5
TOTAL VOLUMES:			14	3						11	0	1	29

PM Peak Hr Begins at: 430 PM

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:			7	1						7	0	1	16

PEAK HR FACTOR:													

Bicycle Counts

	N Iris Lane Northbound			N Iris Lane Southbound			Iris Glen Eastbound			Iris Glen Westbound			
	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
4:00 PM													
4:15 PM													
4:30 PM													
4:45 PM													
5:00 PM													
5:15 PM													
5:30 PM													
5:45 PM													
TOTAL VOLUMES:													

	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
PEAK VOLUMES:													

Pedestrian Counts

	N Iris Lane North Leg	N Iris Lane South Leg	Iris Glen East Leg	Iris Glen West Leg	TOTAL
4:00 PM					
4:15 PM					
4:30 PM					
4:45 PM					
5:00 PM					
5:15 PM					
5:30 PM					
5:45 PM					
TOTAL VOLUMES:					

	North Leg	South Leg	East Leg	West Leg	TOTAL
PEAK VOLUMES:					

Appendix F

Existing LOS Worksheets

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	4	34	49	157	20	4	12	72	84	11	246	3
Future Vol, veh/h	4	34	49	157	20	4	12	72	84	11	246	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	37	53	171	22	4	13	78	91	12	267	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.9	10.6	9.4	11.1
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	5%	87%	4%
Vol Thru, %	43%	39%	11%	95%
Vol Right, %	50%	56%	2%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	168	87	181	260
LT Vol	12	4	157	11
Through Vol	72	34	20	246
RT Vol	84	49	4	3
Lane Flow Rate	183	95	197	283
Geometry Grp	1	1	1	1
Degree of Util (X)	0.242	0.134	0.291	0.385
Departure Headway (Hd)	4.762	5.114	5.322	4.909
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	743	705	667	723
Service Time	2.858	3.114	3.421	2.997
HCM Lane V/C Ratio	0.246	0.135	0.295	0.391
HCM Control Delay	9.4	8.9	10.6	11.1
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.9	0.5	1.2	1.8

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	9	0	167	452	1
Future Vol, veh/h	0	9	0	167	452	1
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	10	0	182	491	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	684	502	497	0	-	0
Stage 1	497	-	-	-	-	-
Stage 2	187	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	414	569	1067	-	-	-
Stage 1	611	-	-	-	-	-
Stage 2	845	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	411	564	1063	-	-	-
Mov Cap-2 Maneuver	411	-	-	-	-	-
Stage 1	609	-	-	-	-	-
Stage 2	842	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1063	-	564	-	-
HCM Lane V/C Ratio	-	-	0.017	-	-
HCM Control Delay (s)	0	-	11.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

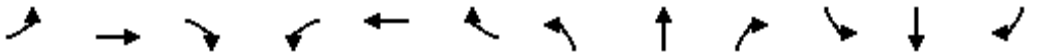
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	6	0	1	0	166	5	2	459	0
Future Vol, veh/h	0	0	0	6	0	1	0	166	5	2	459	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	7	0	1	0	180	5	2	499	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	686	688	499	686	686	183	499	0	0	185	0	0
Stage 1	503	503	-	183	183	-	-	-	-	-	-	-
Stage 2	183	185	-	503	503	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	362	369	572	362	370	859	1065	-	-	1390	-	-
Stage 1	551	541	-	819	748	-	-	-	-	-	-	-
Stage 2	819	747	-	551	541	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	361	368	572	361	369	859	1065	-	-	1390	-	-
Mov Cap-2 Maneuver	361	368	-	361	369	-	-	-	-	-	-	-
Stage 1	551	540	-	819	748	-	-	-	-	-	-	-
Stage 2	818	747	-	550	540	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	14.3	0	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1065	-	-	-	394	1390	-	-
HCM Lane V/C Ratio	-	-	-	-	0.019	0.002	-	-
HCM Control Delay (s)	0	-	-	0	14.3	7.6	0	-
HCM Lane LOS	A	-	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	220	8	386	211	9	15	244	99	8	1014	93
Future Volume (veh/h)	58	220	8	386	211	9	15	244	99	8	1014	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	63	239	9	420	229	10	16	265	108	9	1102	101
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	502	849	32	494	843	37	23	1510	653	15	1493	646
Arrive On Green	0.47	0.47	0.47	0.47	0.47	0.47	0.01	0.42	0.42	0.01	0.42	0.42
Sat Flow, veh/h	1141	1789	67	1131	1777	78	1781	3554	1537	1781	3554	1537
Grp Volume(v), veh/h	63	0	248	420	0	239	16	265	108	9	1102	101
Grp Sat Flow(s),veh/h/ln	1141	0	1857	1131	0	1855	1781	1777	1537	1781	1777	1537
Q Serve(g_s), s	5.2	0.0	11.9	52.4	0.0	11.4	1.3	6.8	6.4	0.7	38.2	6.0
Cycle Q Clear(g_c), s	16.5	0.0	11.9	64.3	0.0	11.4	1.3	6.8	6.4	0.7	38.2	6.0
Prop In Lane	1.00		0.04	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	502	0	881	494	0	880	23	1510	653	15	1493	646
V/C Ratio(X)	0.13	0.00	0.28	0.85	0.00	0.27	0.69	0.18	0.17	0.60	0.74	0.16
Avail Cap(c_a), veh/h	627	0	1085	618	0	1083	55	1510	653	49	1493	646
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	28.2	0.0	23.3	42.8	0.0	23.2	71.9	26.2	26.0	72.3	35.7	26.3
Incr Delay (d2), s/veh	0.1	0.0	0.2	9.0	0.0	0.2	30.2	0.3	0.5	33.4	3.3	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.5	0.0	5.3	15.8	0.0	5.1	0.8	3.0	2.5	0.5	17.2	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	28.3	0.0	23.5	51.8	0.0	23.4	102.2	26.4	26.6	105.7	39.0	26.9
LnGrp LOS	C	A	C	D	A	C	F	C	C	F	D	C
Approach Vol, veh/h		311			659			389			1212	
Approach Delay, s/veh		24.5			41.5			29.6			38.5	
Approach LOS		C			D			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	66.7		74.0	6.4	66.0		74.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	4.0	62.0		85.5	4.5	61.5		85.5				
Max Q Clear Time (g_c+I1), s	2.7	8.8		18.5	3.3	40.2		66.3				
Green Ext Time (p_c), s	0.0	2.3		1.9	0.0	8.9		3.2				

Intersection Summary												
HCM 6th Ctrl Delay			36.2									
HCM 6th LOS			D									

Intersection	
Intersection Delay, s/veh	17.6
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	38	46	73	24	5	62	301	216	5	104	4
Future Vol, veh/h	4	38	46	73	24	5	62	301	216	5	104	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	41	50	79	26	5	67	327	235	5	113	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.7	10.4	21.7	9.5
HCM LOS	A	B	C	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	5%	72%	4%
Vol Thru, %	52%	43%	24%	92%
Vol Right, %	37%	52%	5%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	579	88	102	113
LT Vol	62	4	73	5
Through Vol	301	38	24	104
RT Vol	216	46	5	4
Lane Flow Rate	629	96	111	123
Geometry Grp	1	1	1	1
Degree of Util (X)	0.78	0.15	0.186	0.182
Departure Headway (Hd)	4.464	5.658	6.036	5.33
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	799	636	598	676
Service Time	2.553	3.67	4.046	3.346
HCM Lane V/C Ratio	0.787	0.151	0.186	0.182
HCM Control Delay	21.7	9.7	10.4	9.5
HCM Lane LOS	C	A	B	A
HCM 95th-tile Q	7.8	0.5	0.7	0.7

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	3	7	578	213	9
Future Vol, veh/h	0	3	7	578	213	9
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	3	8	628	232	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	891	247	247	0	-	0
Stage 1	242	-	-	-	-	-
Stage 2	649	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	313	792	1319	-	-	-
Stage 1	798	-	-	-	-	-
Stage 2	520	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	308	785	1314	-	-	-
Mov Cap-2 Maneuver	308	-	-	-	-	-
Stage 1	788	-	-	-	-	-
Stage 2	518	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1314	-	785	-	-
HCM Lane V/C Ratio	0.006	-	0.004	-	-
HCM Control Delay (s)	7.8	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

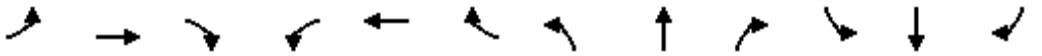
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	0	0	0	9	0	1	0	584	12	3	212	0
Future Vol, veh/h	0	0	0	9	0	1	0	584	12	3	212	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	10	0	1	0	635	13	3	230	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	878	884	230	878	878	642	230	0	0	648	0	0
Stage 1	236	236	-	642	642	-	-	-	-	-	-	-
Stage 2	642	648	-	236	236	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	268	284	809	268	287	474	1338	-	-	938	-	-
Stage 1	767	710	-	463	469	-	-	-	-	-	-	-
Stage 2	463	466	-	767	710	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	267	283	809	267	286	474	1338	-	-	938	-	-
Mov Cap-2 Maneuver	267	283	-	267	286	-	-	-	-	-	-	-
Stage 1	767	707	-	463	469	-	-	-	-	-	-	-
Stage 2	462	466	-	764	707	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	18.4	0	0.1
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1338	-	-	-	279	938	-	-
HCM Lane V/C Ratio	-	-	-	-	0.039	0.003	-	-
HCM Control Delay (s)	0	-	-	0	18.4	8.9	0	-
HCM Lane LOS	A	-	-	A	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-



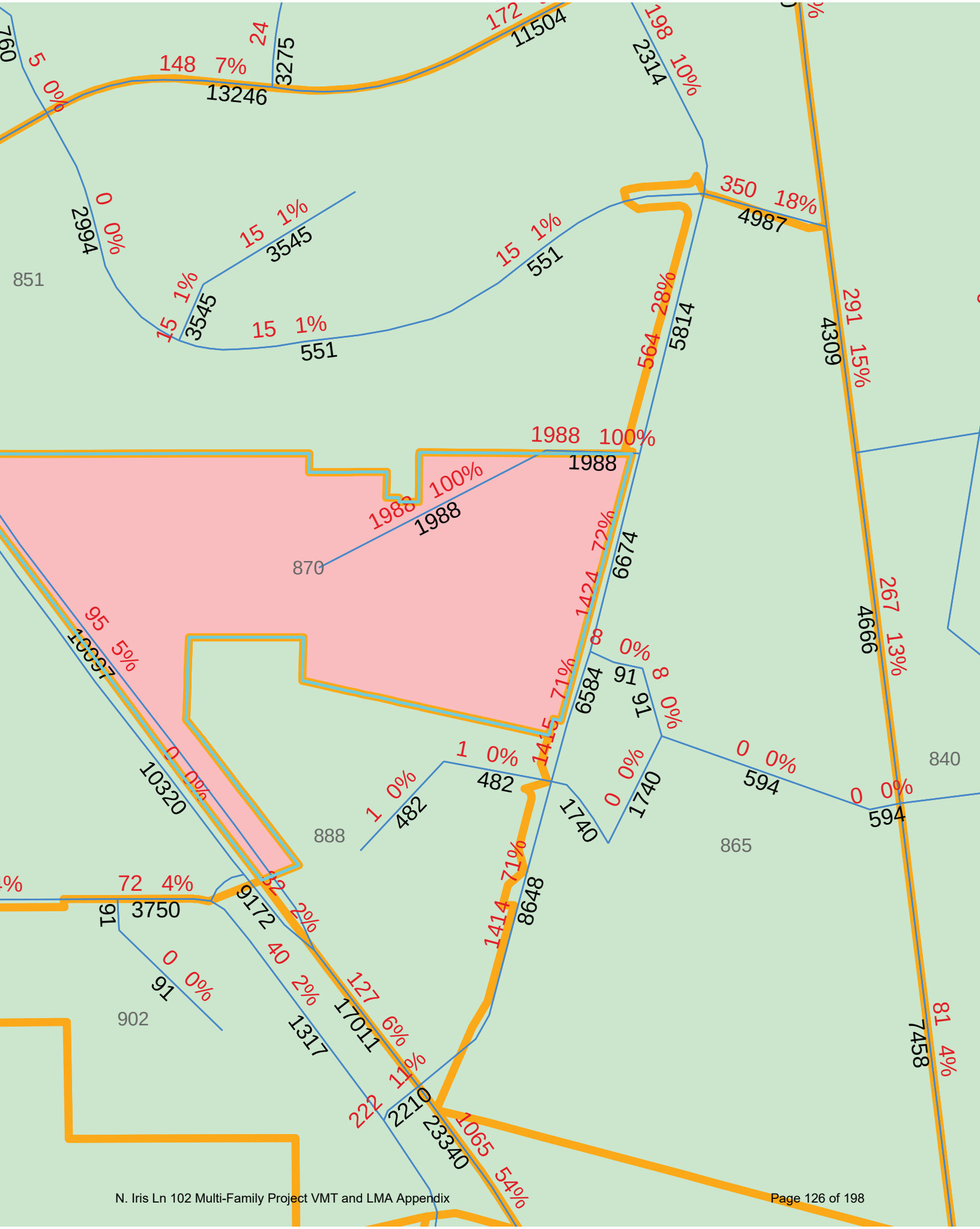
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	285	7	115	75	9	13	603	212	6	371	51
Future Volume (veh/h)	170	285	7	115	75	9	13	603	212	6	371	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	185	310	8	125	82	10	14	655	230	7	403	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	384	521	13	209	469	57	22	2109	915	12	2090	907
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.01	0.59	0.59	0.01	0.59	0.59
Sat Flow, veh/h	1300	1814	47	1062	1631	199	1781	3554	1542	1781	3554	1542
Grp Volume(v), veh/h	185	0	318	125	0	92	14	655	230	7	403	55
Grp Sat Flow(s),veh/h/ln	1300	0	1861	1062	0	1830	1781	1777	1542	1781	1777	1542
Q Serve(g_s), s	15.0	0.0	17.7	13.8	0.0	4.5	0.9	11.1	8.6	0.5	6.3	1.8
Cycle Q Clear(g_c), s	19.5	0.0	17.7	31.5	0.0	4.5	0.9	11.1	8.6	0.5	6.3	1.8
Prop In Lane	1.00		0.03	1.00		0.11	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	384	0	535	209	0	526	22	2109	915	12	2090	907
V/C Ratio(X)	0.48	0.00	0.59	0.60	0.00	0.17	0.63	0.31	0.25	0.57	0.19	0.06
Avail Cap(c_a), veh/h	782	0	1105	534	0	1086	170	2109	915	126	2090	907
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.5	0.0	36.9	50.4	0.0	32.2	59.2	12.2	11.7	59.6	11.5	10.6
Incr Delay (d2), s/veh	0.9	0.0	1.1	2.7	0.0	0.2	26.2	0.4	0.7	34.9	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	8.2	3.8	0.0	2.1	0.6	4.4	3.1	0.3	2.5	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.5	0.0	37.9	53.2	0.0	32.4	85.4	12.6	12.4	94.6	11.7	10.7
LnGrp LOS	D	A	D	D	A	C	F	B	B	F	B	B
Approach Vol, veh/h		503			217			899			465	
Approach Delay, s/veh		38.9			44.3			13.7			12.9	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.3	76.0		39.1	6.0	75.3		39.1				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	8.5	71.5		71.5	11.5	68.5		71.5				
Max Q Clear Time (g_c+I1), s	2.5	13.1		21.5	2.9	8.3		33.5				
Green Ext Time (p_c), s	0.0	6.4		2.7	0.0	3.2		1.1				

Intersection Summary			
HCM 6th Ctrl Delay		22.8	
HCM 6th LOS		C	

Appendix G

SANDAG Select Zone Assignment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3275
172
11504
198 10%
2314
2994
0 0%
15 1%
3545
15 1%
3545
15 1%
551
15 1%
551
350 18%
4987
851
564 28%
5814
4309
291 15%
1988 100%
1988
1988 100%
1988
870
1424 72%
6674
4666
267 13%
95 5%
10097
8 0%
91
8 0%
91
6584
1415 71%
0 0%
10320
1 0%
482
1 0%
482
888
1740
0 0%
1740
865
0 0%
594
0 0%
594
840
72 4%
3750
91
9172
32 2%
1414 71%
8648
0 0%
91
902
40 2%
1317
127 6%
17011
11%
222
2210
23340
1065 54%
81 4%
7458
N. Iris Ln 102 Multi-Family Project VMT and LMA Appendix
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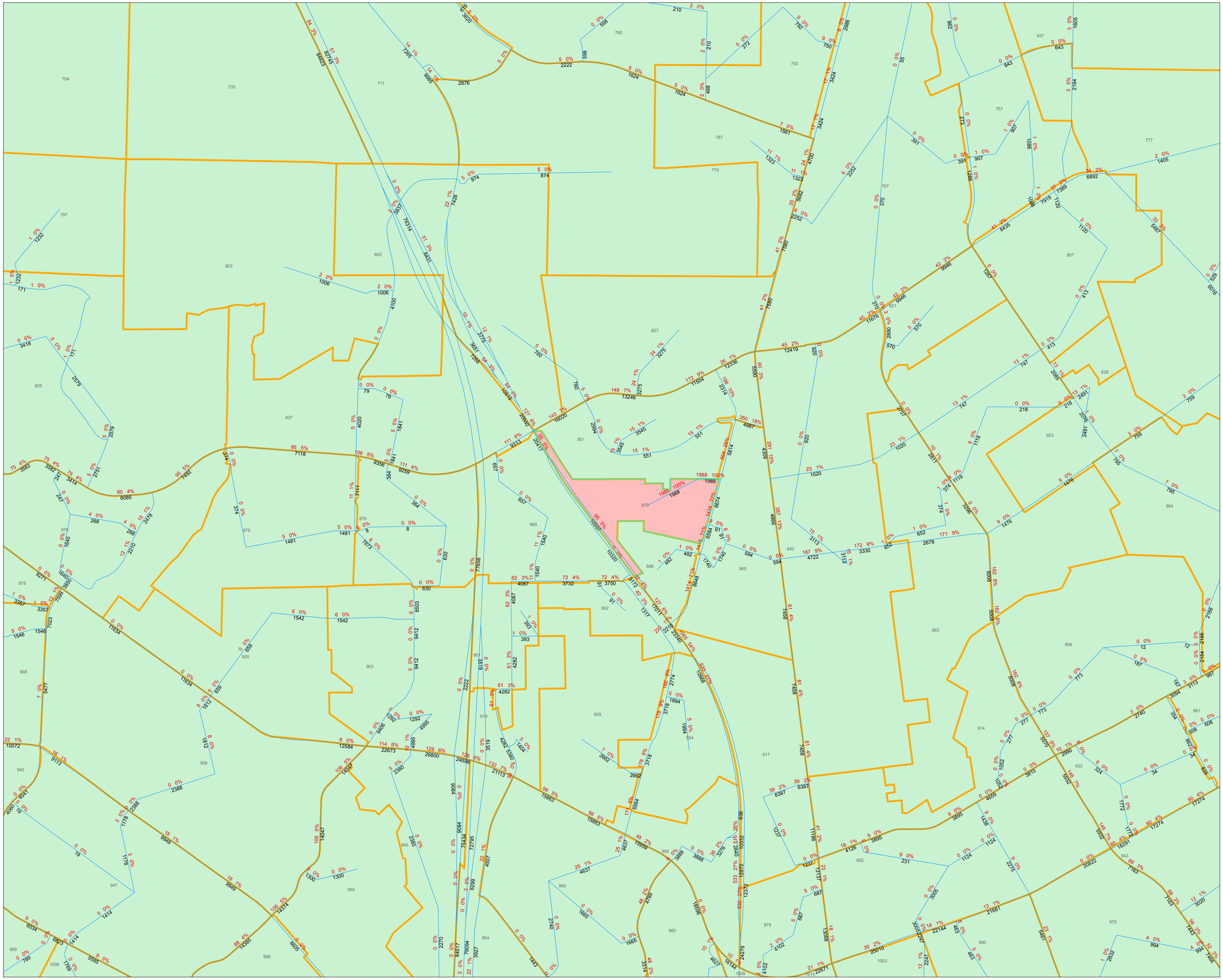
SANDAG
SR14
versiom14_1_1
hwy_load 462

2035rc

Select Zone Run

TAZ 870



Selected Zone(s)

\# Select Zone Vol and %

\# Model Estimated ADT

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0 0.045 0.09 0.135
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servicebureau

Date: September 17, 2020

Appendix H

Existing plus Project LOS Worksheets

Intersection	
Intersection Delay, s/veh	10.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	34	49	160	20	4	12	77	93	11	247	3
Future Vol, veh/h	4	34	49	160	20	4	12	77	93	11	247	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	37	53	174	22	4	13	84	101	12	268	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9	10.9	9.7	11.4
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	5%	87%	4%
Vol Thru, %	42%	39%	11%	95%
Vol Right, %	51%	56%	2%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	182	87	184	261
LT Vol	12	4	160	11
Through Vol	77	34	20	247
RT Vol	93	49	4	3
Lane Flow Rate	198	95	200	284
Geometry Grp	1	1	1	1
Degree of Util (X)	0.268	0.136	0.304	0.398
Departure Headway (Hd)	4.886	5.17	5.466	5.049
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	738	693	658	718
Service Time	2.895	3.205	3.496	3.055
HCM Lane V/C Ratio	0.268	0.137	0.304	0.396
HCM Control Delay	9.7	9	10.9	11.4
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	1.1	0.5	1.3	1.9

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	25	9	171	452	5
Future Vol, veh/h	10	25	9	171	452	5
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	27	10	186	491	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	710	504	501	0	-	0
Stage 1	499	-	-	-	-	-
Stage 2	211	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	400	568	1063	-	-	-
Stage 1	610	-	-	-	-	-
Stage 2	824	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	392	563	1059	-	-	-
Mov Cap-2 Maneuver	392	-	-	-	-	-
Stage 1	601	-	-	-	-	-
Stage 2	821	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.8	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1059	-	501	-	-
HCM Lane V/C Ratio	0.009	-	0.076	-	-
HCM Control Delay (s)	8.4	0	12.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

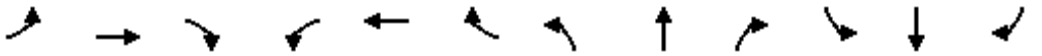
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	22	6	0	1	0	175	5	2	475	0
Future Vol, veh/h	4	0	22	6	0	1	0	175	5	2	475	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	0	24	7	0	1	0	190	5	2	516	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	713	715	516	725	713	193	-	0	0	195	0	0
Stage 1	520	520	-	193	193	-	-	-	-	-	-	-
Stage 2	193	195	-	532	520	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	347	356	559	340	357	849	0	-	-	1378	-	0
Stage 1	539	532	-	809	741	-	0	-	-	-	-	0
Stage 2	809	739	-	531	532	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	346	355	559	325	356	849	-	-	-	1378	-	-
Mov Cap-2 Maneuver	346	355	-	325	356	-	-	-	-	-	-	-
Stage 1	539	531	-	809	741	-	-	-	-	-	-	-
Stage 2	808	739	-	507	531	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.5	15.3	0	0
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	511	356	1378	-
HCM Lane V/C Ratio	-	-	0.055	0.021	0.002	-
HCM Control Delay (s)	-	-	12.5	15.3	7.6	0
HCM Lane LOS	-	-	B	C	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	221	8	414	217	13	15	244	106	9	1014	93
Future Volume (veh/h)	58	221	8	414	217	13	15	244	106	9	1014	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	63	240	9	450	236	14	16	265	115	10	1102	101
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	527	895	34	529	873	52	24	1403	607	16	1389	600
Arrive On Green	0.50	0.50	0.50	0.50	0.50	0.50	0.01	0.39	0.39	0.01	0.39	0.39
Sat Flow, veh/h	1129	1790	67	1130	1746	104	1781	3554	1536	1781	3554	1536
Grp Volume(v), veh/h	63	0	249	450	0	250	16	265	115	10	1102	101
Grp Sat Flow(s),veh/h/ln	1129	0	1857	1130	0	1850	1781	1777	1536	1781	1777	1536
Q Serve(g_s), s	4.8	0.0	10.9	53.8	0.0	11.0	1.3	6.9	6.9	0.8	38.5	6.0
Cycle Q Clear(g_c), s	15.8	0.0	10.9	64.7	0.0	11.0	1.3	6.9	6.9	0.8	38.5	6.0
Prop In Lane	1.00		0.04	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	527	0	928	529	0	925	24	1403	607	16	1389	600
V/C Ratio(X)	0.12	0.00	0.27	0.85	0.00	0.27	0.68	0.19	0.19	0.61	0.79	0.17
Avail Cap(c_a), veh/h	701	0	1214	703	0	1209	57	1403	607	51	1389	600
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	24.9	0.0	20.3	39.0	0.0	20.3	69.1	27.8	27.8	69.4	37.8	27.9
Incr Delay (d2), s/veh	0.1	0.0	0.2	7.6	0.0	0.2	29.2	0.3	0.7	31.5	4.7	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	4.8	15.8	0.0	4.9	0.8	3.0	2.7	0.5	17.6	2.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.0	0.0	20.5	46.6	0.0	20.5	98.3	28.1	28.5	101.0	42.6	28.5
LnGrp LOS	C	A	C	D	A	C	F	C	C	F	D	C
Approach Vol, veh/h		312			700			396			1213	
Approach Delay, s/veh		21.4			37.3			31.1			41.9	
Approach LOS		C			D			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	60.1		74.8	6.4	59.5		74.8				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	4.0	55.5		92.0	4.5	55.0		92.0				
Max Q Clear Time (g_c+I1), s	2.8	8.9		17.8	3.3	40.5		66.7				
Green Ext Time (p_c), s	0.0	2.3		1.9	0.0	7.2		3.7				

Intersection Summary												
HCM 6th Ctrl Delay			36.6									
HCM 6th LOS			D									

Intersection	
Intersection Delay, s/veh	18.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	38	47	83	24	5	62	303	220	5	109	4
Future Vol, veh/h	4	38	47	83	24	5	62	303	220	5	109	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	41	51	90	26	5	67	329	239	5	118	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.8	10.7	23	9.7
HCM LOS	A	B	C	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	4%	74%	4%
Vol Thru, %	52%	43%	21%	92%
Vol Right, %	38%	53%	4%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	585	89	112	118
LT Vol	62	4	83	5
Through Vol	303	38	24	109
RT Vol	220	47	5	4
Lane Flow Rate	636	97	122	128
Geometry Grp	1	1	1	1
Degree of Util (X)	0.796	0.154	0.206	0.192
Departure Headway (Hd)	4.508	5.729	6.095	5.397
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	788	629	592	667
Service Time	2.608	3.742	4.107	3.418
HCM Lane V/C Ratio	0.807	0.154	0.206	0.192
HCM Control Delay	23	9.8	10.7	9.7
HCM Lane LOS	C	A	B	A
HCM 95th-tile Q	8.3	0.5	0.8	0.7

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	10	48	580	213	25
Future Vol, veh/h	4	10	48	580	213	25
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	11	52	630	232	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	990	256	264	0	-	0
Stage 1	251	-	-	-	-	-
Stage 2	739	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	273	783	1300	-	-	-
Stage 1	791	-	-	-	-	-
Stage 2	472	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	254	776	1295	-	-	-
Mov Cap-2 Maneuver	254	-	-	-	-	-
Stage 1	739	-	-	-	-	-
Stage 2	470	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.6	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1295	-	489	-	-
HCM Lane V/C Ratio	0.04	-	0.031	-	-
HCM Control Delay (s)	7.9	0	12.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

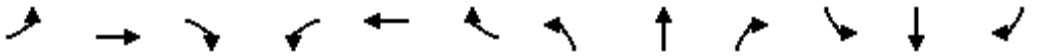
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↱			↰	
Traffic Vol, veh/h	2	0	11	9	0	1	0	625	12	3	219	0
Future Vol, veh/h	2	0	11	9	0	1	0	625	12	3	219	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	12	10	0	1	0	679	13	3	238	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	930	936	238	936	930	686	-	0	0	692	0	0
Stage 1	244	244	-	686	686	-	-	-	-	-	-	-
Stage 2	686	692	-	250	244	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	248	265	801	245	267	447	0	-	-	903	-	0
Stage 1	760	704	-	438	448	-	0	-	-	-	-	0
Stage 2	438	445	-	754	704	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	247	264	801	241	266	447	-	-	-	903	-	-
Mov Cap-2 Maneuver	247	264	-	241	266	-	-	-	-	-	-	-
Stage 1	760	701	-	438	448	-	-	-	-	-	-	-
Stage 2	437	445	-	740	701	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.2	19.9	0	0.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	596	253	903	-
HCM Lane V/C Ratio	-	-	0.024	0.043	0.004	-
HCM Control Delay (s)	-	-	11.2	19.9	9	0
HCM Lane LOS	-	-	B	C	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	0	-



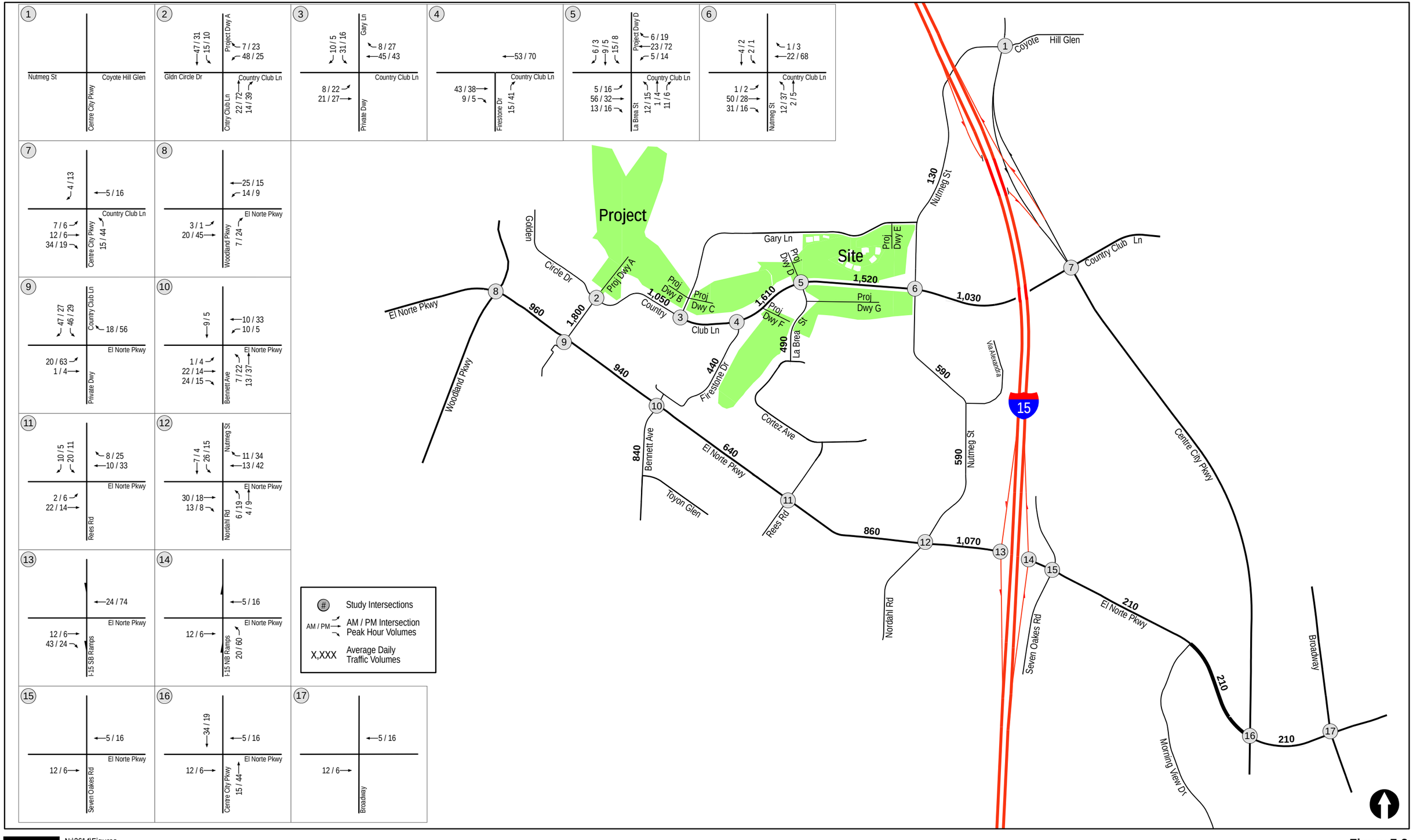
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	291	7	128	78	11	13	603	243	10	371	51
Future Volume (veh/h)	170	291	7	128	78	11	13	603	243	10	371	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	185	316	8	139	85	12	14	655	264	11	403	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	398	547	14	221	482	68	22	2058	893	18	2050	889
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.01	0.58	0.58	0.01	0.58	0.58
Sat Flow, veh/h	1295	1815	46	1056	1598	226	1781	3554	1542	1781	3554	1542
Grp Volume(v), veh/h	185	0	324	139	0	97	14	655	264	11	403	55
Grp Sat Flow(s),veh/h/ln	1295	0	1861	1056	0	1824	1781	1777	1542	1781	1777	1542
Q Serve(g_s), s	15.2	0.0	18.2	15.8	0.0	4.8	1.0	11.7	10.7	0.8	6.7	1.9
Cycle Q Clear(g_c), s	20.0	0.0	18.2	34.0	0.0	4.8	1.0	11.7	10.7	0.8	6.7	1.9
Prop In Lane	1.00		0.02	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	398	0	561	221	0	550	22	2058	893	18	2050	889
V/C Ratio(X)	0.47	0.00	0.58	0.63	0.00	0.18	0.64	0.32	0.30	0.61	0.20	0.06
Avail Cap(c_a), veh/h	757	0	1078	514	0	1056	166	2058	893	123	2050	889
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.2	0.0	36.5	50.9	0.0	31.8	60.7	13.4	13.2	60.9	12.5	11.5
Incr Delay (d2), s/veh	0.8	0.0	0.9	2.9	0.0	0.2	26.6	0.4	0.8	28.5	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	8.4	4.4	0.0	2.2	0.6	4.8	3.9	0.5	2.7	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.1	0.0	37.4	53.8	0.0	32.0	87.3	13.8	14.0	89.3	12.7	11.6
LnGrp LOS	D	A	D	D	A	C	F	B	B	F	B	B
Approach Vol, veh/h		509			236			933			469	
Approach Delay, s/veh		38.4			44.8			15.0			14.4	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	76.0		41.7	6.0	75.7		41.7				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	8.5	71.5		71.5	11.5	68.5		71.5				
Max Q Clear Time (g_c+I1), s	2.8	13.7		22.0	3.0	8.7		36.0				
Green Ext Time (p_c), s	0.0	6.6		2.8	0.0	3.2		1.2				

Intersection Summary			
HCM 6th Ctrl Delay		23.7	
HCM 6th LOS		C	

Appendix I

Cumulative Traffic Assignments



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Date: 06/19/17

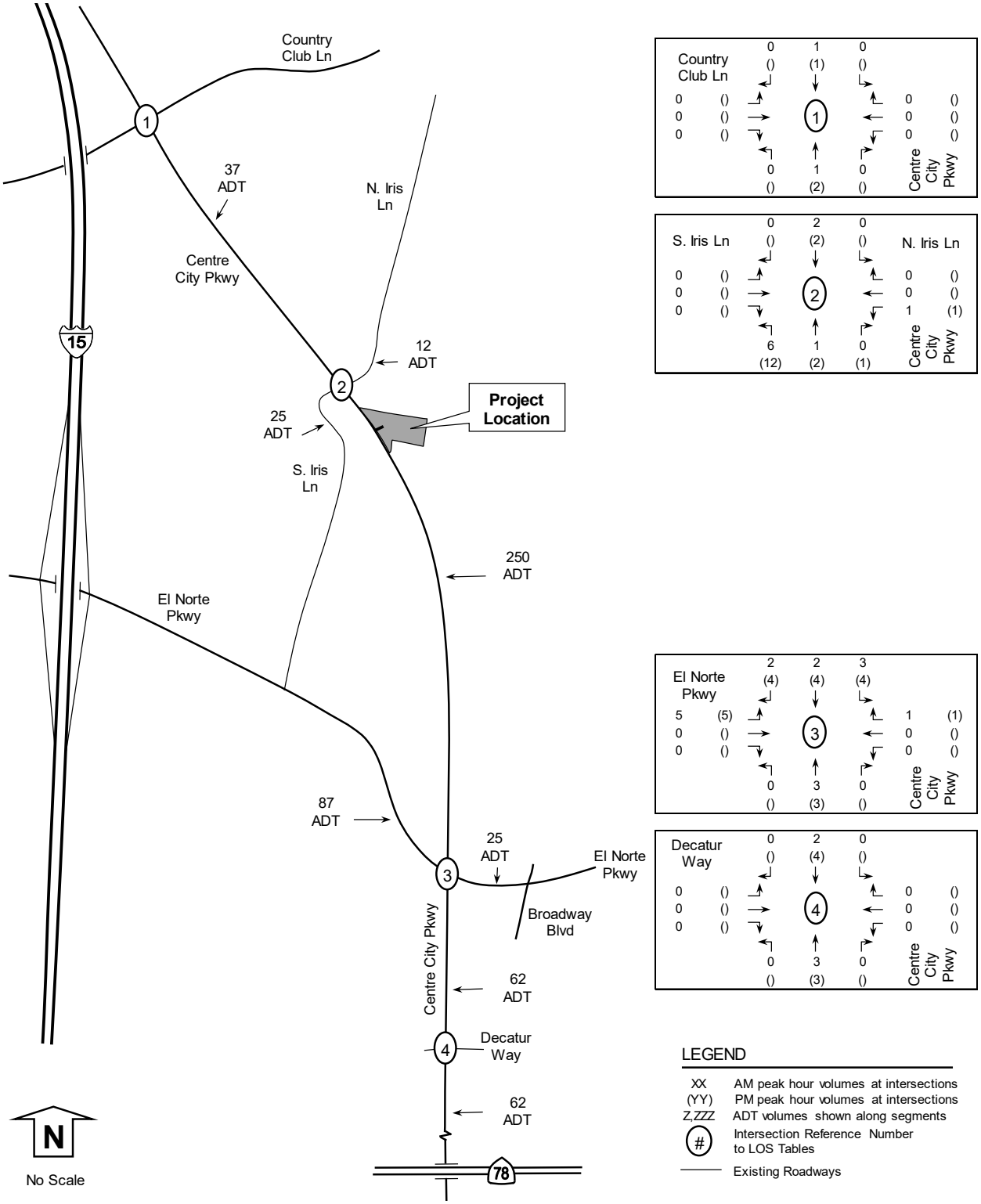
LINSCOTT LAW & GREENSPAN engineers

s Ln 102 Multi-Family Project VMT and LMA Appendix

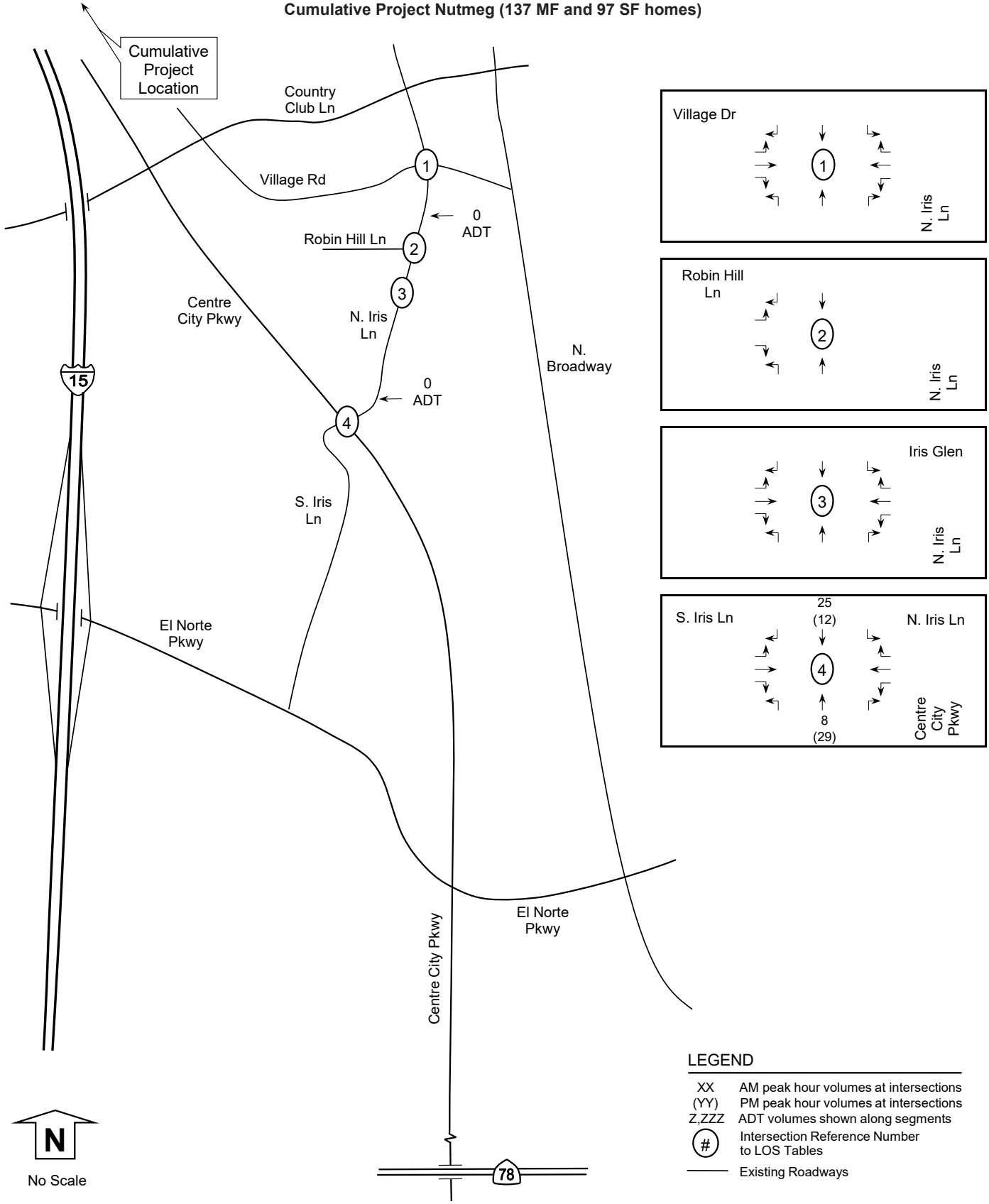
Figure 7-3

Total Project Traffic Volumes

Figure 6: Project Assignment



Cumulative Project Nutmeg (137 MF and 97 SF homes)



Appendix J

Near term LOS Worksheets

Intersection	
Intersection Delay, s/veh	10.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	34	49	157	20	4	12	72	84	11	247	3
Future Vol, veh/h	4	34	49	157	20	4	12	72	84	11	247	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	37	53	171	22	4	13	78	91	12	268	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	8.9	10.6	9.4	11.1
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	5%	87%	4%
Vol Thru, %	43%	39%	11%	95%
Vol Right, %	50%	56%	2%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	168	87	181	261
LT Vol	12	4	157	11
Through Vol	72	34	20	247
RT Vol	84	49	4	3
Lane Flow Rate	183	95	197	284
Geometry Grp	1	1	1	1
Degree of Util (X)	0.242	0.134	0.291	0.387
Departure Headway (Hd)	4.764	5.118	5.325	4.909
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	743	705	667	723
Service Time	2.86	3.118	3.425	2.997
HCM Lane V/C Ratio	0.246	0.135	0.295	0.393
HCM Control Delay	9.4	8.9	10.6	11.1
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	0.9	0.5	1.2	1.8

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	9	0	167	453	1
Future Vol, veh/h	0	9	0	167	453	1
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	10	0	182	492	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	685	503	498	0	-	0
Stage 1	498	-	-	-	-	-
Stage 2	187	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	414	569	1066	-	-	-
Stage 1	611	-	-	-	-	-
Stage 2	845	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	411	564	1062	-	-	-
Mov Cap-2 Maneuver	411	-	-	-	-	-
Stage 1	609	-	-	-	-	-
Stage 2	842	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.5	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1062	-	564	-	-
HCM Lane V/C Ratio	-	-	0.017	-	-
HCM Control Delay (s)	0	-	11.5	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

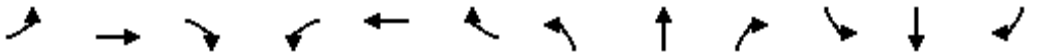
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	0	0	0	6	0	1	0	166	5	2	460	0
Future Vol, veh/h	0	0	0	6	0	1	0	166	5	2	460	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	7	0	1	0	180	5	2	500	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	687	689	500	687	687	183	-	0	0	185	0	0
Stage 1	504	504	-	183	183	-	-	-	-	-	-	-
Stage 2	183	185	-	504	504	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	361	369	571	361	370	859	0	-	-	1390	-	0
Stage 1	550	541	-	819	748	-	0	-	-	-	-	0
Stage 2	819	747	-	550	541	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	360	368	571	360	369	859	-	-	-	1390	-	-
Mov Cap-2 Maneuver	360	368	-	360	369	-	-	-	-	-	-	-
Stage 1	550	540	-	819	748	-	-	-	-	-	-	-
Stage 2	818	747	-	549	540	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	14.3	0	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	393	1390	-
HCM Lane V/C Ratio	-	-	-	0.019	0.002	-
HCM Control Delay (s)	-	-	0	14.3	7.6	0
HCM Lane LOS	-	-	A	B	A	A
HCM 95th %tile Q(veh)	-	-	-	0.1	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	220	8	387	211	9	21	268	99	8	1075	93
Future Volume (veh/h)	58	220	8	387	211	9	21	268	99	8	1075	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	63	239	9	421	229	10	23	291	108	9	1168	101
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	505	852	32	498	847	37	30	1495	647	15	1466	634
Arrive On Green	0.48	0.48	0.48	0.48	0.48	0.48	0.02	0.42	0.42	0.01	0.41	0.41
Sat Flow, veh/h	1140	1789	67	1131	1777	78	1781	3554	1537	1781	3554	1537
Grp Volume(v), veh/h	63	0	248	421	0	239	23	291	108	9	1168	101
Grp Sat Flow(s),veh/h/ln	1140	0	1857	1131	0	1855	1781	1777	1537	1781	1777	1537
Q Serve(g_s), s	5.0	0.0	11.5	51.2	0.0	11.1	1.8	7.4	6.3	0.7	41.1	5.9
Cycle Q Clear(g_c), s	16.1	0.0	11.5	62.8	0.0	11.1	1.8	7.4	6.3	0.7	41.1	5.9
Prop In Lane	1.00		0.04	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	505	0	885	498	0	884	30	1495	647	15	1466	634
V/C Ratio(X)	0.12	0.00	0.28	0.85	0.00	0.27	0.77	0.19	0.17	0.60	0.80	0.16
Avail Cap(c_a), veh/h	664	0	1142	655	0	1141	56	1495	647	50	1466	634
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	27.4	0.0	22.6	41.6	0.0	22.5	70.0	26.1	25.8	70.7	36.8	26.4
Incr Delay (d2), s/veh	0.1	0.0	0.2	7.8	0.0	0.2	33.2	0.3	0.6	33.0	4.6	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.4	0.0	5.2	15.3	0.0	5.0	1.1	3.2	2.4	0.5	18.7	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	27.5	0.0	22.8	49.4	0.0	22.7	103.2	26.4	26.4	103.7	41.4	27.0
LnGrp LOS	C	A	C	D	A	C	F	C	C	F	D	C
Approach Vol, veh/h		311			660			422			1278	
Approach Delay, s/veh		23.7			39.7			30.6			40.7	
Approach LOS		C			D			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	64.7		72.6	6.9	63.5		72.6				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	4.0	59.5		88.0	4.5	59.0		88.0				
Max Q Clear Time (g_c+I1), s	2.7	9.4		18.1	3.8	43.1		64.8				
Green Ext Time (p_c), s	0.0	2.5		1.9	0.0	8.0		3.4				

Intersection Summary												
HCM 6th Ctrl Delay			36.9									
HCM 6th LOS			D									

Intersection	
Intersection Delay, s/veh	17.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	38	46	73	24	5	62	302	216	5	105	4
Future Vol, veh/h	4	38	46	73	24	5	62	302	216	5	105	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	41	50	79	26	5	67	328	235	5	114	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.7	10.4	21.8	9.6
HCM LOS	A	B	C	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	5%	72%	4%
Vol Thru, %	52%	43%	24%	92%
Vol Right, %	37%	52%	5%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	580	88	102	114
LT Vol	62	4	73	5
Through Vol	302	38	24	105
RT Vol	216	46	5	4
Lane Flow Rate	630	96	111	124
Geometry Grp	1	1	1	1
Degree of Util (X)	0.782	0.151	0.186	0.184
Departure Headway (Hd)	4.466	5.665	6.043	5.332
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	801	635	596	675
Service Time	2.557	3.677	4.055	3.35
HCM Lane V/C Ratio	0.787	0.151	0.186	0.184
HCM Control Delay	21.8	9.7	10.4	9.6
HCM Lane LOS	C	A	B	A
HCM 95th-tile Q	7.9	0.5	0.7	0.7

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	3	7	579	214	9
Future Vol, veh/h	0	3	7	579	214	9
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	3	8	629	233	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	893	248	248	0	-	0
Stage 1	243	-	-	-	-	-
Stage 2	650	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	312	791	1318	-	-	-
Stage 1	797	-	-	-	-	-
Stage 2	520	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	307	784	1313	-	-	-
Mov Cap-2 Maneuver	307	-	-	-	-	-
Stage 1	787	-	-	-	-	-
Stage 2	518	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1313	-	784	-	-
HCM Lane V/C Ratio	0.006	-	0.004	-	-
HCM Control Delay (s)	7.8	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

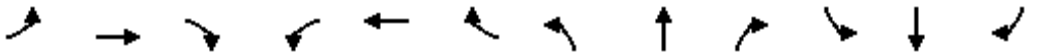
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↱			↰	
Traffic Vol, veh/h	0	0	0	9	0	1	0	585	12	3	213	0
Future Vol, veh/h	0	0	0	9	0	1	0	585	12	3	213	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	10	0	1	0	636	13	3	232	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	881	887	232	881	881	643	-	0	0	649	0	0
Stage 1	238	238	-	643	643	-	-	-	-	-	-	-
Stage 2	643	649	-	238	238	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	267	283	807	267	285	473	0	-	-	937	-	0
Stage 1	765	708	-	462	468	-	0	-	-	-	-	0
Stage 2	462	466	-	765	708	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	266	282	807	266	284	473	-	-	-	937	-	-
Mov Cap-2 Maneuver	266	282	-	266	284	-	-	-	-	-	-	-
Stage 1	765	705	-	462	468	-	-	-	-	-	-	-
Stage 2	461	466	-	762	705	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	18.5	0	0.1
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	278	937	-
HCM Lane V/C Ratio	-	-	-	0.039	0.003	-
HCM Control Delay (s)	-	-	0	18.5	8.9	0
HCM Lane LOS	-	-	A	C	A	A
HCM 95th %tile Q(veh)	-	-	-	0.1	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	285	7	116	75	9	25	678	213	6	404	51
Future Volume (veh/h)	170	285	7	116	75	9	25	678	213	6	404	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	185	310	8	126	82	10	27	737	232	7	439	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	385	523	13	210	470	57	35	2107	914	12	2062	894
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.02	0.59	0.59	0.01	0.58	0.58
Sat Flow, veh/h	1300	1814	47	1062	1631	199	1781	3554	1542	1781	3554	1542
Grp Volume(v), veh/h	185	0	318	126	0	92	27	737	232	7	439	55
Grp Sat Flow(s),veh/h/ln	1300	0	1861	1062	0	1830	1781	1777	1542	1781	1777	1542
Q Serve(g_s), s	15.0	0.0	17.7	13.9	0.0	4.5	1.8	12.8	8.7	0.5	7.1	1.9
Cycle Q Clear(g_c), s	19.5	0.0	17.7	31.6	0.0	4.5	1.8	12.8	8.7	0.5	7.1	1.9
Prop In Lane	1.00		0.03	1.00		0.11	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	385	0	536	210	0	527	35	2107	914	12	2062	894
V/C Ratio(X)	0.48	0.00	0.59	0.60	0.00	0.17	0.77	0.35	0.25	0.57	0.21	0.06
Avail Cap(c_a), veh/h	782	0	1103	533	0	1085	170	2107	914	126	2062	894
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.5	0.0	36.8	50.4	0.0	32.2	58.8	12.6	11.8	59.7	12.1	11.0
Incr Delay (d2), s/veh	0.9	0.0	1.1	2.7	0.0	0.2	28.7	0.5	0.7	34.9	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	8.2	3.9	0.0	2.1	1.1	5.1	3.1	0.3	2.9	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.4	0.0	37.9	53.2	0.0	32.3	87.5	13.1	12.4	94.6	12.4	11.2
LnGrp LOS	D	A	D	D	A	C	F	B	B	F	B	B
Approach Vol, veh/h		503			218			996			501	
Approach Delay, s/veh		38.8			44.4			14.9			13.4	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.3	76.0		39.3	6.9	74.5		39.3				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	8.5	71.5		71.5	11.5	68.5		71.5				
Max Q Clear Time (g_c+I1), s	2.5	14.8		21.5	3.8	9.1		33.6				
Green Ext Time (p_c), s	0.0	7.3		2.7	0.0	3.5		1.1				

Intersection Summary			
HCM 6th Ctrl Delay		22.9	
HCM 6th LOS		C	

Appendix K

Near Term plus Project LOS Worksheets

Intersection	
Intersection Delay, s/veh	10.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	34	49	160	20	4	12	77	93	11	248	3
Future Vol, veh/h	4	34	49	160	20	4	12	77	93	11	248	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	37	53	174	22	4	13	84	101	12	270	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9	10.9	9.7	11.4
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	5%	87%	4%
Vol Thru, %	42%	39%	11%	95%
Vol Right, %	51%	56%	2%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	182	87	184	262
LT Vol	12	4	160	11
Through Vol	77	34	20	248
RT Vol	93	49	4	3
Lane Flow Rate	198	95	200	285
Geometry Grp	1	1	1	1
Degree of Util (X)	0.269	0.136	0.304	0.399
Departure Headway (Hd)	4.888	5.172	5.468	5.049
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	738	692	658	718
Service Time	2.896	3.209	3.499	3.056
HCM Lane V/C Ratio	0.268	0.137	0.304	0.397
HCM Control Delay	9.7	9	10.9	11.4
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	1.1	0.5	1.3	1.9

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	25	9	171	453	5
Future Vol, veh/h	10	25	9	171	453	5
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	27	10	186	492	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	711	505	502	0	-	0
Stage 1	500	-	-	-	-	-
Stage 2	211	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	400	567	1062	-	-	-
Stage 1	609	-	-	-	-	-
Stage 2	824	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	392	562	1058	-	-	-
Mov Cap-2 Maneuver	392	-	-	-	-	-
Stage 1	600	-	-	-	-	-
Stage 2	821	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.8	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1058	-	500	-	-
HCM Lane V/C Ratio	0.009	-	0.076	-	-
HCM Control Delay (s)	8.4	0	12.8	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

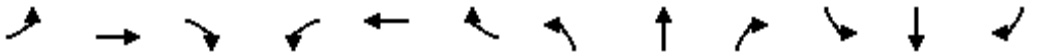
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	0	22	6	0	1	0	175	5	2	476	0
Future Vol, veh/h	4	0	22	6	0	1	0	175	5	2	476	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	0	24	7	0	1	0	190	5	2	517	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	714	716	517	726	714	193	-	0	0	195	0	0
Stage 1	521	521	-	193	193	-	-	-	-	-	-	-
Stage 2	193	195	-	533	521	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	346	356	558	340	357	849	0	-	-	1378	-	0
Stage 1	539	532	-	809	741	-	0	-	-	-	-	0
Stage 2	809	739	-	531	532	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	345	355	558	325	356	849	-	-	-	1378	-	-
Mov Cap-2 Maneuver	345	355	-	325	356	-	-	-	-	-	-	-
Stage 1	539	531	-	809	741	-	-	-	-	-	-	-
Stage 2	808	739	-	507	531	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.5	15.3	0	0
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	510	356	1378	-
HCM Lane V/C Ratio	-	-	0.055	0.021	0.002	-
HCM Control Delay (s)	-	-	12.5	15.3	7.6	0
HCM Lane LOS	-	-	B	C	A	A
HCM 95th %tile Q(veh)	-	-	0.2	0.1	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	221	8	415	217	13	21	268	106	9	1075	93
Future Volume (veh/h)	58	221	8	415	217	13	21	268	106	9	1075	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	63	240	9	451	236	14	23	291	115	10	1168	101
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	533	899	34	534	877	52	31	1378	596	17	1350	583
Arrive On Green	0.50	0.50	0.50	0.50	0.50	0.50	0.02	0.39	0.39	0.01	0.38	0.38
Sat Flow, veh/h	1129	1790	67	1130	1746	104	1781	3554	1536	1781	3554	1535
Grp Volume(v), veh/h	63	0	249	451	0	250	23	291	115	10	1168	101
Grp Sat Flow(s),veh/h/ln	1129	0	1857	1130	0	1850	1781	1777	1536	1781	1777	1535
Q Serve(g_s), s	4.6	0.0	10.3	51.2	0.0	10.4	1.7	7.3	6.6	0.8	40.7	5.9
Cycle Q Clear(g_c), s	15.0	0.0	10.3	61.6	0.0	10.4	1.7	7.3	6.6	0.8	40.7	5.9
Prop In Lane	1.00		0.04	1.00		0.06	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	533	0	933	534	0	929	31	1378	596	17	1350	583
V/C Ratio(X)	0.12	0.00	0.27	0.84	0.00	0.27	0.75	0.21	0.19	0.61	0.86	0.17
Avail Cap(c_a), veh/h	773	0	1328	775	0	1323	60	1378	596	53	1350	583
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	23.5	0.0	19.2	36.9	0.0	19.2	65.7	27.4	27.2	66.2	38.4	27.6
Incr Delay (d2), s/veh	0.1	0.0	0.2	5.8	0.0	0.2	30.4	0.3	0.7	30.8	7.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	4.5	14.8	0.0	4.6	1.0	3.2	2.6	0.5	19.0	2.3
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	23.6	0.0	19.4	42.7	0.0	19.4	96.1	27.7	27.9	97.0	46.0	28.3
LnGrp LOS	C	A	B	D	A	B	F	C	C	F	D	C
Approach Vol, veh/h		312			701			429			1279	
Approach Delay, s/veh		20.2			34.4			31.4			45.0	
Approach LOS		C			C			C			D	
Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	56.6		71.9	6.8	55.5		71.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	4.0	51.5		96.0	4.5	51.0		96.0				
Max Q Clear Time (g_c+I1), s	2.8	9.3		17.0	3.7	42.7		63.6				
Green Ext Time (p_c), s	0.0	2.5		1.9	0.0	5.1		3.8				
Intersection Summary												
HCM 6th Ctrl Delay			37.3									
HCM 6th LOS			D									

Intersection	
Intersection Delay, s/veh	19.5
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	38	47	83	24	5	62	304	220	5	110	4
Future Vol, veh/h	4	38	47	83	24	5	62	304	220	5	110	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	41	51	90	26	5	67	330	239	5	120	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.8	10.7	24.6	9.7
HCM LOS	A	B	C	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	4%	74%	4%
Vol Thru, %	52%	43%	21%	92%
Vol Right, %	38%	53%	4%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	586	89	112	119
LT Vol	62	4	83	5
Through Vol	304	38	24	110
RT Vol	220	47	5	4
Lane Flow Rate	637	97	122	129
Geometry Grp	1	1	1	1
Degree of Util (X)	0.816	0.154	0.206	0.194
Departure Headway (Hd)	4.61	5.734	6.1	5.399
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	790	624	587	664
Service Time	2.61	3.785	4.148	3.439
HCM Lane V/C Ratio	0.806	0.155	0.208	0.194
HCM Control Delay	24.6	9.8	10.7	9.7
HCM Lane LOS	C	A	B	A
HCM 95th-tile Q	8.9	0.5	0.8	0.7

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	10	48	581	214	25
Future Vol, veh/h	4	10	48	581	214	25
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	11	52	632	233	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	993	257	265	0	-	0
Stage 1	252	-	-	-	-	-
Stage 2	741	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	272	782	1299	-	-	-
Stage 1	790	-	-	-	-	-
Stage 2	471	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	253	775	1294	-	-	-
Mov Cap-2 Maneuver	253	-	-	-	-	-
Stage 1	738	-	-	-	-	-
Stage 2	469	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.6	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1294	-	488	-	-
HCM Lane V/C Ratio	0.04	-	0.031	-	-
HCM Control Delay (s)	7.9	0	12.6	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

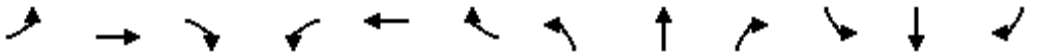
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↱			↰	
Traffic Vol, veh/h	2	0	11	9	0	1	0	626	12	3	220	0
Future Vol, veh/h	2	0	11	9	0	1	0	626	12	3	220	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	12	10	0	1	0	680	13	3	239	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	932	938	239	938	932	687	-	0	0	693	0	0
Stage 1	245	245	-	687	687	-	-	-	-	-	-	-
Stage 2	687	693	-	251	245	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	247	264	800	244	266	447	0	-	-	902	-	0
Stage 1	759	703	-	437	447	-	0	-	-	-	-	0
Stage 2	437	445	-	753	703	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	246	263	800	240	265	447	-	-	-	902	-	-
Mov Cap-2 Maneuver	246	263	-	240	265	-	-	-	-	-	-	-
Stage 1	759	700	-	437	447	-	-	-	-	-	-	-
Stage 2	436	445	-	739	700	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.2	19.9	0	0.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	594	252	902	-
HCM Lane V/C Ratio	-	-	0.024	0.043	0.004	-
HCM Control Delay (s)	-	-	11.2	19.9	9	0
HCM Lane LOS	-	-	B	C	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	291	7	129	78	11	25	678	244	10	404	51
Future Volume (veh/h)	170	291	7	129	78	11	25	678	244	10	404	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	185	316	8	140	85	12	27	737	265	11	439	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	399	549	14	222	483	68	35	2055	892	18	2022	877
Arrive On Green	0.30	0.30	0.30	0.30	0.30	0.30	0.02	0.58	0.58	0.01	0.57	0.57
Sat Flow, veh/h	1295	1815	46	1056	1598	226	1781	3554	1542	1781	3554	1541
Grp Volume(v), veh/h	185	0	324	140	0	97	27	737	265	11	439	55
Grp Sat Flow(s),veh/h/ln	1295	0	1861	1056	0	1824	1781	1777	1542	1781	1777	1541
Q Serve(g_s), s	15.2	0.0	18.2	16.0	0.0	4.8	1.9	13.6	10.8	0.8	7.5	2.0
Cycle Q Clear(g_c), s	20.0	0.0	18.2	34.2	0.0	4.8	1.9	13.6	10.8	0.8	7.5	2.0
Prop In Lane	1.00		0.02	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	399	0	562	222	0	551	35	2055	892	18	2022	877
V/C Ratio(X)	0.46	0.00	0.58	0.63	0.00	0.18	0.78	0.36	0.30	0.61	0.22	0.06
Avail Cap(c_a), veh/h	756	0	1076	514	0	1055	166	2055	892	122	2022	877
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	39.2	0.0	36.4	50.9	0.0	31.8	60.3	13.9	13.3	60.9	13.1	11.9
Incr Delay (d2), s/veh	0.8	0.0	0.9	2.9	0.0	0.2	29.7	0.5	0.9	28.5	0.2	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.9	0.0	8.4	4.4	0.0	2.2	1.1	5.5	3.9	0.5	3.1	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	40.0	0.0	37.4	53.8	0.0	31.9	90.1	14.4	14.1	89.4	13.3	12.0
LnGrp LOS	D	A	D	D	A	C	F	B	B	F	B	B
Approach Vol, veh/h		509			237			1029			505	
Approach Delay, s/veh		38.3			44.9			16.3			14.9	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	76.0		41.9	6.9	74.8		41.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	8.5	71.5		71.5	11.5	68.5		71.5				
Max Q Clear Time (g_c+I1), s	2.8	15.6		22.0	3.9	9.5		36.2				
Green Ext Time (p_c), s	0.0	7.5		2.8	0.0	3.5		1.2				

Intersection Summary			
HCM 6th Ctrl Delay		23.9	
HCM 6th LOS		C	

Appendix L

Long Term Year 2035 Volumes and Growth Factor Worksheets

Volume selection or adjustments to Year 2035 conditions

Segment volumes trends were compared between 2018 and horizon year volumes:

	Year 2018		Percent Change	Year 2035 City GP	Applied ADT
Iris Lane		**Year 2050**			
Village Rd to Robin Hill Ln	No Data	5,900	NA	8,400	**9,200 (a)**
Robin Hill Ln to Centre City Pkwy	8,996	9,200	2.2%	8,400	**9,200 (a)**

Source: (a) SANDAG Series 14 year 2050 volume.

Screen shots of the SANDAG Series 14 volumes by year are included on the next several pages.

City of Escondido

GENERAL PLAN

MAY 2012

Resolution 2012-52





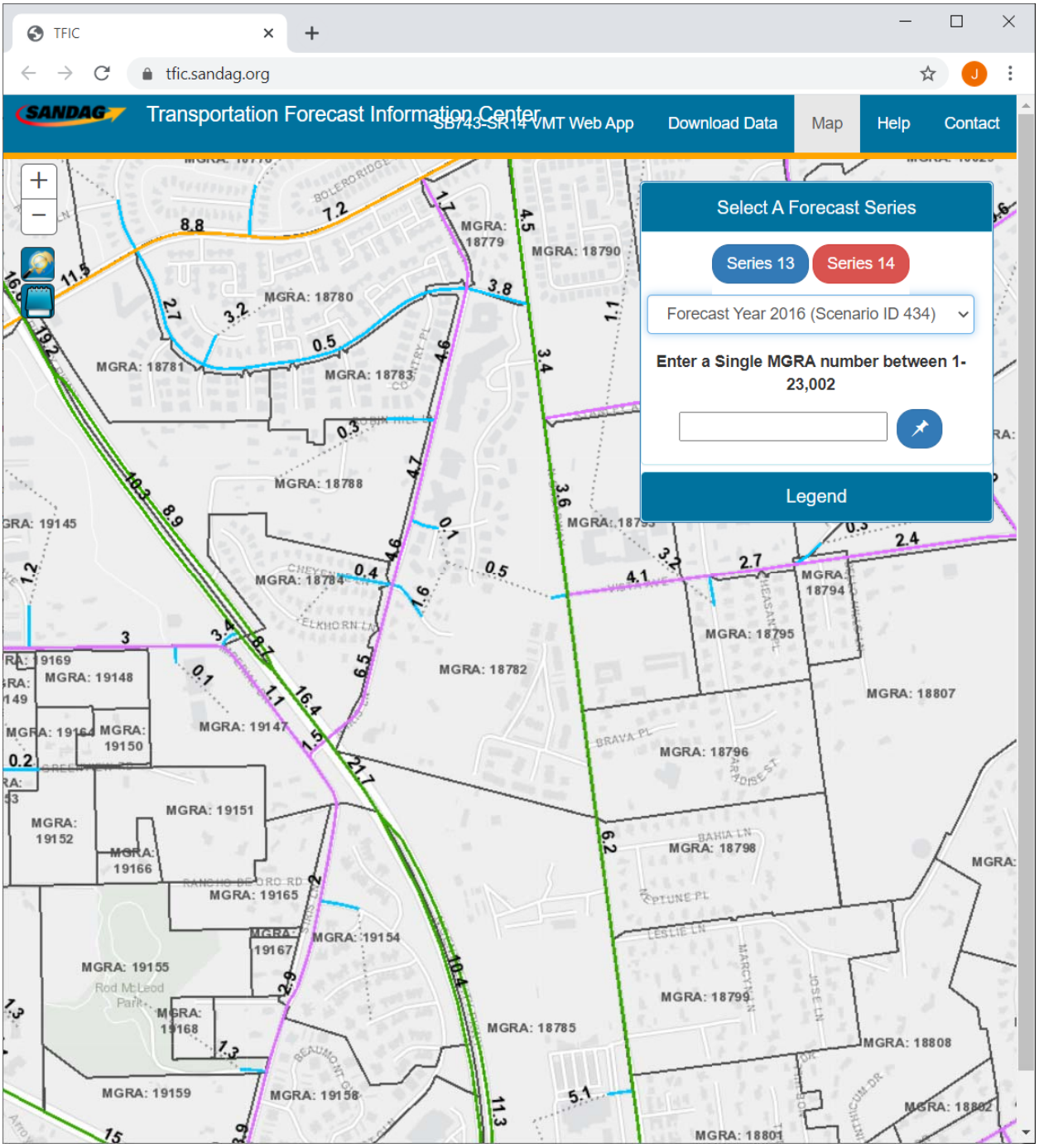




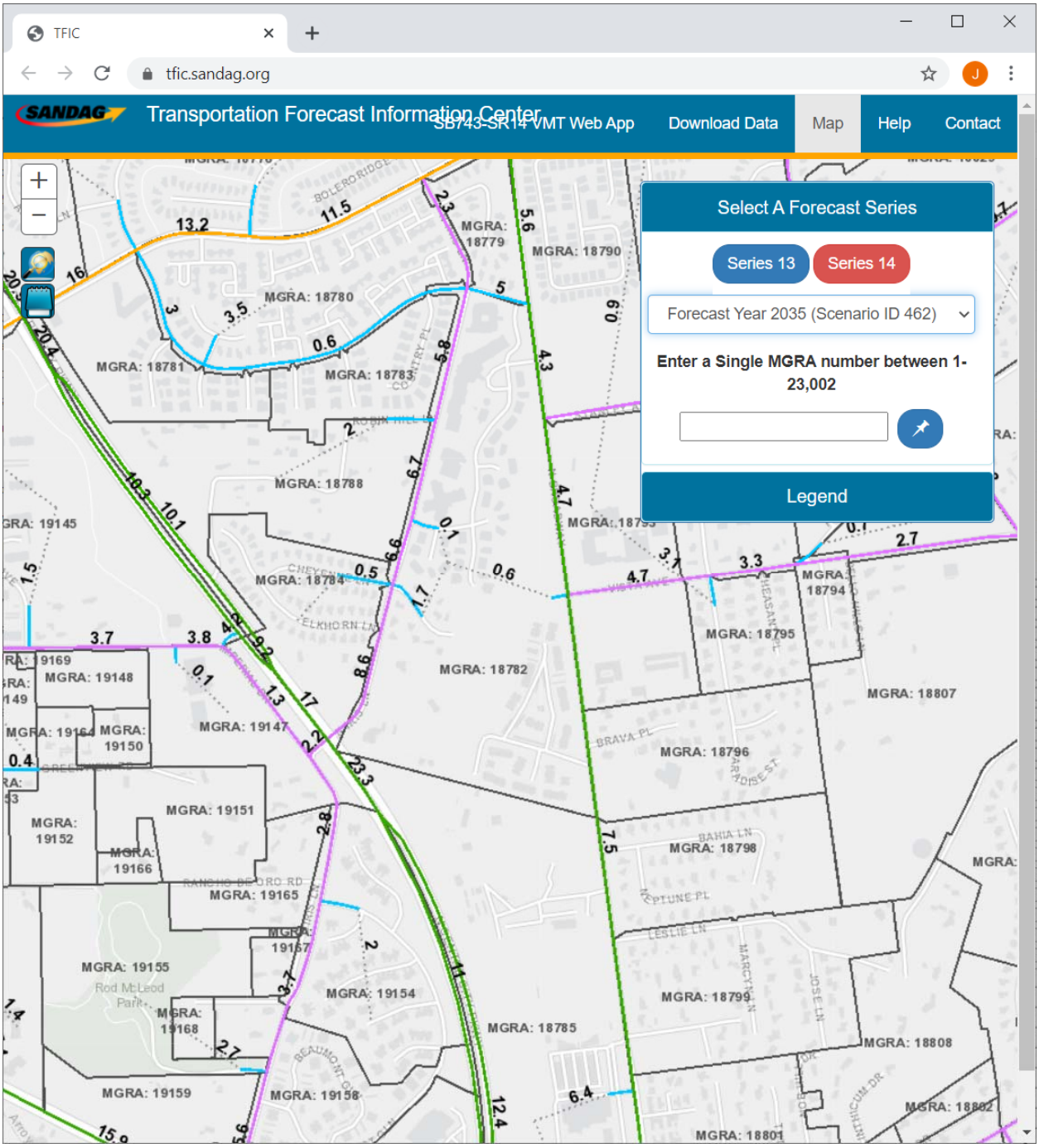
Table 4.16-2 continued

Street Segment	Roadway Direction	Existing Capacity[1] (LOS E)	Existing Conditions (Year 2011) ADT[2]	LOS[3]	V/C[4]	Adopted City General Plan Classification (County Classification)[5]	Adopted ~~CE~~MIE Capacity (LOS E)	Proposed Classification	Proposed ~~CE~~MIE Capacity (LOS E)	Proposed Project (Year 2035) ADT[2]	LOS[3]	V/C[4]
Escondido Boulevard												
El Norte Parkway to Lincoln Avenue	North/South	19,000	9,700	C	0.65	4-Ln Collector	34,200	4-Ln Collector	34,200	25,900	D	0.76
Fig Street												
El Norte Parkway to Lincoln Avenue	North/South	15,000	3,800	A	0.25	4-Ln Collector	34,200	4-Ln Collector	34,200	6,000	A	0.18
Jesmond Dene Road												
Centre City Parkway to Ivy Dell Lane[11]	North/South	15,000	2,100	A	0.14	2-Ln Local Collector	15,000	2-Ln Local Collector	15,000	10,900	C	0.73
Ivy Dell Lane to Broadway[12]	North/South	15,000	2,900	A	0.19	4-Ln Collector	34,200	2-Ln Local Collector	15,000	8,400	C	0.56
Midway Drive												
El Norte Parkway to Lincoln Avenue	North/South	10,000	4,600	B	0.46	4-Ln Collector	34,200	4-Ln Collector	34,200	8,200	A	0.24
Morning View Road												
El Norte Parkway to Lincoln Avenue	North/South	15,000	8,200	B	0.55	2-Ln Local Collector	15,000	2-Ln Local Collector	15,000	9,200	C	0.61
North Iris Lane												
Country Club Road to Centre City Parkway	North/South	15,000	5,300	B	0.35	2-Ln Local Collector	15,000	2-Ln Local Collector	15,000	8,400	C	0.56
Rose Street												
El Norte Parkway to Lincoln Avenue	North/South	10,000	3,100	A	0.31	2-Ln Local Collector	15,000	2-Ln Local Collector	15,000	3,900	A	0.26
Seven Oaks Road												
El Norte Parkway to Borden Road	North/South	15,000	3,400	A	0.23	2-Ln Local Collector	15,000	2-Ln Local Collector	15,000	5,200	A	0.35
Borden Road to Rock Springs Road	North/South	15,000	2,100	A	0.14	2-Ln Local Collector	15,000	2-Ln Local Collector	15,000	2,700	A	0.18
Valley Center Road												
El Norte Parkway to Lake Wohlford Road	North/South	43,500	29,700	C	0.68	8-Ln Prime	70,000	8-Ln Prime	70,000	55,400	D	0.79
North of Lake Wohlford Road	North/South	37,000	21,300	C	0.58	8-Ln Prime (4-Ln Major Road)	70,000	8-Ln Prime	70,000	42,800	C	0.61
Vista Verde Way												
Vista Avenue to El Norte Parkway	North/South	10,000	2,400	A	0.24	2-Ln Local Collector	15,000	2-Ln Local Collector	15,000	10,900	C	0.73
Country Club Lane												
Centre City Parkway to Iris Lane	East/West	34,200	5,200	A	0.15	4-Ln Collector	34,200	4-Ln Collector	34,200	16,900	B	0.49
Iris Lane to Broadway	East/West	34,200	11,500	A	0.34	4-Ln Collector	34,200	4-Ln Collector	34,200	19,500	C	0.57
Broadway to Ash Street	East/West	34,200	6,700	A	0.20	4-Ln Collector	34,200	4-Ln Collector	34,200	12,900	B	0.38

SANDAG Series 14 Year 2016



SANDAG Series 14 Year 2035



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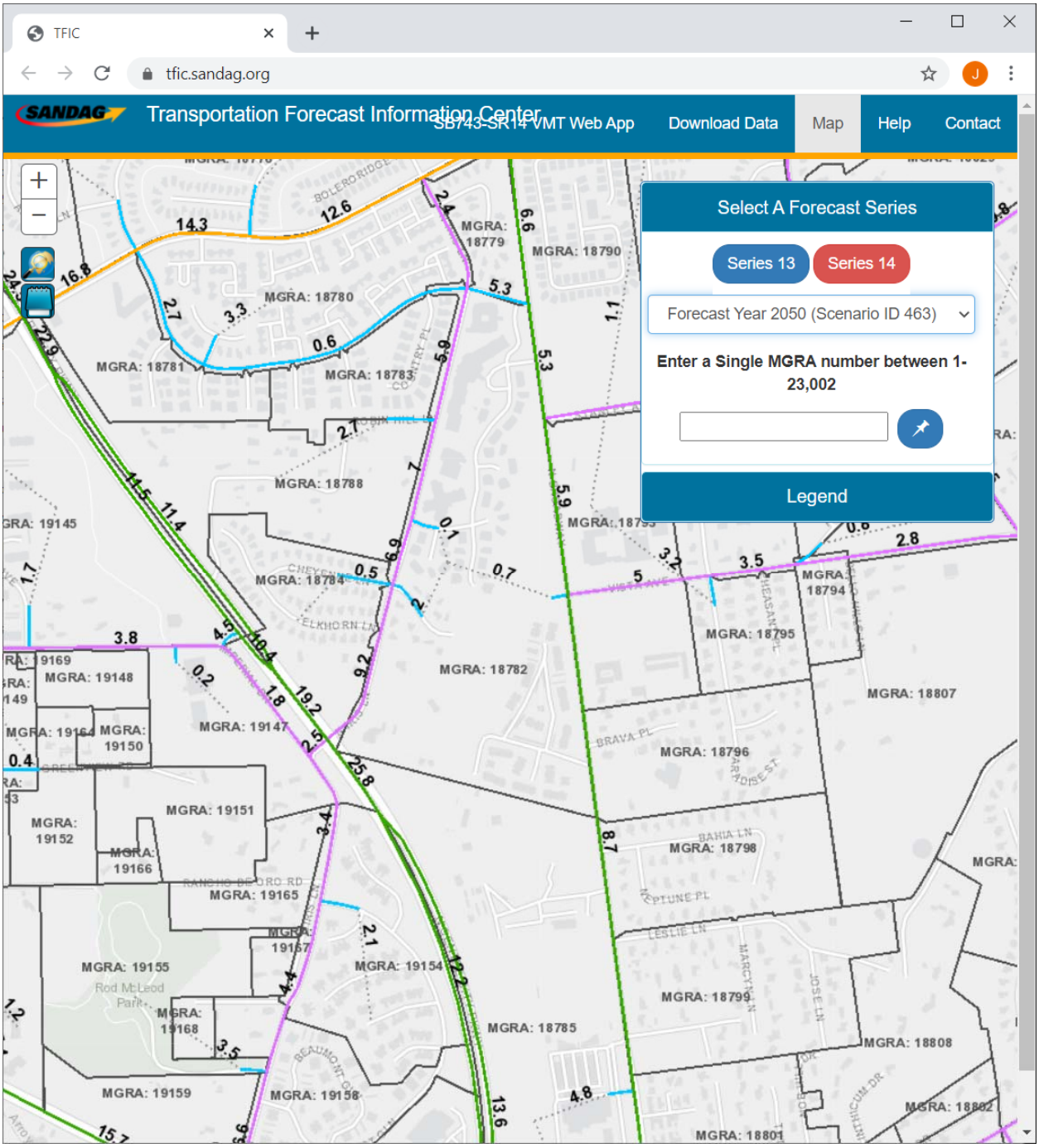


Appendix M

Long Term Year 2035 LOS Worksheets

Intersection	
Intersection Delay, s/veh	10.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	35	50	160	20	4	12	74	86	11	251	3
Future Vol, veh/h	4	35	50	160	20	4	12	74	86	11	251	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	38	54	174	22	4	13	80	93	12	273	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9	10.9	9.6	11.4
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	4%	87%	4%
Vol Thru, %	43%	39%	11%	95%
Vol Right, %	50%	56%	2%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	172	89	184	265
LT Vol	12	4	160	11
Through Vol	74	35	20	251
RT Vol	86	50	4	3
Lane Flow Rate	187	97	200	288
Geometry Grp	1	1	1	1
Degree of Util (X)	0.255	0.139	0.303	0.403
Departure Headway (Hd)	4.903	5.155	5.455	5.039
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	737	696	660	717
Service Time	2.912	3.189	3.485	3.045
HCM Lane V/C Ratio	0.254	0.139	0.303	0.402
HCM Control Delay	9.6	9	10.9	11.4
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	1	0.5	1.3	2

Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	9	0	171	462	1
Future Vol, veh/h	0	9	0	171	462	1
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	10	0	186	502	1

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	699	513	508	0	-	0
Stage 1	508	-	-	-	-	-
Stage 2	191	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	406	561	1057	-	-	-
Stage 1	604	-	-	-	-	-
Stage 2	841	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	403	556	1053	-	-	-
Mov Cap-2 Maneuver	403	-	-	-	-	-
Stage 1	602	-	-	-	-	-
Stage 2	838	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	11.6	0	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1053	-	556	-	-
HCM Lane V/C Ratio	-	-	0.018	-	-
HCM Control Delay (s)	0	-	11.6	-	-
HCM Lane LOS	A	-	B	-	-
HCM 95th %tile Q(veh)	0	-	0.1	-	-

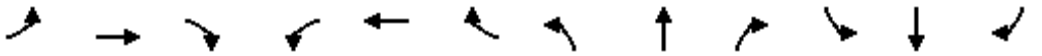
Intersection	
Int Delay, s/veh	0.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	0	0	0	6	0	1	0	170	5	2	469	0
Future Vol, veh/h	0	0	0	6	0	1	0	170	5	2	469	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	7	0	1	0	185	5	2	510	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	702	704	510	702	702	188	510	0	0	190	0	0
Stage 1	514	514	-	188	188	-	-	-	-	-	-	-
Stage 2	188	190	-	514	514	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	353	361	563	353	362	854	1055	-	-	1384	-	-
Stage 1	543	535	-	814	745	-	-	-	-	-	-	-
Stage 2	814	743	-	543	535	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	352	360	563	352	361	854	1055	-	-	1384	-	-
Mov Cap-2 Maneuver	352	360	-	352	361	-	-	-	-	-	-	-
Stage 1	543	534	-	814	745	-	-	-	-	-	-	-
Stage 2	813	743	-	542	534	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	14.6	0	0
HCM LOS	A	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1055	-	-	-	384	1384	-	-
HCM Lane V/C Ratio	-	-	-	-	0.02	0.002	-	-
HCM Control Delay (s)	0	-	-	0	14.6	7.6	0	-
HCM Lane LOS	A	-	-	A	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	-	0.1	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	225	8	394	216	9	15	312	101	8	1297	95
Future Volume (veh/h)	59	225	8	394	216	9	15	312	101	8	1297	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	64	245	9	428	235	10	16	339	110	9	1410	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	498	841	31	490	836	36	24	1478	639	15	1461	632
Arrive On Green	0.47	0.47	0.47	0.47	0.47	0.47	0.01	0.42	0.42	0.01	0.41	0.41
Sat Flow, veh/h	1134	1791	66	1125	1779	76	1781	3554	1537	1781	3554	1537
Grp Volume(v), veh/h	64	0	254	428	0	245	16	339	110	9	1410	103
Grp Sat Flow(s),veh/h/ln	1134	0	1857	1125	0	1855	1781	1777	1537	1781	1777	1537
Q Serve(g_s), s	4.7	0.0	10.7	48.2	0.0	10.3	1.1	7.9	5.8	0.6	49.5	5.4
Cycle Q Clear(g_c), s	15.0	0.0	10.7	58.9	0.0	10.3	1.1	7.9	5.8	0.6	49.5	5.4
Prop In Lane	1.00		0.04	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	498	0	872	490	0	871	24	1478	639	15	1461	632
V/C Ratio(X)	0.13	0.00	0.29	0.87	0.00	0.28	0.66	0.23	0.17	0.59	0.97	0.16
Avail Cap(c_a), veh/h	498	0	872	490	0	871	56	1478	639	56	1461	632
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	25.3	0.0	20.8	38.9	0.0	20.7	62.7	24.1	23.5	63.1	36.7	23.7
Incr Delay (d2), s/veh	0.1	0.0	0.2	15.8	0.0	0.2	26.8	0.4	0.6	31.4	16.6	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	4.7	15.2	0.0	4.5	0.7	3.4	2.2	0.4	24.4	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	25.4	0.0	21.0	54.7	0.0	20.9	89.5	24.4	24.0	94.5	53.3	24.3
LnGrp LOS	C	A	C	D	A	C	F	C	C	F	D	C
Approach Vol, veh/h		318			673			465			1522	
Approach Delay, s/veh		21.9			42.4			26.6			51.6	
Approach LOS		C			D			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.6	57.6		64.5	6.2	57.0		64.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	4.0	52.5		60.0	4.0	52.5		60.0				
Max Q Clear Time (g_c+I1), s	2.6	9.9		17.0	3.1	51.5		60.9				
Green Ext Time (p_c), s	0.0	2.8		1.9	0.0	0.8		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			42.5									
HCM 6th LOS			D									

Intersection	
Intersection Delay, s/veh	18.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	39	47	75	25	5	63	308	221	5	106	4
Future Vol, veh/h	4	39	47	75	25	5	63	308	221	5	106	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	42	51	82	27	5	68	335	240	5	115	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.8	10.6	23.3	9.6
HCM LOS	A	B	C	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	4%	71%	4%
Vol Thru, %	52%	43%	24%	92%
Vol Right, %	37%	52%	5%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	592	90	105	115
LT Vol	63	4	75	5
Through Vol	308	39	25	106
RT Vol	221	47	5	4
Lane Flow Rate	643	98	114	125
Geometry Grp	1	1	1	1
Degree of Util (X)	0.802	0.155	0.193	0.187
Departure Headway (Hd)	4.487	5.719	6.092	5.378
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	798	630	591	669
Service Time	2.581	3.731	4.104	3.396
HCM Lane V/C Ratio	0.806	0.156	0.193	0.187
HCM Control Delay	23.3	9.8	10.6	9.6
HCM Lane LOS	C	A	B	A
HCM 95th-tile Q	8.5	0.5	0.7	0.7

Intersection	
Int Delay, s/veh	0.1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	0	3	7	591	218	9
Future Vol, veh/h	0	3	7	591	218	9
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	0	3	8	642	237	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	910	252	252	0	-	0
Stage 1	247	-	-	-	-	-
Stage 2	663	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	305	787	1313	-	-	-
Stage 1	794	-	-	-	-	-
Stage 2	512	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	300	780	1308	-	-	-
Mov Cap-2 Maneuver	300	-	-	-	-	-
Stage 1	783	-	-	-	-	-
Stage 2	510	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	9.6	0.1	0
HCM LOS	A		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1308	-	780	-	-
HCM Lane V/C Ratio	0.006	-	0.004	-	-
HCM Control Delay (s)	7.8	0	9.6	-	-
HCM Lane LOS	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	0	-	-

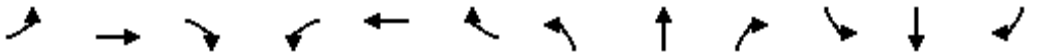
Intersection	
Int Delay, s/veh	0.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↱			↕	
Traffic Vol, veh/h	0	0	0	9	0	1	0	597	12	3	217	0
Future Vol, veh/h	0	0	0	9	0	1	0	597	12	3	217	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	0	10	0	1	0	649	13	3	236	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	898	904	236	898	898	656	-	0	0	662	0	0
Stage 1	242	242	-	656	656	-	-	-	-	-	-	-
Stage 2	656	662	-	242	242	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	260	277	803	260	279	465	0	-	-	927	-	0
Stage 1	762	705	-	454	462	-	0	-	-	-	-	0
Stage 2	454	459	-	762	705	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	259	276	803	259	278	465	-	-	-	927	-	-
Mov Cap-2 Maneuver	259	276	-	259	278	-	-	-	-	-	-	-
Stage 1	762	702	-	454	462	-	-	-	-	-	-	-
Stage 2	453	459	-	759	702	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	0	18.8	0	0.1
HCM LOS	A	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	-	271	927	-
HCM Lane V/C Ratio	-	-	-	0.04	0.004	-
HCM Control Delay (s)	-	-	0	18.8	8.9	0
HCM Lane LOS	-	-	A	C	A	A
HCM 95th %tile Q(veh)	-	-	-	0.1	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	291	7	118	77	9	13	771	217	6	475	52
Future Volume (veh/h)	174	291	7	118	77	9	13	771	217	6	475	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	189	316	8	128	84	10	14	838	236	7	516	57
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	384	529	13	205	477	57	22	2125	922	12	2106	914
Arrive On Green	0.29	0.29	0.29	0.29	0.29	0.29	0.01	0.60	0.60	0.01	0.59	0.59
Sat Flow, veh/h	1298	1815	46	1056	1636	195	1781	3554	1542	1781	3554	1542
Grp Volume(v), veh/h	189	0	324	128	0	94	14	838	236	7	516	57
Grp Sat Flow(s),veh/h/ln	1298	0	1861	1056	0	1830	1781	1777	1542	1781	1777	1542
Q Serve(g_s), s	16.6	0.0	19.5	15.4	0.0	5.0	1.0	16.2	9.5	0.5	9.0	2.0
Cycle Q Clear(g_c), s	21.6	0.0	19.5	34.9	0.0	5.0	1.0	16.2	9.5	0.5	9.0	2.0
Prop In Lane	1.00		0.02	1.00		0.11	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	384	0	543	205	0	534	22	2125	922	12	2106	914
V/C Ratio(X)	0.49	0.00	0.60	0.62	0.00	0.18	0.64	0.39	0.26	0.57	0.24	0.06
Avail Cap(c_a), veh/h	677	0	963	444	0	947	130	2125	922	89	2106	914
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.6	0.0	39.6	54.6	0.0	34.5	64.1	13.8	12.4	64.6	12.7	11.2
Incr Delay (d2), s/veh	1.0	0.0	1.1	3.1	0.0	0.2	27.6	0.6	0.7	35.8	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.4	0.0	9.1	4.3	0.0	2.3	0.6	6.6	3.4	0.4	3.7	0.7
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.5	0.0	40.7	57.7	0.0	34.7	91.8	14.3	13.1	100.4	12.9	11.4
LnGrp LOS	D	A	D	E	A	C	F	B	B	F	B	B
Approach Vol, veh/h		513			222			1088			580	
Approach Delay, s/veh		41.7			47.9			15.1			13.8	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.4	82.5		42.5	6.1	81.8		42.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	78.0		67.5	9.5	75.0		67.5				
Max Q Clear Time (g_c+I1), s	2.5	18.2		23.6	3.0	11.0		36.9				
Green Ext Time (p_c), s	0.0	8.6		2.8	0.0	4.2		1.1				

Intersection Summary			
HCM 6th Ctrl Delay		23.5	
HCM 6th LOS		C	

Appendix N

Long Term Year 2035 plus Project LOS Worksheets

Intersection	
Intersection Delay, s/veh	10.6
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	35	50	163	20	4	12	79	95	11	252	3
Future Vol, veh/h	4	35	50	163	20	4	12	79	95	11	252	3
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	38	54	177	22	4	13	86	103	12	274	3
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.1	11	9.8	11.5
HCM LOS	A	B	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	4%	87%	4%
Vol Thru, %	42%	39%	11%	95%
Vol Right, %	51%	56%	2%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	186	89	187	266
LT Vol	12	4	163	11
Through Vol	79	35	20	252
RT Vol	95	50	4	3
Lane Flow Rate	202	97	203	289
Geometry Grp	1	1	1	1
Degree of Util (X)	0.276	0.14	0.311	0.408
Departure Headway (Hd)	4.919	5.21	5.501	5.078
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	734	687	654	711
Service Time	2.928	3.25	3.534	3.085
HCM Lane V/C Ratio	0.275	0.141	0.31	0.406
HCM Control Delay	9.8	9.1	11	11.5
HCM Lane LOS	A	A	B	B
HCM 95th-tile Q	1.1	0.5	1.3	2

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	25	9	175	462	5
Future Vol, veh/h	10	25	9	175	462	5
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	11	27	10	190	502	5

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	725	515	512	0	-	0
Stage 1	510	-	-	-	-	-
Stage 2	215	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	392	560	1053	-	-	-
Stage 1	603	-	-	-	-	-
Stage 2	821	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	385	555	1049	-	-	-
Mov Cap-2 Maneuver	385	-	-	-	-	-
Stage 1	594	-	-	-	-	-
Stage 2	818	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.9	0.4	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1049	-	493	-	-
HCM Lane V/C Ratio	0.009	-	0.077	-	-
HCM Control Delay (s)	8.5	0	12.9	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0	-	0.2	-	-

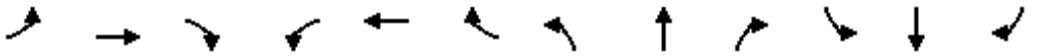
Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	4	0	22	6	0	1	0	179	5	2	485	0
Future Vol, veh/h	4	0	22	6	0	1	0	179	5	2	485	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	0	24	7	0	1	0	195	5	2	527	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	729	731	527	741	729	198	527	0	0	200	0	0
Stage 1	531	531	-	198	198	-	-	-	-	-	-	-
Stage 2	198	200	-	543	531	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	2.218	-	-	2.218	-	-
Pot Cap-1 Maneuver	338	349	551	332	350	843	1040	-	-	1372	-	-
Stage 1	532	526	-	804	737	-	-	-	-	-	-	-
Stage 2	804	736	-	524	526	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	337	348	551	317	349	843	1040	-	-	1372	-	-
Mov Cap-2 Maneuver	337	348	-	317	349	-	-	-	-	-	-	-
Stage 1	532	525	-	804	737	-	-	-	-	-	-	-
Stage 2	803	736	-	500	525	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.6	15.6	0	0
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1040	-	-	502	348	1372	-	-
HCM Lane V/C Ratio	-	-	-	0.056	0.022	0.002	-	-
HCM Control Delay (s)	0	-	-	12.6	15.6	7.6	0	-
HCM Lane LOS	A	-	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	226	8	422	222	13	15	312	108	9	1297	95
Future Volume (veh/h)	59	226	8	422	222	13	15	312	108	9	1297	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	64	246	9	459	241	14	16	339	117	10	1410	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	479	828	30	479	808	47	24	1503	650	17	1488	644
Arrive On Green	0.46	0.46	0.46	0.46	0.46	0.46	0.01	0.42	0.42	0.01	0.42	0.42
Sat Flow, veh/h	1124	1792	66	1124	1748	102	1781	3554	1537	1781	3554	1537
Grp Volume(v), veh/h	64	0	255	459	0	255	16	339	117	10	1410	103
Grp Sat Flow(s),veh/h/ln	1124	0	1857	1124	0	1850	1781	1777	1537	1781	1777	1537
Q Serve(g_s), s	4.8	0.0	10.9	48.1	0.0	11.0	1.1	7.8	6.1	0.7	48.8	5.3
Cycle Q Clear(g_c), s	15.8	0.0	10.9	59.0	0.0	11.0	1.1	7.8	6.1	0.7	48.8	5.3
Prop In Lane	1.00		0.04	1.00		0.05	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	479	0	858	479	0	854	24	1503	650	17	1488	644
V/C Ratio(X)	0.13	0.00	0.30	0.96	0.00	0.30	0.66	0.23	0.18	0.60	0.95	0.16
Avail Cap(c_a), veh/h	479	0	858	479	0	854	56	1503	650	56	1488	644
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	26.4	0.0	21.4	41.7	0.0	21.4	62.7	23.5	23.0	63.0	35.8	23.1
Incr Delay (d2), s/veh	0.1	0.0	0.2	30.5	0.0	0.2	26.8	0.3	0.6	30.0	13.8	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.3	0.0	4.8	19.0	0.0	4.8	0.7	3.4	2.3	0.5	23.6	2.1
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	26.5	0.0	21.6	72.2	0.0	21.6	89.5	23.8	23.6	93.1	49.5	23.7
LnGrp LOS	C	A	C	E	A	C	F	C	C	F	D	C
Approach Vol, veh/h		319			714			472			1523	
Approach Delay, s/veh		22.6			54.2			26.0			48.1	
Approach LOS		C			D			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.7	58.5		63.5	6.2	58.0		63.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	4.0	53.5		59.0	4.0	53.5		59.0				
Max Q Clear Time (g_c+I1), s	2.7	9.8		17.8	3.1	50.8		61.0				
Green Ext Time (p_c), s	0.0	2.9		1.9	0.0	2.1		0.0				

Intersection Summary												
HCM 6th Ctrl Delay			43.4									
HCM 6th LOS			D									

Intersection	
Intersection Delay, s/veh	20.8
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	4	39	48	85	25	5	63	310	225	5	111	4
Future Vol, veh/h	4	39	48	85	25	5	63	310	225	5	111	4
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	4	42	52	92	27	5	68	337	245	5	121	4
Number of Lanes	0	1	0	0	1	0	0	1	0	0	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	1	1	1	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	1	1	1	1
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	1	1	1
HCM Control Delay	9.9	10.9	26.6	9.8
HCM LOS	A	B	D	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	11%	4%	74%	4%
Vol Thru, %	52%	43%	22%	93%
Vol Right, %	38%	53%	4%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	598	91	115	120
LT Vol	63	4	85	5
Through Vol	310	39	25	111
RT Vol	225	48	5	4
Lane Flow Rate	650	99	125	130
Geometry Grp	1	1	1	1
Degree of Util (X)	0.837	0.159	0.214	0.197
Departure Headway (Hd)	4.638	5.788	6.151	5.448
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	787	617	583	657
Service Time	2.638	3.842	4.201	3.491
HCM Lane V/C Ratio	0.826	0.16	0.214	0.198
HCM Control Delay	26.6	9.9	10.9	9.8
HCM Lane LOS	D	A	B	A
HCM 95th-tile Q	9.6	0.6	0.8	0.7

Intersection	
Int Delay, s/veh	0.6

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	4	10	48	593	218	25
Future Vol, veh/h	4	10	48	593	218	25
Conflicting Peds, #/hr	5	5	5	0	0	5
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	4	11	52	645	237	27

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1010	261	269	0	-	0
Stage 1	256	-	-	-	-	-
Stage 2	754	-	-	-	-	-
Critical Hdwy	6.42	6.22	4.12	-	-	-
Critical Hdwy Stg 1	5.42	-	-	-	-	-
Critical Hdwy Stg 2	5.42	-	-	-	-	-
Follow-up Hdwy	3.518	3.318	2.218	-	-	-
Pot Cap-1 Maneuver	266	778	1295	-	-	-
Stage 1	787	-	-	-	-	-
Stage 2	465	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	247	772	1290	-	-	-
Mov Cap-2 Maneuver	247	-	-	-	-	-
Stage 1	734	-	-	-	-	-
Stage 2	463	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	12.7	0.6	0
HCM LOS	B		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1290	-	480	-	-
HCM Lane V/C Ratio	0.04	-	0.032	-	-
HCM Control Delay (s)	7.9	0	12.7	-	-
HCM Lane LOS	A	A	B	-	-
HCM 95th %tile Q(veh)	0.1	-	0.1	-	-

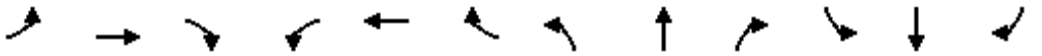
Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	2	0	11	9	0	1	0	638	12	3	224	0
Future Vol, veh/h	2	0	11	9	0	1	0	638	12	3	224	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	2	0	12	10	0	1	0	693	13	3	243	0

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	949	955	243	955	949	700	-	0	0	706	0	0
Stage 1	249	249	-	700	700	-	-	-	-	-	-	-
Stage 2	700	706	-	255	249	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.12	6.52	6.22	-	-	-	4.12	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.12	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.518	4.018	3.318	-	-	-	2.218	-	-
Pot Cap-1 Maneuver	240	258	796	238	260	439	0	-	-	892	-	0
Stage 1	755	701	-	430	441	-	0	-	-	-	-	0
Stage 2	430	439	-	749	701	-	0	-	-	-	-	0
Platoon blocked, %								-	-		-	
Mov Cap-1 Maneuver	239	257	796	234	259	439	-	-	-	892	-	-
Mov Cap-2 Maneuver	239	257	-	234	259	-	-	-	-	-	-	-
Stage 1	755	698	-	430	441	-	-	-	-	-	-	-
Stage 2	429	439	-	735	698	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.3	20.4	0	0.1
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBT	NBR	EBLn1	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	586	245	892	-
HCM Lane V/C Ratio	-	-	0.024	0.044	0.004	-
HCM Control Delay (s)	-	-	11.3	20.4	9.1	0
HCM Lane LOS	-	-	B	C	A	A
HCM 95th %tile Q(veh)	-	-	0.1	0.1	0	-



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	297	7	131	80	11	13	771	248	10	475	52
Future Volume (veh/h)	174	297	7	131	80	11	13	771	248	10	475	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	189	323	8	142	87	12	14	838	270	11	516	57
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	398	556	14	217	491	68	22	2072	899	18	2064	895
Arrive On Green	0.31	0.31	0.31	0.31	0.31	0.31	0.01	0.58	0.58	0.01	0.58	0.58
Sat Flow, veh/h	1293	1816	45	1049	1604	221	1781	3554	1542	1781	3554	1542
Grp Volume(v), veh/h	189	0	331	142	0	99	14	838	270	11	516	57
Grp Sat Flow(s),veh/h/ln	1293	0	1861	1049	0	1825	1781	1777	1542	1781	1777	1542
Q Serve(g_s), s	16.8	0.0	20.1	17.7	0.0	5.3	1.0	17.2	11.8	0.8	9.5	2.2
Cycle Q Clear(g_c), s	22.1	0.0	20.1	37.8	0.0	5.3	1.0	17.2	11.8	0.8	9.5	2.2
Prop In Lane	1.00		0.02	1.00		0.12	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	398	0	570	217	0	559	22	2072	899	18	2064	895
V/C Ratio(X)	0.47	0.00	0.58	0.65	0.00	0.18	0.65	0.40	0.30	0.62	0.25	0.06
Avail Cap(c_a), veh/h	654	0	939	426	0	921	126	2072	899	87	2064	895
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	42.2	0.0	39.2	55.1	0.0	34.1	65.8	15.2	14.1	66.0	13.7	12.2
Incr Delay (d2), s/veh	0.9	0.0	0.9	3.3	0.0	0.1	28.1	0.6	0.9	29.7	0.3	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.5	0.0	9.4	4.9	0.0	2.4	0.6	7.1	4.3	0.5	3.9	0.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	43.1	0.0	40.1	58.4	0.0	34.2	93.9	15.8	15.0	95.7	14.0	12.3
LnGrp LOS	D	A	D	E	A	C	F	B	B	F	B	B
Approach Vol, veh/h		520			241			1122			584	
Approach Delay, s/veh		41.2			48.5			16.6			15.4	
Approach LOS		D			D			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.8	82.5		45.5	6.1	82.2		45.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	6.5	78.0		67.5	9.5	75.0		67.5				
Max Q Clear Time (g_c+I1), s	2.8	19.2		24.1	3.0	11.5		39.8				
Green Ext Time (p_c), s	0.0	8.8		2.9	0.0	4.2		1.2				

Intersection Summary			
HCM 6th Ctrl Delay		24.6	
HCM 6th LOS		C	

Appendix O

Fair Share Calculations

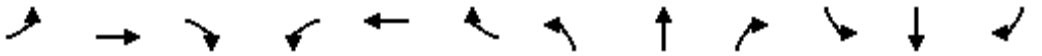
Intersection: Center City Pkwy/N. Iris	**Total Int. Vol**	
Project AM (Fig 8) =	47	
Existing AM (Fig 6) =	2365	
Fair Share (Project/Background) =	2.0%	
Fair share against $225,000	$4,471	
Project PM (Fig 8) =	59	
Existing PM (Fig 6) =	1917	
Fair Share (Project/Background) =	3.1%	
Fair share against $225,000	**$6,975**	**PM Controls**

N. Iris Lane Segment Widening (280 LF)	**Segment ADT**
Project ADT (Fig 8) =	588
Existing ADT (Fig 6) =	8996
Fair Share (Project/Background) =	6.5%
Fair share against $155,000	**$10,075**

TOTAL Intersection & Segment Fair Share	**$17,050**

Appendix P

Centre City Pkwy at Iris Ln LOS with Improvement Worksheets



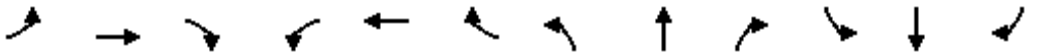
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	221	8	414	217	13	15	244	106	9	1014	93
Future Volume (veh/h)	58	221	8	414	217	13	15	244	106	9	1014	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	63	240	9	350	376	14	16	265	115	10	1102	101
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	287	288	11	417	419	16	26	1351	584	18	1334	576
Arrive On Green	0.16	0.16	0.16	0.23	0.23	0.23	0.01	0.38	0.38	0.01	0.38	0.38
Sat Flow, veh/h	1781	1789	67	1781	1790	67	1781	3554	1535	1781	3554	1535
Grp Volume(v), veh/h	63	0	249	350	0	390	16	265	115	10	1102	101
Grp Sat Flow(s),veh/h/ln	1781	0	1856	1781	0	1857	1781	1777	1535	1781	1777	1535
Q Serve(g_s), s	2.6	0.0	10.9	15.7	0.0	17.1	0.7	4.2	4.2	0.5	23.6	3.7
Cycle Q Clear(g_c), s	2.6	0.0	10.9	15.7	0.0	17.1	0.7	4.2	4.2	0.5	23.6	3.7
Prop In Lane	1.00		0.04	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	287	0	299	417	0	435	26	1351	584	18	1334	576
V/C Ratio(X)	0.22	0.00	0.83	0.84	0.00	0.90	0.61	0.20	0.20	0.57	0.83	0.18
Avail Cap(c_a), veh/h	340	0	354	435	0	454	85	1351	584	85	1334	576
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.6	0.0	34.1	30.6	0.0	31.1	41.1	17.4	17.4	41.4	23.7	17.5
Incr Delay (d2), s/veh	0.4	0.0	13.6	13.2	0.0	19.7	20.3	0.3	0.8	25.5	6.0	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	5.9	8.0	0.0	9.8	0.5	1.7	1.6	0.3	10.4	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.0	0.0	47.7	43.8	0.0	50.9	61.3	17.7	18.2	66.8	29.7	18.2
LnGrp LOS	C	A	D	D	A	D	E	B	B	E	C	B
Approach Vol, veh/h		312			740			396			1213	
Approach Delay, s/veh		44.3			47.5			19.6			29.0	
Approach LOS		D			D			B			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.3	36.4		18.0	5.7	36.0		24.2				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	4.0	31.5		16.0	4.0	31.5		20.5				
Max Q Clear Time (g_c+I1), s	2.5	6.2		12.9	2.7	25.6		19.1				
Green Ext Time (p_c), s	0.0	2.1		0.5	0.0	3.7		0.6				

Intersection Summary			
HCM 6th Ctrl Delay		34.6	
HCM 6th LOS		C	

Notes

User approved volume balancing among the lanes for turning movement.



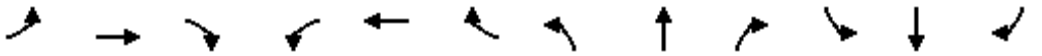
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	291	7	128	78	11	13	603	243	10	371	51
Future Volume (veh/h)	170	291	7	128	78	11	13	603	243	10	371	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	185	316	8	118	114	12	14	655	264	11	403	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	403	411	10	213	199	21	25	1080	465	20	1070	461
Arrive On Green	0.23	0.23	0.23	0.12	0.12	0.12	0.01	0.30	0.30	0.01	0.30	0.30
Sat Flow, veh/h	1781	1815	46	1781	1657	174	1781	3554	1531	1781	3554	1531
Grp Volume(v), veh/h	185	0	324	118	0	126	14	655	264	11	403	55
Grp Sat Flow(s),veh/h/ln	1781	0	1861	1781	0	1832	1781	1777	1531	1781	1777	1531
Q Serve(g_s), s	4.8	0.0	8.7	3.3	0.0	3.5	0.4	8.4	7.7	0.3	4.8	1.4
Cycle Q Clear(g_c), s	4.8	0.0	8.7	3.3	0.0	3.5	0.4	8.4	7.7	0.3	4.8	1.4
Prop In Lane	1.00		0.02	1.00		0.10	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	403	0	421	213	0	219	25	1080	465	20	1070	461
V/C Ratio(X)	0.46	0.00	0.77	0.55	0.00	0.57	0.56	0.61	0.57	0.55	0.38	0.12
Avail Cap(c_a), veh/h	536	0	560	536	0	552	134	1080	465	134	1070	461
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	17.7	0.0	19.3	22.0	0.0	22.1	26.0	15.8	15.6	26.1	14.6	13.5
Incr Delay (d2), s/veh	0.8	0.0	4.6	2.2	0.0	2.4	18.1	2.5	5.0	21.2	1.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	3.9	1.4	0.0	1.5	0.3	3.3	3.0	0.2	1.8	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.6	0.0	23.9	24.3	0.0	24.5	44.1	18.3	20.5	47.3	15.7	14.0
LnGrp LOS	B	A	C	C	A	C	D	B	C	D	B	B
Approach Vol, veh/h		509			244			933			469	
Approach Delay, s/veh		22.0			24.4			19.3			16.2	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	20.6		16.5	5.2	20.5		10.9				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	4.0	16.0		16.0	4.0	16.0		16.0				
Max Q Clear Time (g_c+I1), s	2.3	10.4		10.7	2.4	6.8		5.5				
Green Ext Time (p_c), s	0.0	2.6		1.2	0.0	1.9		0.7				

Intersection Summary			
HCM 6th Ctrl Delay		19.8	
HCM 6th LOS		B	

Notes

User approved volume balancing among the lanes for turning movement.



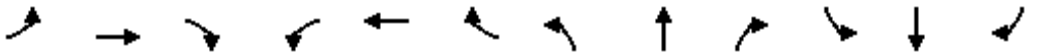
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	58	221	8	415	217	13	21	268	106	9	1075	93
Future Volume (veh/h)	58	221	8	415	217	13	21	268	106	9	1075	93
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	63	240	9	350	377	14	23	291	115	10	1168	101
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	286	288	11	417	419	16	35	1359	587	18	1324	572
Arrive On Green	0.16	0.16	0.16	0.23	0.23	0.23	0.02	0.38	0.38	0.01	0.37	0.37
Sat Flow, veh/h	1781	1789	67	1781	1790	66	1781	3554	1536	1781	3554	1535
Grp Volume(v), veh/h	63	0	249	350	0	391	23	291	115	10	1168	101
Grp Sat Flow(s),veh/h/ln	1781	0	1856	1781	0	1857	1781	1777	1536	1781	1777	1535
Q Serve(g_s), s	2.6	0.0	11.0	15.8	0.0	17.3	1.1	4.7	4.2	0.5	26.0	3.7
Cycle Q Clear(g_c), s	2.6	0.0	11.0	15.8	0.0	17.3	1.1	4.7	4.2	0.5	26.0	3.7
Prop In Lane	1.00		0.04	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	286	0	298	417	0	434	35	1359	587	18	1324	572
V/C Ratio(X)	0.22	0.00	0.83	0.84	0.00	0.90	0.65	0.21	0.20	0.57	0.88	0.18
Avail Cap(c_a), veh/h	337	0	351	432	0	450	84	1359	587	84	1324	572
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	30.9	0.0	34.4	30.9	0.0	31.4	41.1	17.6	17.4	41.7	24.8	17.8
Incr Delay (d2), s/veh	0.4	0.0	13.9	13.4	0.0	20.4	18.7	0.4	0.7	25.5	8.7	0.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.1	0.0	6.0	8.1	0.0	9.9	0.7	1.9	1.6	0.3	11.9	1.4
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	31.2	0.0	48.3	44.3	0.0	51.8	59.8	17.9	18.2	67.2	33.5	18.5
LnGrp LOS	C	A	D	D	A	D	E	B	B	E	C	B
Approach Vol, veh/h		312			741			429			1279	
Approach Delay, s/veh		44.9			48.3			20.2			32.6	
Approach LOS		D			D			C			C	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.3	36.8		18.1	6.2	36.0		24.3				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	4.0	31.5		16.0	4.0	31.5		20.5				
Max Q Clear Time (g_c+I1), s	2.5	6.7		13.0	3.1	28.0		19.3				
Green Ext Time (p_c), s	0.0	2.3		0.5	0.0	2.5		0.5				

Intersection Summary		
HCM 6th Ctrl Delay		36.3
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.



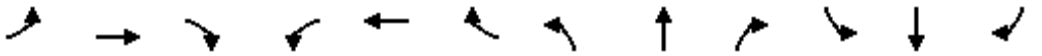
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	170	291	7	129	78	11	25	678	244	10	404	51
Future Volume (veh/h)	170	291	7	129	78	11	25	678	244	10	404	51
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	185	316	8	118	115	12	27	737	265	11	439	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	401	409	10	213	199	21	44	1102	475	20	1054	454
Arrive On Green	0.23	0.23	0.23	0.12	0.12	0.12	0.02	0.31	0.31	0.01	0.30	0.30
Sat Flow, veh/h	1781	1815	46	1781	1659	173	1781	3554	1531	1781	3554	1530
Grp Volume(v), veh/h	185	0	324	118	0	127	27	737	265	11	439	55
Grp Sat Flow(s),veh/h/ln	1781	0	1861	1781	0	1832	1781	1777	1531	1781	1777	1530
Q Serve(g_s), s	4.8	0.0	8.8	3.4	0.0	3.5	0.8	9.7	7.8	0.3	5.3	1.4
Cycle Q Clear(g_c), s	4.8	0.0	8.8	3.4	0.0	3.5	0.8	9.7	7.8	0.3	5.3	1.4
Prop In Lane	1.00		0.02	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	401	0	419	213	0	219	44	1102	475	20	1054	454
V/C Ratio(X)	0.46	0.00	0.77	0.55	0.00	0.58	0.61	0.67	0.56	0.55	0.42	0.12
Avail Cap(c_a), veh/h	528	0	552	528	0	544	132	1102	475	132	1054	454
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	18.1	0.0	19.6	22.4	0.0	22.4	26.0	16.2	15.5	26.5	15.2	13.8
Incr Delay (d2), s/veh	0.8	0.0	4.9	2.2	0.0	2.4	13.1	3.2	4.7	21.3	1.2	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.9	0.0	4.0	1.4	0.0	1.6	0.5	4.0	3.0	0.3	2.1	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	18.9	0.0	24.5	24.6	0.0	24.9	39.2	19.4	20.2	47.8	16.4	14.4
LnGrp LOS	B	A	C	C	A	C	D	B	C	D	B	B
Approach Vol, veh/h		509			245			1029			505	
Approach Delay, s/veh		22.5			24.7			20.1			16.9	
Approach LOS		C			C			C			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.1	21.2		16.6	5.8	20.5		11.0				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	4.0	16.0		16.0	4.0	16.0		16.0				
Max Q Clear Time (g_c+I1), s	2.3	11.7		10.8	2.8	7.3		5.5				
Green Ext Time (p_c), s	0.0	2.3		1.2	0.0	2.0		0.7				

Intersection Summary		
HCM 6th Ctrl Delay		20.4
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.



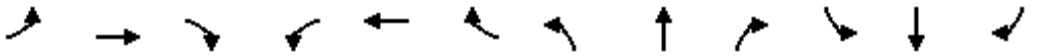
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	59	226	8	422	222	13	15	312	108	9	1297	95
Future Volume (veh/h)	59	226	8	422	222	13	15	312	108	9	1297	95
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.97	1.00		0.98	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	64	246	9	357	384	14	16	339	117	10	1410	103
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	287	289	11	431	434	16	25	1526	660	17	1510	653
Arrive On Green	0.16	0.16	0.16	0.24	0.24	0.24	0.01	0.43	0.43	0.01	0.42	0.42
Sat Flow, veh/h	1781	1791	66	1781	1792	65	1781	3554	1538	1781	3554	1537
Grp Volume(v), veh/h	64	0	255	357	0	398	16	339	117	10	1410	103
Grp Sat Flow(s),veh/h/ln	1781	0	1856	1781	0	1857	1781	1777	1538	1781	1777	1537
Q Serve(g_s), s	3.6	0.0	15.2	21.7	0.0	23.6	1.0	6.9	5.4	0.6	43.2	4.7
Cycle Q Clear(g_c), s	3.6	0.0	15.2	21.7	0.0	23.6	1.0	6.9	5.4	0.6	43.2	4.7
Prop In Lane	1.00		0.04	1.00		0.04	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	287	0	299	431	0	450	25	1526	660	17	1510	653
V/C Ratio(X)	0.22	0.00	0.85	0.83	0.00	0.89	0.64	0.22	0.18	0.59	0.93	0.16
Avail Cap(c_a), veh/h	429	0	447	499	0	521	62	1526	660	62	1510	653
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	41.6	0.0	46.5	41.0	0.0	41.7	56.0	20.5	20.1	56.3	31.3	20.2
Incr Delay (d2), s/veh	0.4	0.0	9.8	9.8	0.0	15.1	24.6	0.3	0.6	28.5	12.0	0.5
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	1.6	0.0	7.8	10.6	0.0	12.6	0.6	2.9	2.0	0.4	20.5	1.8
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	42.0	0.0	56.4	50.8	0.0	56.8	80.6	20.9	20.7	84.8	43.3	20.7
LnGrp LOS	D	A	E	D	A	E	F	C	C	F	D	C
Approach Vol, veh/h		319			755			472			1523	
Approach Delay, s/veh		53.5			54.0			22.9			42.0	
Approach LOS		D			D			C			D	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.6	53.5		22.9	6.1	53.0		32.1				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	4.0	48.5		27.5	4.0	48.5		32.0				
Max Q Clear Time (g_c+I1), s	2.6	8.9		17.2	3.0	45.2		25.6				
Green Ext Time (p_c), s	0.0	2.8		1.2	0.0	2.6		2.0				

Intersection Summary		
HCM 6th Ctrl Delay		43.2
HCM 6th LOS		D

Notes

User approved volume balancing among the lanes for turning movement.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	174	297	7	131	80	11	13	771	248	10	475	52
Future Volume (veh/h)	174	297	7	131	80	11	13	771	248	10	475	52
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.98	1.00		0.97	1.00		0.97	1.00		0.97
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Work Zone On Approach		No			No			No			No	
Adj Sat Flow, veh/h/ln	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870	1870
Adj Flow Rate, veh/h	189	323	8	120	117	12	14	838	270	11	516	57
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	392	400	10	208	194	20	25	1252	540	20	1242	536
Arrive On Green	0.22	0.22	0.22	0.12	0.12	0.12	0.01	0.35	0.35	0.01	0.35	0.35
Sat Flow, veh/h	1781	1816	45	1781	1662	170	1781	3554	1534	1781	3554	1534
Grp Volume(v), veh/h	189	0	331	120	0	129	14	838	270	11	516	57
Grp Sat Flow(s),veh/h/ln	1781	0	1861	1781	0	1833	1781	1777	1534	1781	1777	1534
Q Serve(g_s), s	5.6	0.0	10.1	3.8	0.0	4.0	0.5	12.0	8.3	0.4	6.6	1.5
Cycle Q Clear(g_c), s	5.6	0.0	10.1	3.8	0.0	4.0	0.5	12.0	8.3	0.4	6.6	1.5
Prop In Lane	1.00		0.02	1.00		0.09	1.00		1.00	1.00		1.00
Lane Grp Cap(c), veh/h	392	0	410	208	0	214	25	1252	540	20	1242	536
V/C Ratio(X)	0.48	0.00	0.81	0.58	0.00	0.60	0.57	0.67	0.50	0.55	0.42	0.11
Avail Cap(c_a), veh/h	474	0	496	474	0	488	119	1252	540	119	1242	536
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	20.4	0.0	22.2	25.1	0.0	25.2	29.4	16.5	15.3	29.5	14.9	13.2
Incr Delay (d2), s/veh	0.9	0.0	8.1	2.5	0.0	2.7	18.8	2.9	3.3	21.8	1.0	0.4
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	2.2	0.0	5.0	1.7	0.0	1.8	0.3	4.8	3.1	0.3	2.6	0.5
Unsig. Movement Delay, s/veh												
LnGrp Delay(d),s/veh	21.4	0.0	30.3	27.6	0.0	27.9	48.2	19.3	18.6	51.4	15.9	13.6
LnGrp LOS	C	A	C	C	A	C	D	B	B	D	B	B
Approach Vol, veh/h		520			249			1122			584	
Approach Delay, s/veh		27.1			27.8			19.5			16.3	
Approach LOS		C			C			B			B	

Timer - Assigned Phs	1	2		4	5	6		8				
Phs Duration (G+Y+Rc), s	5.2	25.7		17.7	5.3	25.5		11.5				
Change Period (Y+Rc), s	4.5	4.5		4.5	4.5	4.5		4.5				
Max Green Setting (Gmax), s	4.0	21.0		16.0	4.0	21.0		16.0				
Max Q Clear Time (g_c+I1), s	2.4	14.0		12.1	2.5	8.6		6.0				
Green Ext Time (p_c), s	0.0	3.7		1.0	0.0	2.9		0.7				

Intersection Summary		
HCM 6th Ctrl Delay		21.2
HCM 6th LOS		C

Notes

User approved volume balancing among the lanes for turning movement.

Appendix Q

Excerpts from the City of Escondido *Bicycle Master Plan*

Bicycle Master Plan

City of Escondido

Case File No. PHG 12-0018

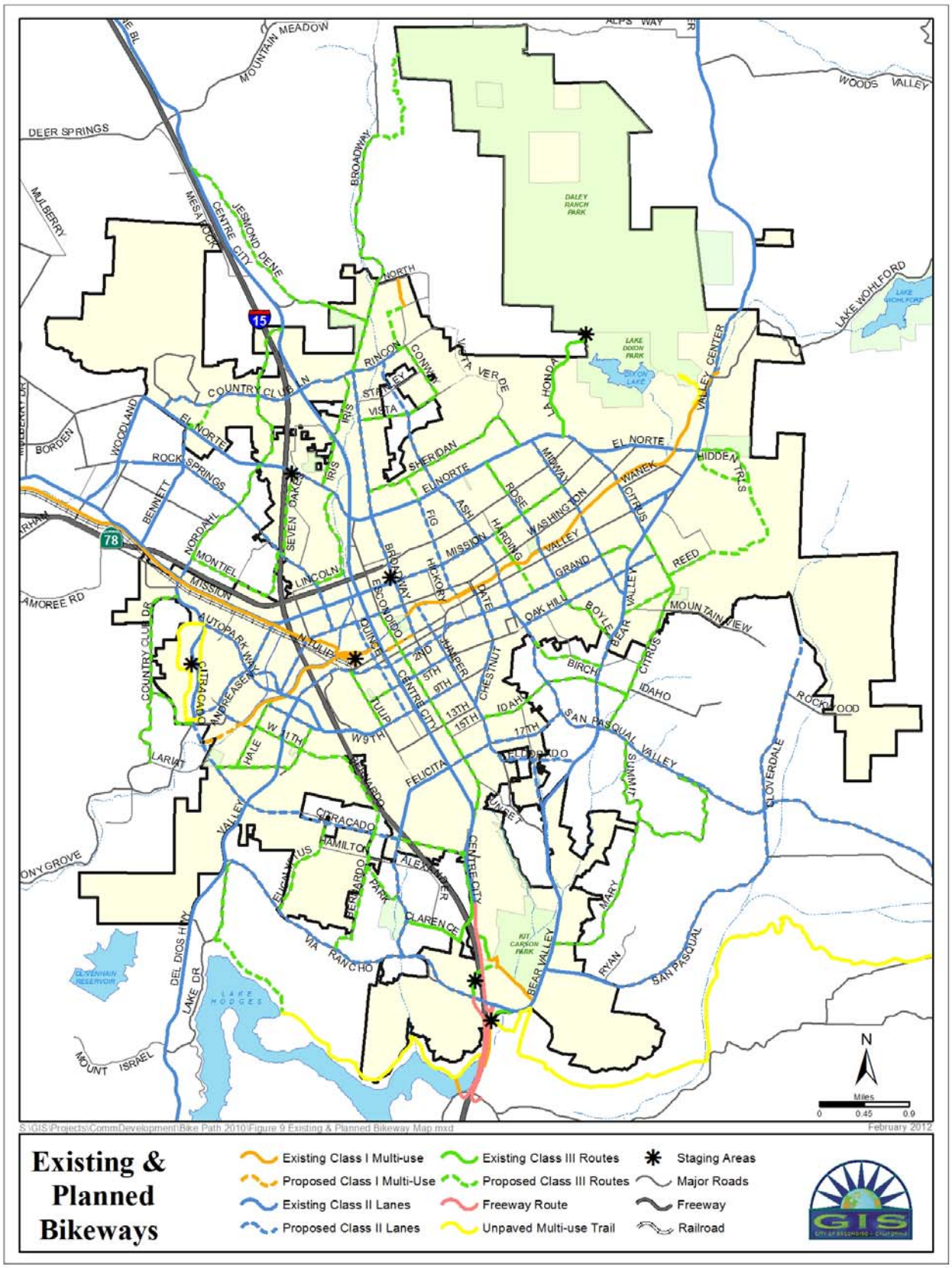
City Council
Sam Abed, Mayor
Marie Waldron, Deputy Mayor
Olga Diaz, Council Member
Ed Gallo, Council Member
Michael Morasco, Council Member

Staff Recognition
Jay Paul, Associate Planner-Project Manager
Jay Petrek-Principal Planner
Peggy Chapin – Contract Planner
Homi Namdari-Assistant City Engineer
Ali Shahzad-Associate Engineer, Traffic
Samuel Cottrell-Associate Engineer, Design
Daniel Hildebrand-GIS Manager
Jennifer Kay-GIS Technician

(Draft CC – October 2012)

Adopted by City Council Resolution No. 2012-162 on October _____ 2012

Figure ES 1 Existing and Proposed Bicycle Facilities



Appendix R

Transit Map and Schedules

358/359

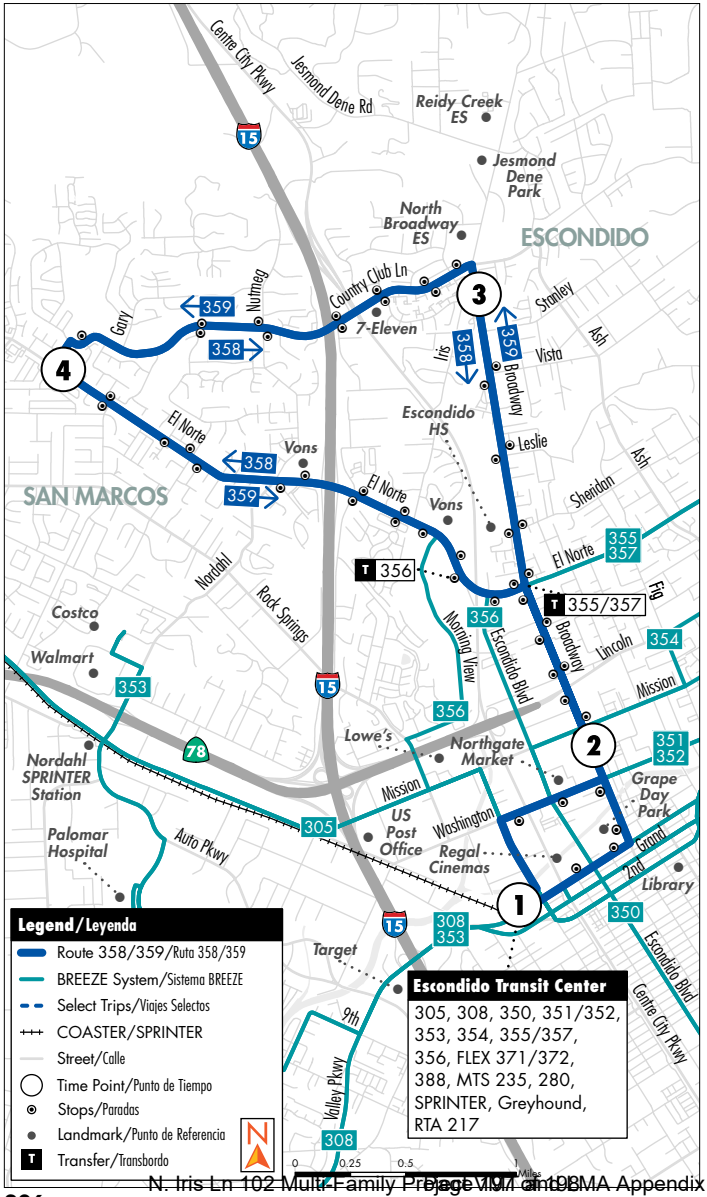
N. Broadway, Country Club & El Norte Pkwy.

N. Broadway, Country Club y El Norte Pkwy.

M-F
L-V

Destinations/Dest.nos

- Escondido Civic Center
- Kaiser Permanente
- Regal Cinemas
- Escondido Senior Center
- Escondido High School
- YMCA
- Vons
- Stater Brothers



N. Iris Ln 102 Multi-Family Project Vol. 1 of 1 BMA Appendix

358/359

N. Broadway, Country Club & El Norte Pkwy.

N. Broadway, Country Club y El Norte Pkwy.

See pg. 6 for Holiday schedules/Ver pág. 236 para obtener los horarios de días festivos

358 Monday - Friday
El Norte Pkwy. then N. Broadway
358 Lunes a Viernes • El Norte Pkwy. luego N. Broadway

Escondido Transit Center	N. Broadway & Park Ave.	El Norte Pkwy. & Country Club Ln.	Country Club Ln. & N. Broadway	N. Broadway & Park Ave.	Escondido Transit Center
1	**2**	**4**	**3**	**2**	**1**
6:03	6:06	6:17	6:24	6:36	6:44a
8:03	8:07	8:22	8:29	8:41	8:50
10:03	10:07	10:21	10:28	10:40	10:49
12:02	**12:06**	**12:21**	**12:28**	**12:40**	**12:49p**
2:04	**2:09**	**2:25**	**2:32**	**2:47**	**2:57**
4:05	**4:10**	**4:26**	**4:33**	**4:48**	**4:58**
6:08	**6:13**	**6:29**	**6:35**	**6:44**	**6:54**
8:03	**8:07**	**8:19**	**8:25**	**8:34**	**8:43**

359 Monday - Friday
N. Broadway then El Norte Pkwy.
359 Lunes a Viernes • N. Broadway luego El Norte Pkwy.

Escondido Transit Center	N. Broadway & Park Ave.	Country Club Ln. & N. Broadway	El Norte Pkwy. & Country Club Ln.	N. Broadway & Park Ave.	Escondido Transit Center
1	**2**	**3**	**4**	**2**	**1**
5:09	5:11	5:17	5:24	5:36	5:45a
7:03	7:07	7:21	7:31	7:48	7:57
9:04	9:07	9:18	9:26	9:42	9:51
11:03	11:07	11:18	11:26	11:42	11:51
1:03	**1:08**	**1:19**	**1:27**	**1:43**	**1:53p**
3:02	**3:07**	**3:18**	**3:26**	**3:42**	**3:52**
5:04	**5:09**	**5:20**	**5:28**	**5:44**	**5:54**
7:08	**7:12**	**7:22**	**7:28**	**7:41**	**7:49**

Route 358/359 does not operate on Saturdays, Sundays, or holidays.
La Ruta 358/359 no opera los sábados, domingos o en días festivos.

N. Iris Ln 102 Multi-Family Project 198 and 98MA Appendix

Appendix L

Noise Study

NOISE STUDY

Iris Lane Multi-Family Development
Escondido CA

Prepared For:

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740 Lomas Santa Fe Drive, Suite 204
Solana Beach, CA 92075

Prepared by:

Ldn Consulting, Inc.
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Murrieta, CA 92562
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July 27, 2022

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GLOSSARY OF COMMON TERMS

Sound Pressure Level (SPL): a ratio of one sound pressure to a reference pressure (L_{ref}) of 20 µPa. Because of the dynamic range of the human ear, the ratio is calculated logarithmically by 20 log (L/L_{ref}).

A-weighted Sound Pressure Level (dBA): Some frequencies of noise are more noticeable than others. To compensate for this fact, different sound frequencies are weighted more.

Minimum Sound Level (L_{min}): Minimum SPL or the lowest SPL measured over the time interval using the A-weighted network and slow time weighting.

Maximum Sound Level (L_{max}): Maximum SPL or the highest SPL measured over the time interval the A-weighted network and slow time weighting.

Equivalent sound level (L_{eq}): the true equivalent sound level measured over the run time. Leq is the A-weighted steady sound level that contains the same total acoustical energy as the actual fluctuating sound level.

Day Night Sound Level (LDN): Representing the Day/Night sound level, this measurement is a 24 –hour average sound level where 10 dB is added to all the readings that occur between 10 pm and 7 am. This is primarily used in community noise regulations where there is a 10 dB "Penalty" for nighttime noise. Typically, LDN's are measured using A weighting.

Community Noise Exposure Level (CNEL): The accumulated exposure to sound measured in a 24-hour sampling interval and artificially boosted during certain hours. For CNEL, samples taken between 7 pm and 10 pm are boosted by 5 dB; samples taken between 10 pm and 7 am are boosted by 10 dB.

Octave Band: An octave band is defined as a frequency band whose upper band-edge frequency is twice the lower band frequency.

Third-Octave Band: A third-octave band is defined as a frequency band whose upper band-edge frequency is 1.26 times the lower band frequency.

Response Time (F, S,I): The response time is a standardized exponential time weighting of the input signal according to fast (F), slow (S) or impulse (I) time response relationships. Time response can be described with a time constant. The time constants for fast, slow and impulse responses are 1.0 seconds, 0.125 seconds and 0.35 milliseconds, respectively.

EXECUTIVE SUMMARY

This noise study has been completed to determine the noise impacts to and from the proposed residential project. The proposed N Iris Lane Residential Development is located on an approximate 7.7-acre project site along N Iris Lane, east of Interstate 15 (I-15), between Centre City Parkway and W Country Club Lane in Escondido, California 92025. The N Iris Lane Residential project proposes the development of 102 multi-family townhomes.

Construction Noise and Vibration Levels

The construction equipment will be spread out over the project site from distances near the occupied property to distances of over 300 feet away. Based upon the proposed site plan construction activities are not anticipated to exceed the City's 75-dBA standard and would not require any mitigation measures. The anticipated rock drilling, demolition and material haulage are also anticipated to comply with the City's thresholds. The construction activities would generate levels of vibration that would not exceed the City/FTA criteria for nuisance for nearby residential uses. Therefore, vibration impacts would be less than significant.

Onsite Transportation Related Noise Levels

It was determined that the outdoor noise levels are expected to be as high as 59 dBA CNEL at the proposed outdoor uses and would comply with the City's noise standard and no additional mitigation is required. Additionally, a final noise assessment is required prior to the issuance of the first building permit since the building facades are above 60 dBA CNEL. This final report would identify noise requirements based upon architectural and building plans. It should be noted; interior noise levels of 45 dBA CNEL can easily be obtained with conventional construction methods and providing a closed window condition requiring a means of mechanical ventilation (e.g., air conditioning) and upgraded windows for all sensitive rooms (e.g., bedrooms and living spaces).

Offsite Transportation Noise

The Project does not create a direct and cumulative noise increase of more than 3 dBA CNEL on any segment of Centre City Parkway and N Iris Lane. Therefore, the Project's direct contributions to off-site roadway noise increases will not cause any significant impacts to any existing or future noise sensitive land uses.

Operational Noise Levels

Based upon the property line noise levels determined for the Project, none of the proposed noise sources exceeds the property line standards with the proposed perimeter fencing.

Therefore, the proposed development- related operational noise levels comply with the City's daytime and evening noise standards. No impacts are anticipated and no mitigation is required.

1.0 PROJECT INTRODUCTION

1.1 Purpose of this Study

The purpose of this Noise study is to determine noise impacts, if any, to the Project from off-site sources (i.e., traffic) and from the project (i.e., construction) onto surrounding uses. Should impacts be determined, the intent of this study would be to recommend suitable mitigation measures to reduce impacts to below a level of significance.

1.2 Project Location

The proposed N Iris Lane Residential Development is located on an approximate 7.7-acre project site located at 2085 North Iris Lane, east of Interstate 15, between Centre City Parkway and W Country Club Lane in Escondido, California 92025. A general project vicinity map is shown in Figure 1-1.

1.3 Project Description

The Project proposes the development of 102 multi-family residential units with approximately 230 parking spaces within a 7.69 acre footprint. The proposed project would require demolishing the existing structures onsite (approximately 10,000 Square Feet (SF)). It is expected that the Project would begin work sometime in 2023 and be completed in 2025. The Project site plan is shown in Figure 1-2.

Figure 1-1: Project Vicinity Map

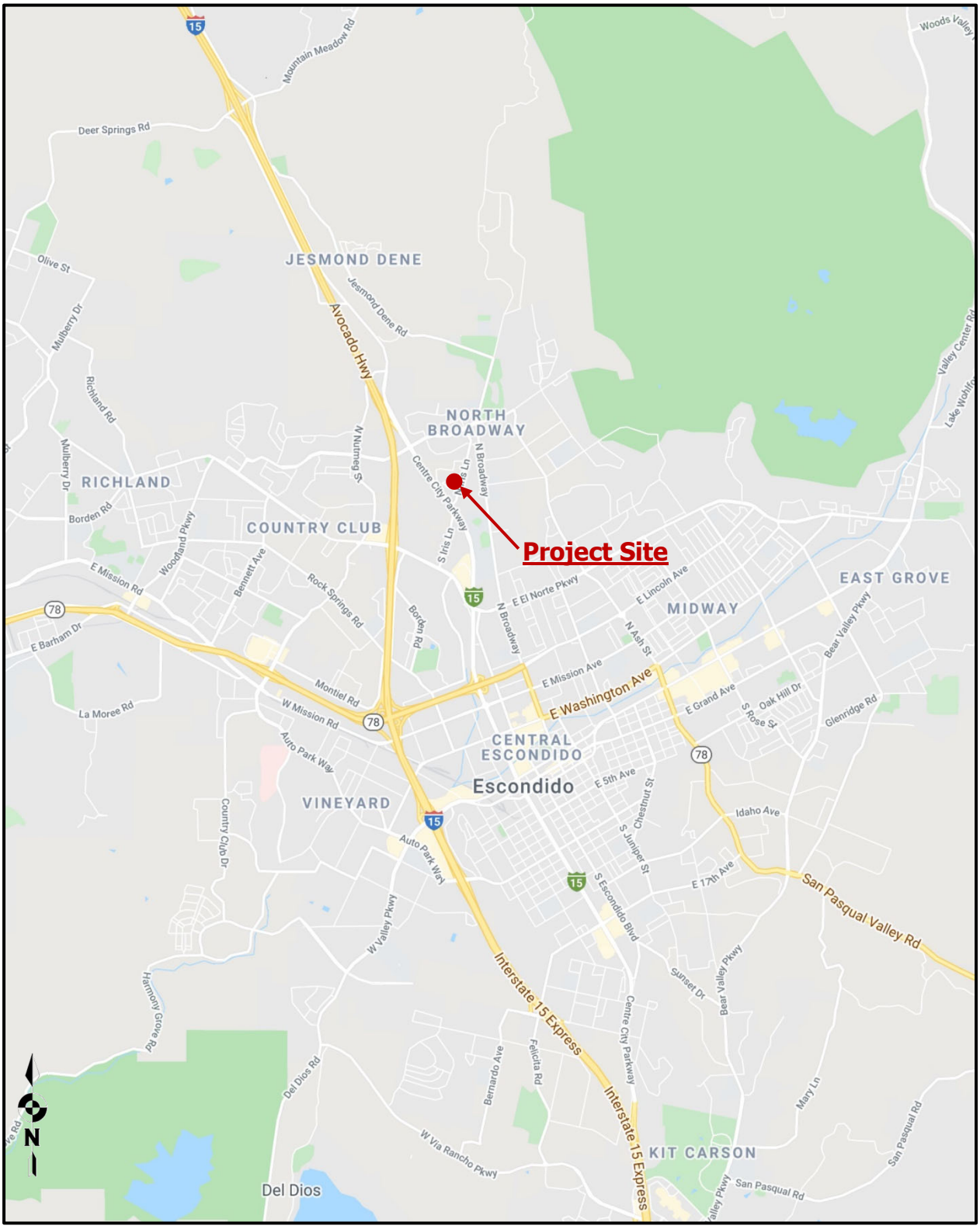

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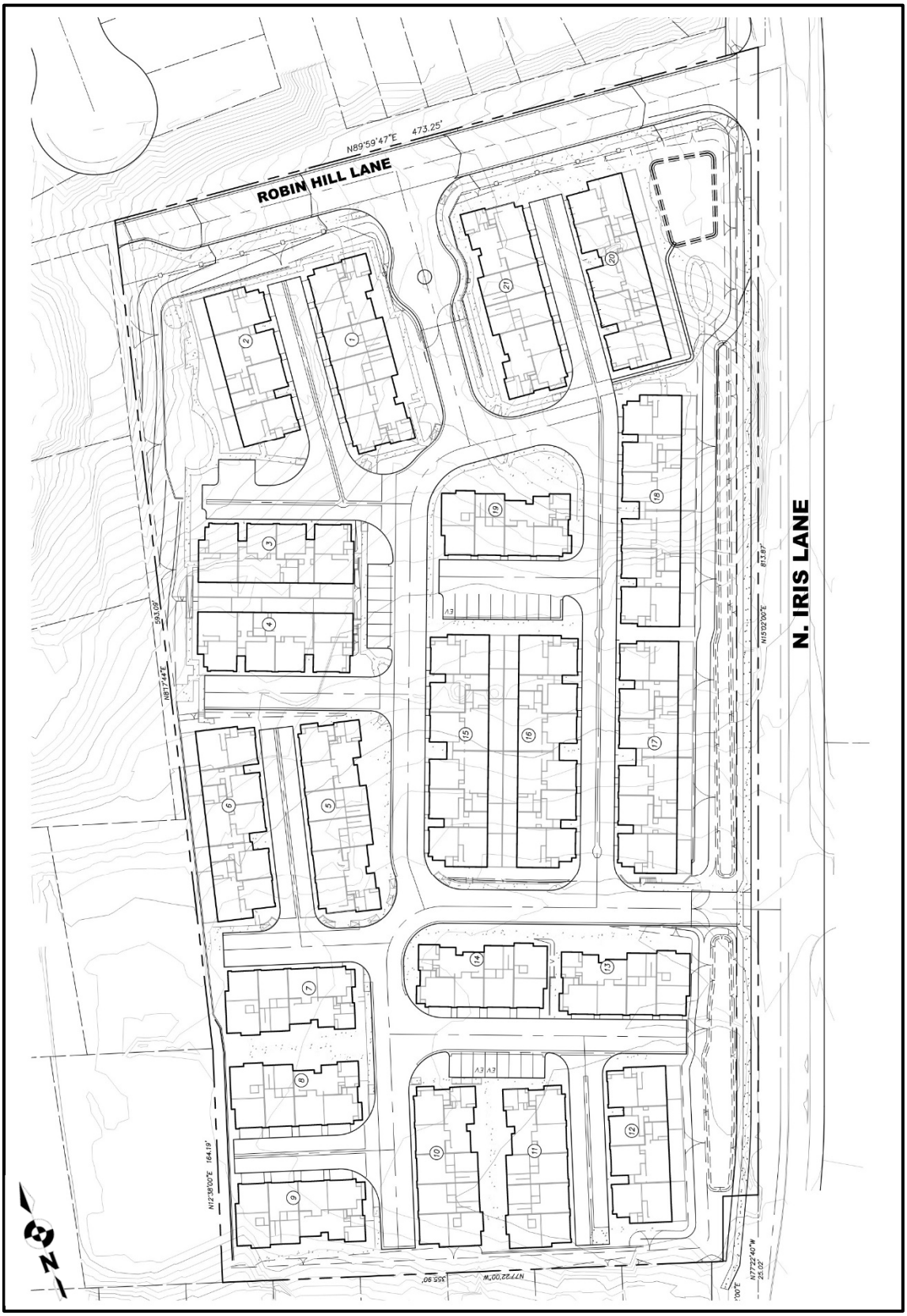
Figure 1-2: Project Site Plan



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2.0 REGULATORY FRAMEWORK

2.1 Municipal Code

Construction Noise

Sections 17-234 and 17-240 of the City of Escondido Municipal Code regulate construction noise. Any piece of construction equipment or any combination of construction equipment cannot be operated so as to cause an average noise level excess of 75 dBA Leq during the allowable hours of operation. Per City regulations, construction equipment can only be operated from 7:00 AM to 6:00 PM, Monday through Friday, and on Saturday from 9:00 AM to 5:00 PM. Construction equipment cannot be operated on Sundays or holidays. Operation of any construction equipment during non-allowable hours is permitted only by a variance from the City Manager. Except for emergency work, the provisions of this article shall not apply to any emergency work as defined in Section 17-227, provided that (1) a variance has been obtained from the City Manager, and (2) any vehicle device, apparatus, or equipment used, related to or connected with emergency work is designed, modified, or equipped to reduce sounds produced to the lowest possible level consistent with effective operation of such vehicle, device, apparatus, or equipment (City of Escondido Municipal Code, 2004).

2.2 Onsite Transportation Noise (Land Use Compatibility)

The goal of the Community Protection Element of the City General Plan (City of Escondido General Plan, 2012) is to minimize the impact of noise on the community by identifying existing and potential noise sources and providing the policies and standards needed to keep noise from reducing the quality of life in the City. The Community Protection Element establishes guidelines to evaluate the compatibility of land uses and noise exposure levels. A "Normally Acceptable" land use indicates that standard construction methods will attenuate exterior noise to an acceptable indoor noise level and people can carry out outdoor activities with minimal noise interference. Evaluation of land use that falls into the "Conditionally Acceptable" noise environment should have an acoustical study prepared. The acoustical study should include, with consideration of the type of noise source, the sensitivity of the noise receptor, and the degree to which the noise source may interfere with speech, sleep, or other activities characteristic of the land use.

Table 2-1 summarizes the land use compatibility standards for evaluating land use noise compatibility when reviewing proposed land use development projects. The Community Protection Element also states that the exterior standard should not normally be applied to balconies or patios associated with residential uses. Impacts would be significant if the project would expose new development to noise levels in excess of the Noise Compatibility Standards. For multi-family uses, the exterior noise compatibility standard is 65 CNEL.

Table 2-1: Land Use - Noise Compatibility Guidelines

Land Use Category	CNEL 55	60	65	70	75	80	85
Residential – Single Family, Duplex, Mobile Home							
Residential – Multi-Family, Residential Mixed Use							
Transient Lodging, Motels, Hotels							
Schools, Libraries, Churches, Hospitals, Nursing Home							
Auditoriums, Concert Halls, Amphitheaters							
Sports Arena, Outdoor Spectator Sports							
Playgrounds, Parks							
Golf Courses, Riding Stables, Water Recreation, Cemeteries							
Office Buildings, Business Commercial, Professional							
Industrial, Manufacturing, Utilities, Agriculture							

	Normally Acceptable	Specified land use is satisfactory, based upon the assumption that buildings involved are of normal conventional construction, without any special noise insulation requirements.
	Conditionally Acceptable	New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will usually suffice.
	Normally Unacceptable	New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made with noise insulation features included in the design.
	Clearly Unacceptable	New construction or development should generally not be undertaken.

The Community Protection Element of the City General Plan also has a Noise Policy 5.4 that require noise attenuation for new noise-sensitive uses. This includes residential, daycare facilities, schools, churches, transient lodging, hotels, motels, hospitals, health care facilities, and libraries if the projected interior noise standard of 45 dBA CNEL is exceeded.

Noise Policy 5.5 of the Community Protection Element requires that construction projects and new development ensure acceptable vibration levels at nearby noise sensitive land uses based on the United States Department of Transportation Federal Transit Administration (FTA) criteria. These criteria are outlined in the Escondido General Plan Update (City of Escondido General Plan, 2012) and shown in Table 2-2 per the *City of Escondido Ground-borne Vibration Impact Criteria*. The General Plan EIR states that the category of infrequent events is applicable to construction activities.

The United States Department of Transportation Federal Transit Administration (FTA) provides criteria for acceptable levels of groundborne vibration for various types of special buildings that are sensitive to vibration. For purposes of identifying potential project-related vibration impacts, the FTA criteria will be used. The human reaction to various levels of vibration is highly subjective. The upper end of the range shown for the threshold of perception, or roughly 65 VdB, may be considered annoying by some people. Vibration below 65 VdB may also cause secondary audible effects, such as a slight rattling of doors, suspended ceilings/fixtures, windows, and dishes, any of which may result in additional annoyance. Table 2.2 shows the FTA groundborne vibration and noise impact criteria for human annoyance.

In addition to the vibration annoyance standards presented above, the FTA also applies the following standards for construction vibration damage. Table 2-3, structural damage is possible for typical residential construction when the peak particle velocity (PPV) exceeds 0.2 inch per second (in/sec). This criterion is the threshold at which there is a risk of damage to normal dwellings.

In the context of this analysis, the noise and vibration impacts associated with the construction operations and any blasting operations will be conditioned to comply with the thresholds stated above. The potential noise and vibration impacts are analyzed separately below.

Table 2-2: Groundborne Vibration and Noise Impact Criteria (Human Annoyance)

	Groundborne Vibration Impact Levels (VdB re 1 microinch/second)			Groundborne Noise Impact Levels (dB re 20 micropascals)		
	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]	Frequent Events[1]	Occasional Events[2]	Infrequent Events[3]
Category 1: Buildings where low ambient vibration is essential for interior operations.	65 VdB[4]	65 VdB[4]	65 VdB[4]	N/A[4]	N/A[4]	N/A[4]
Category 2: Residences and buildings where people normally sleep.	72 VdB	75 VdB	80 VdB	35 dBA	38 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use.	75 VdB	78 VdB	83 VdB	40 dBA	43 dBA	48 dBA

Source: United States Department of Transportation Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment,* 2018 (FTA, 2018).

[1] "Frequent Events" are defined as more than 70 vibration events per day. Most rapid transit projects fall into this category.

[2] "Occasional Events" are defined as between 30 and 70 vibration events of the same source per day. Most commuter truck lines have this many operations.

[3] "Infrequent Events" are defined as fewer than 30 vibration events of the same kind per day. This category includes most commuter rail branch lines.

[4] This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration-sensitive manufacturing or research will require detailed evaluation to define the acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors.

[5] Vibration-sensitive equipment is not sensitive to groundborne noise.

Table 2-3: Groundborne Vibration Impact Criteria (Structural Damage)

Building Category	PPV (in/sec)	VdB
I. Reinforced-concrete, steel, or timber (no plaster)	0.5	102
II. Engineered concrete and masonry (no plaster)	0.3	98
III. Non-engineered timber and masonry buildings	0.2	94
IV. Buildings extremely susceptible to vibration damage	0.12	90

Source: United States Department of Transportation Federal Transit Administration (FTA), *Transit Noise and Vibration Impact Assessment,* 2018 (FTA, 2018).

Notes: RMS velocity calculated from vibration level (VdB) using the reference of one microinch/second.

2.3 Operational Noise

The Noise Ordinance establishes prohibitions for disturbing, excessive or offensive noise, and provisions such as sound level limits for the purpose of securing and promoting the public health, comfort, safety, peace, and quiet for its citizens. Table 2-4, City of Escondido Exterior Sound Limit Levels, shows the allowable noise levels at any point on or beyond the boundaries of the property on which the sound is produced, and corresponding times of day for each zoning designation equipment (City of Escondido Municipal Code, 2004). The noise standards

apply to each property or portion of property substantially used for a particular type of land use reasonably similar to the land use types shown in Table 2-4, City of Escondido Exterior Sound Limit Levels. Where two or more dissimilar land uses occur on a single property, the more restrictive noise limits apply. Environmental noise is measured by the Leq for the hours as specified in Table 2-4. If the noise is continuous, the Leq for any hour will be represented by any lesser time period within that hour. If the noise is intermittent, the Leq for any hour may be represented by a time period typical of the operating cycle, but the measurement period must be 15 minutes or longer. If the measured ambient level exceeds the permissible noise level, the allowable noise exposure standard is the ambient noise level. Noise restrictions are listed in Sections 17-230 through 17-241 of the Noise Ordinance, such as specific regulations pertaining to motor vehicles and burglar alarms. Additional sections of the Noise Ordinance applicable to this analysis are listed below.

Table 2-4: City of Escondido Exterior Sound Limit Levels

Zone	Time	Applicable Limit One-hour Average Sound Level (A-weighted Decibels)
Residential zones	7:00 a.m. to 10:00 p.m.	50
	10:00 p.m. to 7:00 a.m.	45
Multi-residential zones	7:00 a.m. to 10:00 p.m.	55
	10:00 p.m. to 7:00 a.m.	50
Commercial zones	7:00 a.m. to 10:00 p.m.	60
	10:00 p.m. to 7:00 a.m.	55
Light industrial/Industrial park zones	Anytime	70
General Industrial zones	Anytime	75
Source: City of Escondido Municipal Code Section 17-229, Sound Level Limits		

Section 17-229(c)(5) (Corrections to Exterior Noise Level Limits)

Section 17-229 (c)(5) of the Noise Ordinance, Corrections to Exterior Noise Level Limits, includes the following regulations:

a) If the noise is continuous, the Leq for any hour will be represented by any lesser time period within that hour. Noise measurements of a few minutes only will thus suffice to define the noise level.

b) If the noise is intermittent, the Leq for any hour may be represented by a time period typical of the operating cycle. Measurement should be made of a representative number of noisy/quiet periods. A measurement period of not less than 15 minutes is, however, strongly recommended when dealing with intermittent noise.

c) In the event the alleged offensive noise, as judged by the enforcement officer, contains a steady, audible sound such as a whine, screech or hum, or contains a repetitive impulsive noise such as hammering or riveting, the standard limits set forth in Table 4.12-5, City of Escondido Exterior Sound Limit Levels, shall be reduced by 10 dB or to the ambient noise level when such noises are not occurring.

d) If the measured ambient level exceeds that permissible in Table 4.12-5, City of Escondido Exterior Sound Limit Levels, the allowable noise exposure standard shall be the ambient noise level. The ambient level shall be measured when the alleged noise violations source is not operating.

e) The sound level limit at a location on a boundary between two land use classifications is the limit applicable to the receiving land use; provided, however, that the one-hour average sound level limit applicable to extractive industries including, but not limited to, borrow pits and mines, shall be 75 dB at the property line regardless of the zone where the extractive industry is actually located.

   Fixed-location public utility distribution or transmission facilities located on or adjacent to a property line shall be subject to the noise level limits of this section, measured at or beyond six feet from the boundary of the easement upon which the equipment is located.

3.0 FUNDAMENTALS

Noise is defined as unwanted or annoying sound which interferes with or disrupts normal activities. Exposure to high noise levels has been demonstrated to cause hearing loss. The individual human response to environmental noise is based on the sensitivity of that individual, the type of noise that occurs, and when the noise occurs.

Sound is measured on a logarithmic scale consisting of sound pressure levels known as a decibel (dB). The sounds heard by humans typically do not consist of a single frequency but of a broadband of frequencies having different sound pressure levels. The method for evaluating all the frequencies of the sound is to apply an A-weighting to reflect how the human ear responds to the different sound levels at different frequencies. The A-weighted sound level adequately describes the instantaneous noise whereas the equivalent sound level depicted as Leq represents a steady sound level containing the same total acoustical energy as the actual fluctuating sound level over a given time interval.

The Community Noise Equivalent Level (CNEL) is the 24-hour A-weighted average for sound, with corrections for evening and nighttime hours. The corrections require an addition of 5 decibels to sound levels in the evening hours between 7 p.m. and 10 p.m. and an addition of 10 decibels to sound levels at nighttime hours between 10 p.m. and 7 a.m. These additions are made to account for the increased sensitivity during the evening and nighttime hours when sound appears louder.

A vehicles noise level is a combination of the noise produced by a vehicle's engine, exhaust, and tires. The cumulative traffic noise levels along a roadway segment are based on three primary factors: the amount of traffic, the travel speed of the traffic, and the vehicle mix ratio or number of medium and heavy trucks. The intensity of traffic noise is increased by higher traffic volumes, greater speeds, and increased number of trucks.

Because mobile/traffic noise levels are calculated on a logarithmic scale, a doubling of the traffic noise or acoustical energy results in a noise level increase of 3 dBA. Therefore, the doubling of the traffic volume, without changing the vehicle speeds or mix ratio, results in a noise increase of 3 dBA. Mobile noise levels radiate in an almost oblique fashion from the source and drop off at a rate of 3 dBA for each doubling of distance under hard site conditions and at a rate of 4.5 dBA for soft site conditions. Hard site conditions consist of concrete, asphalt, and hard pack dirt while soft site conditions exist in areas having slight grade changes, landscaped areas, and vegetation. Alternately, fixed/point sources radiate outward uniformly as it travels away from the source. Their sound levels attenuate or drop off at a rate of 6 dBA for each doubling of distance.

The most effective noise reduction methods consist of controlling the noise at the source and blocking the noise transmission with barriers. Any or all of these methods may be required to reduce noise levels to an acceptable level. To be effective, a noise barrier must have enough mass to prevent significant noise transmission through it and high enough and long enough to shield the receiver from the noise source. A safe minimum surface weight for a noise barrier is 3.5 pounds/square foot (equivalent to 3/4-inch plywood), and the barrier must be carefully constructed so that there are no cracks or openings.

Barriers constructed of wood or as a wooden fence must have minimum design considerations as follows: the boards must be ¾ inch thick and free of any gaps or knot holes. The design must also incorporate either overlapping the boards at least 1 inch or utilizing a tongue-and-grove design for this to be achieved.

4.0 POTENTIAL IMPACTS

4.1 Construction Noise Levels

Construction noise represents a short-term impact on the ambient noise levels. Noise generated by construction and demolition equipment includes haul trucks, water trucks, graders, dozers, loaders and pile drivers, which can reach relatively high levels. Grading activities typically represent one of the highest potential sources for noise impacts. The most effective method of controlling construction noise is through local control of construction hours and by limiting the hours of construction to normal weekday working hours.

The U.S. Environmental Protection Agency (U.S. EPA) and the U.S. Department of Transportation (U.S. DOT) have compiled data regarding the noise generating characteristics of specific types of construction equipment . Noise levels generated by heavy construction equipment can range from 60 dBA to in excess of 100 dBA when measured at 50 feet. However, these noise levels diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 75 dBA measured at 50 feet from the noise source to the receptor would be reduced to 69 dBA at 100 feet from the source to the receptor and reduced to 63 dBA at 200 feet from the source.

4.1.1 Potential Noise Impact Identification

Using a point-source noise prediction model, calculations of the expected construction noise impacts were completed. The essential model input data for these performance equations include the source levels of each type of equipment, relative source to receiver horizontal and vertical separations, the amount of time the equipment is operating in a given day, also referred to as the duty-cycle and any transmission loss from topography or barriers.

Based on empirical data and the amount of equipment needed, worst case noise impacts from this construction equipment would occur during the demolition and grading operations. In order to determine the worst case scenario for the grading activities, all the equipment was placed in a common location, which is not physically possible. As can be seen in Table 4-1, even if all the equipment were placed together, the cumulative noise levels would be 80.1 dBA and would attenuate 5.1 dBA at a distance of 90-feet from the point source noise and would be at or below the 75 dBA threshold.

Table 4-1: Construction Noise Levels

Construction Equipment	Quantity	Source Level @ 50-Feet (dBA)[1]	Duty Cycle (Hours/Day)	Cumulative Noise Level @ 50-Feet (dBA)
Dozer - D8	1	72	8	72.0
Tractor/Backhoe	1	74	8	74.0
Loader/Grader	1	73	8	73.0
Water Trucks	1	70	8	70.0
Paver/Blade	1	75	8	75.0
			Cumulative Levels @ 50 Feet	80.1
			Distance to Property Line (Feet)	90
			Noise Reduction Due to Distance	-5.1
			NEAREST PROPERTY LINE NOISE LEVEL	**75.0**

[1] Source: U.S. Environmental Protection Agency (U.S. EPA) and Empirical Data

Demolition Activities Noise Findings

Not all the equipment will operate continuously over an 8-hour period, the equipment will be utilized on an as-needed basis depending on the demolition activities are required. As an example: a saw will be used to weaken some of the structural components of the structure and then the excavator would be utilized to demo that section of the structure. The excavator or a loader will then be used to place the debris into the haul trucks. Noise levels from the demolition activities can reach short-term peak noise levels in excess of 90 dBA but will decay rapidly. This is due to the fact that once the equipment knocks down a portion of the building the debris needs to be removed, sorted and inspected. Based on empirical data gathered during the monitoring of a similar project, the worst-case hourly noise level was found to be up to 81 dBA Leq at an average distance of 25 feet for demolition activities (Source: Aztec Court Noise Monitoring – San Diego, Ldn Consulting, 2012). At an average distance of 50 feet, the noise level from the demolition activities would be roughly 75 dBA. The average distance from the demolition activates is anticipated to vary between 100 feet and 200 feet from the adjacent property lines. Given this, the noise levels will comply with the average 75 dBA threshold at the property lines.

Blasting

The project also may require some blasting-related activities and materials blasted would be exported offsite and clean soils would be brought in to replace. Areas of the project site that require deeper cuts and where the native material is not easily rippable (graded) may require blasting and the use of a rock drill. The rock drill would be moved around the site on an as needed basis dependent upon the site characteristics. The use of a rock drill would occur independently of all other proposed equipment. The drilling and blasting activities would occur in one area then the

grading equipment would relocate or remove the debris. To determine the worst-case noise levels from the drilling operations the noise level from the rock drill would be 85.0 dBA at 50 feet. Utilizing a 6 dBA reduction per doubling of distance, at an average distance of 160 feet from any property line, the noise levels will comply with the 75 dBA standard as shown in Table 4-2.

Table 4-2: Construction Noise Levels from Rock Drill

Construction Equipment	Quantity	Source Level @ 50 Feet (dBA)	Duty Cycle (Hours/Day)	Noise Level @ 50 Feet (dBA)
Rock Drill	1	85	8	85.0
			Noise Reduction Needed to Comply	-10.0
			Distance Required to Reduce Noise Levels	160
			NEAREST PROPERTY LINE NOISE LEVEL	**74.9**

Rock drilling and blasting will occur on an as-needed basis on site. In the event that the rock drill is staged within 160 feet of any occupied noise sensitive land use, it is recommended that a specific noise mitigation plan based upon the location of the construction equipment, topography and construction schedule be identified by an acoustical engineer. A mitigation plan should be developed that may include a temporary noise barrier along any property line where the impacts could occur. Based on previous projects, a barrier ranging from 8 to 12 feet in height maybe needed. The proposed noise barrier will need to be of solid non-gapping material to adequately reduce construction noise levels below the noise threshold. The mitigation plan can also incorporate the usage of the equipment (amount of time used and/or the location in respect to the property line). The mitigation plan would determine the final height and location of a temporary barrier if one is necessary. The project would not include rock crushing onsite. If material needs to be crushed it will be hauled off site..

Haulage

Grading of the Project site will consist of approximately 6,812 cubic yards (CY) export and 22,112 CY of import. Assuming there could be up to 8 trucks in an hour. Community noise level changes greater than 3 dBA are often identified as audible and considered potential significant, while changes less than 1 dBA will not be discernible to local residents. In the range of 1 to 3 dBA, residents who are very sensitive to noise may perceive a slight change. There is no scientific evidence available to support the use of 3 dBA as the significance threshold. Community noise exposures are typically over a long time period rather than the immediate comparison made in a laboratory situation. Therefore, the level at which changes in community noise levels become discernible is likely greater than 1 dBA and 3 dBA appears to be

appropriate for most people. For the purposes for this analysis a direct and cumulative roadway noise impacts would be considered significant if the project increases noise levels for a noise sensitive land use by 3 dBA CNEL and if the project increases noise levels above an unacceptable noise level per the City's General Plan in the area adjacent to the roadway segment.

Typically, it requires a project to double (or add 100%) to the traffic volumes to result in a 3 dBA CNEL which is considered a potential impact. Based on a current traffic volume of approximately 8,400 ADT or more on the roadways along the site and along the anticipated haul route, the additional trucks would add 0.5 dBA to the overall noise level. This is well below a 3 dBA increased that is considered a potential impact. No noise impacts are anticipated at the residential uses that are located along the roadway and the low volume of trucks.

4.1.2 Construction Noise Conclusions

The equipment will be spread out over the project site from distances near the occupied property to distances of over 300-feet away. Based upon the proposed site plan construction activities will average more than 90-feet away from the adjacent property lines. At average distances over 90-feet the construction activities are anticipated to not exceed the City's 75-dBA standard and would not require any mitigation measures. The anticipated rock drilling, demolition and material haulage are also anticipated to comply with the City's thresholds.

4.2 Construction Vibration Findings and Mitigation

The nearest vibration-sensitive uses are the residences located 100 feet or more from the proposed construction. Table 4-3 lists the average vibration levels that would be experienced at the nearest vibration sensitive land uses from the temporary construction activities.

The FTA has determined vibration levels that would cause annoyance to a substantial number of people and potential damage to building structures. The FTA criterion for vibration induced structural damage is 0.20 in/sec for the peak particle velocity (PPV). Project construction activities would result in PPV levels below the FTA's criteria for vibration induced structural damage. Therefore, project construction activities would not result in vibration induced structural damage to residential buildings near the construction areas. The FTA criterion for infrequent vibration induced annoyance is 80 Vibration Velocity (VdB) for residential uses. Construction activities would generate levels of vibration that would not exceed the FTA criteria for nuisance for nearby residential uses. Therefore, vibration impacts would be less than significant.

Table 4-3: Vibration Levels from Construction Activities (Residential Receptors)

Equipment	Approximate Velocity Level at 25 Feet (VdB)	Approximate RMS Velocity at 25 Feet (in/sec)	Approximate Velocity Level at 100 Feet (VdB)	Approximate RMS Velocity at 100 Feet (in/sec)
Small bulldozer	58	0.003	68.9	0.0111
Jackhammer	79	0.035	60.9	0.0044
Loaded trucks	86	0.076	67.9	0.0095
Large bulldozer	87	0.089	39.9	0.0004
		FTA Criteria	80	0.2
		Significant Impact?	**No**	**No**
[1] PPV at Distance D = PPVref x $(25/D)^{1.5}$				

4.3 Transportation Noise Levels

4.3.1 Existing Noise Environment Onsite

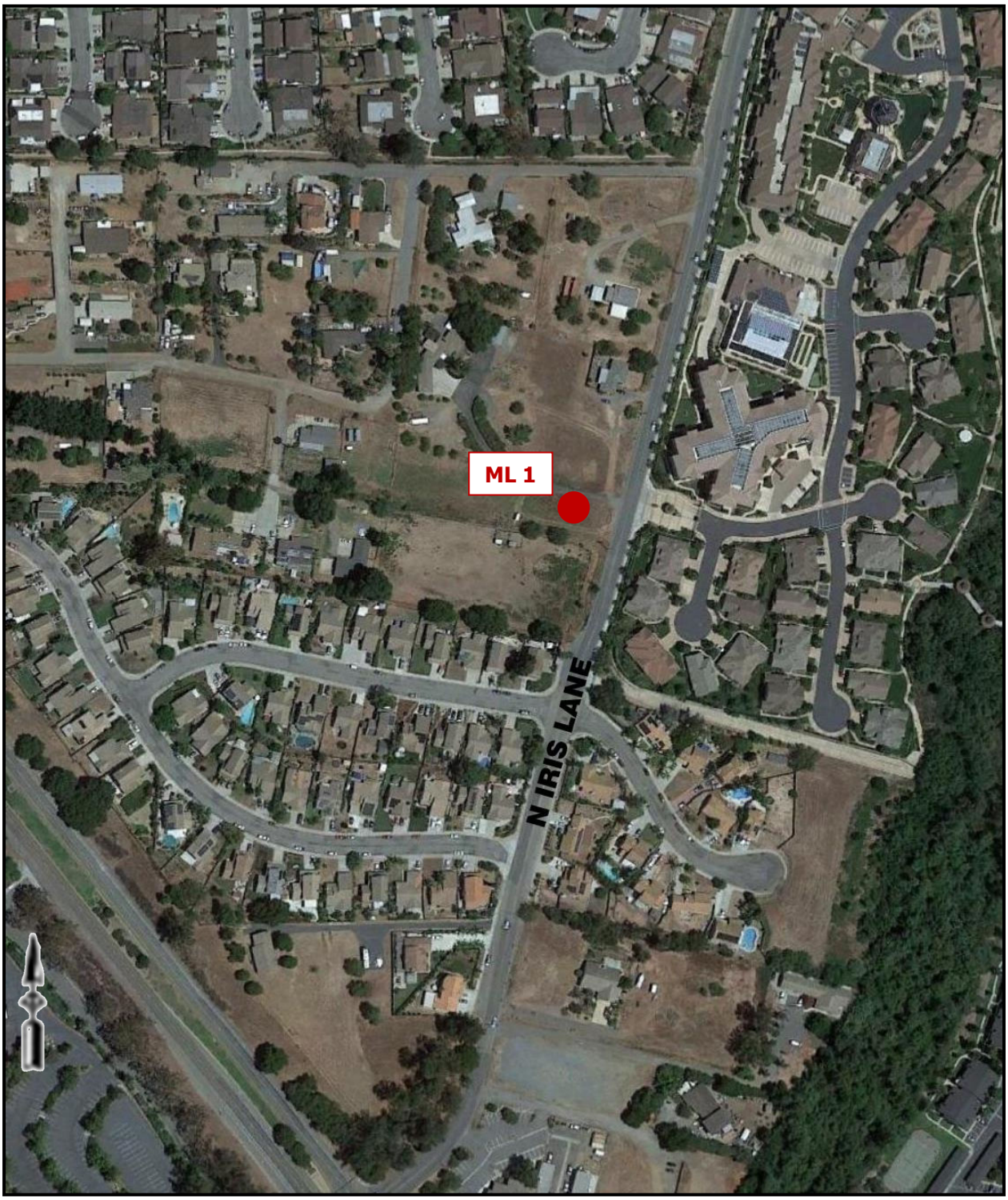
Noise measurements were taken using a Larson-Davis Model LxT Type 1 precision sound level meter, programmed, in "slow" mode, to record noise levels in "A" weighted form. The sound level meter and microphone were mounted on a tripod, five feet above the ground and equipped with a windscreen during all measurements. The sound level meter was calibrated before and after the monitoring using a Larson-Davis calibrator, Model CAL 200.

The ambient measurements were conducted on April 15, 2021 between 9:15 am – 9:30 am. The results of the noise level measurements are presented in Table 4-4. The measurements were taken on site to establish a baseline of the vehicle noise from N Iris Lane. The measurements were free of obstruction and had a direct line of sight to the roadways. The overall sound level was found to be 59.0 dBA. The statistical indicators Lmax, Lmin, L10, L50 and L90, are also given for the monitoring location. The noise monitoring locations can be seen in Figure 4-1 on the following page.

Table 4-4: Measured Ambient Noise Levels

Measurement Identification	Description	Time	Noise Levels (dBA Leq)					
			Leq	Lmax	Lmin	L10	L50	L90
ML 1	North Iris Lake	9:15 a.m. – 9:30 a.m.	59.0	70.1	41.8	63.4	55.1	46.7
Source: Ldn Consulting April 15, 2021								

Figure 4-1: Ambient Monitoring Locations



4.3.2 Onsite Transportation Related Noise Levels

To determine the future noise environment and impact potentials the roadway segment noise levels projected in this report were calculated using the methods in the Highway Noise Model published by the Federal Highway Administration (Source: (FHWA, 1978)). The FHWA Model uses the traffic volume, vehicle mix, speed, and roadway geometry to compute the equivalent noise level. The peak hour traffic volumes range between 6-12% of the average daily traffic (ADT) and 10% is generally acceptable for noise modeling.

Table 4-5 presents the roadway parameters used in the analysis including the peak traffic volumes, vehicle speeds and the hourly traffic flow distribution (vehicle mix). The vehicle mix provides the hourly distribution percentages of automobile, medium trucks and heavy trucks for input into the Model. The Buildout conditions are provided in the Project traffic study (LOS Engineering, 2022). The modeled observer locations are represented in Figure 4-2.

Table 4-5: Future Traffic Parameters

Roadway	Average Daily Traffic (ADT)[1]	Peak Hour Volumes[1]	Modeled Speeds (MPH)	Vehicle Mix %[2]		
				Auto	Medium Trucks	Heavy Trucks
N Iris Lane	9,995	1,000	35	96	2	2

[1] Source: N Iris Lane Draft Traffic Study – LOS Engineering, Inc., 2022
[2] Source: City of Escondido General Plan Projected Buildout Noise Contours for Year 2035

A spreadsheet calculation was used which computes equivalent noise levels for each of the time periods used in the calculation of CNEL. Weighting these equivalent noise levels and summing them gives the CNEL for the traffic projections. Additionally, three decibels of attenuation is allowed for the first row of buildings when they block 40 to 65% of the line of sight to the noise source, and three to five decibels of attenuation is allowed when the buildings obstruct more than 65% of the line of sight (Source: (Caltrans, 2006). The line of sight to the roadways from the park/outdoor use areas are blocked by the existing and proposed structures by more than 40%, therefore a factor of 3 dBA was taken into account. Outdoor usable space would be provided by the proposed park/outdoor use areas located near Building 2 and Building 19. It was determined that the outdoor noise levels are expected to be as high as 59 dBA CNEL at the park/outdoor use area and would comply with the City's 65 dBA CNEL noise standard. Therefore, no impact is identified and no mitigation is required. The results of the specific noise modeling are provided below in Figure 4-3 and Table 4-6.

Figure 4-2: Modeled Receptor Locations

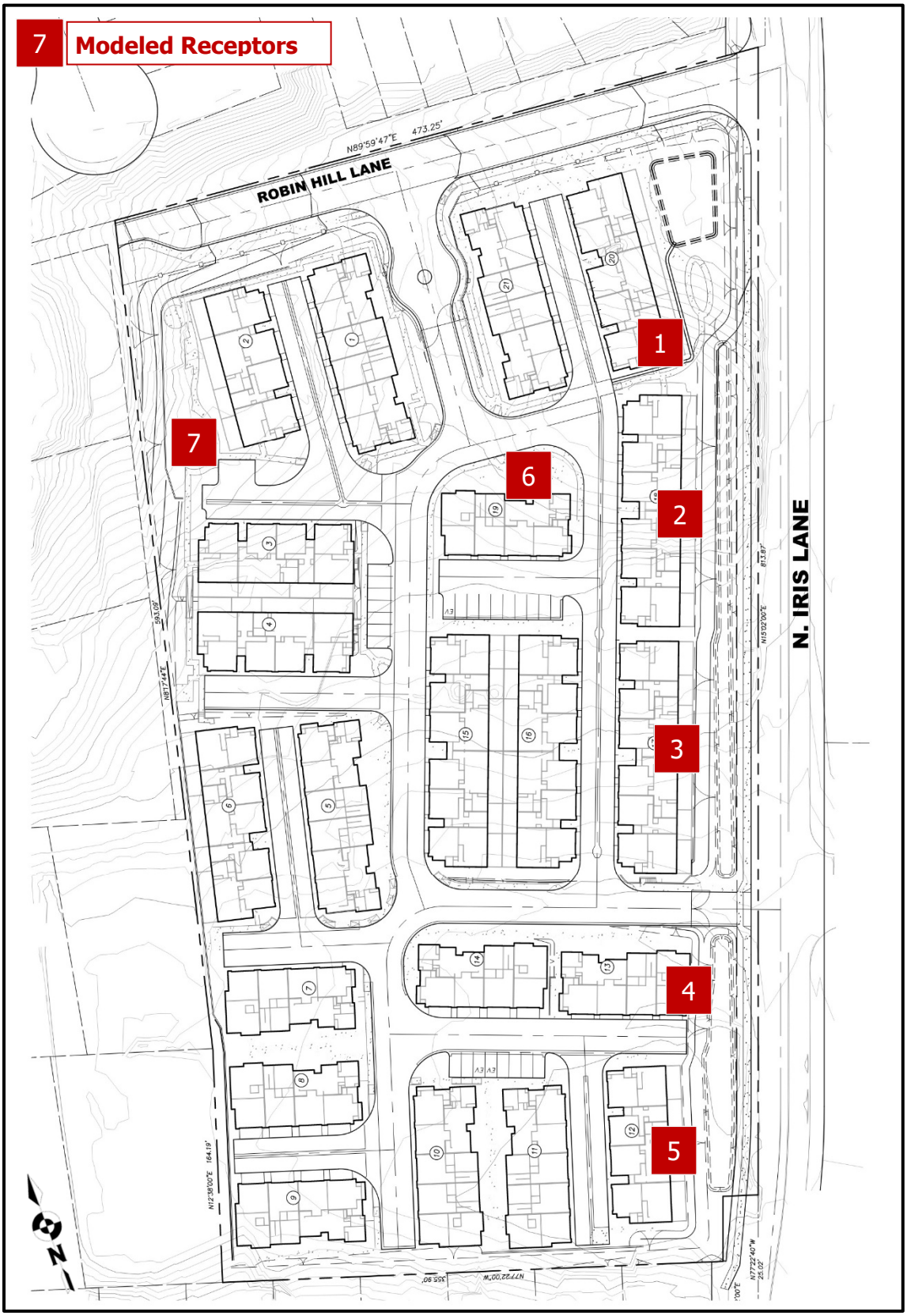


Figure 4-3: Future Exterior Noise Levels

Project Name:	N Iris Lane	Date:	1-Jul-21
Project Number:	20-56	Location:	Escondido

Traffic Volumes, Mix and Speeds

	Autos	Med. Trucks	Heavy Trucks
Mix Ratio by Percent	96.0	2.0	2.0
Propagation Rule	Hard		

Roadway	ADT	Speed MPH	CNEL @ 50 Feet	60 CNEL (Feet)
N Iris Lane	9,995	35	66.9	244

Noise Reduction due to Distance

	Distance	Reduction	Resultant Level
Building 20	78	-1.93	65.0
Building 18	70	-1.46	65.4
Building 17	72	-1.58	65.3
Building 13	70	-1.46	65.4
Building 12	72	-1.58	65.3
Park 1	170	-5.31	61.6
Park 2	420	-9.24	57.6

Table 4-6: Future Exterior Noise Levels

Receptor Number	Receptor Location	Noise Level @ Receptor (dBA CNEL)[1]	Reduction Due to Shielding (dBA CNEL)	Resultant Noise Level (dBA CNEL)
1	Building 20	65	-	65
2	Building 18	65	-	65
3	Building 17	65	-	65
4	Building 13	65	-	65
5	Building 12	65	-	65
6	Park/Outdoor Area	62	-3.0	59
7	Park/Outdoor Area	58	-3.0	55

[1] FHWA Highway Traffic Noise Prediction Model, FHWA-RD-77-108

Additionally, a final noise assessment is required prior to the issuance of the first building permit for first, second and third floors of the units since the building facades are above 60 dBA CNEL. This final report would identify the interior noise requirements based upon architectural and

building plans to meet the City's established interior noise limit of 45 dBA CNEL. It should be noted; interior noise levels of 45 dBA CNEL can easily be obtained with conventional building construction methods and providing a closed window condition requiring a means of mechanical ventilation (e.g., air conditioning) for each building and upgraded windows for all sensitive rooms (e.g., bedrooms and living spaces).

4.3.3 Project Related Offsite Transportation Noise

The off-site Project related roadway segment noise levels projected in this report were calculated using the methods in the Highway Noise Model published by the Federal Highway Administration (FHWA Highway Traffic Noise Prediction Model, FHWA-RD-77-108, December 1978). The FHWA Model uses the traffic volume, vehicle mix, speed, and roadway geometry to compute the equivalent noise level. A spreadsheet calculation was used which computes equivalent noise levels for each of the time periods used in the calculation of CNEL. Weighting these equivalent noise levels and summing them gives the CNEL for the traffic projections. The noise contours are then established by iterating the equivalent noise level over many distances until the distance to the desired noise contour(s) are found.

Because mobile/traffic noise levels are calculated on a logarithmic scale, a doubling of the traffic noise or acoustical energy results in a noise level increase of 3 dBA. Therefore, the doubling of the traffic volume, without changing the vehicle speeds or mix ratio, results in a noise increase of 3 dBA. Mobile noise levels radiate in an almost oblique fashion from the source and drop off at a rate of 3 dBA for each doubling of distance under hard site conditions and at a rate of 4.5 dBA for soft site conditions. Hard site conditions consist of concrete, asphalt and hard pack dirt while soft site conditions exist in areas having slight grade changes, landscaped areas and vegetation. Hard site conditions, to be conservative, were used to develop the noise contours and analyze noise impacts along all roadway segments. The future traffic noise model utilizes a typical, conservative vehicle mix of 96% Autos, 2% Medium Trucks and 2% Heavy Trucks for all analyzed roadway segments. The vehicle mix provides the hourly distribution percentages of automobile, medium trucks and heavy trucks for input into the FHWA Model.

Community noise level changes greater than 3 dBA are often identified as audible and considered potentially significant, while changes less than 1 dBA will not be discernible to local residents. In the range of 1 to 3 dBA, residents who are very sensitive to noise may perceive a slight change. There is no scientific evidence available to support the use of 3 dBA as the significance threshold. Community noise exposures are typically over a long time period rather than the immediate comparison made in a laboratory situation. Therefore, the level at which changes in community noise levels become discernible is likely greater than 1 dBA and 3 dBA appears to be appropriate for most people. For the purposes for this analysis a direct and cumulative roadway noise impacts would be considered significant if the project increases noise levels for a noise sensitive land use

by 3 dBA CNEL and if the project increases noise levels above an unacceptable noise level per the City's General Plan in the area adjacent to the roadway segment.

Direct Noise Impacts

To determine if direct off-site noise level increases associated with the development of the Project will create noise impacts, the noise levels for the existing conditions were compared with the noise level increase from the Project. Utilizing the Project's traffic assessment trips (LOS Engineering, 2022) noise contours were developed for the following traffic scenarios:

Existing: Current day noise conditions without construction of the project.

Existing Plus Project: Current day noise conditions plus the completion of the project.

Existing vs. Existing Plus Project: Comparison of the direct project related noise level increases in the vicinity of the project site.

The noise levels and reference distances to the 60 dBA CNEL contours for the roadways in the vicinity of the Project site are given in Table 4-7 for the Existing Scenario and in Table 4-8 for the Existing Plus Project Scenario. Note that the values given do not take into account the effect of any noise barriers or topography that may affect ambient noise levels. Table 4-9 presents the comparison of the Existing Year with and without Project related noise levels. The overall roadway segment noise levels will increase from 0.1 to 0.4 dBA CNEL with the development of the Project. The Project does not create a direct noise increase of more than 3 dBA CNEL on any roadway segment. Therefore, the Project's direct contributions to off-site roadway noise increases will not cause any significant impacts to any existing or future noise sensitive land uses.

Table 4-7: Existing Noise Levels

Roadway	Roadway Segment	ADT[1]	Vehicle Speeds (MPH)[1]	Noise Level @ 50-Feet (dBA CNEL)	60 dBA CNEL Contour Distance (Feet)
Centre City Parkway	Iris Ln to El Norte Pkwy	17,018	55	73.6	402
N Iris Lane	Village Rd to Robin Hill Ln	8,466	35	66.2	129
	Robin Hill Ln to Centre City Pkwy	8,996	35	66.4	134
[1] Source: Project Traffic study prepared by LOS Engineering, Inc., 2022					

Table 4-8: Existing + Project Noise Levels

Roadway	Roadway Segment	ADT[1]	Vehicle Speeds (MPH)[1]	Noise Level @ 50-Feet (dBA CNEL)	60 dBA CNEL Contour Distance (Feet)
Centre City Parkway	Iris Ln to El Norte Pkwy	17,614	55	73.7	411
N Iris Lane	Village Rd to Robin Hill Ln	8,775	35	66.3	132
	Robin Hill Ln to Centre City Pkwy	9,791	35	66.8	142
[1] Source: Project Traffic study prepared by LOS Engineering, Inc., 2022					

Table 4-9: Existing vs. Existing + Project Noise Levels

Roadway	Roadway Segment	Existing Noise Level @ 50-Feet (dBA CNEL)	Existing Plus Project Noise Level @ 50-Feet (dBA CNEL)	Project Related Noise Level Increase (dBA CNEL)
Centre City Parkway	Iris Ln to El Norte Pkwy	73.6	73.7	0.1
N Iris Lane	Village Rd to Robin Hill Ln	66.2	66.3	0.1
	Robin Hill Ln to Centre City Pkwy	66.4	66.8	0.4

Cumulative Noise Impacts

To determine if cumulative off-site noise level increases associated with the development of the Project and other planned or permitted projects in the vicinity will create noise impacts. The noise levels for the near-term Project Buildout and other planned and permitted projects were compared with the existing conditions. Utilizing the Project's traffic assessment trips (LOS Engineering, 2022) noise contours were developed for the following traffic scenarios:

Existing: Current day noise conditions without construction of the project.

Existing Plus Cumulative Projects Plus Project: Current day noise conditions plus the completion of the project and the completion of other permitted, planned projects or approved ambient growth factors.

Existing vs. Existing Plus Cumulative Plus Project: Comparison of the existing noise levels and the related noise level increases from the combination of the project and all other planned or permitted projects in the vicinity of the site.

The existing noise levels and reference distances to the 60 dBA CNEL contours for the roadways in the vicinity of the Project site are given in Table 4-7 above for the Existing Scenario. The near-term cumulative noise conditions are provided in Table 4-10. No noise barriers or topography that may affect noise levels were incorporated in the calculations.

Table 4-11 presents the comparison of the Existing Year and the Near-Term Cumulative noise levels. The overall roadway segment noise levels will increase 0.2 to 0.4 dBA CNEL with the development of the Project and proposed cumulative projects. The cumulative noise increase is less than 3 dBA CNEL on any roadway segment and impacts would be less than significant.

Table 4-10: Existing + Project + Cumulative Noise Levels

Roadway	Roadway Segment	ADT[1]	Vehicle Speeds (MPH)[1]	Noise Level @ 50-Feet (dBA CNEL)	60 dBA CNEL Contour Distance (Feet)
Centre City Parkway	Iris Ln to El Norte Pkwy	18,919	55	74.0	431
N Iris Lane	Village Rd to Robin Hill Ln	8,787	35	66.3	132
	Robin Hill Ln to Centre City Pkwy	9,803	35	66.8	142
[1] Source: Project Traffic study prepared by LOS Engineering, Inc., 2022					

Table 4-11: Existing vs. Existing + Project + Cumulative Noise Levels

Roadway	Roadway Segment	Existing Noise Level @ 50-Feet (dBA CNEL)	Existing Plus Project Plus Cumulative Noise Level @ 50-Feet (dBA CNEL)	Project Related Noise Level Increase (dBA CNEL)
Centre City Parkway	Iris Ln to El Norte Pkwy	73.6	74.0	0.7
N Iris Lane	Village Rd to Robin Hill Ln	66.2	66.3	0.2
	Robin Hill Ln to Centre City Pkwy	66.4	66.8	0.4

4.3.4 Transportation Noise Conclusions

It was determined that the outdoor noise levels are expected to be as high as 59 dBA CNEL at the proposed park/outdoor use area and would comply with the City's noise standard and no additional mitigation is required. Exterior noise levels at the building facades were found to be above the Noise Element Standard of 60 dBA CNEL. Therefore, interior mitigation is required to obtain an interior level of 45 dBA CNEL.

The Project does not create a direct or cumulative noise increase of more than 3 dBA CNEL on any roadway segment along Centre City Parkway and N Iris Lane. Therefore, the Project's direct contributions to off-site roadway noise increases will not cause any significant impacts to any existing or future noise sensitive land uses.

4.4 Operational Noise

Fixed or point sources radiate outward uniformly as sound travels away from the source. Their sound levels attenuate or drop off at a rate of 6 dBA for each doubling of distance. For example, a noise level of 75 dBA measured at 3 feet from the noise source to the receptor would be reduced to 69 dBA at 6 feet from the source to the receptor and 63 dBA at a distance of 12 feet.

Ground mechanical ventilation units (HVAC) will be installed at the proposed residential units. The project anticipates installing Carrier CA15NA (Series, 24-A) or equivalent HVAC units with a reference noise level of 71 dBA at 3-feet (Source: Carrier). The manufacturer's specifications and noise levels are provided in Attachment A. The HVAC units will cycle on and off throughout the day. Typically, HVAC units run for approximately 20 minutes each operating cycle to provide the necessary heating or cooling. It is anticipated that the HVAC units will operate twice in any given hour or run for 40 minutes in any given hour. Noise levels drop 3 decibels each time the duration of the source is reduced in half. Therefore, hourly HVAC noise level over a 40 minute period would be reduced approximately 2 decibels to 69 dBA based on operational time. To predict the property line noise level, a reference noise level of 69 dBA at 3-feet was used to represent the HVAC units.

The HVAC units are located a minimum of 30 feet from the property lines and are shielded by the proposed homes and perimeter fencing as shown in Figure 3-A. The solid fencing will be vinyl, ¾-inch or thicker consisting of solid panels on minimum 4x4-inch posts with no cracks or gaps through or below and all seams or cracks will be filled or caulked. The typical locations of the proposed HVAC units are also shown in Figure 3-A. Two HVAC units maybe located near each other with the proposed buildings separating them and would create the worst case cumulative noise level. The remainder of the units are separated by at least 30 feet and the proposed buildings shielding them. This separation of 30 feet would result in a 20 dBA difference between two separate HVAC units and would not cumulatively increase the noise levels. Therefore, the worst case combined noise from the HVAC would occur from two units.

Utilizing a 6 dBA decrease per doubling of distance, noise levels at the nearest property line as described above were calculated for the HVAC. The noise levels associated with the HVAC will be limited with the proposed perimeter fencing that will shield them both visually and acoustically. The HVAC units are located a minimum of 30 feet from the nearest property lines.

To determine the noise level reductions from the perimeter fencing, the Fresnel Barrier Reduction Calculations based on distance, source height, receiver elevation and the top of barrier were modeled. The adjacent receptor was located 5 feet behind the perimeter fencing. The noise level reductions due to distance and the fencing for the nearest property line is provided in Table 4-12 below. The Fresnel barrier reduction calculations for the fencing are provided in Attachment B of this report.

Table 4-12: Project HVAC Noise Levels (Nearest Property Line)

Distance to Observer (Feet)	Reference Noise Level (dBA)	Noise Source Reference Distance (Feet)	Noise Reduction due to distance (dBA)	Quantity	Noise Reduction from Fencing (dBA)	Resultant Noise Level @ Property Line (dBA)
35	69	3	-24.4	2	-8.6	42.1*
*Complies with the nighttime Noise Standard of 45 dBA.						

No impacts are anticipated at the property lines with the incorporation of the proposed 6-foot fencing as shown in Figure 4-4. All other property lines are located further from the proposed HVAC units and the resulting noise levels would also be below the 45 dBA threshold.

Figure 4-4: Locations of the proposed HVAC Units



5.0 REFERENCES

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Appendix M
Sewer Study

DEXTER WILSON ENGINEERING, INC.

WATER • WASTEWATER • RECYCLED WATER

CONSULTING ENGINEERS

SEWER STUDY FOR THE
NORTH IRIS LANE PROJECT IN THE
CITY OF ESCONDIDO

September 13, 2021

2234 FARADAY AVENUE • CARLSBAD, CA • (760) 438-4422

SEWER STUDY FOR THE NORTH IRIS LANE PROJECT IN THE CITY OF ESCONDIDO

September 13, 2021



9-13-2021

Prepared by:
Dexter Wilson Engineering, Inc.
2234 Faraday Avenue
Carlsbad, CA 92008
760-438-4422

Job No. 840-005

DEXTER WILSON ENGINEERING, INC.

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KATHLEEN L. HEITT, P.E.

September 13, 2021 840-005

Hallmark Communities
760 Lomas Santa Fe Drive, Unit 204
Solana Beach, CA 92075

Attention: Mariana McGrain, Senior Project Manager

Subject: Sewer Study for the North Iris Lane Project in the City of Escondido

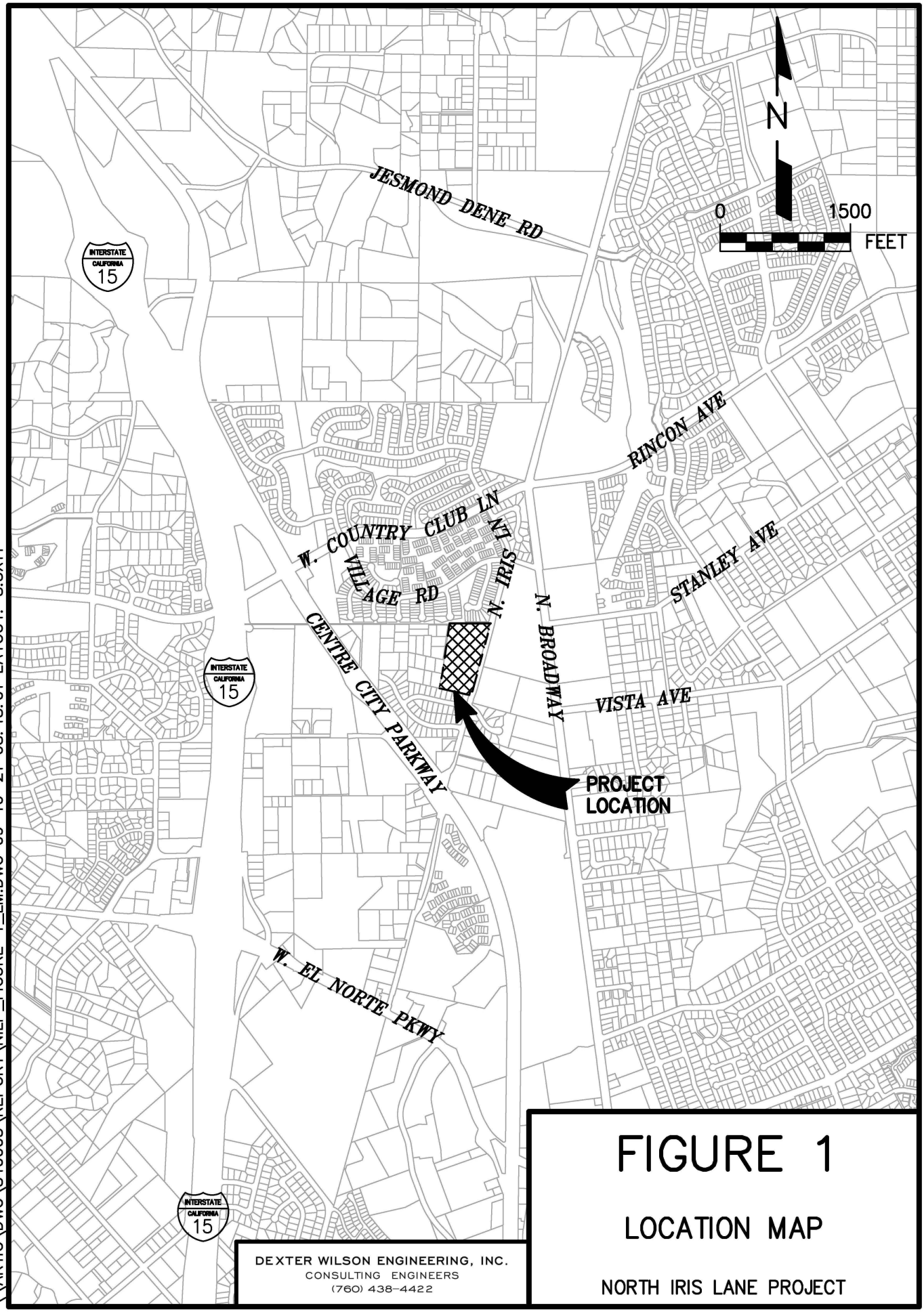
Introduction

The North Iris Lane project is located in the City of Escondido along the west side of N. Iris Lane and south of Robin Hill Lane. The project encompasses approximately 7 net-acres and proposes to develop the site with a total of 102 multi-family residential dwelling units spread across 21 individual buildings.

Figure 1 provides a vicinity map for the project. A Preliminary Site Plan Exhibit for the North Iris Lane project is included in Appendix A.

Sewer System Design Criteria

The North Iris Lane project will receive sewer service from the City of Escondido. The design criteria used for the evaluation of the onsite and offsite sewerage system impacts by the North Iris Lane project are based on the City of Escondido Design Standards, dated April 2, 2014 and the City of Escondido 2012 Wastewater Master Plan. Appendix B contains the pertinent design criteria sections of the City's Design Standards and Master Plan.



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DEXTER WILSON ENGINEERING, INC.
CONSULTING ENGINEERS
(760) 438-4422

FIGURE 1

LOCATION MAP

NORTH IRIS LANE PROJECT

Sewage Generation. Sewage generation estimates for the proposed development were developed in accordance with the City of Escondido Design Standards, dated April 2, 2014, and the City of Escondido 2012 Wastewater Master Plan, dated June 2012. For residential areas, the average flow generation factor used is 200 gpd per dwelling unit. For commercial areas, the average flow generation factor used is 38 gpd per employee.

Peaking Factors. The peaking factor equation used to convert average dry weather flow to peak dry weather flow is provided in Table 3-1 of the City of Escondido 2012 Wastewater Master Plan and is presented below for reference. Flow units for the equation are in cfs.

$$Q_{peaked} = 2.17 Q_{average}^{0.975}$$

Manning's "n". The gravity sewer analyses are made using a computer spreadsheet which uses the Manning Equation for all of its calculations. The Manning's "n" used is held constant for all depths in a circular conduit. The value of Manning's "n" used for this study is 0.013.

Depth and Velocity of Flow in Gravity Sewers. Gravity sewer lines are designed to convey peak wet weather flow. For sewer lines smaller than 12-inch, the depth-to-diameter (d/D) ratio must not exceed 0.50. For sewer lines 12-inch and larger, the d/D ratio must not exceed 0.75.

Gravity sewer lines are designed to maintain a minimum velocity of 2.0 feet per second (fps) at average flow to prevent the deposition of solids.

Sewer Generation

Sewer generation estimates were developed in accordance with the City of Escondido Design Standards, dated April 2, 2014. As shown in Table 1, the projected average dry weather sewer flow for the North Iris Lane project is 20,400 gpd.

TABLE 1 NORTH IRIS LANE PROJECT PROJECTED SEWER GENERATION			
Land Use	**Units**	**Sewer Generation Factor**	**Average Dry Weather Flow**
Residential (Multi-Family)	102 DU	200 gpd/EDU	20,400 gpd
TOTAL			**20,400 gpd 14.2 gpm 0.032 cfs**

An average dry weather flow of 20,400 gpd results in a peak dry weather flow of 48,262 gpd based on the peaking factor equation provided in Table 3-1 of the City of Escondido 2012 Wastewater Master Plan.

Existing Sewer System

Existing sewer facilities pertinent to the North Iris Lane project consist of gravity sewer lines. Figure 2 presents the existing sewer facilities in the vicinity of the North Iris Lane project.

There are existing local gravity sewer lines adjacent to the North Iris Lane project that serve existing development within and around the property. There is an existing 10-inch gravity sewer line along the project's eastern frontage in North Iris Lane. This sewer conveys flow southward primarily through easements up to the City's existing 15-inch diameter North Trunk Sewer. Generally, this existing North Trunk Sewer conveys sewage flow south and southwest. Sewage flow from the trunk sewer is ultimately conveyed to the City of Escondido Hale Avenue Resource Recovery Facility for treatment and disposal.

ROBIN HILL LANE

EX.8"

EX.8"

EX.8"

ROBIN HILL LANE

EX.10"

NORTH IRIS LANE

EX.10"

EX.10"

EX.10"

6"

8"

LEGEND

PROJECT BOUNDARY

EXISTING PUBLIC SEWER LINE

PROPOSED PUBLIC SEWER LINE

PROPOSED PRIVATE SEWER LINE

N

0 100 FEET

FIGURE 2

EXISTING AND PROPOSED SEWER SYSTEM

NORTH IRIS LANE PROJECT

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\\ARTIC\DWG\840005\REPORT\NILP_FIGURE-2_EX&PROSWR.DWG 09-10-21 09:14:11 LAYOUT: 11X17

Overview of Proposed Sewer Service

Onsite sewer facilities for the North Iris Lane project are proposed to include both public and private gravity sewer lines. For residential housing clusters with driveway access, private sewer collection facilities will be used to convey sewer flow to the backbone public gravity sewer system onsite within the main driveways. Figure 2 shows the proposed onsite sewer system.

Sewer service to the North Iris Lane project will be provided by connecting the proposed onsite sewer collection system to a new manhole on the existing 10-inch diameter sewer line in North Iris Lane east of the project site. The new manhole will be constructed between two existing manholes in North Iris Lane and is not proposed to alter the slope or direction of the existing 10-inch diameter sewer line.

Offsite Sewer System Analysis

To analyze the impact of the North Iris Lane project on the existing sewer system, a hydraulic analysis was conducted. Appendix C provides the hydraulic analysis output and Exhibit A provides the corresponding Sewer Manhole Diagram. To perform this analysis, we obtained As-Built Drawings of the existing sewer system so that the pipe sizes and slopes could be inputted to the spreadsheet. The pertinent As-Built drawings of the existing sewer are included in Appendix D.

A key component of the hydraulic analysis is to estimate existing flows within the sewer lines that will be utilized to serve the North Iris Lane project. Existing sewer flow was referenced from the City's Master Plan. As part of the City's Master Plan development there was a sewer flow meter placed on the existing 15-inch diameter sewer line downstream from the project. This particular flow meter (E8) for the City was installed in order to measure the sewer flow from Basin 8 (project's basin). This E8 meter location is indicated on Exhibit A.

Existing development within Basin 8 is stated in the City's Master Plan as 3,940 dwelling units and 1,307 employment population. This stated development equates to 837,666 gpd average flow. Accounting for the 5.3 percent growth in the City since the Master Plan, this

882,062 gpd flow rate was inputted uniformly as existing flow within the overall offsite sewer system analysis in Appendix C.

These pertinent excerpts from Chapter 4 in the City's Master Plan and population growth reference are included within Appendix E.

Sewer System Analysis Results

Appendix C presents the results of the hydraulic analysis for the North Iris Lane project. The results indicate that the existing system has adequate capacity to serve the project. With the additional sewer flow from the North Iris Lane project, all sections of the existing 10-inch diameter sewer line will flow less than half full during peak flow conditions and all sections of the existing 15-inch diameter sewer line will flow less than three quarters full during peak flow conditions.

A summary of the impacts to the existing downstream gravity sewer due to the proposed North Iris Lane project is shown below in Table 2.

TABLE 2
NORTH IRIS LANE PROJECT EXISTING DOWNSTREAM SEWER IMPACTS

Existing Downstream Sewer Section	Maximum d/D Ratio		Minimum Velocity, fps	
	Existing Flow	Existing plus Project Flow	Existing Flow	Existing plus Project Flow
10-inch Diameter	0.41	0.43	2.5	2.7
15-inch Diameter	0.58	0.59	2.8	2.9

Conclusions and Recommendations

The following conclusions and recommendations are summarized based on the sewer system analysis prepared for the proposed North Iris Lane development project in the City of Escondido.

1. The North Iris Lane project consisting of 102 dwelling units will gravity sewer to the existing 10-inch diameter and 15-inch diameter public sewer south of the project.

2. The residential project will include both an onsite public sewer system and onsite private sewer system which will sewer to North Iris Lane.

3. The North Iris Lane project will have an average sewer generation of 20,400 gpd.

4. Public onsite gravity sewer mains within the North Iris Lane project are proposed to be 8-inch diameter designed at a minimum slope of one percent. Figure 2 presents the proposed onsite sewer system for the project

5. New sewer lines shall be designed to meet all requirements of the City of Escondido Design Standards, dated April 2, 2014 or latest edition, and to the satisfaction of the Director of Utilities. Final design will be reflected on the improvement plans to be submitted for review and approval.

If you have any questions regarding the information or conclusions and recommendations presented in this report, please do not hesitate to contact the undersigned.

Dexter Wilson Engineering, Inc.

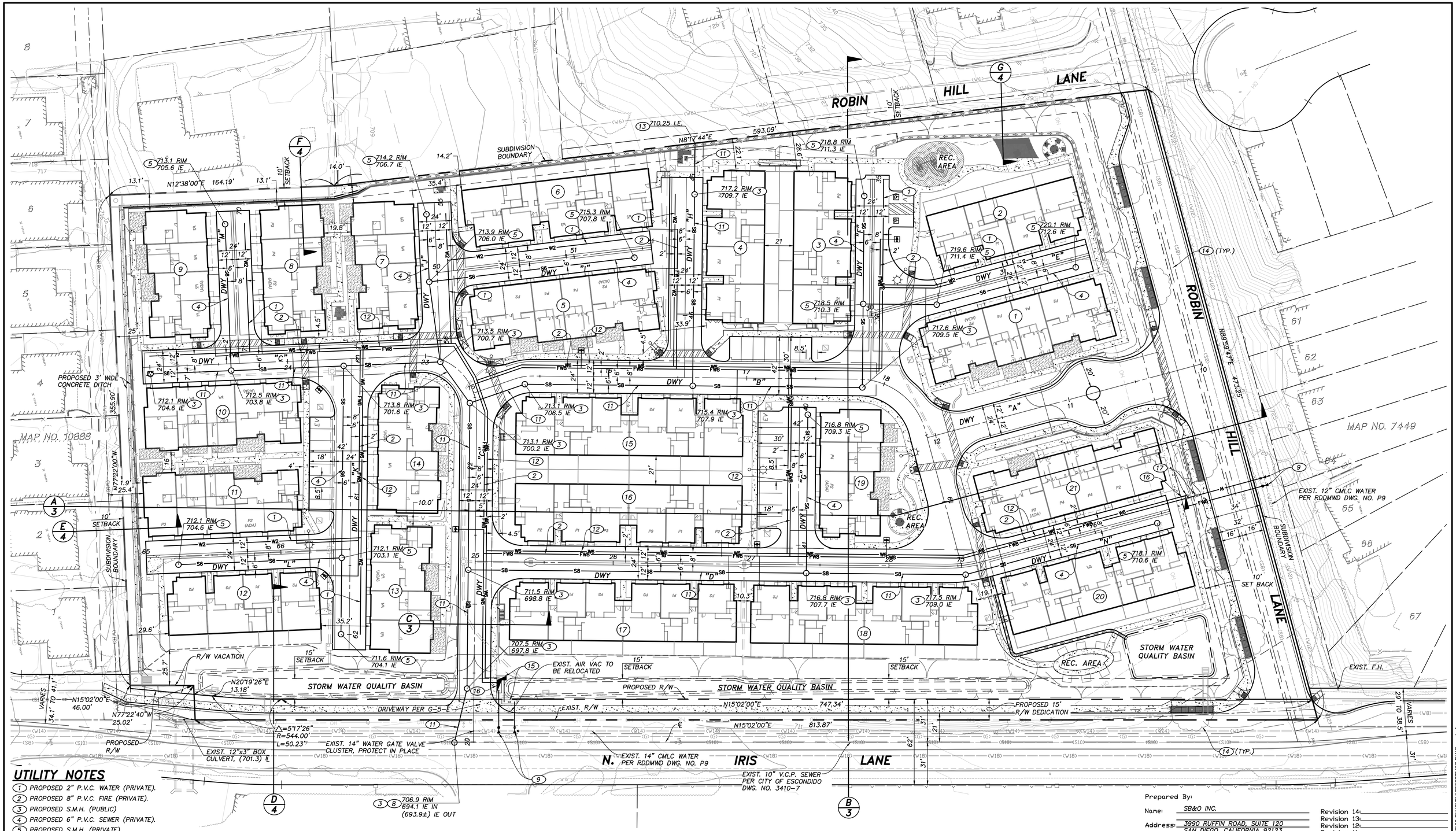
Steven Henderson, P.E.

SH:ps

Attachments

APPENDIX A

PRELIMINARY SITE LAYOUT



UTILITY NOTES

1. PROPOSED 2" P.V.C. WATER (PRIVATE).
2. PROPOSED 8" P.V.C. FIRE (PRIVATE).
3. PROPOSED S.M.H. (PUBLIC)
4. PROPOSED 6" P.V.C. SEWER (PRIVATE).
5. PROPOSED S.M.H. (PRIVATE)
8. CONNECT TO EXIST. 10" V.C.P. SEWER PER CITY OF ESCONDIDO DWG. NO. 3410-7.
9. CONNECT TO EXIST 12" OR 14" WATER PER R.D.D.M.W.D. DWG. NO. P9.
11. PROPOSED 8" P.V.C. SEWER (PUBLIC)
12. PROPOSED 6" P.V.C. WATER (PRIVATE).
13. 8" SEWER MAIN STUB AND RISER FOR FUTURE DEVELOPMENT.
14. PROPOSED STREET TREE.
15. 3" METER AND 3" BACKFLOW PER W.A.S. WR-02, WS-04A AND WS-4B.
16. 8" FIRE DCDA PER R.M.W.D. W-7.
17. 2" WATER METER AND 2" BACKFLOW PER R.D.D.M.W.D., W-2 AND W-6.

EASEMENT NOTE:

(#) FOR EXIST. EASEMENT NOTES SEE SHEET 5.

[#] FOR PROP. EASEMENT NOTES SEE SHEET 6.

SCALE: 1" = 30'

GRAPHIC SCALE

30 0 30 60 90

REGISTERED PROFESSIONAL ENGINEER AARON PARKER No. 68547 CIVIL STATE OF CALIFORNIA

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PLANNING ENGINEERING SURVEYING
3990 Ruffin Road, Suite 120
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AARON PARKER P.E. 68547 7-8-21 DATE

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Project Name:
N. IRIS LANE

Sheet Title:
HORIZONTAL CONTROL AND UTILITY PLANS

Revision 14:
Revision 13:
Revision 12:
Revision 11:
Revision 10:
Revision 9:
Revision 8:
Revision 7:
Revision 6:
Revision 5:
Revision 4:
Revision 3:
Revision 2:
Revision 1: 7-2-21

Original Date: 3-8-21

Sheet 7 of 8

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APPENDIX B

CITY OF ESCONDIDO DESIGN CRITERIA

SEWER - DESIGN STANDARDS

1. GENERAL

A. All new or existing projects that are require to construct a new sewer system or upgrading of an existing sewer system are responsible for design and construction of sewer improvements in accordance with City's Wastewater Master Plan and to the requirements of the Utility Engineer.

B. All new or existing projects that propose connection to an existing public sewer are responsible to extend public sewer mains across the full property frontage and to all property limits as necessary for future extensions as determined by the Utility Engineer.

C. Deviations from these standards require special approval of the Utility Engineer.

2. MAINS

A. General

(1) All materials used in sewer construction will be per the City of Escondido Utility Department approved material list.

(2) All mains shall be sized in conformance with the City of Escondido Wastewater Master Plan, or at the direction of the Utility Engineer.

(3) Minimum size shall be 8 inches.

(4) Material for all pipelines in easements shall be PVC C-900 or C-905. No service lateral connections to sewers within easements are allowed without specific, prior approval by the Utility Engineer.

(5) Minimum depth of cover is 5 feet, Cover less than 5 feet is only allowed with prior approval by Utility Engineer, and may require special design and construction.

(6) Horizontal or vertical curves are not allowed, except by specific, prior approval of the Utility Engineer.

(7) Design Criteria: For diameters less than 12 inches, depth of flow shall not exceed ½ the diameter. For diameters 12 inch and larger, depth of flow shall not exceed ¾ the diameter. Depths will be calculated for the ultimate design peak flow rates.

(8) All utilities shall be shown in plan and profile on the Sewer and Water plans.

(9) No trees or deep rooted plants shall be planted within 15 feet of sewer mains.

(10) All newly installed or repaired mains shall be CCTV inspected by City of Escondido Wastewater Collection maintenance personnel at contractor's expense. Utilities Field Inspector to coordinate this activity.

(11) Signed and sealed "Record Drawing" plans are required for all new sewer installations, prior to acceptance by City. "Record Drawing" plans shall be submitted as: One set of corrected and signed Mylars, one .PDF file of the complete plan set, and all ACAD files used to create the drawings, on CD.

(12) Bonds shall not be released until “Record Drawing” plans are approved.

B. Locations

(1) Private Streets and Alleys: Mains shall be offset 4 feet north or west of the street or alley centerline.

(2) In the street: Sewer main location shall be at the centerline of the street.

(3) Sewers within easements should be avoided. Where easements are necessary, the minimum easement width shall be 20 feet, with an all-weather road surface, and fenced on both sides. Easements with grades over 10% shall be paved with concrete. Easement roads shall have a 25 feet minimum inside radius, 5% maximum cross-slope, and 15% maximum grade. The centerline of the pipe shall be placed at six (6) feet from the north or west easement edge. Dead-end easements shall be provided with an equipment turn-around, designed to the satisfaction of the Utility Engineer.

(4) Vertical clearance from storm drains shall be 1 foot minimum. Vertical clearance shall be at least 1 foot under water lines in conformance with State Department of Public Health Standards.

C. Minimum slopes shall be per Table S-1 below. Minimum velocity of 2 FPS must be maintained at average flow volume. Pipe sizes cannot be increased solely to reduce minimum slope.

TABLE S-1

SEWER DIAMETER, INCHES	MINIMUM SLOPE
8”	0.50%
12” and larger	0.30%

D. Design Criteria:

(1) For average flows in residential areas, assume 200 gallons per day, per residential unit.

(2) Industrial – for average flows, use 2000 gal/acre/day.

(3) Commercial – for average flows, use 1500 gal/acre/day.

(4) Maximum flows should be based on the following:
Maximum flow = average flow x Peak Factor per Table 3.1 of the 2012 Wastewater Master Plan.

3. MANHOLES

A. Manholes are required at all changes of slope and at the discharge point of all force mains.

B. Manholes are required for all changes in pipe size.

C. Manholes are required at all changes of direction.

D. Manholes are required at intersections of mains - match soffit elevations.

E. Minimum invert slope though a manhole is 2%. In no case shall the manhole invert have a slope less than the upstream main.

F. Manholes are required at permanent ends of lines. A cleanout may be used as a permanent end of line provided that the nearest downstream manhole is less than 200 feet away, and there is no change of direction, either horizontally or vertically, at that manhole.

G. Maximum spacing between manholes is per Table S-2 below:

TABLE S-2

SLOPE	MAXIMUM DISTANCE BETWEEN MANHOLES (FEET)
3% or less	300
>3% - 5%	240
>5% - 7%	180
>7% - 9%	140
Above 9%	100

H. All manholes shall be shown and numbered on the plans.

I. Provide 5 feet minimum, capped stubs for future extension.

J. All manholes shall be 60 inches inside diameter for mains 18 inches in diameter and smaller. Mains larger than 18 inches require special design.

K. Manhole lids shall be 36 inch in diameter with 24 inch inset access lids; shallow manholes (per S-5-E) shall have a 48 inch removable lid with a 24 inch inset access lid.

L. Manholes less than 5 feet deep (rim to invert) require special design and construction, to the satisfaction of the Utility Engineer. (See Standard Drawing No. S-5-E.)

M. Manholes in streets classified as Collector or above shall be reinforced per Standard Drawing No. S-4-E.

N. Extend mains through bottom and break out top. P.C.C. trough should not be formed.

O. All Manholes shall be completely lined with Raven 405 epoxy, or approved equal. A pull test shall be required. The minimum lining thickness shall be 80 mils.

P. Drop manholes are not permitted unless approved in writing by the Utility Engineer. (See Standard Drawing No. S-3-E)

Q. Pipes larger than 12 inches require hydraulic flow design. For the hydraulic calculations use: a) uniform flow calculations for depth and velocity; and b) pressure momentum calculations for manhole junctions using City of Los Angeles formulas. Pipe smaller than 12 inches may require hydraulic design to verify velocities, at request of Utility Engineer.

4. LATERALS

A. Size

(1) Only one lateral connection will be allowed for each legal lot. Each legal parcel must have its own lateral to the public main.

(2) Single family and up to 4 attached residential units on the same legal lot - minimum 4" with 2% minimum slope.

(3) All others - minimum 6 inch with 2% minimum slope,

(4) Laterals 8 inch and larger shall be connected to the public sewer at a manhole. Sewer laterals less than 8 inch in diameter shall be connected to the sewer main with PVC mainline wye fittings or Inserta-Tees. Saddles or break-in taps shall not be used.

B. Location:

(1) Perpendicular to main.

(2) From the center of lot to 5 feet from downstream lot line (shown on plans).

(3) A cleanout shall be located on private property within 18 inches of the Public Right of Way (see Standard Drawing S-2-E).

(4) Sewer laterals shall not be located in the driveway, except in areas of limited frontage at the discretion of the Utility Engineer.

(5) Provide a minimum of 5 feet horizontal clearance from other utilities and a minimum of 10 feet from trees or deep-rooted plantings.

(6) A separate lateral shall be installed to each lot; an "S" shall be stamped on the curb face at the lateral location. Laterals shall be shown on Sewer and Water Improvement Plans.

(7) A sewer lateral data table indicating length, slope, and elevation at the ROW, for each lateral shall be provided on the Sewer and Water Improvement Plans.

(8) All new lateral connections will be inspected at the City main by the City Utilities Field Inspection personnel. Engineering Field Inspector will coordinate this activity.

C. Depth - 5 feet at property line.

D. Service lateral check valves or pop-up relief valves shall be installed by the owner on private property when the pad elevation of the building is lower than the rim elevation of the upstream manhole. Maintenance of the check or relief valve is the responsibility of the owner.

E. Private sewer pumps are not allowed unless reviewed and approved by the Utility Engineer. All maintenance and repair of private sewer pumps and appurtenances shall be the responsibility of the property owner.

5. LIFT STATIONS

A. Private lift stations serving multiple lots will not be allowed.

B. Public Lift stations shall be designed per Utility Department requirements

6. FORCE MAINS:

A. Private force mains are not allowed within City Right-of-Ways, must be within recorded private easements when crossing other lots, and are the responsibility of the owner to maintain.

B. Public Force Mains shall be designed per the Utility Department requirements.

7. INVERTED SIPHONS

A. Inverted siphons shall be used only with specific, prior approval of the Utility Engineer.

B. Siphons shall be designed with two barrels, with a gate system allowing flow to be directed toward either the primary or secondary barrel.

C. A minimum velocity of 3 F.P.S. maintained for two hours a day is required.

RECYCLED WATER - DESIGN STANDARDS

Recycled Water systems shall be designed per the Utility Department requirements.

Section 3
Design Criteria

Design criteria were developed to evaluate the capacity of the existing wastewater collection system under existing and projected dry and wet weather flow conditions. The recommended evaluation criteria presented in Tables 3-1 and 3-2 will be utilized to identify deficient facilities and size replacement infrastructure.

3.1 Existing Design Criteria

The existing wastewater system design criteria are documented in the 2005 Wastewater Collection System Master Plan Update. The criteria, which are similar to other Southern California sewer agencies, are summarized in Table 3-1.

Table 3-1 Existing Design and Evaluation Criteria

Category	Design/Evaluation Criteria
Gravity Mains	• Minimum Velocity – 2 feet per second at peak flow rate • Max Peak depth to diameter ratio for existing sewers – 0.50 Peak Dry Weather Flow for diameter $\leq$ 12-inch – 0.75 Peak Dry Weather Flow for diameter > 12-inch • Inflow and Infiltration – 4,800 gallons per day per mile of pipe • Manning's Roughness Coefficient – 0.013
Force Mains	• Minimum Velocity – 3 feet per second • Maximum Velocity – 10 feet per second • Hazen Williams 'C' Factor – 100
Lift Stations	• Minimum Pump Capacity – ultimate peak wet weather flow Standby Capacity – 100% of largest pump capacity Emergency Power – required • Emergency Storage Capacity – 8 hours of average daily flow
Peaking Factors	$Q_{peaked} = 2.17(Q_{average})^{0.975}$

3.2 Recommended Design Criteria

Additional criteria for design and evaluation of the sewer system were developed based on the existing design criteria to include suggestions to improve operations, reliability, and cost savings. The additional criteria are listed in Table 3-2.

In addition to the updated criteria, the following elements can help with reliability and cost savings in the wastewater system:

- Conduct CCTV inspections of all gravity mains 8” and larger in diameter to determine likely locations of pipe failures.

2.4 Existing Wastewater Generation Rates

Existing wastewater flows were compared with land use data, population estimates and water meter records from the City and portions of Rincon del Diablo Municipal Water District (Rincon MWD) to develop unit wastewater generation rates. This methodology coupled with treatment plant flow records, temporary sewer flow meter records and lift station records can produce fairly accurate sewer flow estimates for individual sewer basins in evaluating existing system capacities.

As a first step in determining the wastewater generation rates, over 70 specific land use categories in the SANDAG database were combined into nine general land use categories. For residential land use, a unit flow generation factor was developed based on the 2010 population per the SANDAG Series 12 data. For non-residential land use, water billing records for 2010 were obtained and assigned to each parcel, and a return-to-sewer generation rate was developed. Water use from irrigation accounts was excluded for this analysis. Flow generation factors were developed through an iterative process in which generated flows were compared with recorded flows at the HARRF and the metered sub-basins. Unit wastewater generation rates were "calibrated" to within one percent of HARRF flows. The unit wastewater generation rates developed from this process are 55 gallons per capita per day (gpcd) for residential population, and 38 gpcd for employment population.

Typically, design and planning standards for agencies in a San Diego County assume per capita wastewater generation rates between 60 to 80 gallons gpcd for residential and 15 to 35 gpcd for employment populations. Wastewater generation rates for non-residential land use can vary widely, and flow estimates based on return to sewer rates are generally more accurate than employment per capita factors. The existing return to sewer rates for commercial, industrial and institutional land use areas was calculated to be 60 percent of the water demand, which excludes irrigation demands supplied from separate meters.

2.5 Peaking Factors

Diurnal peaking curves, also referred to as dry weather hydrogaphs, were determined for upstream basins based on the temporary flow meter data. A 24-hour flow curve was calculated for each upstream basin by averaging the hourly flow for each day during the flow metering period. A peaking curve was then developed for each basin in terms of the hourly flow factor (HFF), which is the hourly average flow divided by the average daily flow. The peak dry weather flow (PDWF) is the maximum HFF times the average daily flow for that basin. Figure 2-7 illustrates each characteristic peaking curve for the temporary flow meter sites. Most of the metered basins are dominated by residential flows, which typically have morning and evening peak flow periods. As is typical with most collections systems, upstream meters, such as Basins 3 and 8, have higher peaks than downstream meters, such as Basin 1, where peak flows are attenuated. It is noted that Basin 3 exhibits atypical peaks, which are presumed to be due to the relatively large number of schools in the service area.

APPENDIX C

OFFSITE SEWER SYSTEM ANALYSIS

MANHOLE DIAGRAM REFERENCE:

Exhibit A in the back of Appendix C

CONDITIONS MODELED:

1. Existing Flows

2. Existing Flows plus Project Flows

SEWER STUDY SUMMARY

DATE: 8/26/2021 FOR: North Iris Lane Project, City of Escondido (200 gpd per EDU plus Emp.) Existing Flows Only SHT 1 OF 1

JOB NUMBER: 840-005 BY: Dexter Wilson Engineering, Inc. REFER TO PLAN SHEET: Exhibit A

LINE	FROM	TO	IN-LINE FLOW (gpd)	AVG DRY WEATHER FLOW (gpd)	PEAKING FACTOR	PEAK WET WEATHER FLOW	PEAK FLOW (DESIGN FLOW)		LINE SIZE (inches)	DESIGN SLOPE (%)	DEPTH K' [1]	dn (feet)	dn/D[2]	C_a for Velocity[3]	VELOCITY (f.p.s.)	COMMENTS
							M.G.D.	C.F.S.								
	18	Prop.	46,425	46,425	2.32	107,598	0.108	0.166	10	0.74	0.040913	0.16729	0.20	0.1124	2.13	
	Prop.	17	46,425	92,850	2.28	211,499	0.211	0.327	10	0.70	0.082687	0.23837	0.29	0.1854	2.54	
	17	16	46,425	139,275	2.25	314,048	0.314	0.486	10	0.70	0.122779	0.29290	0.35	0.2464	2.84	
	16	15	46,425	185,700	2.24	415,730	0.416	0.643	10	0.70	0.162533	0.34078	0.41	0.3022	3.07	
	15	14	46,425	232,125	2.23	516,772	0.517	0.800	15	0.50	0.081080	0.35397	0.28	0.1829	2.80	
	14	13	46,425	278,550	2.22	617,306	0.617	0.955	15	0.50	0.096854	0.38802	0.31	0.2078	2.94	
	13	12	46,424	324,974	2.21	717,418	0.717	1.110	15	0.50	0.112561	0.41965	0.34	0.2314	3.07	
	12	11	46,424	371,398	2.20	817,172	0.817	1.264	15	0.50	0.128212	0.44964	0.36	0.2543	3.18	
	11	10	46,424	417,822	2.19	916,614	0.917	1.418	15	0.50	0.143815	0.47824	0.38	0.2764	3.28	
	10	9	46,424	464,246	2.19	1,015,780	1.016	1.572	15	0.50	0.159373	0.50568	0.40	0.2979	3.38	
	9	8	46,424	510,670	2.18	1,114,697	1.115	1.725	15	0.50	0.174893	0.53242	0.43	0.3189	3.46	
	8	7	46,424	557,094	2.18	1,213,390	1.213	1.878	15	0.50	0.190378	0.55830	0.45	0.3394	3.54	
	7	6	46,424	603,518	2.17	1,311,877	1.312	2.030	15	0.50	0.205830	0.58365	0.47	0.3596	3.61	
	6	5	46,424	649,942	2.17	1,410,174	1.410	2.182	15	0.50	0.221253	0.60842	0.49	0.3794	3.68	
	5	4	46,424	696,366	2.17	1,508,297	1.508	2.334	15	0.50	0.236648	0.63330	0.51	0.3996	3.74	
	4	3	46,424	742,790	2.16	1,606,255	1.606	2.485	15	0.50	0.252018	0.65784	0.53	0.4193	3.79	
	3	2	46,424	789,214	2.16	1,704,061	1.704	2.637	15	0.50	0.267363	0.68182	0.55	0.4385	3.85	
	2	1	46,424	835,638	2.16	1,801,722	1.802	2.788	15	0.50	0.282686	0.70576	0.56	0.4571	3.90	
	1	21	46,424	882,062	2.15	1,899,248	1.899	2.939	15	0.50	0.297988	0.72967	0.58	0.4757	3.95	

[1] K' based on n = 0.013

[2] dn/D using K' in Brater King Table 7-14

[3] From Brater King Table 7-4 based on dn/D

SEWER STUDY SUMMARY

DATE: 8/26/2021 FOR: North Iris Lane Project, City of Escondido (200 gpd per EDU plus Emp.) Existing Flows plus Project SHT 1 OF 1

JOB NUMBER: 840-005 BY: Dexter Wilson Engineering, Inc. REFER TO PLAN SHEET: Exhibit A

LINE	FROM	TO	IN-LINE FLOW (gpd)	AVG DRY WEATHER FLOW (gpd)	PEAKING FACTOR	PEAK WET WEATHER FLOW	PEAK FLOW (DESIGN FLOW)		LINE SIZE (inches)	DESIGN SLOPE (%)	DEPTH K' [1]	dn (feet)	dn/D[2]	C_a for Velocity[3]	VELOCITY (f.p.s.)	COMMENTS
							M.G.D.	C.F.S.								
	18	Prop.	46,425	46,425	2.32	107,598	0.108	0.166	10	0.74	0.040913	0.16729	0.20	0.1124	2.13	
	Prop.	17	66,825	113,250	2.27	256,689	0.257	0.397	10	0.70	0.100354	0.26346	0.32	0.2131	2.68	Project Flow Input
	17	16	46,425	159,675	2.25	358,820	0.359	0.555	10	0.70	0.140283	0.31456	0.38	0.2715	2.95	
	16	15	46,425	206,100	2.23	460,200	0.460	0.712	10	0.70	0.179918	0.36058	0.43	0.3256	3.15	
	15	14	46,425	252,525	2.22	561,005	0.561	0.868	15	0.50	0.088020	0.36922	0.30	0.1939	2.86	
	14	13	46,425	298,950	2.21	661,346	0.661	1.023	15	0.50	0.103764	0.40214	0.32	0.2183	3.00	
	13	12	46,424	345,374	2.20	761,294	0.761	1.178	15	0.50	0.119445	0.43297	0.35	0.2416	3.12	
	12	11	46,424	391,798	2.20	860,906	0.861	1.332	15	0.50	0.135074	0.46227	0.37	0.2640	3.23	
	11	10	46,424	438,222	2.19	960,223	0.960	1.486	15	0.50	0.150657	0.49042	0.39	0.2859	3.33	
	10	9	46,424	484,646	2.19	1,059,276	1.059	1.639	15	0.50	0.166198	0.51753	0.41	0.3071	3.42	
	9	8	46,424	531,070	2.18	1,158,092	1.158	1.792	15	0.50	0.181702	0.54384	0.44	0.3279	3.50	
	8	7	46,424	577,494	2.18	1,256,692	1.257	1.945	15	0.50	0.197172	0.56953	0.46	0.3484	3.57	
	7	6	46,424	623,918	2.17	1,355,094	1.355	2.097	15	0.50	0.212611	0.59457	0.48	0.3684	3.64	
	6	5	46,424	670,342	2.17	1,453,313	1.453	2.249	15	0.50	0.228021	0.61893	0.50	0.3880	3.71	
	5	4	46,424	716,766	2.16	1,551,362	1.551	2.400	15	0.50	0.243405	0.64438	0.52	0.4085	3.76	
	4	3	46,424	763,190	2.16	1,649,252	1.649	2.552	15	0.50	0.258764	0.66838	0.53	0.4277	3.82	
	3	2	46,424	809,614	2.16	1,746,993	1.747	2.703	15	0.50	0.274099	0.69234	0.55	0.4469	3.87	
	2	1	46,424	856,038	2.15	1,844,594	1.845	2.854	15	0.50	0.289412	0.71627	0.57	0.4650	3.93	
	1	21	46,424	902,462	2.15	1,942,063	1.942	3.005	15	0.50	0.304705	0.74016	0.59	0.4841	3.97	

[1] K' based on n = 0.013

[2] dn/D using K' in Brater King Table 7-14

[3] From Brater King Table 7-4 based on dn/D

\\ARTIC\DWG\840005\REPORT\NILP_EXHIBIT-A_MH.DWG 09-13-21 11:47:35 LAYOUT: 11X17

ROBIN HILL LN
STANLEY AVE
PROJECT AREA
EX.10"
18
PROPOSED CONNECTION
16
CHEYENNE LN
EX.10"
15
VISTA AVE
ELKHORN LN
N. IRIS LN
17
EX.15"
14
N. BROADWAY
CENTRE CITY PARKWAY
13
EX.15"
12
EX.15"
11
BAHIA LN
10
EX.15"
9
LESLIE LN
EX.15"
8
CITY METER 8
7
6
S. IRIS LN
EX.15"
5
EX.15"
4
W. EL NORTE PARKWAY
EX.15"
3
SHERIDAN AVE
2
MORNING VIEW DR
EX.15"
EX.15"
1
21
CONNECTION TO EXISTING 15" NORTH TRUNK SEWER

LEGEND

PROJECT BOUNDARY

EXISTING PUBLIC SEWER LINE

1 COMPUTER MODEL MH NUMBER

N

0 400 FEET

DEXTER WILSON ENGINEERING, INC.
CONSULTING ENGINEERS
(760) 438-4422

EXHIBIT A

MANHOLE DIAGRAM

NORTH IRIS LANE PROJECT

APPENDIX D

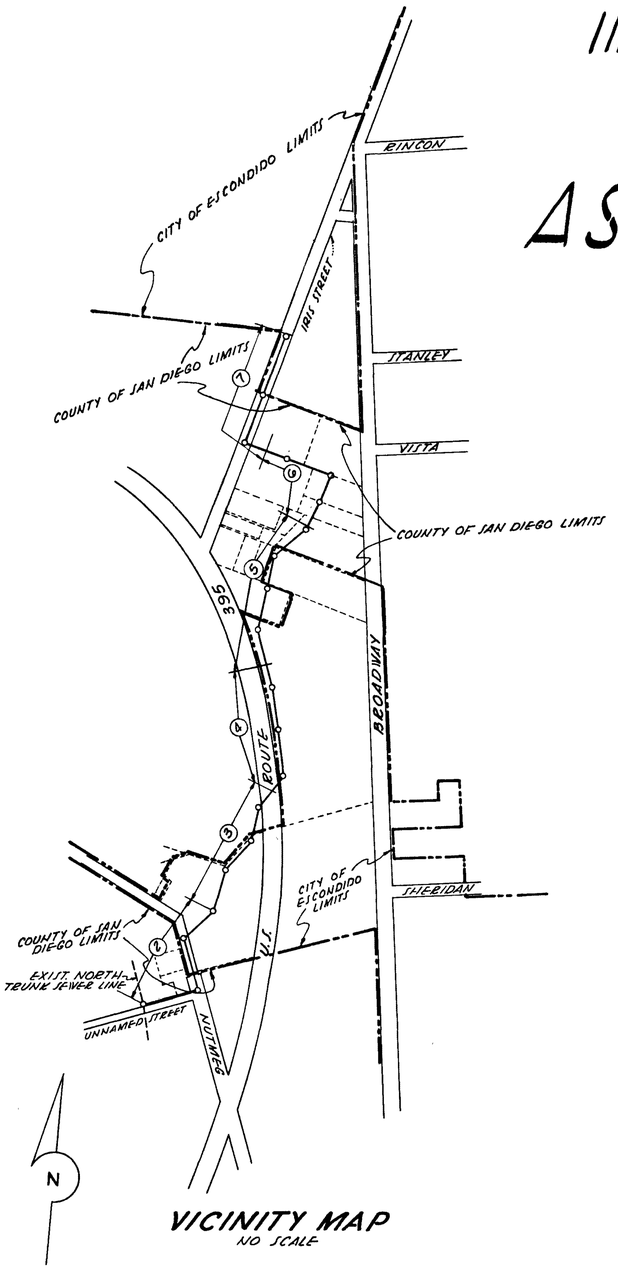
AS-BUILT DRAWINGS FOR 10-INCH AND 15-INCH SEWER LINE

CITY OF ESCONDIDO

IMPROVEMENT PLANS FOR SANITARY SEWERS RELATED APPURTENANCES

ASSESSMENT DISTRICT Nº 3-1969

A 1911 ACT IMPROVEMENT



VICINITY MAP
NO SCALE

WORK TO BE DONE

Improvements consist of the following work to be done in accordance with these plans and the current City of Escondido Standard Specifications for the construction of Sanitary Sewers and Standard Reference Drawings:

The construction of sanitary sewer mains shown thus ——-——

The construction of sanitary sewer manholes shown thus —○—

LEGEND-EXISTING WORK

WATER MAIN	————	CULVERT	⊨======⊨
EXIST. RIPRAP	▨▨▨▨	EXIST. PAVEMENT	═══
FENCE	—x—x—	DOWNDRAIN	⊏=====⊐
TOP OF BANK	▲ TOP ▲	POWER POLE	○ PP
TOE OF BANK	TOE	GUY ANCHOR	——→
EXISTING SANITARY SEWER	—S—	EXISTING DRAINAGE DITCH	⋊⋊⋊
EXISTING GAS LINES	—G—		

~QUANTITIES~

ITEM	DESCRIPTION	QUANTITY	UNIT
1.	8" V.C.P. SEWER	12	L.F.
2.	10" V.C.P. SEWER	1,708	L.F.
3.	15" V.C.P. SEWER	3,275	L.F.
4.	P.C.C. MANHOLE TYPE "A"	19	EA
5.	PAVEMENT REPLACEMENT	967	L.F.
6.	CRUSHED ROCK BEDDING	200	C.Y.

~BENCH MARK~

1" PIPE IN CONCRETE MONUMENT AT NW CORNER OF S. IRIS & NUTMEG STREET 5.0' ± NW of TELEPHONE POLE "GS E.I.-94 EL. = 681.94

~GENERAL NOTES~

ALL WORK TO BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS OF THE CITY OF ESCONDIDO AS ADOPTED BY RESOLUTION NO 1784 AND AMENDMENTS THERETO, EXCEPTING THAT WORK WHICH IS COUNTY TERRITORY, WHICH WORK IS TO BE TO COUNTY SPECIFICATIONS.

IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL SUBSTRUCTURES SHOWN HEREON OR NOT AND PROTECT THEM FROM DAMAGE. THE CONTRACTOR SHALL BEAR THE TOTAL EXPENSE OF REPAIR OR REPLACEMENT OF SAID SUBSTRUCTURES DAMAGED BY HIS OPERATIONS IN CONNECTION WITH THE PROTECTION OF THIS WORK.

ALL STATIONING REFERS TO CENTERLINE OF SEWER.

THE CONTRACTOR SHALL CONTACT OWNERS OF PUBLIC UTILITIES TO VERIFY LOCATION OF MAINS AND SERVICES PRIOR TO EXCAVATION ADJACENT THERETO.

THE CONTRACTOR SHALL INSTALL WYE'S IN EASEMENTS IN FIELD AS DIRECTED BY ENGINEER OF WORK.

MANHOLES SHALL BE FURNISHED WITH WROUGHT IRON STEPS.

~STANDARD PLANS~

TYPE "A" M.H. & J.C.	ST-300
CONCRETE ENCASEMENT	ST-301
SEWER LATERALS	ST-310
STANDARD CLEANOUT ⟶	ST-302

DESIGNED BY
TANNER, MARQUARDT, MELVIN & ASSOC., INC.
ENGINEERS & ARCHITECTS
650 S. ESCONDIDO BLVD. ESCONDIDO, CALIF.

REVISIONS

NO.	CHANGE	BY	DATE	APPROVED

SHEET 1 | CITY OF ESCONDIDO | 7 SHEETS

PLANS FOR THE IMPROVEMENT OF
NORTH NUTMEG & IRIS ST. SEWER

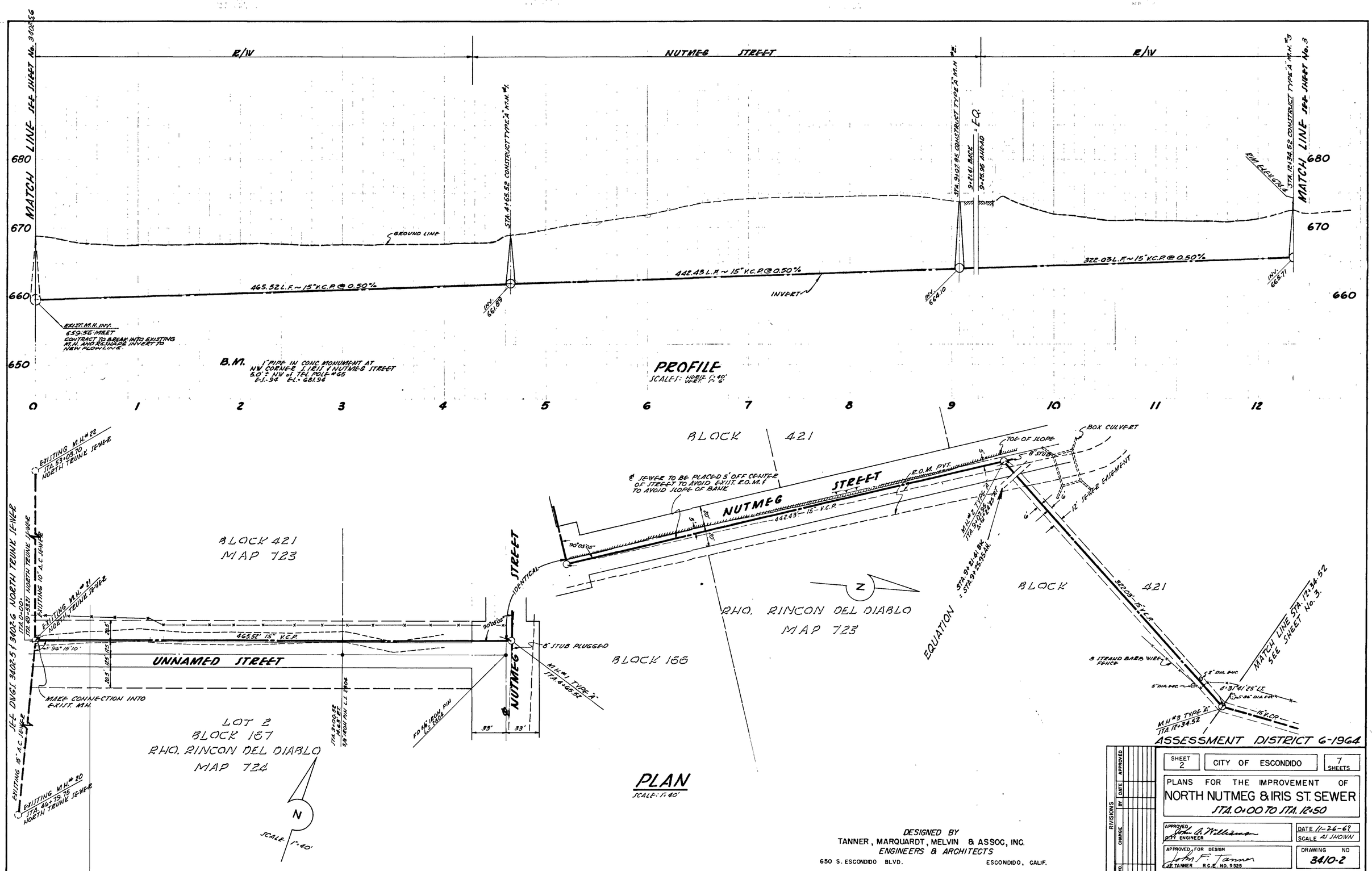
APPROVED John A. Nellemann CITY ENGINEER — DATE 11-26-69

APPROVED FOR DESIGN John F. Tanner R.C.E. TANNER R.C.E. 9525 — SCALE AS SHOWN

DRAWING NO 3410-1

FILMED: 5/7/92

F.B. T-117



ASSESSMENT DISTRICT 6-1964

SHEET 2	CITY OF ESCONDIDO	7 SHEETS

PLANS FOR THE IMPROVEMENT OF
NORTH NUTMEG & IRIS ST. SEWER
STA. 0+00 TO STA. 12+50

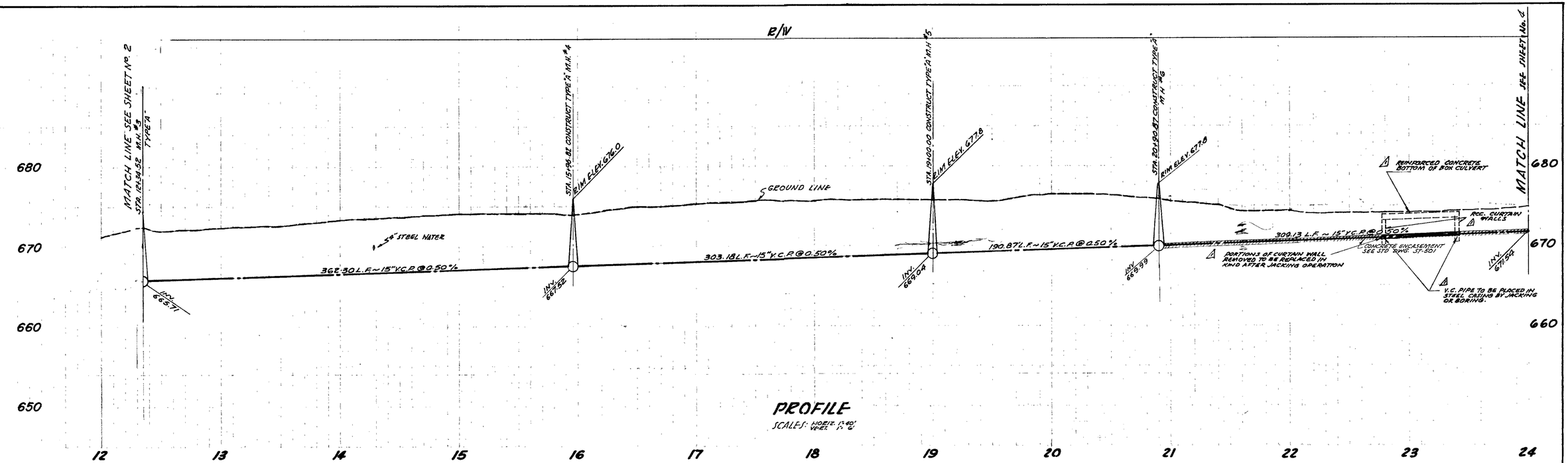
APPROVED John A. Williams CITY ENGINEER	DATE 11-26-67 SCALE AS SHOWN
APPROVED FOR DESIGN John F. Tanner J.F. TANNER R.C.E. NO. 9525	DRAWING NO 3410-2

REVISIONS				
NO.	CHANGE	BY	DATE	APPROVED

DESIGNED BY
TANNER, MARQUARDT, MELVIN & ASSOC, INC.
ENGINEERS & ARCHITECTS
650 S. ESCONDIDO BLVD. ESCONDIDO, CALIF.

F.B. T-117

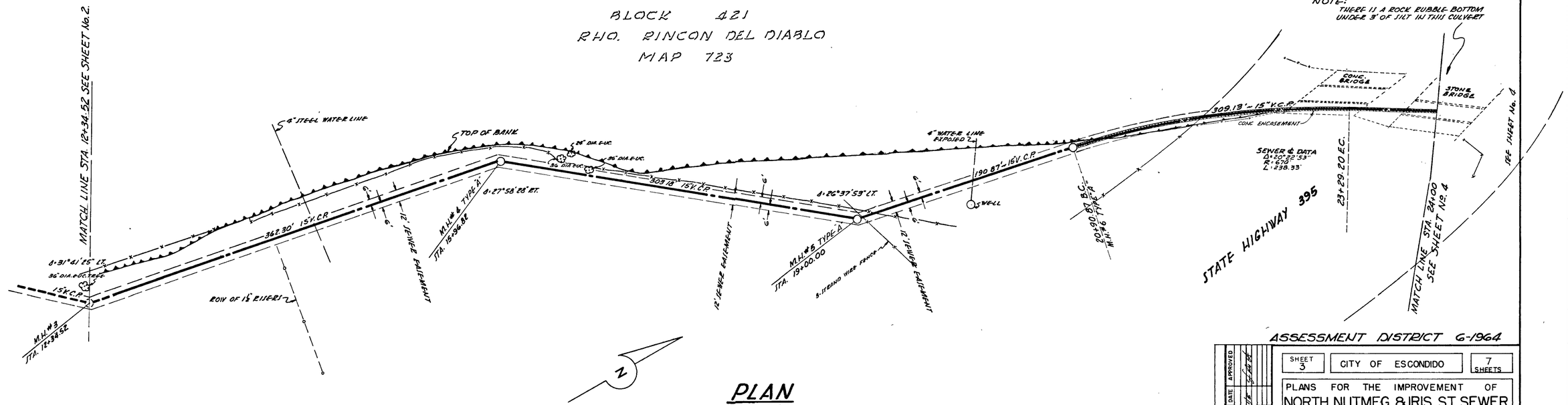
FILMED: 5/7/92



PROFILE

SCALES: HORIZ. 1"=40'
VERT. 1"=6'

BLOCK 421
RHO. RINCON DEL DIABLO
MAP 723



PLAN

SCALE: 1"=40'

NOTE:
THERE IS A ROCK RUBBLE BOTTOM UNDER 3' OF SILT IN THIS CULVERT

ASSESSMENT DISTRICT 6-1964

DESIGNED BY
TANNER, MARQUARDT, MELVIN & ASSOC, INC.
ENGINEERS & ARCHITECTS
650 S. ESCONDIDO BLVD. ESCONDIDO, CALIF

REVISIONS			
NO.	CHANGE	BY	DATE
1	ADDED CONC. BOX CULVERT		
2			

APPROVED [signature] DATE 5-20-69

SHEET 3	CITY OF ESCONDIDO	7 SHEETS	

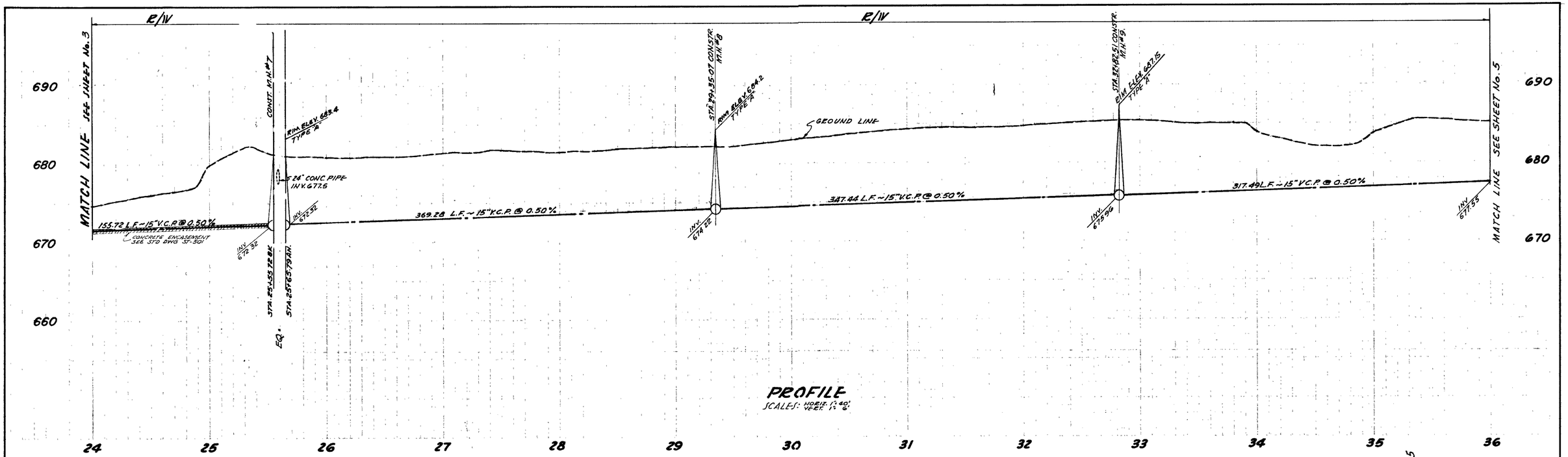
PLANS FOR THE IMPROVEMENT OF
NORTH NUTMEG & IRIS ST. SEWER
STA. 12+50 TO STA. 24+00

APPROVED [signature] CITY ENGINEER — DATE 11-26-69, SCALE AS SHOWN

APPROVED FOR DESIGN [signature] J.F. TANNER R.C.E. NO. 9525 — DRAWING NO 3410-3

F.B.T-117

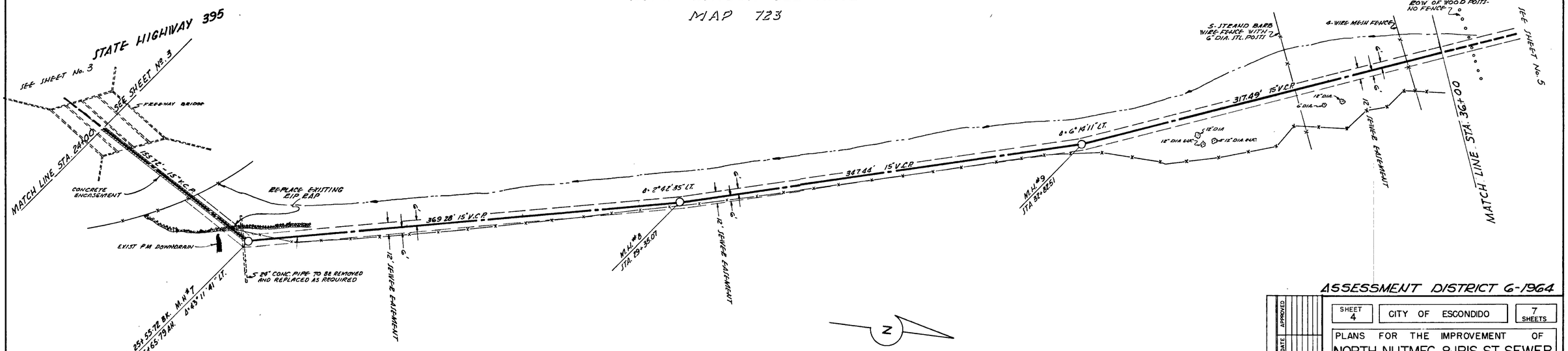
FILMED: 5/7/92



PROFILE

SCALES: HORIZ. 1"=40'
VERT. 1"=6'

BLOCK 421
RHO. RINCON DEL DIABLO
MAP 723



PLAN

SCALE: 1"=40'

ESCONDIDO UNION HIGH SCHOOL

DESIGNED BY
TANNER, MARQUARDT, MELVIN & ASSOC, INC.
ENGINEERS & ARCHITECTS
650 S ESCONDIDO BLVD. ESCONDIDO, CALIF.

ASSESSMENT DISTRICT G-1964

SHEET 4	CITY OF ESCONDIDO	7 SHEETS

PLANS FOR THE IMPROVEMENT OF
NORTH NUTMEG & IRIS ST. SEWER
STA. 24+00 TO STA. 36+00

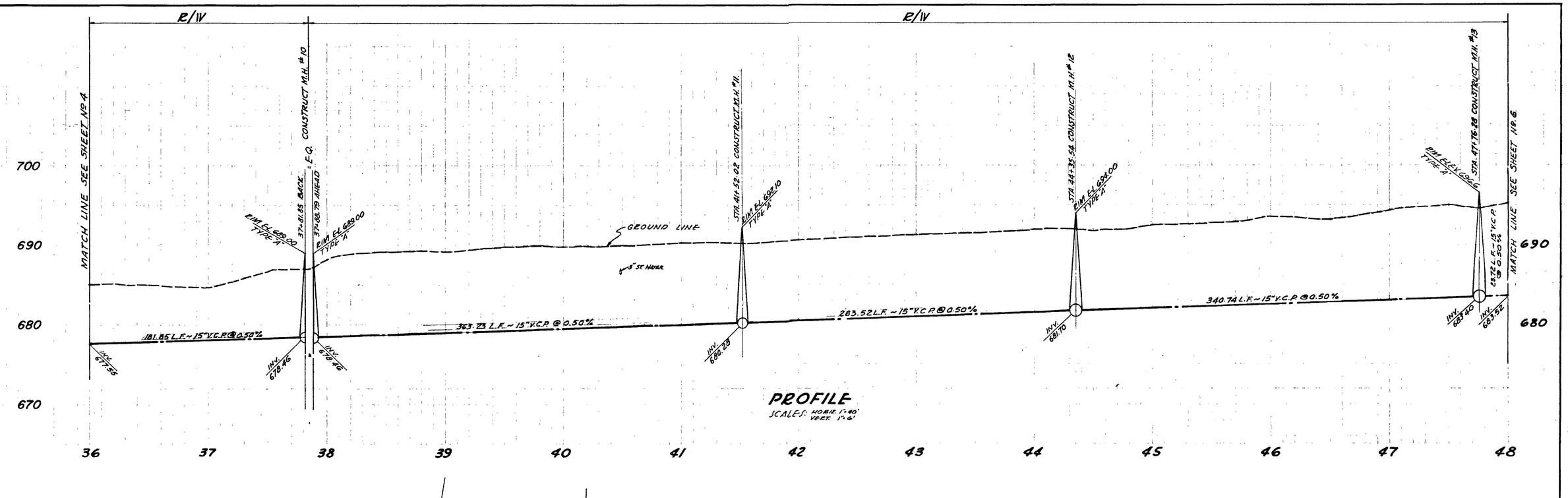
APPROVED Fred A. Williamson CITY ENGINEER — DATE 11-26-69
SCALE AS SHOWN

APPROVED FOR DESIGN William F. Tanner W.F. TANNER R.C.E. NO 9525 — DRAWING NO 3610-4

REVISIONS: NO | CHANGE | BY | DATE | APPROVED

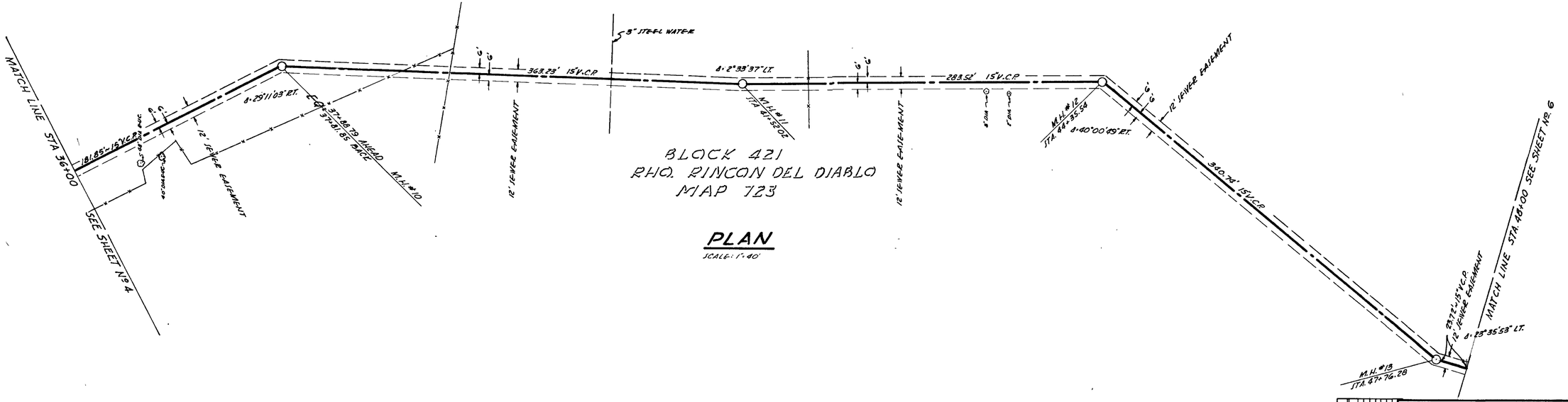
F.B. T-117

FILMED: 5/7/92



PROFILE

SCALES: HORIZ. 1"=40'
VERT. 1"=6'



BLOCK 421
RHO. RINCON DEL DIABLO
MAP 723

PLAN

SCALE: 1"=40'

N

DESIGNED BY
TANNER, MARQUARDT, MELVIN & ASSOC, INC
ENGINEERS & ARCHITECTS
650 S. ESCONDIDO BLVD. ESCONDIDO, CALIF.

REVISIONS			
NO.	CHANGE	BY	DATE
			APPROVED

SHEET 5	CITY OF ESCONDIDO	7 SHEETS

PLANS FOR THE IMPROVEMENT OF
NORTH NUTMEG & IRIS ST. SEWER
STA. 36+00 TO STA. 48+00

APPROVED John A. Williamson
CITY ENGINEER
DATE 11-26-69
SCALE AS SHOWN

APPROVED FOR DESIGN John F. Tanner
J. F. TANNER R.C.E. NO. 9525
DRAWING NO. 3410-5

F.B. T-117

FILMED: 5/7/92

R/W

MATCH LINE SEE SHEET No. 5

MATCH LINE SEE SHEET No. 7

700

690

680

CONSTRUCT M.H. #14

STA 49+44.35 P.O.C.E.

RIM ELEV. 698.60 TYPE "A"

RIM ELEV. 698.6 TYPE "A"

CONSTRUCT M.H. #15

STA 53+00.80

RIM ELEV. 698.60 TYPE "A"

CONSTRUCT M.H. #16

STA 56+90.51

RIM ELEV. 700.2 TYPE "A"

GROUND LINE

1½" WATER

EXIST. 24" WATER

244.35 L.F. ~ 15" V.C.P. @ 0.50%

261.16 L.F. ~ 15" V.C.P. @ 0.50%

389.71 L.F. ~ 10" V.C.P. @ 0.70%

309.49 L.F. ~ 10" V.C.P. @ 0.70%

INV. 683.32

INV. 684.14

INV. 684.74

INV. 686.05

INV. 688.79

INV. 690.96

48 49 50 51 52 53 54 55 56 57 58 59 60

PROFILE

SCALE: HORZ. 1"=40'
VERT. 1"=8'

BLOCK 421
RHO. RINCON DEL DIABLO
MAP 723

STA. 48+00 SEE SHEET No. 5

MATCH LINE

1½" WATER

CONC. CISTERN TO BE FILLED

1½" WATER VALVE ON LINE

12" SEWER EASEMENT

24.35' ± 15" V.C.P.

4°00'17" C.T.

261.16' 15" V.C.P.

EXIST. 24" WATER - E.D.D.W.D.

87°59'59"

15" ST. U.S.F. PLUG

IDENTICAL

M.H. #15 STA 53+00.80

12" SEWER EASEMENT

C.L.

C.L.

CONST. 1½" WATER

EQ. 90°00'00" BEG. STA. 49+44.35 P.O.C.E. M.H. #14

261.16' 15" V.C.P.

87°59'59"

2" B.O. VALVE

6" DIA. TEE

14'

2" WATER VALVE NOT USED VALVE OFF RODMWD LINE BLIND

GUY ANCHOR

2" WATER VALVE NOT USED VALVE OFF RODMWD LINE BLIND

EXIST. 20' WATER EASEMENT E.D.D.W.D.

P.P.A. #313465

389.71' ~ 10" V.C.P.

309.49' ~ 10" V.C.P.

M.H. #16 STA 56+90.51

EXIST. 12" SEWER

MATCH LINE STA 60+00 SEE SHEET No. 7

PLAN

SCALE: 1"=40'

N

DESIGNED BY
TANNER, MARQUARDT, MELVIN & ASSOC., INC.
ENGINEERS & ARCHITECTS
650 S ESCONDIDO BLVD. ESCONDIDO, CALIF.

ASSESSMENT DISTRICT 6-1964

REVISIONS				
NO	CHANGE	BY	DATE	APPROVED
1	REVISED TOTAL LENGTH STA. 53+33.80 TO STA. 53+00.80	WR	11-26-69	

SHEET 6 | CITY OF ESCONDIDO | — SHEETS

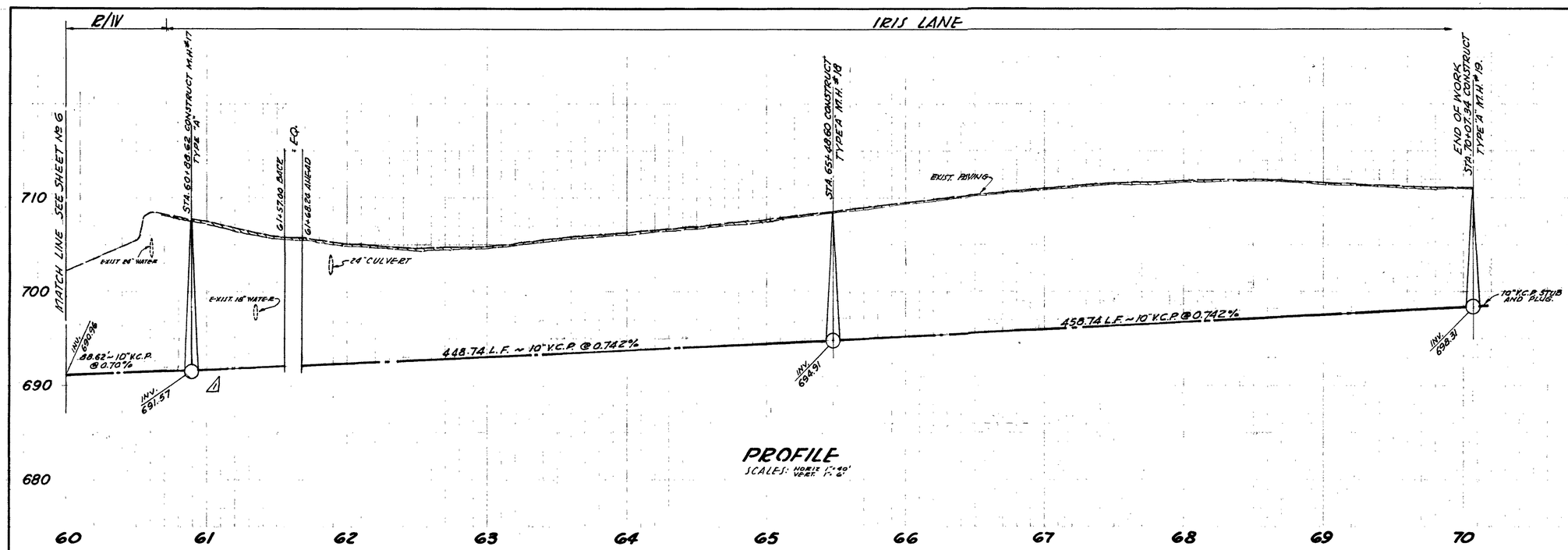
PLANS FOR THE IMPROVEMENT OF
NORTH NUTMEG & IRIS ST. SEWER
STA. 48+00 TO STA. 60+00

APPROVED John A. Williamson CITY ENGINEER — DATE 11-26-69 — SCALE AS SHOWN

APPROVED FOR DESIGN John F. Tanner J.F. TANNER R.C.E. NO. 9525 — DRAWING NO 3410-6

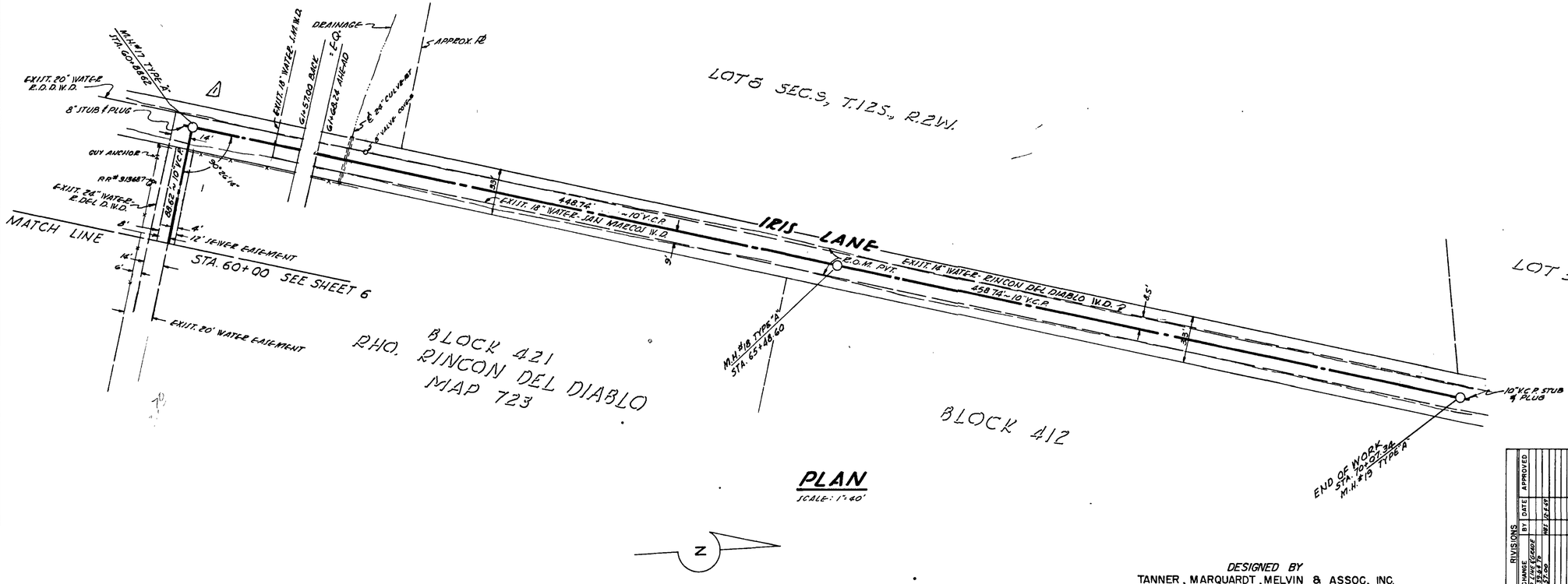
F.B. T-117

FILMED: 5/7/92



PROFILE

SCALES: HORIZ. 1"=40'
VERT. 1"=20'



PLAN

SCALE: 1"=40'

DESIGNED BY
TANNER, MARQUARDT, MELVIN & ASSOC, INC.
ENGINEERS & ARCHITECTS
650 S. ESCONDIDO BLVD. ESCONDIDO, CALIF.

REVISIONS

NO	CHANGE	BY	DATE	APPROVED
1	ADDED 8" V.C.P. STUB & PLUG STA. 70+07.34	WE	12-1-69	

ASSESSMENT DISTRICT 6-1964

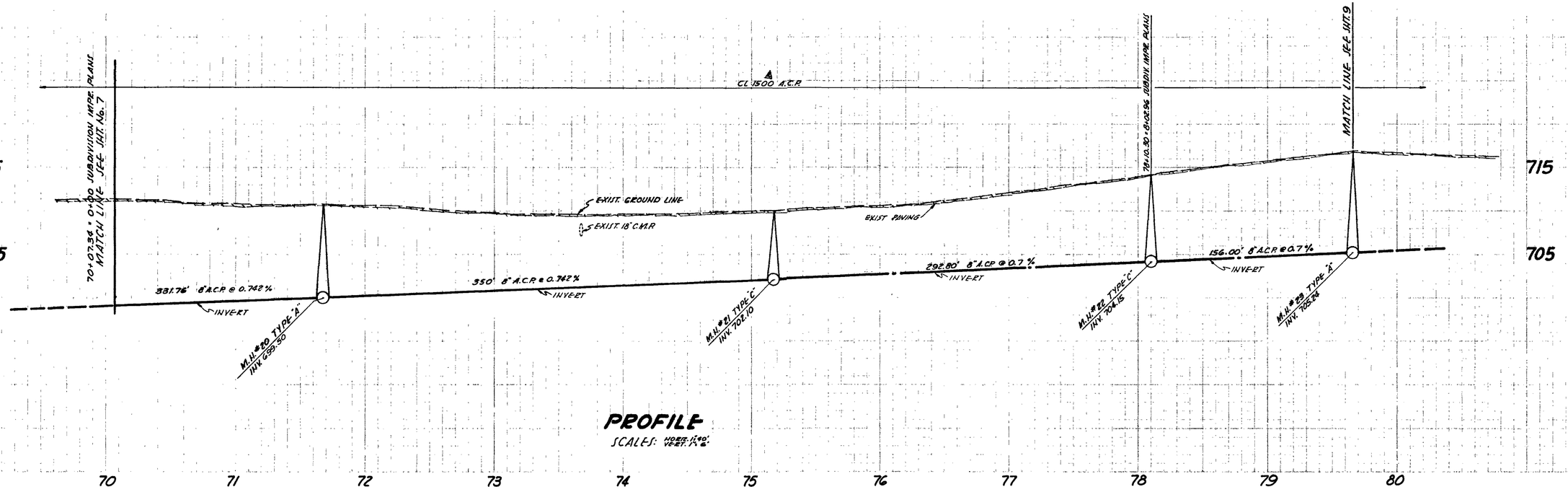
SHEET 7	CITY OF ESCONDIDO	7 SHEETS

PLANS FOR THE IMPROVEMENT OF
NORTH NUTMEG & IRIS ST. SEWER
STA. 60+00 TO STA. 70+07.34

APPROVED John A. Williamson CITY ENGINEER — DATE 11-26-69
APPROVED FOR DESIGN John F. Tanner J.F. TANNER R.C.E. NO. 9525 — SCALE AS SHOWN
DRAWING NO. 3410-7

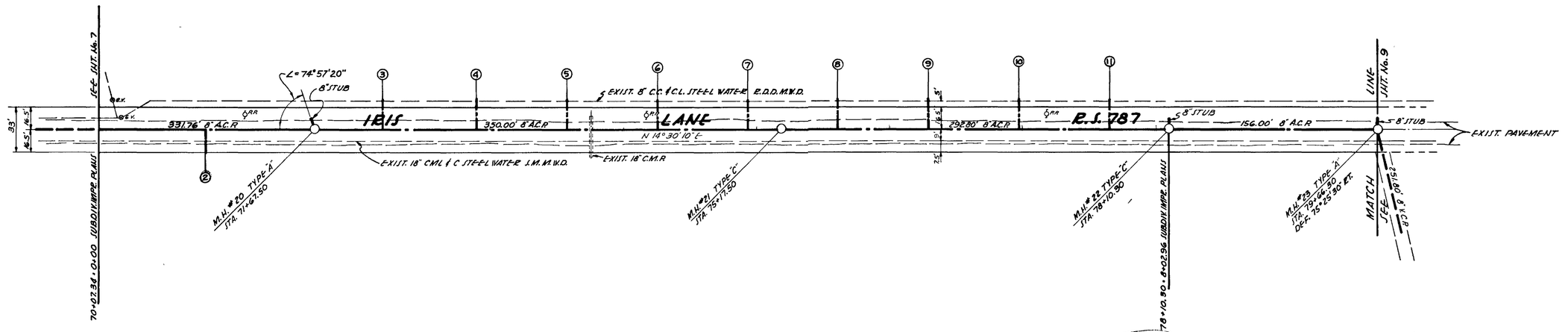
F.B. T-117

FILMED: 5/7/92



PROFILE

SCALES: HORIZ. 1"=40'
VERT. 1"=4'



PLAN

SCALE: 1"=40'

NOT CONSTRUCTED Y.M.

DESIGNED BY
TANNER, MARQUARDT, MELVIN & ASSOC., INC.
ENGINEERS & ARCHITECTS
650 S. ESCONDIDO BLVD. ESCONDIDO, CALIF.

REVISIONS

NO.	CHANGE	BY	DATE	APPROVED
1	ADDED TITLE OF SHEET		10-25-64	

ASSESSMENT DISTRICT 6-1964

SHEET 8 | CITY OF ESCONDIDO | 9 SHEETS

PLANS FOR THE IMPROVEMENT OF
NORTH NUTMEG & IRIS ST. SEWER
STA. 70+07.34 TO STA. 79+66.30

APPROVED Charles P. Garrett
CITY ENGINEER
DATE 6/10/1964
SCALE AS SHOWN

APPROVED FOR DESIGN John F. Tanner
J.F. TANNER R.C.E. NO. 9525
DRAWING NO. 3410-8

F.B. T-117

FILMED: 5/27/92

IRIS LANE | E/W | NORTH BROADWAY

℄ C.L. 1500 A.C.P.

MATCH LINE JEE-SHT. 8

EXIST. GROUND LINE

EXIST. PAVING

18" ST. WATER

251.80' 8" A.C.P. @ 0.7%
INVE-ET

342.95' 8" A.C.P. @ 2.02%
INVE-ET

342.96' 8" A.C.P. @ 2.02%
INVE-ET

200.00' 8" A.C.P. @ 2.02%
INVE-ET

M.H.#23 TYPE "A"
INV. 705.24

M.H.#24 TYPE "C"
INV. 707.0

M.H.#25 TYPE "C"
INV. 719.93

M.H.#26 TYPE "C"
INV. 720.86

C.O.
INV. 728.9

735 | 725 | 715 | 705

79 | 80 | 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 | 91

PROFILE

SCALES: HORIZ. 1"=40'
VERT. 1"=6'

MATCH LINE JEE-SHT. 8

8" STUBS

℄ EXIST. 8" C.C.F. ℄ CL. STEEL WATER LINE R.D.D.M.W.D.

EXIST. PAVEMENT

156.00' 8" A.C.P.

IRIS LANE N 14°30'10" E

EXIST. 18" CML ℄ C STEEL WATER LINE S.M.M.W.D.

M.H.#23 TYPE "A"
STA. 79+66.30
D.F.C. 75°25'30" RT.

8" 10' SEWER EASEMENT

N 89°55'40" E
251.80' 8" A.C.P.

8" STUB

EXIST. PAVEMENT

M.H.#24 TYPE "C"
STA. 82+18.10

BROADWAY

N 7°31'08" W
342.95' 8" A.C.P.

N 7°46'41" W
N 7°31'08" W
342.96' 8" A.C.P.

M.H.#25 TYPE "C"
STA. 85+61.09

M.H.#26 TYPE "C"
STA. 89+04.01

C.O.
STA. 91+04.01

NORTH BROADWAY
200.00' 8" A.C.P.
N 14°30'10" E

8" STUB

EXIST. PAVEMENT

RINCON AVENUE

EXIST. PAVEMENT

PLAN

SCALE: 1"=40'

NOT CONSTRUCTED
Y.M

DESIGNED BY
TANNER, MARQUARDT, MELVIN & ASSOC., INC.
ENGINEERS & ARCHITECTS
650 S. ESCONDIDO BLVD. ESCONDIDO, CALIF.

ASSESSMENT DISTRICT G-1964

SHEET 9	CITY OF ESCONDIDO	9 SHEETS

PLANS FOR THE IMPROVEMENT OF
NORTH NUTMEG & IRIS ST. SEWER
STA. 79+66.30 TO STA. 91+04.01

APPROVED CITY ENGINEER: Charles L. Jarred — DATE 6/10/64, SCALE AS SHOWN

APPROVED FOR DESIGN: John F. Tanner
JF. TANNER R.C.E. NO. 9525 — DRAWING NO. 3410-9

REVISIONS			
NO.	CHANGE	BY	DATE
A	CHANGE TYPE OF PAVE	KRA	7/21/64

APPROVED JJF

F.B. T-98

FILMED: 5/7/92

APPENDIX E

CITY OF ESCONDIDO MASTER PLAN FLOW METER AND BASIN 8 REFERENCE INFORMATION

4.2 Metered Sub-Basins

Separate drainage basins or "sub-basins" were identified within the collection system for the purpose of locating temporary flow meters as part of the model calibration effort (discussed in Section 5). The areas served within each of the eight metered basins and the one unmetered basin are shown on Figure 4-4. Each metered basin includes an upstream collection system and several trunk sewers that combine at a single downstream location where the meter was installed. Figure 4-5 provides a flow schematic for the metered sub-basins.

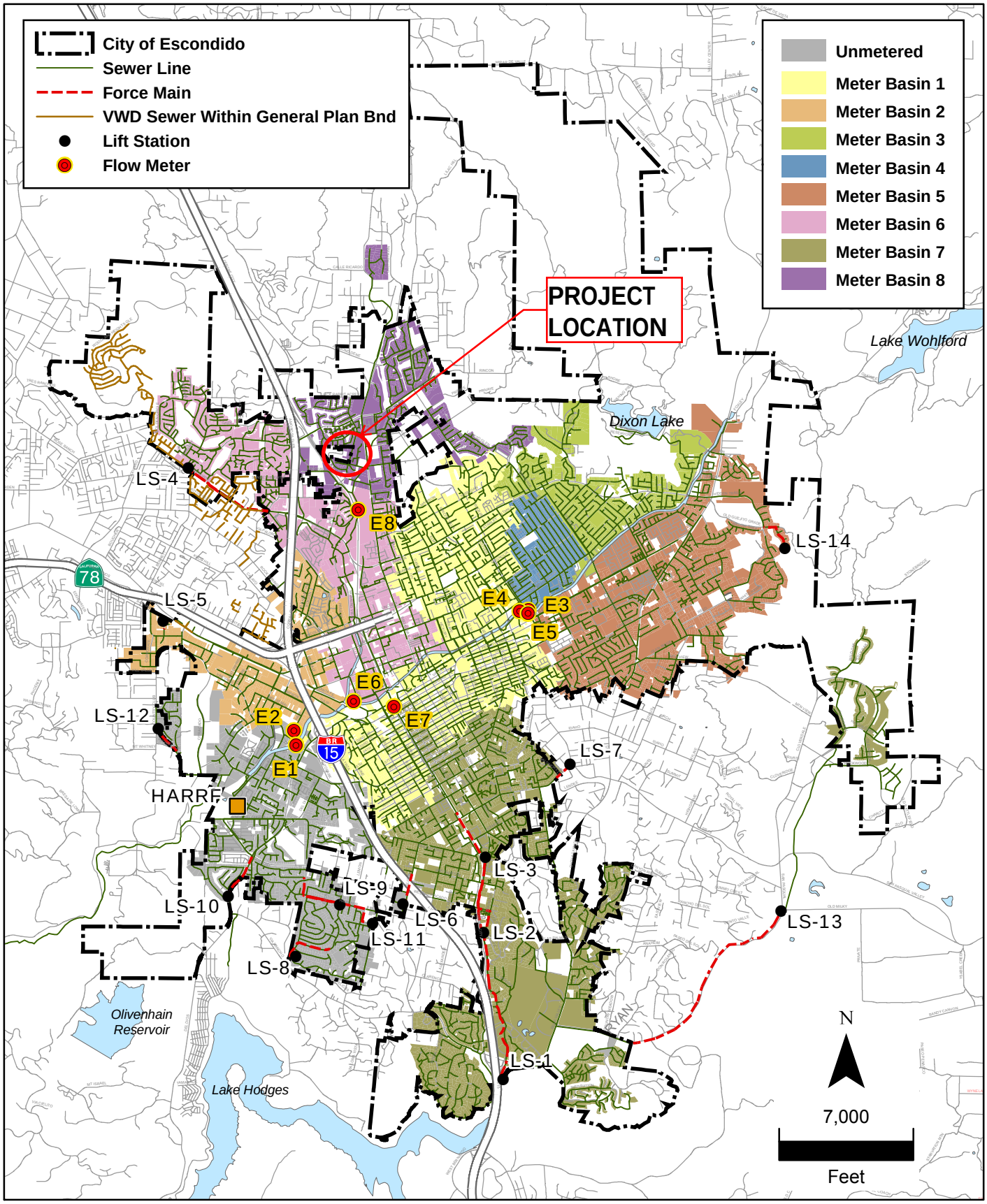
Basins 3, 4 and 5 are located at the east end of the City and discharge to Basin 1 through the main trunk sewers that follow Escondido Creek. Basin 1 extends both north and south of the channel, and includes the downtown area. The main trunk sewer in Basin 1 follows the creek and discharges to the HARRF. Basins 8 and 6 include the northernmost areas of the City and discharge to Basin 2, which includes a primarily industrial area directly north of the HARRF. Basin 2 discharges to a trunk sewer that crosses under Escondido Creek before discharging to the HARRF. Basin 7 includes the southernmost areas of the City and several lift stations, including the station that serves the Rancho San Pasqual area, and discharges to Basin 1. The unmetered "basin" consists of areas near the HARRF with smaller trunk sewers that discharge to the HARRF at several locations, and were thus impractical to meter.

The characteristics of each metered basin with respect to existing development are summarized in Table 4-3. This information is based on information provided by SANDAG for 2010.

Table 4-3 Development Information for Metered Basins

Metered Basin	Residential Area (Acres)	Non Residential Area (Acres)	Percent by Area		Estimated Occupied Dwelling Units	Employment Population
			Residential	Commercial		
1	1,304	413	76%	24%	9,738	11,036
2	1,023	843	55%	45%	4,561	13,542
3	2,480	392	86%	14%	8,263	5,583
4	253	16	94%	6%	1,706	132
5	692	45	94%	6%	2,365	441
6	2,303	528	81%	19%	11,027	10,474
7	4,900	573	90%	10%	9,080	9,288
8	2,233	152	94%	6%	3,940	1,307
TOTALS	**15,190**	**2,961**			**50,679**	**51,803**

Source: SANDAG Series 12

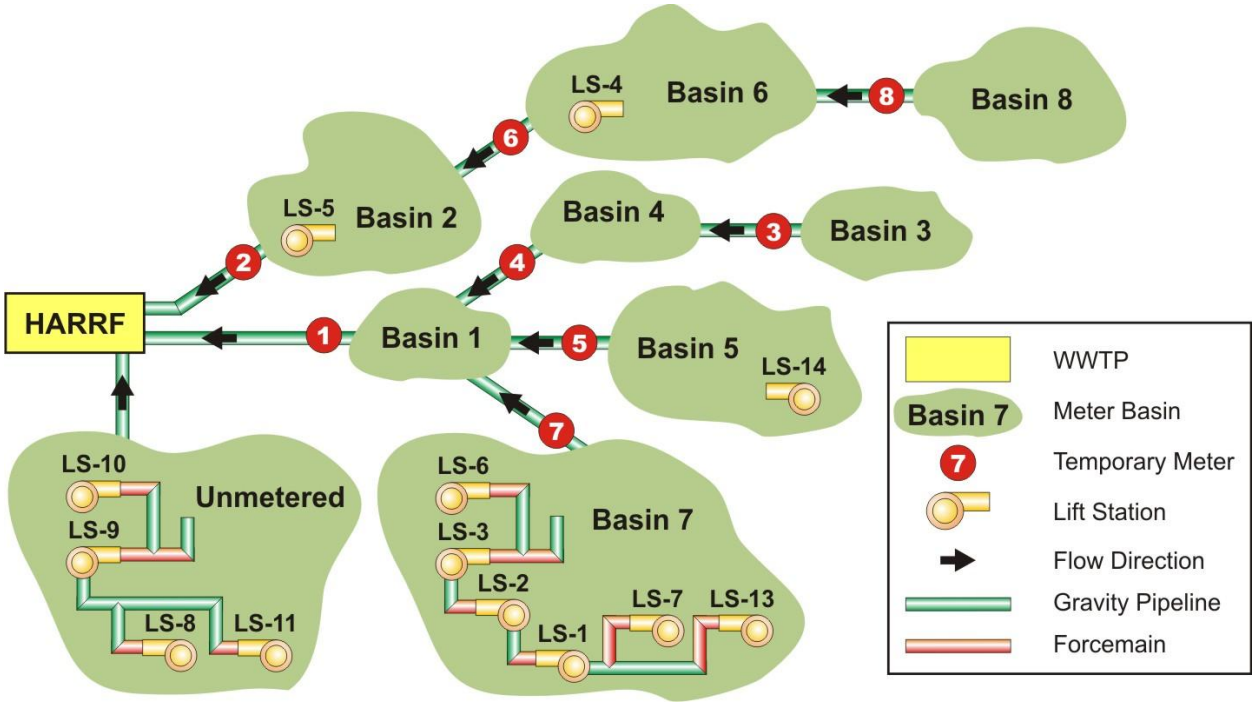


Metered Sewer Basins

Figure 4-4

06-13-2012 KC Z:\Projects\IS\Escondido\SewerMP_2011\mxd\20362_WW_MeterBasins_F4-4.mxd

Figure 4-5 Metered Sub-Basin Flow Schematic



4.3 Collection System Condition Assessment

A sewer lift station evaluation study which evaluated 13 of the 14 sewer lift stations was conducted in 2009-2010 by a consultant for the City. Lift Station 4 was in the process of being replaced and was therefore not included as part of the study. Lift station evaluations were based on site visits, a review of questionnaires completed by City operations and maintenance staff, a review of record drawings, and draw-down pump tests conducted in August 2009. Specifically, the study evaluated:

- station condition
- pumping capacity
- electrical equipment
- ease of operation and maintenance
- wet well capacity
- emergency storage and power
- flows in suction/discharge piping and force mains

The study report, dated May 2010, summarizes the condition of each lift station, evaluates and ranks each station based on developed criteria, summarizes station deficiencies, and recommends upgrades and improvements. The evaluation matrix, which assigns ranking scores from 5 (worst) to 1 (best) in each category, is provided in Table 4-4 and the full study report is provided in Appendix C.

United States Census Bureau

QuickFacts

Escondido city, California

QuickFacts provides statistics for all states and counties, and for cities and towns with a ***population of 5,000 or more***.

Table

Population	Escondido city, California
Households, 2015-2019	**47,101**
PEOPLE	
Population	
Population estimates, July 1, 2019, (V2019)	151,625
Population estimates base, April 1, 2010, (V2019)	143,976
Population, percent change - April 1, 2010 (estimates base) to July 1, 2019, (V2019)	5.3%
Population, Census, April 1, 2020	151,038
Population, Census, April 1, 2010	143,911

Appendix N
Fire Protection Plan

DUDEK
MAIN OFFICE
605 THIRD STREET
ENCINITAS, CALIFORNIA 92024
T 800.450.1818 F 760.632.0164

April 18, 2022 14068

LaVona Koretke
Deputy Fire Marshal
Escondido Fire Department

Subject: Fire Protection Plan – Letter Report for the 2085 N. Iris Lane Project

Dear LaVona:

This Fire Protection Plan (FPP) – Letter Report demonstrates that the 2085 N. Iris Lane Project will be in compliance with applicable portions of the Rincon Del Diablo Ordinance No. 2019-116.1-5. The Project will also be consistent with the 2019 California Building Code, Chapter 7A; 2019 California Fire Code, Chapter 49; and 2019 California Residential Code, Section 337, as adopted by the Rincon Del Diablo Fire District. The Project would be required to meet the adopted codes at the time of construction. This FPP-Letter Report has been prepared as prescribed in the County's "Guidelines for Determining Significance and Report Format and Content Requirements for Wildland Fire and Fire Protection (County of San Diego 2010)" document. For purposes of this FPP- Letter Report, the 2085 N. Iris Lane Project will be referred to as the "Project".

Following extensive review of available digital site information, including topography, vegetation types, fire history, and the Project's site plan, along with a site visit conducted by Dudek fire protection planners in May of 2021.

1 Project Description

The Project proposes to develop 102 single-family, detached and interlocking residential lots within the City of Escondido, San Diego County, California (Figure 1, Vicinity Map and Figure 2, Project Site Plan). The proposed 7.7-acre Project site is located at 2085 N. Iris Lane. Attachment 1 includes site photographs.

The Project would convert five lots to one larger lot and utilize all of the lot for single family housing with residential units, garages, driveways, sidewalks/paths, a small park, storm water quality basins, and utilities common with urban communities. The Project would convert the existing low density lots to a higher density residential community consistent with communities to the north and south of the site and remove the existing areas of vegetation to be replaced with ignition resistant landscapes.

2 Environmental Setting

2.1 Location

Within the City of Escondido, the Project site is located off of N. Iris Lane to the south of Robin Hill Lane and north of Cheyenne Lane. Centre City Parkway is located to the east and south of the site. The Project site is entirely within



SOURCE: USGS 7.5-Minute Series Imperial Beach Quadrangle

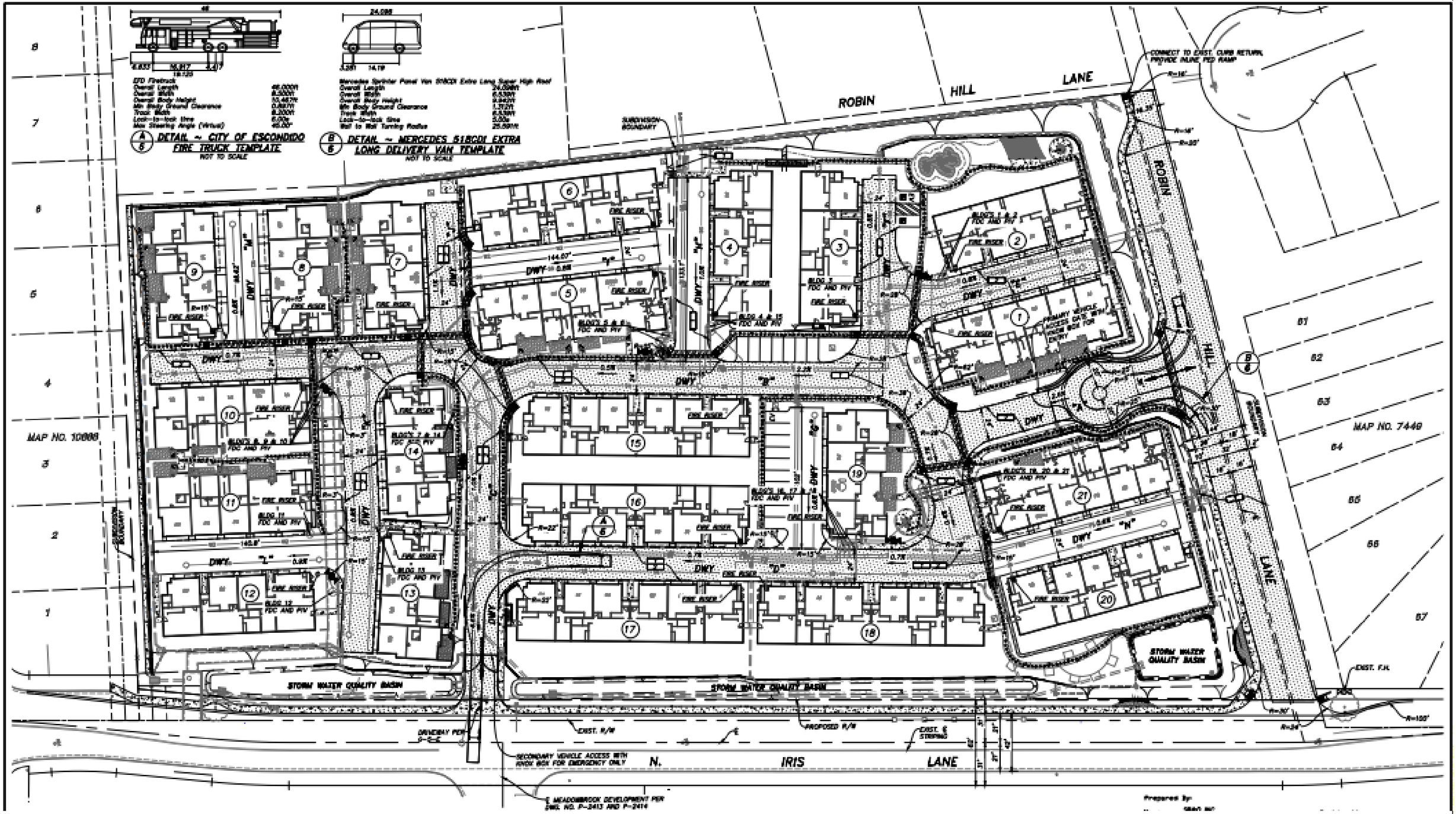
DUDEK

0 150 300 Feet

FIGURE1

Project Location

Fire Protection Plan Letter Report for the N. Iris Lane Project



SOURCE: HUNSAKER AND ASSOCIATES, INC. 2022

FIGURE 2

Project Site Plan

Fire Protection Plan Letter Report for the N. Iris Lane Project

APNs 224-310-05, 224-310-06, 224-310-07, 224-310-08, and 224-310-20, which lies within Lot 6, Section 4, Township 12 South, Range 2 West of the Escondido U.S. Geographical Survey 7.5-minute quadrangle map. Figure 1 illustrates the Project's regional location.

The Project's existing fire environment includes urbanized landscapes with single family track communities to the north and south, larger lot residential to the west, and multi-family and office space to the east. The vicinity includes schools, golf course, and retail. A linear open space, Reidy Creek, occurs to the east of the Project. Currently, the Project site is vacant (refer to Figure 1, Representative Site Aerial Photograph). The nearest larger open space is the Daley Ranch approximately 1.5 miles to the northeast. The existing Project site represents one of the higher fire threats in the vicinity due to on-site areas that seasonally grow vegetation that dries out and becomes available to fire ignitions until it is mowed/maintained. This threat will be removed with the Project as it develops the entire site to ignition resistant landscapes.

While the Project site is not designated as a FHSZ by the California Department of Forestry and Fire Protection (CAL FIRE), the Project site is designated by the City of Escondido as High Fire Hazard Severity Zone. CAL FIRE's Fire and Resource Assessment Program (CAL FIRE 2022) fire history data[1] indicates wildfires have occurred within a 5 mile vicinity of the Project site; however, there have been no recorded wildfires on-site. The 1997 Del Dios Fire is the only wildfire that has burned within 1-mile of the Project site, and the most recent wildfire in the Project vicinity was the 2014 Cocos Fire.

2.2 Observations

The following site observations were observed during the site fire risk assessment:

- Current site includes five single family homes on large lots with a large agricultural lot;
- Site includes driveways, fences, power poles, RV storage, agriculture;
- Vegetation is primarily maintained weedy growth and residential landscapes; grassland with scattered native shrubs and trees around the existing residential properties;
- Surrounding land uses are – north: residential development, south: residential development, east: N. Iris Lane, residential development and large office building, west: rural residential/larger lot.

2.3 Topography

Topography influences fire risk by affecting fire spread rates. Typically, steep terrain results in faster fire spread up-slope and slower fire spread down-slope, unless downslope winds are influencing the fire. Flat terrain tends to have little effect on fire spread, resulting in fires that are driven by wind.

The Project site is relatively flat with slightly higher elevation to the north and west, ranging from 736 to 706 feet above mean sea level. The topography on and adjacent to the site are not consistent with extreme wildfire behavior due to the lack of steep terrain.

[1] Based on polygon GIS data from CAL FIRE FRAP, which includes data from CAL FIRE, USDA Forest Service Region 5, BLM, NPS, Contract Counties and other agencies. The data set is a comprehensive fire perimeter GIS layer for public and private lands throughout the state and covers fires 10 acres and greater between 1878–2018.

2.4 Climate

Inland, northern San Diego County and the project area's weather are influenced by the Pacific Ocean and are frequently under the influence of a seasonal, migratory subtropical high-pressure cell known as the "Pacific High" (WRCC 2022a). Wet winters and dry summers with mild seasonal changes characterize the Southern California climate. This climate pattern is occasionally interrupted by extreme periods of hot weather, winter storms, or dry, easterly Santa Ana winds. The average high temperature for the project area is approximately 76°F, with average highs in the summer and early fall months (June–September) reaching 88°F. Precipitation typically occurs from December through March with annual rainfall averaging 16 inches (WRCC 2022b). The prevailing wind pattern is from the west (on-shore), but the presence of the Pacific Ocean causes a diurnal wind pattern known as the land/sea breeze system. During the day, winds are from the west–southwest (sea) and at night, winds are from the northeast (land), averaging two miles per hour (mph). During the summer season, the diurnal winds may average slightly higher (approximately 16 mph) than the winds during the winter season due to greater pressure gradient forces. Surface winds can also be influenced locally by topography and slope variations. The highest wind velocities are associated with downslope, canyon, and Santa Ana winds.

The Project area's climate has a large influence on the fire risk, as drying vegetation during the summer months becomes fuel available to advancing flames should an ignition be realized. Typically, the highest fire danger is produced by the high-pressure systems that occur in the Great Basin, which result in the Santa Ana winds of Southern California. Sustained wind speeds recorded during recent major fires in San Diego County exceeded 30 mph and may exceed 65 mph during extreme conditions. The Santa Ana wind conditions are a reversal of the prevailing southwesterly winds that usually occur on a region-wide basis during late summer and early fall. Santa Ana winds are warm and dry winds that flow from the higher desert elevations in the north through the mountain passes and canyons. As they converge through the canyons, their velocities increase. Santa Ana winds generally coincide with the regional drought period and the period of highest fire danger. The Project site is affected by Santa Ana winds from the north and east. The slopes are generally in alignment with the extreme Santa Ana wind events, which can influence fire spread by creating downslope and down canyon wind-driven fires.

2.5 Vegetation

The site includes a mix of non-native grasses, weedy vegetation and residential ornamental plants. The entire Project site is either disturbed or developed. Land cover types occurring on-site are generally grouped into: disturbed/bare ground, developed, and agriculture/mowed. Once the Project is built, the on-site vegetation/land cover types would be replaced and characterized as hardscape or irrigated landscape. Offsite vegetation includes landscape plantings associated with neighboring residential properties along with a riparian drainage to the northeast of the Project.

Off-site areas include maintained landscapes, hardscape, and non-native grasses. The fuels in the area are not consistent with extreme wildfire behavior due to the lack of unmaintained fuel beds.

3 Project Fire Protection Code Conformance

3.1 Water Supply

Water for the Project would be provided by the Rincon Del Diablo Municipal Water District. On-site firefighting water needs will be met from on-site fire hydrants to the code specifications of the Rincon Del Diablo Fire District.

3.2 Fire Access Roads

Primary access to the Project site would be provided from Robin Hill Lane via N. Iris Lane, which would be widened to a minimum 32-foot-wide asphalt cement (AC) pavement private street as part of the Project. Internal circulation would be provided by a looped roadway including driveway alleys. Road widths are 24 feet-wide throughout the Project with no on-street parking. A total of 230 parking spaces, primarily garage parking along with 26 guest parking spaces are provided. Road grades will comply with the District's Standards for Private Roads, per Section 503 of the Rincon Fire Protection District Fire Code. Minimum vertical clearance of 13 feet 6 inches will be maintained for the entire required width of fire access roads.

All access and internal road surfaces will consist of asphalt pavement and would be capable of supporting the imposed loads of fire apparatus (not less than 75,000 lbs.). All proposed roads would be improved with asphalt pavement to facilitate on-site circulation for emergency vehicles. Additionally, the HOA and/or private property owners adjacent to the site's roads would maintain all roadside landscape in a fire safe condition.

3.3 Dead End Roads

The Project does not include a long, dead-end road system that exceeds the allowable 800 feet for this type of development. The Project includes exit only secondary access via Driveway C to N. Iris Lane. This secondary access would be gated and provided code-required gate features per the next section.

The Project's roads comply with Section 503.2.5 regarding 150 feet length of dead end roads without turnarounds. No roads exceed 150 feet from the nearest turnaround point.

3.4 Gates

All gates will be equipped with a Knox, emergency key-operated switch overriding all command functions and opening the gate and a Knox box, per code. Additionally, all gates will be equipped with approved emergency traffic control-activating strobe light sensor, which will activate the gate from both directions of travel on the approach of emergency apparatus. All automatic gates will have a battery back-up or manual mechanical disconnect in case of a power failure.

3.5 Premise Identification

Identification of roads and structures will comply with 2019 Rincon Fire Protection District Fire Code, Section 505.1, as follows:

- All structures shall be identified by street address. Numbers shall be 4 inches in height, 1/2 -inch stroke, and located 6 to 8 feet above grade. Numbers will contrast with background.

An emergency response map update, including structures, fire hydrants, FDCs, and roadways or similar features in a format compatible with current EFD mapping services.

3.6 Fire Hydrants

The fire hydrant or fire valve shall be between 14 to 24 inches above grade, no closer than 4 feet nor further than 12 feet from the roadway, and 8 feet from combustible vegetation.

3.7 Fire Response

The Project site is located within the City of Escondido's responsibility area and the Rincon Fire Protection District. Emergency response for the Project would be provided, initially, by Escondido Fire Department's (EFD) Escondido Fire Station 3, located at 1808 N. Nutmeg Street. Escondido Fire Station 3 is staffed by one Fire Captain, one Engineer, two Firefighter Paramedics and one Paramedic/EMT. Station 3's apparatus includes one Type 1 Engine, one Rescue Ambulance, and one cross-staffed Type 3 Brush Engine. Station 3 is approximately 1.6 miles to the secondary access and 1.8 miles to the primary access. The most remote unit would be approximately 1.98 miles from the fire station with a calculated travel time of just over 4 minutes[2]. Therefore, with dispatch and turnout anticipated to be up to 2.5 minutes, EFD can respond to the Project site within the City's adopted performance goal of responding to emergency calls with a first-due unit within 7:30 minutes (5:00 minutes travel time), 90% of the time (Citygate 2017).

There are additional firefighting resources within the vicinity of the Project site, which includes EFD Station 7, located at 1220 North Ash, Escondido and EFD Station 1, located at 310 N Quince St # 1, Escondido. EFD Station 7 is approximately 2.4 miles from the Project entrance with a calculated travel time of 4.1 minutes (6.6 minutes response time). EFD Station 2 is approximately 4.7 miles from the Project entrance with a calculated travel time of 8.6 minutes.

The Project proposes the development of 102 single family residential lots, which would generate a population of approximately 325 residents (SANDAG 2022). In 2021, the EFD responded to a total of 16,934 calls (Costello, L. 2022). The total population within the EFD service area is 153,008 (SANDAG 2022); therefore, the estimated number of annual calls per 1,000 population is 110 (generation rate of 0.110), the Project would potentially generate up to 36 calls per year (roughly 3 calls per month or 0.09 call per day), most of which would be expected to be medical-related calls, consistent with typical emergency call statistics (Refer to Table 1 for call volume calculations).

Table 1. Calculated Call Volume Associated with the Rancho Guejito Project

Emergency Calls per 1,000 (City of Escondido Data)	Number of Residents	Avg. No. Calls per Year (325\1,000)x110	Avg. No. Calls per Day (8/365)
110	325 (estimate)	36	0.09

[2] Calculated using the nationally recognized RAND Corporation formula used by the Insurance Services Office (ISO) Public Protection Classification Program's Response Time Standard: (T=0.65 + 1.7D), where T=time and D=distance).

Service level requirements are not expected to be significantly impacted with the increase of approximately 1 call every 10 days for the local fire response system. For example, in 2021, EDF's Station 3's Engine responded to roughly 6 calls per day (2,200 calls) in its primary service area. For reference, a Fire Station that responds to 5 calls per day in an urban setting is considered average and 10 calls per day is considered busy. Therefore, the Project is not expected to cause a decline in the emergency response times. The requirements described in this FPP are intended to aid firefighting personnel and minimize the demand placed on the existing emergency service system.

3.8 Building Construction

Due to its location within an Escondido High Fire Hazard Severity Zone, all new structures will meet applicable Fire and Building Codes pursuant to requirements for ignition resistance (California Building Code, Chapter 7A). While the Project would not be considered a shelter-in-place development, these structures would be intended to provide temporary refuge as a contingency to evacuation should evacuation be considered less safe. Hardening each building against a wildfire would require building features as follows:

- Application of Chapter 7A, ignition resistant building requirements
    a. New Class-A fire-rated roof and associated assembly. With the proposed Class-A fire-rated roof, there will be attic or void spaces above living spaces requiring ventilation to the outside environment. The attic spaces will require either ember-resistant roof vents or a minimum 1/16-inch mesh and shall not exceed 1/8-inch mesh for side ventilation (recommend BrandGuard, O'Hagin, or similar vents).
    b. Multi-pane glazing with a minimum of one tempered pane, fire-resistance rating of not less than 20 minutes (CBC 708A) when tested according to NFPA 257 (such as SaftiFirst, SuperLite 20-minute rated glass product), or be tested to meet the performance requirements of State Fire Marshal Standard 12-7A-2
    c. Ember resistant vents with a minimum of meeting the 1/16 inch to 1/8 inch mesh size.
    d. Exterior walls meeting CFC 707A.3
    e. Accessory structures, appendages, decks meeting ignition resistant requirements of CBC 709A and 710A
- Automatic, Interior Fire Sprinkler System to installed for all buildings on the Project site.

3.9 Fire Protection Systems

An approved, automatic fire sprinkler system will be installed in all new structures for the Project in accordance with minimum NFPA 13 D or R[3] standards, 2019 CFC and CBC, and RFPD Fire Code or the current, adopted Code editions at the time building permits are issued.

3.10 Defensible Space

The Project site does not include exposure to wildland fuels.

[3] NFPA 13R. Standard for the Installation of Sprinkler Systems in Low-Rise Residential Occupancies. 2019 Edition.

- Although the Project is located within a City-designated high fire hazard zone, it does not include wildland urban interface.
- The Cal Fire fire hazard severity zone mapping indicates that the Project is in a Non-Very High Fire Hazard Severity Zone, which typically means it would not be subject to enhanced building and landscape requirements.
- The Project converts the entire Project site to managed landscapes that are ignition resistant.
- Neighboring landscapes are urban landscapes or are highly disturbed/urbanized and do not represent a high wildfire threat
- Traditional Fuel Modification Zones are not considered necessary – EFD has concurred with this conclusion.

The site's landscapes will provide a fire wise landscape that extends across the Project site. This type of landscaping consists of irrigated, well-maintained plantings that include fire-resistant plants irrigation, and ongoing maintenance (refer to Attachment 2, Suggested Plant List – note that the Project's landscape plantings incorporate species not on the suggested plant list, but that are acceptable due to their species and ongoing irrigation and maintenance). The Landscape Plans created by GMP (March 16, 2022) conforms to the City guidelines and, though the project doesn't require formal fuel modification, a majority of the landscape measures noted in the FPP are incorporated into the plan. The following guidelines will be applied:

- Landscapes shall consist of planting low growth, drought tolerant and fire resistive plant species;
- The height of the plants will generally be lower than 36 inches;
- Vegetation shall be irrigated and shall be moderate densities;
- Trees shall not exceed 30 feet in height and shall be limited or as approved by EFD;

Additionally, it is recommended that the area from the exterior wall surface of each building, extending 5 feet on a horizontal plane, shall be constructed of continuous hardscape or limited fire-resistant plantings acceptable to the FAJH. Vegetation in this space shall be ignition resistant and irrigated. Additionally, this space shall be free of combustible materials and the use of combustible mulch is prohibited.

The Project's Homeowners Association shall be responsible for ensuring long-term funding and ongoing compliance with landscape maintenance requirements throughout the Project site's common areas. Private property owners will be responsible for maintenance within individual lots.

3.11 Landscape Requirements

Landscape plantings will be consistent with City of Escondido landscape requirements.

3.12 Fire Behavior Computer Modeling

Computer based fire behavior modeling is not required for this FPP letter report. Given the Project site's location surrounded by developed areas that provide equivalent off-site FMZ, the Project site precludes the necessity for fire behavior modeling.

3.13 Emergency Pre-Planning – Evacuation

Early evacuation for any type of wildfire emergency at the Project site is the preferred method of providing for resident safety, consistent with the EFD's current approach within San Diego County. As such, the Project would formally adopt, practice, and implement a "Ready, Set, Go!" approach to evacuation. The "Ready, Set, Go!" concept is widely known and encouraged by the State of California and most fire agencies. Pre-planning for emergencies, including wildfire emergencies, focuses on being prepared, having a well-defined plan, minimizing the potential for errors, maintaining the Project site's fire protection systems, and implementing a conservative (evacuate as early as possible) approach to evacuation and Project area activities during periods of fire weather extremes.

This letter FPP provides basic analysis of the site, it's fire hazards and overall risk, and provides concurrence that the Project will meet fire safety code requirements. Please contact me at 619.992.9161 if you have any questions or need any clarifications to the material presented herein.

Respectfully,

Prepared by (Signature)	4.18.2022 Date	Michael Huff, Dudek Principal Printed Name, Title
Project Applicant (Signature)	Date	Printed Name, Title

Att: *Figure 1 – Project Vicinity*
Figure 2 – Project Site Plan
Attachment 1 – Site Photographs
Attachment 2 – Suggested Plant List

References

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Attachment 1

Site Photographs

2085 N. Iris Lane Project
Photo Log

APRIL 2022

Attachment 1

2085 N. Iris Lane Project
Photo Log

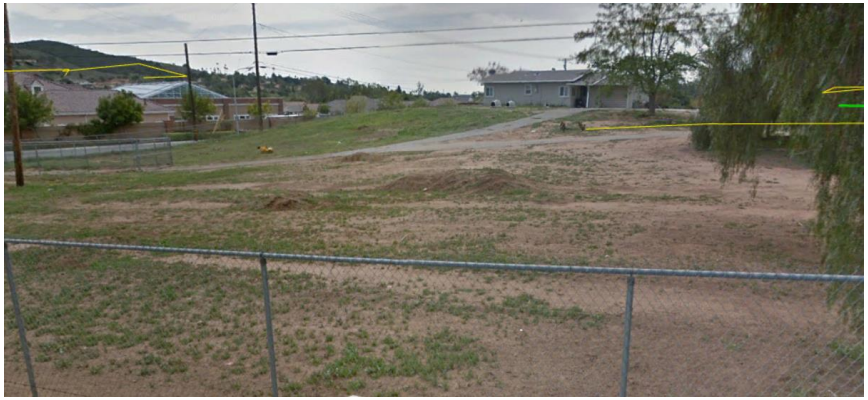


Photograph 1. View from N. Iris Lane at the Project site to the northwest.



Photograph 2. View of the Project site from N. Iris Lane (at Iris Glen) to the southwest.

2085 N. Iris Lane Project
Photo Log



Photograph 3. View from Robin Hill Lane to the south at Project Site.



Photograph 4. View from the eastern end of Robin Hill Lane to the southeast at Project site.

Attachment 2

Suggested Plant List

SUGGESTED PLANT LIST FOR A DEFENSIBLE SPACE

BOTANICAL NAME	COMMON NAME	Climate Zone
TREES		
Acer		
platanoides	Norway Maple	M
rubrum	Red Maple	M
saccharinum	Silver Maple	M
saccarum	Sugar Maple	M
macrophyllum	Big Leaf Maple	C/ (R)
Alnus rhombifolia	White Alder	C/I/M (R)
Arbutus		
unedo	Strawberry Tree	All zones
Archontophoenix		
cunninghamiana	King Palm	C
Arctostaphylos spp.**	Manzanita	C/I/D
Brahea		
armata	Blue Hesper Palm	C/D
edulis	Guadalupe Palm	C/D
Ceratonia siliqua	Carob	C/I/D
Cerdidium floridum	Blue Palo Verde	D
Cercis occidentalis**	Western Redbud	C/I/M
Cornus		
nuttallii	Mountain Dogwood	I/M
stolonifera	Redtwig Dogwood	I/M
Eriobotrya		C/I/D
japonica	Loquat	C
Erythrina caffra	Kaffirboom Coral Tree	I/M
Gingko biloba "Fairmount"	Fairmount Maidenhair Tree	I/D/M
Gleditisia triacanthos	Honey Locust	
Juglans		I
californica	California Walnut	C/I
hindsii	California Black Walnut	I/D/M
Lagerstroemia indica	Crape Myrtle	I
Ligustrum lucidum	Glossy Privet	C/I/M
Liquidambar styraciflua	Sweet Gum	I
Liriodendron tulipifera	Tulip Tree	
Lyonothamnus floribundus		C
ssp. Asplenifolius	Fernleaf Catalina Ironwood	C/I/D
Melaleuca spp.	Melaleuca	C/I
Parkinsonia aculeate	Mexican Palo Verde	
Pistacia	Chinese Pistache	
chinensis	Pistachio Nut	C/I/D

vera	Pistachio Nut	I
Pittosporum		
phillyraeoides	Willow Pittosporum	C/I/D
viridiflorum	Cape Pittosporum	C/I
Platanus		
acerifolia	London Plane Tree	All zones
racemosa**	California Sycamore	C/I/M
Populus		
alba	White Poplar	D/M
fremontii**	Western Cottonwood	I
trichocarpa	Black Cottonwood	I/M
Prunus		
xblireiana	Flowering Plum	M
caroliniana	Carolina Laurel Cherry	C
ilicifolia**	Hollyleaf Cherry	C
lyonii**	Catalina Cherry	C
serrulata ‘Kwanzan’	Flowering Cherry	M
yedoensis ‘Akebono’	Akebono Flowering Cherry	M
Quercus		
agrifolia**	Coast Live Oak	C/I
engelmannii	Engelmann Oak	I
** suber	Cork Oak	C/I/D
Rhus		
lancea**	African Sumac	C/I/D
Salix spp.**	Willow	All zones (R)
Tristania conferta	Brisbane Box	C/I
Ulmus		
parvifolia	Chinese Elm	I/D
pumila	Siberian Elm	C/M
Umbellularia californica**	California Bay Laurel	C/I

SHRUBS		
Agave	Century Plant	D
americana	Century Plant	D
deserti	Shawis Century Plant	D
shawi**		
Amorpha fruticosa**	False Indigobush	I
Arbutus		
menziesii**	Madrone	C/I
Arctostaphylos spp.**	Manzanita	C/I/D
Atriplex**		
canescens	Hoary Saltbush	I
lentiformis	Quail Saltbush	D
Baccharis**		
glutinosa	Mule Fat	C/I
pilularis	Coyote Bush	C/I/D
Carissa grandiflora	Natal Plum	C/I
Ceanothus spp.**	California Lilac	C/I/M
Cistus spp.	Rockrose	C/I/D
Cneoridium dumosum**	Bushrue	C
Comarostaphylis**		
diversifolia	Summer Holly	C
Convolvulus cneorum	Bush Morning Glory	C/I/M
Dalea		
orcuttii	Orcutt's Delea	D
spinosa**	Smoke Tree	I/D
Elaeagnus		
pungens	Silverberry	C/I/M
Encelia**		
californica	Coast Sunflower	C/I
farinose	White Brittlebush	D/I
Eriobotrya		
deflexa	Bronze Loquat	C/I
Eriophyllum		
confertiflorum**	Golden Yarrow	C/I
staechadifolium	Lizard Tail	C
Escallonia spp.	Escallonia	C/I
Feijoa sellowiana	Pineapple Guava	C/I/D
Fouqueria splendens	Ocotillo	D
Fremontodendron**		
californicum	Flannelbush	I/M
mexicanum	Southern Flannelbush	I
Galvezia		
juncea	Baja Bush-Snapdragon	C
speciosa	Island Bush-Snapdragon	C
Garrya		
elliptica	Coast Silktassel	C/I
flavescens**	Ashy Silktassel	I/M

Heteromeles arbutifolia**	Ashy Silktassel	I/M
Lantana spp.	Toyon	C/I/M
Lotus scoparius	Lantana	C/I/D
Mahonia spp.	Deerweed	C/I
	Barberry	C/I/M
Malacothamnus		
clementinus		
	San Clemente Island Bush Mallow	C
fasciculatus**		
	Mesa Bushmallow	C/I
Melaleuca spp.		
Mimulus spp.**	Melaleuca	C/I/D
Nolina	Monkeyflower	C/I (R)
parryi		
parryi ssp. wolfii	Parry's Nolina	I
Photinia spp.	Wolf's Bear Grass	D
Pittosporum	Photinia	All Zones
crassifolium		
rhombifolium		CI/I
tobira 'Wheeleri'	Queensland Pittosporum	C/I
undulatum	Wheeler's Dwarf	C/I/D
viridiflorum	Victorian Box	C/I
Plumbago auriculata	Cape Pittosporum	C/I
Prunus	Cape Plumbago	C/I/D
caroliniana		
ilicifolia**	Carolina Laurel Cherry	C
lyonii**	Hollyleaf Cherry	C
Puncia granatum	Catalina Cherry	C
Pyracantha spp.	Pomegranate	C/I/D
Quercus	Firethorn	All Zones
dumosa**		
Rhamus	Scrub Oak	C/I
alaternus		
californica**	Italian Blackthorn	C/I
Rhaphiolepis spp.	Coffeeberry	C/I/M
Rhus	Rhaphiolepis	C/I/D
integrifolia**		
laurina	Lemonade Berry	C/I
lentii	Laurel Sumac	C/I
ovata**	Pink-Flowering Sumac	C/D
trilobata**	Sugarbush	I/M
Ribes	squawbush	I
viburnifolium		
speciosum**	Evergreen Currant	C/I
Romneya coulteri	Fuschia-Flowering Gooseberry	C/I/D
Rosa	Matilija Poppy	I
californica**		
minutifolia		

	Salvia spp.**	California Wild Rose	C/I
	Sambucus spp.**	Baja California Wild Rose	C/I
	Symphoricarpos mollis**	Sage	All Zones
	Syringa vulgaris	Elderberry	C/I/M
	Tecomaria capensis	Creeping Snowberry	C/I
	Teucrium fruticans	Lilac	M
	Toxicodendron**	Cape Honeysuckle	C/I/D
	diversilobum	Bush Germander	C/I
	Verbena		
	lilacina	Poison Oak	I/M
	Xylosma congestum		
	Yucca**	Lilac Verbena	C
	schidigera	Shiny Xylosma	C/I
	whipplei		
		Mojave Yucca	D
		Foothill Yucca	I

GROUNDCOVERS		
Achillea**	Yarrow	All Zones
Aptenia cordifolia	Apteria	C
Arctostaphylos spp.**	Manzanita	C/I/D
Baccharis**		
pilularis	Coyote Bush	C/I/D
Ceanothus spp.**	California Lilac	C/I/M
Cerastium tomentosum	Snow-in-Summer	All Zones
Coprosma kirkii	Creeping Coprosma	C/I/D
Cotoneaster spp.	Redberry	All Zones
Drosanthemum hispidum	Rosea Ice Plant	C/I
Dudleya		
brittonii	Brittonis Chalk Dudleya	C
pulverulenta**	Chalk Dudleya	C/I
virens	Island Live Fore-ever	C
Eschscholzia californica**	California Poppy	All Zones
Euonymus fortunei		
‘Carrierei’	Glossy Winter Creeper	M
‘Coloratus’	Purple-Leaf Winter Creeper	M
Ferocactus viridescens**	Coast Barrel Cactus	C
Gaillardia grandiflora	Blanket Flower	All Zones
Gazania spp.	Gazania	C/I
Helianthemum spp.**	Sunrose	All Zones
Lantana spp.	Lantana	C/I/D
Lasthenia		
californica**	Common Goldfields	I
glabrata	Coastal Goldfields	C
Lupinus spp.**	Lupine	C/I/M
Myoporum spp.	Myoporum	C/I
Pyracantha spp.	Firethorn	All zones
Rosmarinus officinalis	Rosemary	C/I/D
Santolina		
chamaecyparissus	Lavender Cotton	All Zones
virens	Santolina	All Zones
Trifolium frageriferum	O’Connor’s Legume	C/I
Verbena		
rigida	Verbena	All Zones
Viguiera laciniata**	San Diego Sunflower	C/I
Vinca		
minor	Dwarf Periwinkle	M

VINES		
Antigonon leptopus	San Miguel Coral Vine	C/I
Distictis buccinatoria	Blood-Red Trumpet Vine	C/I/D
Keckiella cordifolia**	Heart-Leaved Penstemon	C/I
Lonicera		
japonica 'Halliana'	Hall's Honeysuckle	All Zones
subspicata**	Chaparral Honeysuckle	C/I
Solanum		
jasminoides	Potato Vine	C/I/D

PERENNIALS		
Coreopsis		
gigantean	Giant Coreopsis	C
grandiflora	Coreopsis	All Zones
maritime	Sea Dahlia	C
verticillata	Coreopsis	C/I
Heuchera maxima	Island Coral Bells	C/I
Iris douglasiana**	Douglas Iris	C/M
Iva hayesiana**	Poverty Weed	C/I
Kniphofia uvaria	Red-Hot Poker	C/M
Lavandula spp.	Lavender	All Zones
Limonium californicum		
var. mexicanum	Coastal Statice	C
perezii	Sea Lavender	C/I
Oenothera spp.	Primrose	C/I/M
Penstemon spp.**	Penstemon	C/I/D
Satureja douglasii	Yerba Buena	C/I
Sisyrinchium		
bellum	Blue-Eyed Grass	C/I
californicum	Golden-Eyed Grass	C
Solanum		
xantii	Purple Nightshade	C/I
Zauschneria**		
californica	California Fuschia	C/I
cana	Hoary California Fuschia	C/I
'Catalina'	Catalina Fuschia	C/I

ANNUALS		
Lupinus spp.**	Lupine	C/I/M