Appendix A

Initial Study and Notice of Preparation

NOTICE OF PREPARATION
CITY OF LAKE ELSINORE

TO: **Interested Agencies, Organizations, and Individuals**

FROM: **City of Lake Elsinore**
Attn: Ms. Damaris Abraham, Senior Planner
130 South Main Street
Lake Elsinore, CA 92530

DATE: **8/28/2020**

SUBJECT: **NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE LAKE AND MOUNTAIN COMMERCIAL CENTER PROJECT (PLANNING APPLICATION NO. 2019-34, TENTATIVE TRACT MAP NO. 37922, CONDITIONAL USE PERMIT NO. 2019-19, AND COMMERCIAL RESIGN REVIEW NO. 2019-27)**

The CITY OF LAKE ELSINORE will be the Lead Agency and will prepare an environmental impact report (EIR) for the project described below. In compliance with Section 15082 of the CEQA Guidelines, the City of Lake Elsinore is sending this Notice of Preparation (NOP) to responsible agencies, interested parties, and other agencies which may be involved in approving or permitting the project, and to trustee agencies responsible for natural resources affected by the project. A copy of the project's Initial Study, which contains detailed information about the project and its potential environmental effects, is available for public review at the City of Lake Elsinore Planning Division, 130 South Main Street, Lake Elsinore, CA and online at:
http://www.lake-elsinore.org/city-hall/community-development/planning/ceqa-documents-available-for-public-review/lake-and-mountain-commercial-center-project

The purpose of this NOP is to solicit the views of agencies, organizations, and individuals as to the scope and content of the EIR. A 30-day review and comment period for this NOP is provided under State law. Please have your response postmarked by 9/28/20. Please send your response to Ms. Damaris Abraham at the address shown above. Please provide contact information including name, phone number, and e-mail address.

PROJECT LOCATION

The proposed project is located in the northwestern portion of the City of Lake Elsinore (City), in Riverside County, California at the northwest corner of Mountain Street and Lake Street. The project encompasses Assessor's Parcel Numbers (APNs) 389-030-012, 013, 014, 015, 016, 017, and 018.

PROJECT DESCRIPTION

The proposed project would consist of a 32,695 SF commercial/retail center on approximately 5.63 acres of land. The Project will consist of a 3,400 SF convenience store with an attached 1,525 SF Quick-Serve Restaurant (QSR), 4,089 SF gas fueling canopy, a 3,150 SF express car wash, two (2) 4,850 SF retail buildings, a 3,320 SF drive-through restaurant with an attached 1,600 SF retail building, and a 2,520 SF drive-through restaurant with an attached 2,400 SF retail building, and 170 parking stalls including 11 ADA and 20 vacuum stalls. Landscaping features will be incorporated along the boundary of the project site and in the interior of the site. Trees will provide shade to the proposed parking stalls and landscaping along the east and south side of the property will prevent flow runoff towards Lake Street and Mountain Street.

ENVIRONMENTAL REVIEW

Based upon technical analysis and supporting information, the City has determined that the proposed project could result in potentially significant environmental impacts, and an EIR is the appropriate CEQA document. The environmental topics that will be addressed in the Draft EIR are as follows:

- Aesthetics;
- Air Quality;
- Biological Resources;
- Cultural Resources;
- Energy;
- Geology/Soils;
- Greenhouse Gas Emissions;
- Hazards and Hazardous Materials;
- Hydrology/Water Quality;
- Land Use/Planning;
- Noise;
- Public Services;
- Transportation;
- Tribal Cultural Resources;
- Utilities/Services Systems;
- Wildfire; and
- Mandatory Findings of Significance

The EIR will also identify alternatives to the proposed project that would be capable of reducing or eliminating one or more of the significant environmental effects of the proposed project.

The following issue areas will not be discussed in the EIR because less-than-significant impacts have been identified, and more fully discussed in the project's Initial Study: Agricultural Resources, Population/Housing, Mineral Resources, and Recreation.

PUBLIC SCOPING MEETING

A SCOPING SESSION has been scheduled in order to bring together and resolve the concerns of affected federal, state and local agencies, the proponent of the proposed project, and other interested persons; as well as inform the public of the nature and extent of the proposed project, and to provide an opportunity to identify the range of actions, alternatives, mitigation measures, and significant effects to be analyzed in depth in the EIR and help eliminate from detailed study issues found not to be important. The Scoping Session is not a public hearing on the merit of the proposed project and NO DECISION on the project will be made. Public testimony is limited to identifying issues regarding the project and potential environmental impacts. The project proponent will not be required to provide an immediate response to any concerns raised. The project proponent will be requested to address any concerns expressed at the Scoping Session, through revisions to the proposed project and/or completion of a Final Environmental Impact Report, prior to the formal public hearing on the proposed project. Mailed notice of the public hearing will be provided to anyone requesting such notification.

DATE OF SCOPING SESSION: **Thursday, September 17, 2020**
TIME OF SCOPING SESSION: **6:00 p.m**. or as soon as possible thereafter.
PLACE OF SCOPING SESSION: **Zoom Meeting.** To participate in the meeting, please register by using the following link before 5:00 p.m. on the day of the meeting:

https://us02web.zoom.us/webinar/register/WN_3Hu0blxFRsCowUV2--FFYQ

As indicated above, please have your response postmarked by 9/28/2020 and send to Ms. Damaris Abraham at the City of Lake Elsinore Planning Division, 130 South Main Street, Lake Elsinore, CA.

Signature:

Name: Ms. Damaris Abraham, Senior Planner
Date: 8/28/20
Phone: (951) 674-3124, ext. 913

LAKE AND MOUNTAIN COMMERCIAL CENTER

INITIAL STUDY/ NOTICE OF PREPARATION

PLANNING APPLICATION NO. 2019-34
TENTATIVE TRACT MAP NO. 37922
CONDITIONAL USE PERMIT NO. 2019-19
COMMERCIAL DESIGN REVIEW NO.2019-27

Prepared By:
CITY OF LAKE ELSINORE
130 South Main Street
Lake Elsinore, CA 92530

Applicant:
TIGER PETROLEUM, INC.
Attn. Danny Singh
3017 E. Edinger Avenue
Tustin, CA 92780

Environmental Consultant:
The Altum Group
73-710 Fred Waring Drive, Ste. 219, Palm Desert, CA 92260

August 24, 2020

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TABLE OF CONTENTS

EXHIBITS

I. INTRODUCTION

A. PURPOSE

This document is an Initial Study for evaluation of environmental impacts resulting from implementation of the **Lake and Mountain Commercial Center project**. For purposes of this document, this application will be called the "proposed project".

B. CALIFORNIA ENVIRONMENTAL QUALITY ACT

As defined by Section 15063 of the California Environmental Quality Act (CEQA) Guidelines, an **Initial Study** is prepared primarily to provide the Lead Agency with information to use as the basis for determining whether an Environmental Impact Report (EIR), Negative Declaration, or Mitigated Negative Declaration would be appropriate for providing the necessary environmental documentation and clearance for any proposed project.

According to CEQA Guidelines Section 15065, an **EIR** is deemed appropriate for a particular proposal if the following conditions occur:

- The project has the potential to: substantially degrade the quality of the environment; substantially reduce the habitat of a fish or wildlife species; cause a fish or wildlife population to drop below self-sustaining levels; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of an endangered, rare or threatened species; or eliminate important examples of the major periods of California history or prehistory.

- The project has the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals.

- The project has possible environmental effects that are individually limited but cumulatively considerable.

- The environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly.

According to CEQA Section 21080(c)(1) and CEQA Guidelines Section 15070(a), a **Negative Declaration** can be adopted if it can be determined that the project will not have a significant effect on the environment.

According to CEQA Section 21080(c)(2) and CEQA Guidelines Section 15070(b), a **Mitigated Negative Declaration** can be adopted if it is determined that although the **Initial Study** identifies that the project may have potentially significant effects on the environment, revisions in the project plans and/or mitigation measures, which would avoid or mitigate the effects to below the level of significance, have been made or agreed to by the applicant.

This Initial Study has determined that the proposed project may result in potentially significant environmental effects. Therefore, a Environmental Impact Report is deemed the appropriate document to provide the necessary environmental evaluations and clearance.

This Initial Study has been prepared in conformance with the California Environmental Quality Act of 1970, as amended (Public Resources Code, Section 21000 *et seq.*); the State Guidelines for Implementation of the California Environmental Quality Act ("CEQA Guidelines"), as amended

(California Code of Regulations, Title 14, Division 6, Chapter 3, Section 15000, *et seq.*); applicable requirements of the City of Lake Elsinore; and the regulations, requirements, and procedures of any other responsible public agency or agency with jurisdiction by law.

The City of Lake Elsinore is designated the Lead Agency, in accordance with Section 15050 of the CEQA Guidelines. The Lead Agency is the public agency which has the principal responsibility for carrying out or approving a project which may have significant effects upon the environment.

C. INTENDED USES OF INITIAL STUDY

This Initial Study is an informational document which is intended to inform the City of Lake Elsinore decision-makers, other responsible or interested agencies, and the general public of the potential environmental effects of the proposed project. The environmental review process has been established to enable public agencies to evaluate environmental consequences and to examine and implement methods of eliminating or reducing any potentially adverse impacts. While CEQA requires that consideration be given to avoiding environmental damage, the Lead Agency and other responsible agencies must balance adverse environmental effects against other public objectives, including economic and social goals (CEQA Guidelines Section 15021).

D. CONTENTS OF INITIAL STUDY

This Initial Study is organized to facilitate a basic understanding of the existing setting and environmental implications of the proposed project.

I. INTRODUCTION presents an introduction to the entire report. This section identifies City of Lake Elsinore contact persons involved in the process, scope of environmental review, environmental procedures, and incorporation by reference documents.

II. PROJECT DESCRIPTION describes the proposed project. A description of discretionary approvals and permits required for project implementation is also included.

III. ENVIRONMENTAL CHECKLIST FORM contains the City's Environmental Checklist Form. The checklist form presents results of the environmental evaluation for the proposed project and those areas that would have either a potentially significant impact, a less than significant impact with mitigation incorporated, a less than significant impact, or no impact.

IV. ENVIRONMENTAL ANALYSIS provides the background analysis supporting each response provided in the environmental checklist form. Each response checked in the checklist form is discussed and supported with sufficient data and analysis. As appropriate, each response discussion describes and identifies specific impacts anticipated with project implementation. In this section, mitigation measures are also set forth, as appropriate, that would reduce potentially significant adverse impacts to levels of less than significance.

V. MANDATORY FINDINGS presents the background analysis supporting each response provided in the environmental checklist form for the Mandatory Findings of Significance set forth in Section 21083(b) of CEQA and Section 15065 of the CEQA Guidelines.

VI. REFERENCES lists bibliographical materials used in preparation of this document.

E. SCOPE OF ENVIRONMENTAL ANALYSIS

For evaluation of environmental impacts, each question from the Environmental Checklist Form is stated and responses are provided according to the analysis undertaken as part of the Initial Study. All responses will take into account the whole action involved, including offsite as well as onsite, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts. Project impacts and effects will be evaluated and quantified, when appropriate. To each question, there are four possible responses, including:

1. **No Impact:** A “No Impact” response is adequately supported if the referenced information sources show that the impact simply does not apply to the proposed project. A “No Impact” answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2. **Less Than Significant Impact:** Development associated with project implementation will have the potential to impact the environment. These impacts, however, will be less than the levels of thresholds that are considered significant and no additional analysis is required.

3. **Less Than Significant With Mitigation Incorporated:** This applies where incorporation of mitigation measures has reduced an effect from “Potentially Significant Impact” to a “Less Than Significant Impact”. The Lead Agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level.

4. **Potentially Significant Impact:** There is substantial evidence that the proposed project may have impacts that are considered potentially significant and an EIR is required.

F. DOCUMENTS INCORPORATED BY REFERENCE/TECHNICAL STUDIES

a. As permitted in § 15150 of the CEQA Guidelines, environmental documents can incorporate by reference all or portions of other documents that are a matter of public record. The information presented in this document is based upon other environmental documents. Information and data from the following documents are incorporated by reference. These documents are available for review at the Lake Elsinore City Hall, Planning Division; 130 South Main Street: Lake Elsinore, California 92530.
The following document(s) is/are incorporated by reference:

- General Plan Update (GPU), City of Lake Elsinore, December 13, 2011.
- GPU EIR; City of Lake Elsinore, December 13, 2011.

b. Various technical reports have been prepared to assess specific issues that may result from the construction and operation of the proposed project. As relevant, information from these technical reports has been incorporated into the Initial Study.

- Air Quality Impact Analysis, 2019. Urban Crossroads. (Appendix A)
- Habitat Assessment for Critical Area and Narrow Endemic Plan Species, and Burrowing Owl Survey (Phase I and Phase II Burrow Survey) (Appendix B)
- Phase I Cultural Resources Survey Report for the Commercial/Retail NWC Mountain and Lake Streets Project, 2019. Brian F. Smith and Associates, Inc. (Appendix C)
- Preliminary Geotechnical Interpretive Report, 2019. Earth Strata Geotechnical Services. (Appendix D)
- Preliminary Geotechnical Interpretive Report – Response Letter, 2020. Earth Strata Geotechnical Services. (Appendix E)
- Supplemental – Preliminary Geotechnical Investigation Proposed Commercial Development “Lake Street Marketplace” NWC Mountain Street and Lake Street City of Lake Elsinore, California, 2007.

Leighton Consulting, Inc. (Appendix F)

- Greenhouse Gas Analysis, 2019. Urban Crossroads. (Appendix G)
- Phase I Environmental Site Assessment, 2019. TA-GROUP DD. (Appendix H)
- Hydrology Study. Plump Engineering, Inc., 2019. (Appendix I)
- Noise Impact Analysis, 2019. Urban Crossroads. (Appendix J)
- Traffic Impact Analysis, 2020. Urban Crossroads. (Appendix K)
- Traffic Impact Analysis Appendices, 2020. Urban Crossroads. (Appendix L)
- Water Quality Management Plan, 2019. Plump Engineering. (Appendix M)
- RCA Joint Project Review, LEAP 06-05/Lake Street Marketplace, 2008. Western Riverside County Regional Conservation Authority. (Appendix N)
- SCE Will Serve Letter, 2020. Southern California Edison. (Appendix O)
- EVMW Service Planning Letter, 2020. Elsinore Valley Municipal Water District. (Appendix P)

c. The above-listed documents and technical studies are available for review at:

City of Lake Elsinore
Planning Division
130 S. Main Street
Lake Elsinore, California 92530

Hours: Mon-Thurs: 8 a.m. - 5 p.m.
Friday: 8 a.m. - 4 p.m.
Closed Holidays

II. PROJECT DESCRIPTION

A. PROJECT LOCATION AND SETTING

As shown in Exhibit 1, *Regional Location,* the proposed project is in the northwestern portion of the City of Lake Elsinore (City), in Riverside County, California. As shown in Exhibit 2, *Project Site Vicinity,* the project site is located at the northwest corner of Mountain Street and Lake Street. The corresponding Assessor's Parcel Numbers (APNs) for the project site are 389-030-012, 389-030-013, 389-030-014, 389-030-015, 389-030-016, 389-030-017, and 389-030-018 that total approximately 6.07 acres (existing lot size).

The project site is surrounded by several roadways including Mountain Street to the south and Lake Street to the east directly abutting the project site. Other streets within close proximity to the site include Raveta Lane to the west and Running Deer Road to the north. Adjacent to the east and south of the project site are single-family residential homes. Individual large lot single-family residential homes are located to the west and north of the project site. As shown in Exhibit 3, *Site Photos,* the project site is partially developed and disturbed. A single-family residential home is located near the center of the project site (APN 389-030-14). The parcels in the northern portion of the project site (APNs 389-030-12 and -013) are not developed and vacant, while the remaining parcels (APNs 389-030-015, -016, -017, and -018) in the southern portion of the project site are characterized as vacant cleared land that previously contained a rural residence. Vegetation within the project site mainly consists of non-native weeds and grasses.

B. PROJECT DESCRIPTION

The proposed project would consist of a commercial/retail center that includes retail buildings, drive-thru restaurants, a quick-serve restaurant, a convenience store, express car wash, and gas station land uses on a total of 5.63 acres (proposed lot size). The project site is designated General Commercial by the City of Lake Elsinore General Plan and it is zoned C-2 (General Commercial). The proposed project would not change the existing zoning nor the land use designation. The total building area for the proposed project will consist of approximately 32,695 square feet (SF) of commercial and retail uses that also includes a gas station.

As shown on Exhibit 4, *Conceptual Site Plan,* the proposed project will consist of a 3,400 SF convenience store with an attached 1,525 SF Quick-Serve Restaurant (QSR), 4,089 SF gas fueling canopy, a 3,150 SF express car wash, two (2) 4,850 SF retail buildings, a 3,320 SF drive-through restaurant with an attached 1,600 SF retail building, and a 2,520 SF drive-through restaurant with an attached 2,400 SF retail building. The proposed project would provide vehicle ingress/egress along Mountain Street, in addition to two (2) additional ingress/egress along Lake Street. This three-access point to the proposed project are proposed to be full-access. Parking has been accommodated throughout the site with approximately 170 parking stalls, including 11 ADA stalls, 20 vacuum stalls, and seven (7) electric vehicle charging stalls. Landscaping features will be incorporated along the boundary of the project site and in the interior of the site. Trees will provide shade to the proposed parking stalls and landscaping along the east and south side of the property will prevent flow runoff towards Lake Street and Mountain Street. The proposed project has also been designed with a bio filtration system designed to retain and treat a designated volume stormwater runoff that is located on the northern portion of the project site. Construction of the proposed project is anticipated to begin in the first quarter of 2022 with an approximate 12 month construction period.

III. ENVIRONMENTAL CHECKLIST

A. BACKGROUND

1. Project Title: Lake and Mountain Commercial Center

2. Lead Agency Name and Address:

City of Lake Elsinore, 130 South Main Street, Lake Elsinore, CA 92530

3. Contact Person and Phone Number:

Damaris Abraham, Senior Planner

City of Lake Elsinore

(951) 674-3124, ext. 913

4. Project Location:

The proposed project is located in the northwestern portion of the City of Lake Elsinore in Riverside County, California. The project site is located at the northwest corner of Mountain Street and Lake Street. The corresponding APNs for the proposed project is 389-030-012 through 389-030-018.

5. Project Sponsor's Name and Address:

Tiger Petroleum, Inc.
Attn: Danny Singh
3017 E. Edinger Avenue
Tustin, CA 92780

6. General Plan Designation:
General Commercial

7. Zoning:

C-2 (General Commercial)

8. Description of Project:

The proposed project will consist of a 3,400 SF convenience store with an attached 1,525 SF Quick-Serve Restaurant (QSR), 4,089 SF gas fueling canopy, a 3,150 SF express car wash, two (2) 4,850 SF retail buildings, a 3,320 SF drive-through restaurant with an attached 1,600 SF retail building, and a 2,520 SF drive-through restaurant with an attached 2,400 SF retail building. The total building area for the proposed project will consist of approximately 32,695 SF of commercial and retail uses on a total of 5.63 acres of the 6.07 acre project site.

9. Surrounding Land Uses and Setting:

As shown on Exhibit 2, adjacent to the east and south of the project site are single-family residential homes. Individual large lot single-family residential homes are located to the west and north of the project site. As shown in Exhibit 3, the project site is partially developed and disturbed. A single-family residential home is located near the center of the project site (APN 389-030-14). The parcels in the northern portion of the project site (APNs 389-030-12 and -013) are not developed and vacant, while the remaining parcels (APNs 389-030-015, -016, -017, and -018) in the southern portion of the project site are characterized as vacant cleared land that previously contained a rural residence. Vegetation within the project site mainly consists of non-native weeds and grasses.

10. Lead Agency Approvals:

The following City approvals and permits are anticipated:
- Environmental Impact Report (EIR) certification
- Tentative Tract Map Approval
- Conditional Use Permit Approval
- Commercial Design Review Approval

11. Other Public Agencies Whose Approval is Required:

- Permitting may be required by/through the South Coast Air Quality Management District (SCAQMD) for certain aspects of the proposed project operations and its associated equipment.
- Permitting (i.e., utility connection permits) may be required from utility providers.
- Other ministerial permits necessary to realize all on- and off-site improvements related to the development of the site.

B. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact," as indicated by the checklist on the following pages.

☒	Aesthetics	☐	Agricultural and Forestry Resources	☒	Air Quality
☒	Biological Resources	☒	Cultural Resources	☒	Energy
☒	Geology/Soils	☐	Greenhouse Gas Emissions	☒	Hazards & Hazardous Materials
☒	Hydrology/Water Quality	☐	Land Use/Planning	☐	Mineral Resources
☒	Noise	☐	Population/Housing	☐	Public Services
☐	Recreation	☒	Transportation	☒	Tribal Cultural Resources
☒	Utilities/Service Systems	☐	Wildfire	☒	Mandatory Findings of Significance

C. DETERMINATION

☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.

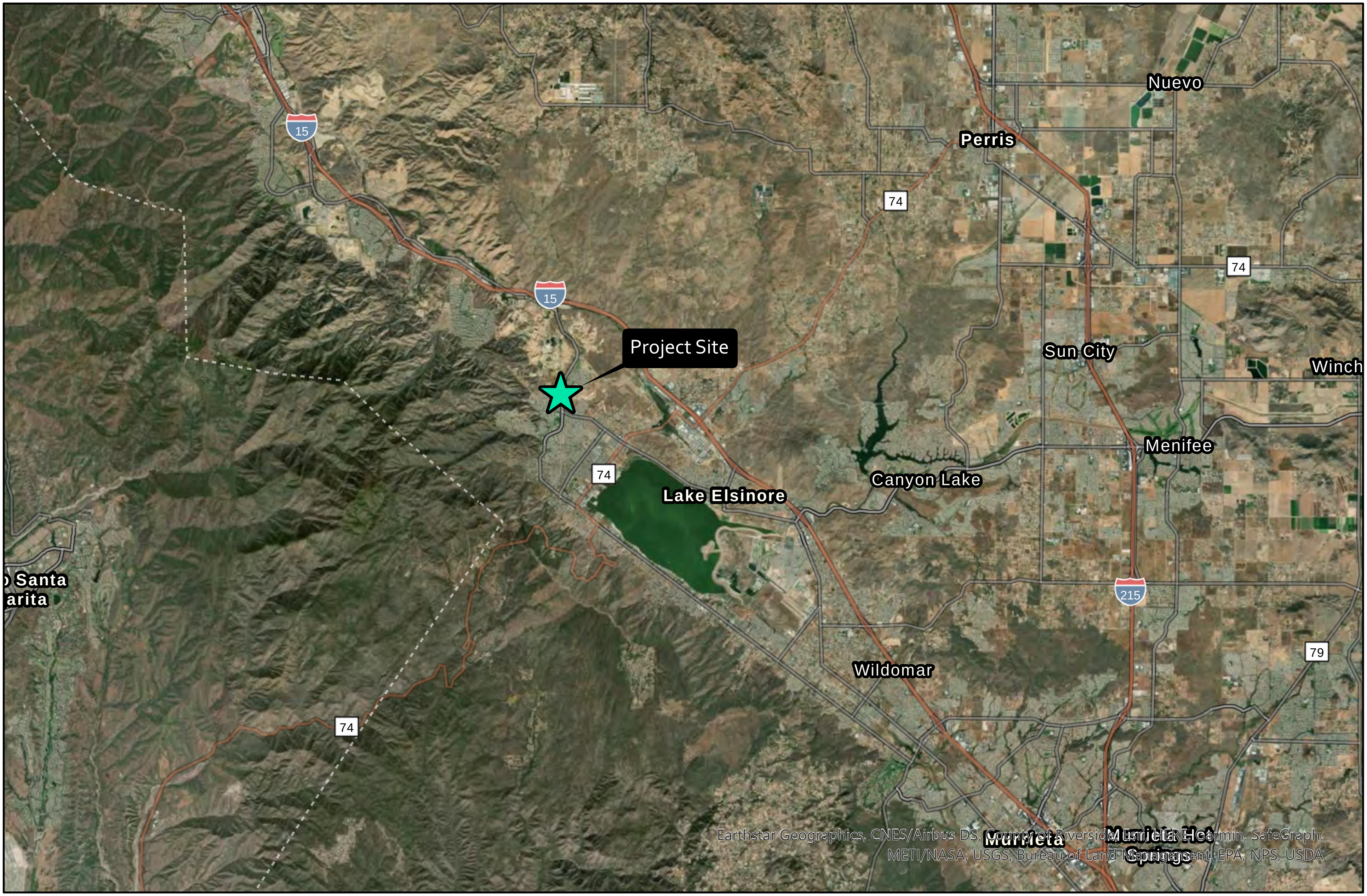
☐ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION will be prepared.

☒ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.

☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.

☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Damaris Abraham, Senior Planner	August 27, 2020 Date



1 IN = 3 MI

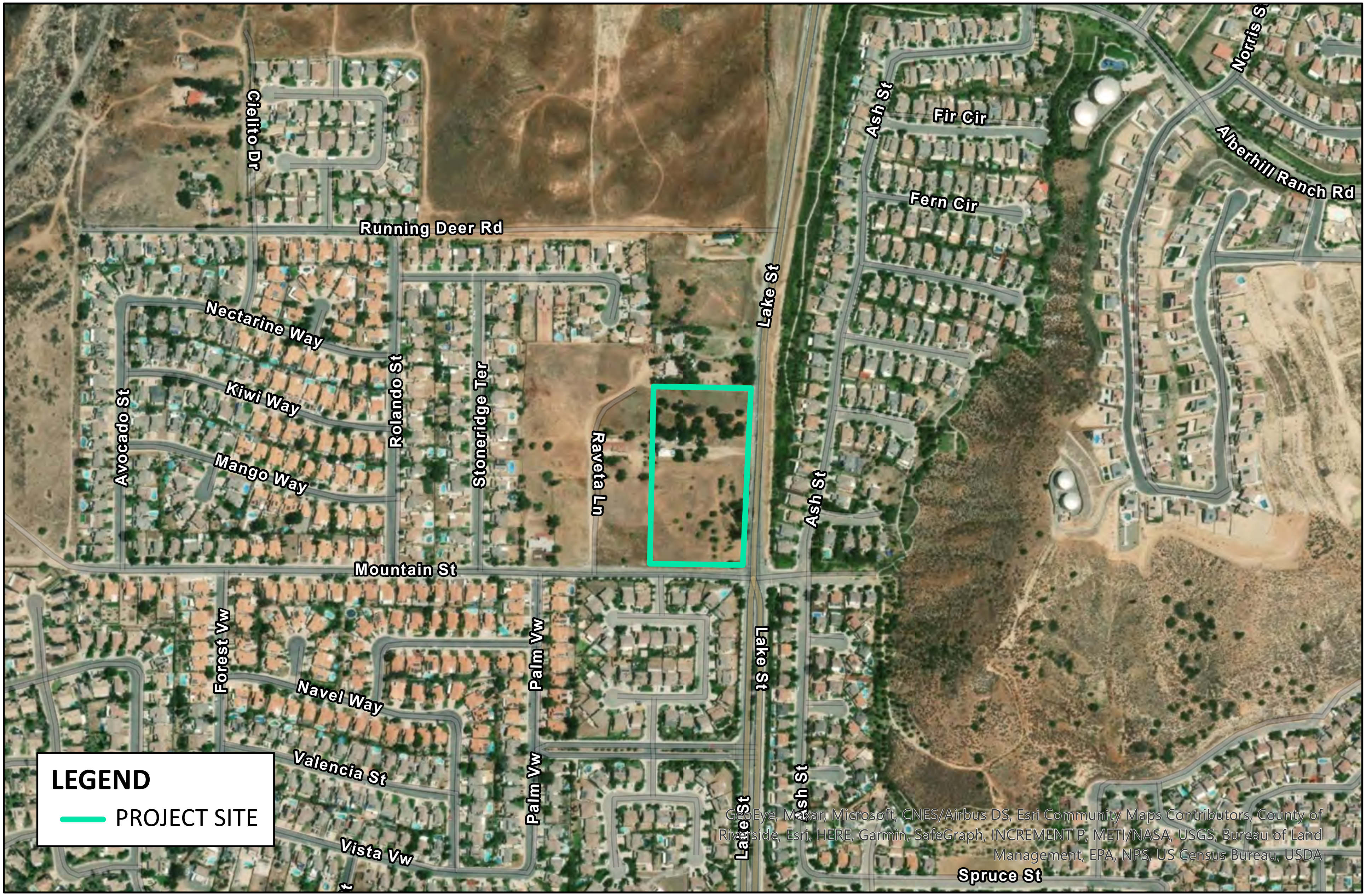
The Altum Group

Regional Location Map

Lake and Mountain Commercial Center

Exhibit

1



1 IN = 0.1 MI

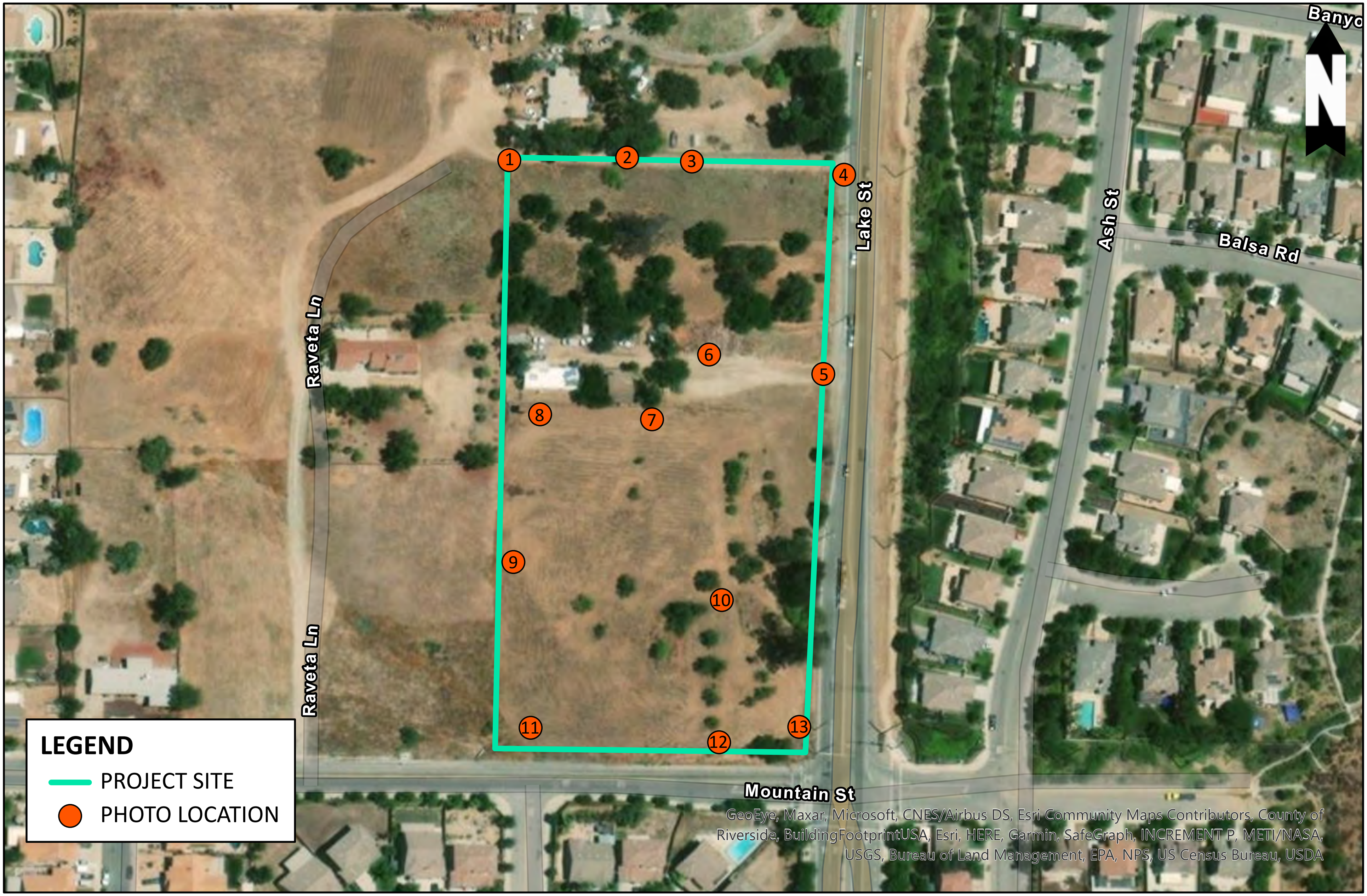
The Altum Group

Project Vicinity

Lake and Mountain Commercial Center

Exhibit

2



1 IN = 0.03 MI

The Altum Group

Site Photos

Lake and Mountain Commercial Center

Exhibit

3


Photo 1 Facing East


Photo 2 Facing South


Photo 3 Facing East


Photo 4 Facing Southeast


Photo5 Facing South


Photo 6 Facing West


Photo 7 Facing Southeast


Photo 8 Facing West


Photo 9 Facing West


Photo 10 Facing North


Photo 11 Facing North


Photo 12 Facing West


Photo 13 Facing South


Photo 14 Facing North


Photo 15 Facing East


Photo 16 Facing East


Photo 17 Facing South


Photo 18 Facing West


Photo 19 Facing West


Photo 20 Facing East


Photo 21 Facing South


Photo 22 Facing East


Photo 23 Facing East


Photo 24 Facing Northeast


Photo 25 Facing North


Photo 26 Facing Southeast


Photo 27 Facing Southwest


Photo 28 Facing North


Photo 29 Facing East


Photo 30 Facing North


Photo 31 Facing North

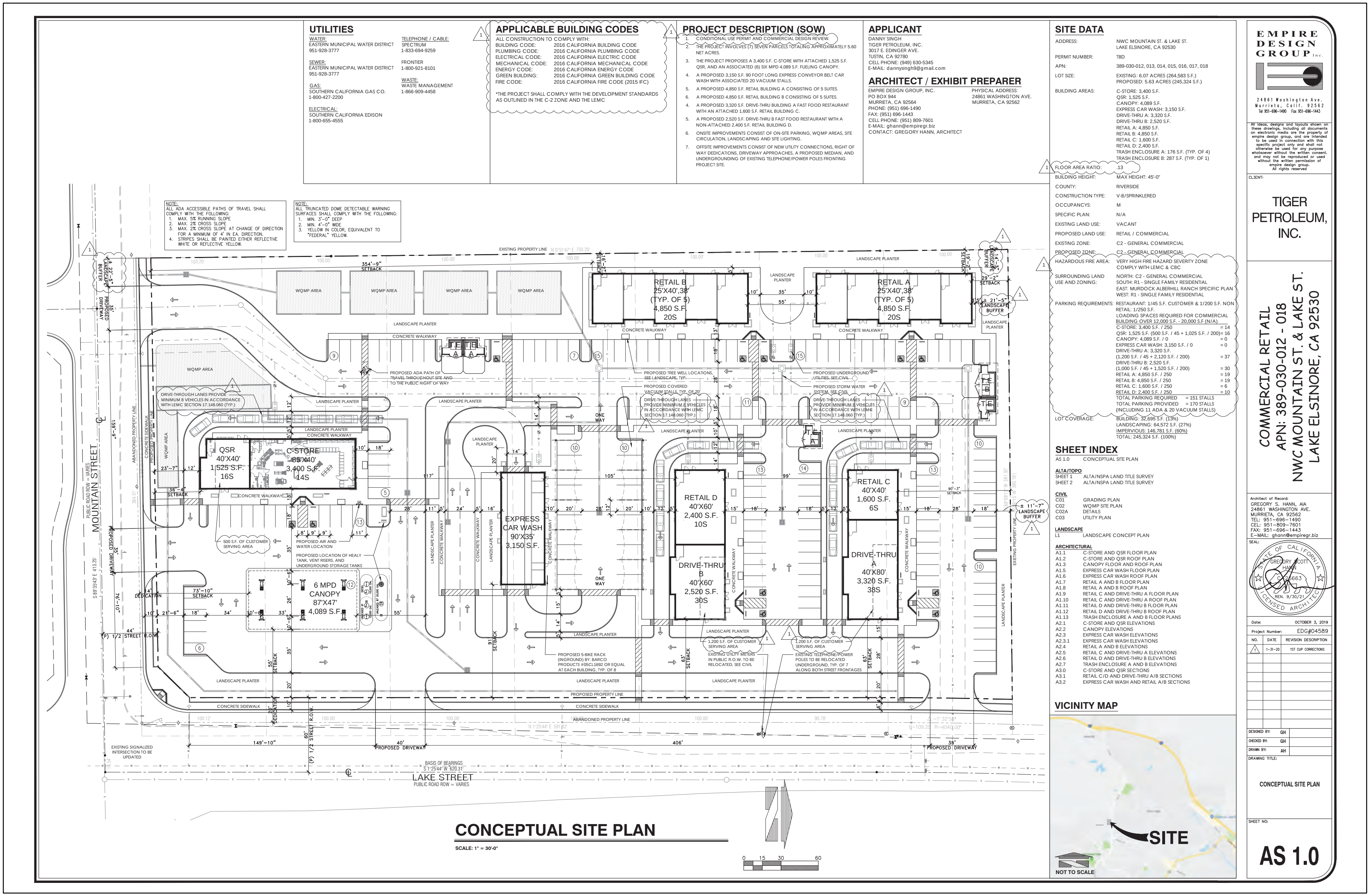

Photo 32 Facing West


Photo 33 Facing East


Photo 34 Facing North


Photo 35 Facing West


Photo 36 Facing West


UTILITIES
APPLICABLE BUILDING CODES
PROJECT DESCRIPTION (SOW)
APPLICANT
ARCHITECT / EXHIBIT PREPARER
SITE DATA
SHEET INDEX
VICINITY MAP
SITE
EMPIRE DESIGN GROUP
TIGER PETROLEUM, INC.
COMMERCIAL RETAIL
APN: 389-030-012 - 018
NWC MOUNTAIN ST. & LAKE ST.
LAKE ELSINORE, CA 92530
CONCEPTUAL SITE PLAN
AS 1.0
MOUNTAIN STREET
LAKE STREET
RETAIL B 25'X40',38' (TYP. OF 5) 4,850 S.F. 20S
RETAIL A 25'X40',38' (TYP. OF 5) 4,850 S.F. 20S
QSR 40'X40' 1,525 S.F. 16S
C-STORE 85'X40' 3,400 S.F. 14S
EXPRESS CAR WASH 90'X35' 3,150 S.F.
RETAIL D 40'X60' 2,400 S.F. 10S
DRIVE-THRU B 40'X60' 2,520 S.F. 30S
RETAIL C 40'X40' 1,600 S.F. 6S
DRIVE-THRU A 40'X80' 3,320 S.F. 38S
6 MPD CANOPY 87'X47' 4,089 S.F.
WQMP AREA
CONCEPTUAL SITE PLAN
SCALE: 1" = 30'-0"

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
I. AESTHETICS. Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☒	☐
c) In non-urbanized areas, substantially degrade the existing visual character or quality public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☒	☐	☐	☐
II. AGRICULTURE AND FORESTRY RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest uses?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?	☐	☐	☐	☒

III. AIR QUALITY. Where available, 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?	☐	☐	☒	☐
IV. BIOLOGICAL RESOURCES. Would the project:				
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 the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☒	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	☐	☐	☐	☒
c) Have a substantial adverse effect on state or federally protected wetlands (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 established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☒	☐	☐	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☒	☐
V. CULTURAL RESOURCES. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines §15064.5?	☒	☐	☐	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines §15064.5?	☒	☐	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☒	☐	☐	☐
VI. ENERGY. Would the project:				
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary	☒	☐	☐	☐

consumption of energy resources, during project construction or operation?				
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☒	☐	☐	☐
VII. GEOLOGY AND SOILS. Would the project:				
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☒	☐	☐	☐
ii) Strong seismic ground shaking?	☒	☐	☐	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☒	☐
b) Result in substantial soil erosion or the loss of topsoil?	☒	☐	☐	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☒	☐	☐	☐
VIII. GREENHOUSE GAS EMISSIONS. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☒	☐
IX. HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☒	☐	☐	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☒	☐	☐	☐
c) Emit hazardous emissions or handle hazardous materials or acutely hazardous materials,	☐	☐	☐	☒

substances, or waste within one-quarter mile of an existing or proposed school?				
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☒	☐	☐	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐
X. HYDROLOGY AND WATER QUALITY. Would the project:				
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☒	☐	☐	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge, such that the project may impede sustainable groundwater management of the basin?	☐	☐	☒	☐
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	☐	☐	☐	☐
i) Result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
iv) Impede or redirect flood flows?	☐	☐	☒	☐
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☒	☐

XI. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?	☐	☐	☒	☐
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☒	☐
XII. MINERAL RESOURCES. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☒	☐
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☒	☐
XIII. NOISE. Would the project result in:				
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or other applicable standards of other agencies?	☒	☐	☐	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☒	☐	☐	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
XIV. POPULATION AND HOUSING. Would the project:				
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☐	☒
XV. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
a) Fire protection?	☐	☐	☒	☐
b) Police protection?	☐	☐	☒	☐
c) Schools?	☐	☐	☒	☐
d) Parks?	☐	☐	☒	☐
e) Other public services/facilities?	☐	☐	☒	☐

XVI. RECREATION.				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☒	☐
XVII. TRANSPORTATION. Would the project:				
a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☒	☐
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☒	☐	☐	☐
c) Substantially increase hazards due to a geometric design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?	☐	☐	☒	☐
d) Result in inadequate emergency access?	☐	☐	☒	☐
XVIII. TRIBAL CULTURAL RESOURCES. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k).	☐	☐	☒	☐
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☒	☐	☐	☐
XIX. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☒	☐	☐	☐
c) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the	☐	☐	☒	☐

provider's existing commitments?				
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☒	☐	☐	☐
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☒	☐
XX. WILDFIRE. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:				
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☒	☐	☐	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☒	☐	☐	☐
XXI. MANDATORY FINDINGS OF SIGNIFICANCE				
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☒	☐	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☒	☐	☐	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

IV. ENVIRONMENTAL ANALYSIS

This section provides an evaluation of the impact categories and questions contained in the Environmental Checklist. A complete list of the reference sources applicable to the following source abbreviations is contained in Section VII, References, of this document.

I. AESTHETICS

a) Have a substantial adverse effect on a scenic vista?

Less than Significant. The City's General Plan identifies viewsheds or landscape viewshed units of scenic vistas, which include Lake Elsinore, urban areas around Lake Elsinore, and the rugged vacant hills in the northern and eastern portion of the City. The project site is located in Viewshed 3, which is determined to be a site mainly developed with residential, commercial, and recreation land uses. In addition, the project site is also not identified as a vantage point, which would provide a view of Lake Elsinore. Lake Elsinore is located approximately 3.0 miles to the southwest and cannot be seen from the project site or any of the adjacent streets. No impacts to viewsheds or landscape viewshed units of scenic vistas are anticipated and no further analysis is warranted in the EIR.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?

Less Than Significant Impact. According to the California Department of Transportation (Caltrans), there are no designated State Scenic Highways within the City of Lake Elsinore. However, Highway 74 (Central Avenue), which is located approximately 2.0 miles to the southeast, is eligible for designation as a State Scenic Highway but is not officially designated. Highway 74 is not visible from the project site or any of the adjacent streets which include Mountain Street and Lake Street. In addition, the project site is located in an area that is mostly developed with residential homes and does not include any unique trees, rock outcroppings, or other natural features. Therefore, impacts to scenic resources within a state scenic highway would be less than significant and no further analysis is warranted in the EIR.

c) In non-urbanized areas, substantially degrade the existing visual character or quality public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?

Less Than Significant Impact. The project site is currently vacant with the exception of an existing home located near the center of the project site. Located on the northern portion of the project site are existing eucalyptus and pepper trees and other sparse vegetation. Development of the proposed project would require the removal of the existing trees and vegetation. The project site is currently zoned as General Commercial and with approval of Conditional Use Permit (CUP) No. 2019-19, the proposed project would not conflict with the General Commercial zone and would adhere to all applicable regulations governing scenic quality within the City's Municipal Code. Therefore, impacts related to the visual character or quality of the site and its surroundings are expected to be less than significant and will be further analyzed in the EIR.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Potentially Significant Impact. The project site is located in a suburban area of Lake Elsinore. As seen in Exhibit 2, *Project Vicinity*, the project site is surrounded by single-family residential homes to the south and east. In addition, there are individual single-family residential lots to the north and west of the project with additional residential homes further to the west. The proposed project would introduce several new sources of lighting to the area. This would include lighting from the proposed drive-thru, carwash, retail, gas station, and the convenience store. The proposed project would be required to comply with standards of the City's Municipal Code lighting standards. Due to the new light sources being introduced into the area, impacts related to lighting would be potentially significant and will be further analyzed in the EIR.

II. AGRICULTURE AND FORESTRY RESOURCES

a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?
d) Result in the loss of forest land or conversion of forest land to non-forest uses?
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland to non-agricultural use?

a-e. No Impact. According to the California Department of Conservation (CDOC), the project site is not designated Prime Farmland, Unique Farmland or Farmland of Statewide Importance. In addition, the project site is not under a Williamson Contract. According to the City's General Plan the project site is not designated for timberland or timberland production. The development of the proposed project would not result in the loss of forest land or the conversion of forest land to non-forest use. Furthermore, the project site land use and zoning has been designated as C-2 (General Commercial) which allows for the development of commercial centers. Land adjacent to the project site is designated as Urban and Built-Up Land and is zoned for single-family residential development. Therefore, there would be no impact to agriculture and forestry resources from the development of the proposed project and no further analysis is warranted in the EIR.

III. AIR QUALITY

a) **Conflict with or obstruct implementation of the applicable air quality plan?**

Potentially Significant Impact. The proposed project is located in the South Coast Air Basin (SCAB) within the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The SCAQMD is responsible for bringing air quality in areas under its jurisdiction into conformity with federal and state air quality standards. Currently, these state and federal air quality standards are exceeded in most parts of the Basin. In response to federal and state air quality standards being exceeded in most parts of the Basin, the SCAQMD has adopted a series of Air Quality Management Plans (AQMPs) to meet state and federal ambient air quality standards. The AQMP serves to detail goals, policies and programs for improving air quality in the Basin. Construction and operation of the proposed project would result in the generation of criteria pollutants that include pollutants for which the Basin is currently designated to be in non-attainment status. As such, an *Air Quality Impact Analysis* (Appendix A) has been prepared and the required EIR shall evaluate the proposed project's potential to conflict with the adopted SCAQMD's AQMP. Mitigation measures, if required, will be specified in the required EIR.

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?

Potentially Significant Impact. The construction and operation of the proposed project would generate regional emissions of criteria air pollutants. Construction and operational related pollutants would be generated by the proposed project. Construction activities with the project would result in emissions of volatile organic compounds (VOC), nitrogen oxides (NOx), sulfur dioxide (SO2), carbon monoxide (CO), particulate matter with a diameter of 10 microns or less (PM10), and particulate matter less than 2.5 microns (PM 2.5). Construction related emissions are expected from the construction activities such as site preparation, grading, building construction, paving, and architectural coating. Operation activities associated with the proposed project would result in emissions of VOCs, NOx, SOx, CO, PM10, and PM2.5. Operation emissions would be expected to be contributed from area source emissions, energy source emissions, mobile source emissions, and gasoline dispensing emission. Construction and operation-source emissions of air pollutants resulting from the proposed project may contribute to existing and projected exceedances of criteria pollutants within the Basin. As such, an *Air Quality Impact Analysis* has been prepared and the required EIR will evaluate whether the proposed project's emissions would result in a cumulatively considerable net increase in any criteria pollutant for which the SCAB is in non-attainment. Mitigation measures, if required, will be specified in the required EIR.

c) Expose sensitive receptors to substantial pollutant concentrations?

Potentially Significant Impact. As previously mentioned, the proposed project is located within the SCAB which is currently classified as a federal nonattainment area for ground-level ozone (O3) and PM 2.5 and state nonattainment area for O3 (1- and 8-hour standard), PM10 and PM2.5. The proposed project would emit criteria pollutants during both construction and long-term operation. Sensitive receptors in the form of residential homes surround the project site to the north, south, east, and west. As such, an *Air Quality Impact Analysis* has been prepared and the required EIR will evaluate whether the proposed project would expose nearby sensitive receptors to substantial pollutant concentrations. Mitigation measures, if required, will be specified in the required EIR.

d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?

Less than Significant Impact. Certain groups are especially sensitive to air pollution and are given special consideration when evaluating air quality impacts from projects. These groups include children, the elderly, individuals with pre-existing respiratory or cardiovascular illness, athletes, and others who engage in frequent exercise. Sensitive receptors near the project site include existing residential homes and school uses. Results of the analysis in the *Air Quality Impact Analysis indicated* that the proposed project would not exceed the SCAQMD localized significant threshold during both construction and operational activity and therefore would have a less than significant impact. The potential for the proposed project to generate objectionable odors has been considered. Land uses generally associated with long term odor complaints include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting operations, refineries, landfills, dairies, and fiberglass molding facilities. Temporary, short-term odor releases could result from project construction activities. Standard construction requirements would minimize odor impacts from construction, in addition to construction odor emission being temporary and would cease upon completion of the respective phase of construction. Potential sources of odors can include but are not limited to diesel exhaust, asphalt/paving materials, glues, paint, and other architectural coatings. Per the *Air Quality Impact Analysis,* the proposed project does not contain land uses typically associated with emitting objectionable odors as mentioned above. Therefore, the impacts of objectionable odors would be less than significant. This will be further analyzed in the project EIR.

IV. BIOLOGICAL RESOURCES

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 the California Department of Fish and Game or U.S. Fish and Wildlife Service?

Less than Significant. Based on the *Habitat Assessment* (Appendix B) for the proposed project, a biological resource site assessment was conducted for the project site on August 23, 2019. The project site is currently vacant with the exception of a residential home located near the center of the project site. Presently on site there is scattered shrubs, vegetation, and trees. The site visit conducted assessed that habitat for the Burrowing Owl on and adjacent to the site was of poor quality. California Ground Squirrel burrows that could serve as potential burrows for the Burrowing Owl were also not observed on site. All other potential areas and their close environs were examined for such evidence of Burrowing Owl presence as molted feathers, cast pellets, prey remains, eggshell, and excrement. No such evidence was observed on or within 500 feet of the site and the Burrowing Owl was not observed on or near the property during any of the surveys. The project site is located within the Western Riverside County Multiple Species Habitat Plan (WRMSHCP) and per the *RCA Joint Project Review* (Appendix N), the project site is also within MSHCP Criteria Cell No. 4155 and 4156. Per the *RCA Joint Project Review,* the proposed project is consistent with both Criteria Cell and other MSHCP requirements. Furthermore, according to the *Habitat Assessment,* since the project site is occupied by disturbed habitat, existing residences and other structures, devoid of any natural vegetation community, and is surrounded by existing development, the proposed project would not impact any special status species within the WRMSHCP. As such, impacts to special status species would be less than significant. This will be further examined in the EIR.

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?

b-c. No Impact. The project site was assessed for riverine/riparian and vernal pools habitat and none of these were determined to be present on-site. According to the *Habitat Assessment* prepared for this project, evidence for this conclusion was provided by the lack of riverine/riparian vegetation, vernal pools and in particular, clay soils. Therefore, impacts to riparian habitat, other sensitive natural communities, or wetlands are not anticipated. This will be further examined in the EIR.

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Potentially Significant Impact. The project site lies within the MSHCP Subunit 2, Alberhill of the Elsinore Area Plan and the site parcels lie within Cell #4155 and #4156. Since the project site is characterized by Disturbed Habitat, which includes the existing residence and other structures, is devoid of any natural vegetation community, and is virtually surrounded by existing development and agriculture, the project site does not contribute to the MSHCP conservation effort. In addition, the project site is not adjacent to any Multiple Species Habitat Conservation Plan Conservation Area, and it is sufficiently distant from it that restriction germane to the urban/wildlands interface are not relevant. According to the *Habitat Assessment,* species listed within the MSHCP Subunit indicate that none of those species were observed on the property or are expected to occur either because of an absence of appropriate habitat, the Disturbed and

Urban/Developed character of the property, or a combination of both. In addition, the Cooper's Hawk, White-tailed Kite, and Bobcat may occasionally forage through the project site; however, none are expected to nest or breed on the property, and the site does not exhibit any high value for any of these species. Due to the nesting/migratory birds being protected under the Migratory Bird Treaty Act (MBTA) of 1918 and suitable nesting bird habitat existing on site, a preconstruction nesting bird survey will be required to mitigate any potential impacts to protected nesting bird species. Therefore, potential impacts regarding the movement of migratory wildlife (e.g. migratory birds) is considered potentially significant. This will be further evaluated in the EIR. Mitigation measures, if required, will be specified in the required EIR.

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance

No Impact. The applicant of the proposed project is required to act in accordance with the City of Lake Elsinore's Zoning Code Chapter 5.120, *Tree Preservation,* regarding duties and responsibilities. The proposed project would be consistent with the City of Lake Elsinore 2011 General Plan and the proposed project would be consistent with General Plan goals and policies protecting biological resources. Therefore, the proposed project would have no impact and no mitigation is required. This will be further evaluated in the EIR.

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

Less than Significant Impact. As discussed in Section IV (a) above, the proposed project is located within the boundaries of the WRMSHCP and MSHCP Criteria Cells No. 4155 and 4156. Per the *RCA Joint Project Review,* the proposed project is consistent with both Criteria Cell and other MSHCP requirements. The proposed project is subject to payment of the MSHCP Habitat Conservation Fee as Commercial/Industrial, which would mitigate potential impacts to covered species. In addition, no native plant communities persist on site, plants observed on the site are largely associated with the present or past cultivation of the land or residential planning. Native elements are those which have been able to persist or re-establish following cessation of cultivation activities. Due to the lack of proper substrate or prior disturbance of the soils on the site, none of these have meaningful potential for occurrence on the project site. Therefore, impacts are anticipated to be less than significant and will be further evaluated in the project EIR.

V. CULTURAL RESOURCES

a) Cause a substantial adverse change in the significance of a historical resource pursuant to CEQA Guidelines §15064.5?

b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines §15064.5?

a-b. Potentially Significant Impact. The project site is currently vacant with the exception of a residential home located in the northern portion of the project site. According to the *Phase 1 Cultural Report* (Appendix C), a total of 20 resources within a mile of the project were identified. Of the 20 resources, two (2) of the previously recorded resources are located within the subject property. The first site was first recorded as a historic single-family residence in 1982 as part of a large county-wide inventory of historic structures. In 1982, the house was in disrepair and was evaluated as not eligible for listing under the California Register of Historical Resources (CRHR). Three ancillary features were also evaluated, which included a two-story water tower, a concrete lined pit, and a brick outdoor chimney. The evaluation was completed concluding that the site was not eligible for the CRHR. The second resource was a residence located within the relative center of the project site. The residence was documented, researched, and evaluated, which was found ineligible for listing in the CRHR. Although there are no known historical resources located within the project site, it is possible for the proposed project to uncover the presence of significant subsurface cultural and/or historical resources during future project grading activities. As such, impacts to historical resources would be potentially significant and the required EIR shall evaluate whether project implementation would cause a substantial adverse change to any historical resources. Mitigation measures, if required, will be specified in the required EIR.

c) Disturb any human remains, including those interred outside of formal cemeteries?

Potentially Significant Impact. There is no evidence that the project site is located within an area that would be likely of containing human remains. However, because archaeological survey of the property and subsequent historic research has confirmed that the project contains elements of an early twentieth century rural homestead with various structures added to the compound over several decades, there is potential for human remains. Therefore, ground-disturbing activities associated with the development of the proposed project have potential to disturb undiscovered human remains. Thus, impacts related to disturbance of human remains will be further evaluated in the EIR, and appropriate mitigation measures will be identified, as necessary.

VI. ENERGY

a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?

Potentially Significant Impact. Energy resources that would be potentially impacted include both electricity and natural gas for building uses and transportation fuel for vehicle trips. The proposed project would also be compliant with CRR Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings. This was a response to a legislative mandate to reduce California's energy consumption. In addition, California Code of Regulations, Title 24 Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that is administered by the California Building Standards Commission. The proposed project is subject to comply with the CALGreen standards in order to reduce energy consumption. An energy use technical report will be prepared for the proposed project, which would analyze potential energy consumption associated with the construction and operations of the proposed project. This would determine if any energy utilized by the proposed project is wasteful, inefficient, or unnecessary consumptions of energy resources. This will be further discussed in the required project EIR. Mitigation measures, if required, will be specified in the required EIR.

b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?

Potentially Significant Impact. As previously mentioned in Section 3.6(a), the proposed project would comply with CRR Title 24 Part 6 and Part 11. In addition, the City of Lake Elsinore has adopted a Climate Action Plan to reduce local GHG emissions in accordance with State be law, including energy consumption. The proposed project is anticipated to consistent with these and all other applicable energy-related policies and regulations. Nonetheless, an energy use technical report will be prepared for the proposed project and will evaluate if the proposed project would conflict with a state or local plan for renewable energy or energy efficiency. Mitigation measures, if required, will be specified in the required EIR. This will be further evaluated in the required EIR.

VII. GEOLOGY AND SOILS.

a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map, issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

ii) Strong seismic ground shaking?

a.i-a.ii. Potentially Significant Impact. The project is located in a seismically active region and as a result, significant ground shaking will likely impact the project site within the design life of the proposed project. The geologic structure of the entire southern California area is dominated by northwest-trending faults associated with the San Andreas Fault system, which accommodates for most of the right lateral movement associated with the relative motion between the Pacific and North American tectonic plates. However, no active faults are known to occur at the project site and the site is not located within an Alquist-Priolo Earthquake Fault Zone. Nonetheless, since the project site is located in a seismically active area, the project site may experience strong seismic ground shaking. A *Preliminary Geotechnical Report* (Appendix D) has been prepared for the proposed project and impacts from the rupture of an earthquake fault and strong seismic ground shaking will be analyzed further in the EIR. Mitigation measures, if required, will be specified in the required EIR.

iii) Seismic-related ground failure, including liquefaction?

Less than Significant Impact. The City of Lake Elsinore has identified areas known and suspected of liquefaction hazard. Figure 3.4 of the City's General Plan identifies as very low, low, moderate, high, and very high. The project site is located in an area that has been identified as being in a moderate zone for liquefaction hazard. Liquefaction occurs as a result of a substantial loss of shear strength or shearing resistance in loose saturated, cohesion less earth materials subjected to earthquake induced ground shaking. A *Geotechnical Investigation Report* was prepared for the proposed project, which indicated that the potential for earthquake induced liquefaction and lateral spreading beneath the proposed structures is considered very low. Therefore, there would be less than significant impact and the determination will be further evaluated in project EIR.

iv) Landslides?

Less than Significant Impact. Landslides are large movements of the underlying ground that include rock falls, shallow slumping and sliding of soil, as well as deep rotational or transitional movement of soil or rock. The *Geotechnical Investigation Report* prepared for the project site indicated that landslide debris was not observed during the subsurface exploration and no ancient landslides are known to exist on the site. No landslides are known to exist, or have been mapped, in the vicinity of the site. A minor slope (1530 amsl to 1750 amsl) is located approximately 0.1 miles to the east of the project site, but is located at a distance where landslides would have a less than significant impact to the project site. The *Geotechnical Investigation Report* will assess soil stability at the site and will be discussed in the required EIR.

b) Result in substantial soil erosion or the loss of topsoil?

Potentially Significant Impact. The project site consists of mostly disturbed and non-native grass land habitat that includes trees including both eucalyptus and pepper trees as well as areas of exposed soil.

Development of the project site would remove the existing vegetation during the grading and construction process. This process would expose the underlying soils, increasing the rate of water runoff, which would increase erosion susceptibility that would result in potential short-term soil erosion impacts. However, during construction, erosion control best management practices (BMPs) would be incorporated as part of a Storm Water Pollution Prevention Plan (SWPPP) prepared in compliance with the National Pollutant Discharge Elimination System (NPDES) Construction General Permit. The *Geotechnical Investigation Report* (Appendix X) assessed the risk for erosion on the project site and the required EIR will evaluate the proposed project's potential to result in substantial soil erosion and the loss of topsoil. Mitigation measures, if required, will be specified in the required EIR.

c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Less than Significant Impact. Refer to the discussion of Section VII (a)(iii) and (iv) for a discussion of hazards associated with liquefaction and landslides. As noted, the required EIR will examine the implementation of the proposed project would expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving landslides or liquefaction. Lateral spreading is caused by the lateral displacement of surficial blocks of sediment, as a result liquefaction in subsurface layers. Lateral spreading is associated with areas that are prone to liquefaction. As mention above, the project site is located in an area of the City that has been identified as a zone for moderate liquefaction hazard. As identified in the *Geotechnical Investigation Report*, the project site has a very low potential for earthquake induced liquefaction and subsidence is expected to be negligible. Therefore, impacts are expected to be less than significant and will be discussed further in the required EIR.

d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?

Less than Significant Impact. Expansive soils contain minerals that are capable of absorbing water, which causes the soils to increase in volume. Expansive soils can cause damage to foundations of buildings, underground utilities, pipelines, and infrastructure. The *Geotechnical Investigation Report* prepared for the project site indicated that onsite earth materials exhibit an expansion potential of Low as classified in accordance with 2016 CBC Section 1803.5.3 and ASTM D4829-03. However, testing for expansive soil should be conducted upon completion of rough grading. Therefore, due the "Low" expansive soil classification of project site soils, the proposed project is expected to result in a less than significant impact relating to the potential of being located on expansive soils, and creating substantial direct or indirect risks to life or property. The proposed project's potential to expose the future structure and workers on-site to hazards associated with expansive soils will be evaluated in the required EIR.

e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

No Impact. The proposed project would connect to existing sewer lines that are located within the vicinity of the project site. Therefore, no septic tanks are proposed and no impact is anticipated in regard to having soils incapable of supporting proposed septic systems. This will be further evaluated in the required EIR.

f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?

Potentially Significant Impact There are no unique geologic features on the project site. According to the City's General Plan EIR Figure 3.2-3, *Paleontological Resources,* the project site has a "low" potential for paleontological resources to be uncovered. Although unlikely, it is possible for the proposed project to uncover significant subsurface paleontological resources and shall be evaluated in the required EIR. Mitigation measures, if required, will be specified in the required EIR.

VIII. GREENHOUSE GAS EMISSIONS

a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

Less than Significant Impact. A *Greenhouse Gas Analysis* (Appendix G) was prepared for the proposed project that evaluates greenhouse gas (GHG) emissions and its level of significance. In this report it is indicated that the City of Lake Elsinore has not adopted its own numeric threshold of significant when it comes to determining impacts with respect to GHG emissions. Therefore, a 3,000 metric tons of CO2 equivalents (MTCO2e) screening threshold to determine if additional analysis is required is an acceptable approach for small projects. This is a widely accepted screening threshold used by the County of Riverside and numerous cities in the South Coast Air Basin (SCAB) and is based on the South Coast Air Quality Management District (SCAQMD) staff's proposed GHG screening threshold for stationary source emissions for non-industrial projects. The proposed project would not exceed the 3,000 MTCO2e threshold and GHG emissions impacts would be less than significant. No mitigation is required. Proposed project GHG emissions impacts will be further discussed in the required EIR.

b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

Less than Significant Impact. California adopted Assembly Bill (AB) 32 (adopted in 2006), which requires the state to reduce statewide GHG emissions to 1990 levels by 2020, a reduction target that was introduced in EO S-3-05. California also adopted Senate Bill (SB) 32 (adopted in 2016), which requires the state to reduce statewide GHG emissions to 40 percent below 1990 levels by 2030, a reduction target that was introduced in EO B-30-15. In addition, the City has also adopted a Climate Action Plan (CAP), which certified that the City's target is consistent with AB 32's 2020 goals. The adopted CAP ensures that the City will be providing local GHG reductions that will complement state efforts to reduce GHG emissions to the AB 32 target. The proposed project was analyzed for consistency with AB32, SB 32, and the City's CAP and will not conflict with any applicable measure. Therefore, the impacts are anticipated to be less than significant. Consistency with the City's CAP will be further discussed in the required EIR.

IX. HAZARDS AND HAZARDOUS MATERIALS

a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Potentially Significant Impact. During construction, the proposed project would entail the transport of fuels, oil, gasoline, hydraulic fluid, lubricants, and various other liquids necessary for the operation of heavy equipment utilized for construction at the project site. Namely, the substances would be considered hazardous if improperly stored and/or handled. In addition, materials such as paint, solvents, concrete, adhesives, roofing materials, and other substances of typical use in building construction would be present at the project site during construction. A direct impact to human health and the environment could potentially occur from accidental spills or releases through improper use, storage, or transportation of hazardous materials. The construction process for this proposed project poses a standard risk as any other construction site similar in size. As such, hazardous materials related impacts associated with all construction activities of the proposed project would be less than significant.

Existing federal and state law regulates the handling, storage and transport of hazardous materials and hazardous wastes. At the federal level, the Resource Conservation and Recovery Act (RCRA; 42 USC 6901 et seq.) requires businesses with substantial quantities of hazardous materials (including fuels, lubricants, solvents, and paints) to adhere to strict requirements in handling, transporting, and storing supplies. Pursuant to the federal Hazardous Materials Transportation Act, 49 U.S.C. § 5101 et seq., the United States Department of Transportation promulgated strict regulations applicable to all trucks transporting hazardous materials. Occupational safety standards have been established in federal and state laws to minimize worker safety risks from both physical and chemical hazards in the workplace, including construction sites. The California Division of Occupational Safety and Health has primary responsibility for developing and enforcing standards for safe workplaces and work practices in California in accordance with regulations specified in CCR Title 8. Due to these existing regulations, impacts during construction of the proposed project would be less than significant.

The proposed project consists of the development of retail, convenience store, drive-thru restaurant, car wash, and gas station uses. All uses with the exception of the gas station, which will require a routine transport of gasoline, are not associated with the transport, use, or disposal of significant quantities of hazardous materials. Nonetheless, due to the gas station land use, impacts related to the routine transport of hazardous materials is initially identified as a potentially significant impact. A *Phase I Environmental Site Assessment* (Appendix H) has been prepared for the project site. The required EIR will further discuss the potential exposure of hazardous materials to the public and environment.

b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

b/d. Potentially Significant Impact. According to the *Phase I Environmental Site Assessment*, the Riverside County Department of Environmental Health (RCDEH), California Department of Toxic Substances Control (DTSC), and State Water Resources Control Board (SWRCB) were contacted in conjunction with the review of state and federal hazardous materials databases. At this time neither the project site nor surrounding properties are found to have any recorded environmental concerns (RECs). Furthermore, a site reconnaissance was conducted which concluded no evidence of contamination, distressed vegetation, petroleum-hydrocarbon surface staining, waste drums, USTs, ASTs, illegal dumping, or improper waste storage/handling. Nonetheless, due to the proposed construction of a gas station, impacts related to accidental release of hazardous materials is initially identified as potentially significant and further analysis on this topic is warranted in the required EIR.

c) Emit hazardous emissions or handle hazardous materials or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

No Impact. The nearest school is the Terra Cotta Middle School, which is located 0.5 miles south of the project site. The proposed project includes commercial land uses, including a gas station, hat may be associated with the emissions or handling of hazardous materials or acutely hazardous, substances, or waste. Because the project site is not located within one-quarter mile of an existing or proposed school, there would be no impact for this issue. Nonetheless, the emission of hazardous emissions or materials from the proposed project will be further analyzed in the EIR, specifically in respect to the proposed gas station land use.

e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

e/f. No Impact. Skylark Field, a small private airport in the City of Lake Elsinore, is located ten (10) miles south of the project site. Additionally, the project site is located outside of the Influence Area of this airport as shown in Figure 5.7-1 of the revised Hazards and Hazardous Materials (section 5.7) of the City's General Plan. There are no other private or public airports within the project vicinity. Therefore, the project would not result in a safety hazard for people residing or working in the project area.

g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?

Less Than Significant Impact. The proposed project does not propose any changes to the City's Emergency Preparedness Plan or the Riverside County Operational Area Multi-Jurisdictional Local Hazard Mitigation Plan. The proposed project is not identified as an emergency access route in any of the City's local nor regional plans and would not interfere with any adopted emergency response or evacuation plan. However, according to the City's General Plan EIR Figure 3.10-2, *Wildfire Susceptibility,* the project site is located within a moderate to very high wildfire hazard zone. As such, adherence to the City's Emergency Preparedness Plan would ensure that any risk to people or structures on the project site from wildland fires would be less than significant. This will be further discussed in the required EIR.

X. HYDROLOGY AND WATER QUALITY

a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?

Potentially Significant Impact. Construction activities could potentially expose soils to erosion from rainfall, runoff, and wind. Erosion from rainfall and runoff is problematic because pollutants from heavy equipment or construction-related materials, such as diesel, gasoline, oil, grease, solvents, lubricants, or other petroleum products could mix with the water and run offsite. In addition, construction activities such as grading, earth moving, installation of roads and subsurface infrastructure, and other activities can result in temporary upset of surface sediments. Furthermore, possible rainfall and storm events could cause surficial sediment and construction related pollutants that could mix with stormwater flows. The proposed project will comply with federal, state, and local water quality requirements with agencies such as the State Water Resource Control Board's (SWRCB's) Construction General Permit. This permit would require that the propose project have a Stormwater Pollution Prevention Plan (SWPPP) prepared for all construction activities. The preparation of the SWPPP would assist in identifying the various Best Management Practices (BMPs) that would be implemented during construction in order to avoid pollutants from entering the natural waterways.

Under long-term operating conditions, water runoff from the project site may contain pollutants associated with ongoing operations such as petroleum products, pesticides, fertilizers, paints, litter, etc. These pollutants could be discharged into the water during storm events, which can degrade water quality if discharged from the site. A project specific *Water Quality Management Plan* (WQMP) (Appendix M) has been prepared for the proposed project that would include BMPs to be implemented during post construction operations at the project site to ensure compliance federal, State, and local regulations. The EIR would assess the proposed BMPs that were identified in the WQMP for impacts. Impacts to water quality would be potentially significant and further analysis is warranted in the EIR.

b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge, such that the project may impede sustainable groundwater management of the basin?

Less than Significant. The proposed project does not propose the installation of any water wells that would directly extract groundwater. With implementation of the proposed project, all runoff from the project site would be treated by biofiltration with underdrain. Overflow from the biofiltration system will discharge to the curb and gutter on Mountain Street. Therefore, the total amount of water within the Elsinore Groundwater Basin would not be affected by the proposed project. Accordingly, impacts related to sustainable groundwater management of the Elsinore Groundwater Basin would be less than significant and will be further analyzed in the required EIR.

c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:
i). Result in substantial erosion or siltation on- or off-site?
ii). Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
iii). Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or;
iv) Impede or redirect flood flows?

Less than Significant Impact. The proposed project would involve grading of the approximate 6-acre project site. There are no streams or rivers that exist on site, but impervious surfaces would be added to the site which would alter on-site drainage patterns as a result. The proposed construction would include grading activities that would disturb the soil which would potentially expose it to on-site erosion during a storm event. However, the conversion of pervious to impervious surfaces as proposed would reduce the potential for on-site erosion and loss of topsoil in the long-term. A *Water Quality Management Report* was prepared for the project site that identified existing drainage patterns. The drainage pattern of the southwest corner of the property will mostly remain the same as the existing condition. In addition, the proposed grading and drainage are designed to maintain a similar flow pattern to the existing conditions. Landscaping along the east and south of the property will prevent flow towards Lake Street and Mountain Street. Based on the elevation on the north side of the property, runoff will flow away from the adjacent properties to the north and west of the project site. Furthermore, the *Preliminary Hydrology Study* (Appendix I) concluded that approximately 28% of the project site will be developed for landscaping, including the biofiltration system with underdrain. Run-off from the site will be treated with this biofiltration with underdrain, which will be located to the west and south portion of the project site. The biofiltration system will be designed to retain and treat a designated volume stormwater runoff. The proposed drainage pattern will direct runoff to the infiltration trench located at the southwest corner of the property for treatment. As such, implementation of the proposed project is anticipated to have a less than significant impact in regards to altering the existing drainage pattern, increasing surface runoff, creating additional runoff water, or impeding or redirecting flood flows of the project site. The required project EIR will further evaluate the hydrology study and the WQMP and the results will be summarized and incorporated into the required EIR.

d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?

No Impact. According to the City's General Plan, the project site is not located within the 100-year floodplain. Additionally the Federal Emergency Management Agency (FEMA) flood map service center identifies the southwest portion of the site as Zone X an Area of Minimal Flood Hazard, which has a 0.2% annual chance flood hazard and areas of 1% annual flood chance with and average depth less than one foot or with drainage areas of less than one square mile. The nearest body of water is Lake Elsinore which is approximately 3 miles from the project site. The project site is located approximately 25 miles from the Pacific Ocean and is not within a Coastal Zone where tsunamis would be a risk and has no potential to be affected by tsunamis. As noted in the City's General Plan EIR, Lake Elsinore lacks significant potential for a damaging seiche because it is very shallow, in addition to flood control devices constructed by the U.S Army Corps of Engineers existing at the southern end of the lake. Therefore, there would be a low risk of flood hazards such as tsunami, or seiche zones. No further analysis is warranted in the required EIR.

e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Less than Significant Impact. As described in Section X (a), the proposed project will adhere to all applicable water quality standards and will implement a WQMP approved by the City and the RWQCB for both construction and operational activities. Therefore, the proposed project would not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. Impacts are expected to be less than significant. This will be further examined in the required EIR.

IX. LAND USE AND PLANNING

a) Physically divide an established community?

Less than Significant Impact. The proposed project site would not divide an established community. The site is currently vacant that consist of trees, sparse vegetation, and an unoccupied residence. The project site is surrounded by residential land uses to the north, south, west, and east. However, the project site is zoned for general commercial development and will be developed on vacant land. In addition, due to the lack of connecting features to the project site, the surrounding residential areas would not be divided. Therefore, impact of the proposed project would be less than significant.

b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?

Less than Significant Impact. The proposed project would include the development of commercial uses in an area of the City that is zoned C-2 General Commercial and is designated General Commercial by the City of Lake Elsinore General Plan. Therefore, the proposed project is consistent with the existing zoning and land use designation per the City's General Plan. There are no specific plans, precise plans, overlay zones, or other similar plans or zones that are applicable to the project site, and the proposed project would therefore not conflict with any such plans. Therefore, the proposed project is not anticipated to conflict with any applicable land use plan, policy, or regulation and no impact is anticipated.

XII. MINERAL RESOURCES

a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?

b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?

a-b. Less than Significant Impact. According to the City of Lake Elsinore General Plan EIR, the project site is located within the Mineral Resources Zone (MRZ) 3, which is defined as an area containing known or interred mineral occurrences of undetermined mineral resources significance. Additionally, there are no active mines located on the project site. There are no known locally-important mineral resource recovery sites as delineated by the City's General Plan, or any other relevant land use plan for the project area. Therefore, the proposed project is not expected to cause adverse effects to any known mineral resources. Therefore, the proposed project would result in a less than significant impact.

XIII. NOISE

a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or other applicable standards of other agencies?

Potentially Significant Impact. As described in the *Noise Impact Analysis* (Appendix J) prepared for the proposed project, noise generated by proposed project construction would temporarily increase localized noise levels that are associated with construction equipment. These include but are not limited to trucks, power tools, concrete mixers, and portable generators that when combined can reach high noise levels. The number and mix of construction mobile and stationary equipment expected to occur in stages that include, site preparation, grading, building construction, paving, and architectural coating. To estimate the proposed project's operational noise impacts, reference noise levels measurements were collected from similar types of activities to represent the noise levels expected with the development of the proposed project. This include noise generators such as roof-top air conditioning units, drive-thru speakerphones, trash enclosures, parking lots, gas station activity, car wash tunnels and car wash vacuum activity. The noise resources generated by the proposed project could adversely affect nearby sensitive receptors, which include residential uses adjacent to the south, east, west, and north. Therefore, the project-related noise impacts will be further evaluated in the required EIR.

b) Generation of excessive groundborne vibration or groundborne noise levels?

Potentially Significant Impact. Per the Federal Transit Administration (FTA) Transit Noise Impact and Vibration Assessment (8), vibration is the periodic oscillation of a medium object. The rumbling sound caused by the vibration of room surfaces is called structure-bore noise. Sources of ground-borne vibrations include natural phenomena or human-made causes which include things such as explosions, machinery, traffic, trains, and construction equipment. Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affect structures and soils. It is expected that ground-borne vibration from the proposed project construction activities would cause only intermitted, localized intrusion. According to the *Noise Impact Analysis*, these construction activities would have the potential to generate low levels of ground-bore vibration within the project site including grading. The required EIR will further evaluate the noise study and the results will be summarized and incorporated into the required EIR.

c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

No Impact. The project site is not located near a private airstrip or a public airport. The nearest small private airport located within the vicinity of the project is located approximately 10 miles southeast of the site. In addition, the project site is not located within the Influence Area of this airport. Due to the distance of the airport it is not anticipated that they proposed project would expose employees and visitors to excessive aircraft-related noise.

XIV. POPULATION AND HOUSING

a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

Less than Significant Impact. The proposed project does not include the construction of new residential development that would directly contribute to population growth in the City. The proposed project would consist of a commercial/retail development that would service customers within the project vicinity. The project site is currently located in an area of the City that has existing roads, which include Mountain Street and Lake Street. The project is not proposing the extension of roads. In addition, the project site has been planned and zoned for general commercial development and would be serviced by existing water and sewer, telephone, electricity, and gas lines. The project would not include the extension of City infrastructure that could spur indirect growth that could induce substantial population growth. Therefore, the project would have a less than significant impact.

b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?

No Impact. The proposed project would not result in the displacement of people or housing, since the proposed project is currently vacant and zoned for general commercial development. There is currently no housing developments on the project site and the construction of the project would not displace existing housing developments or require construction of new housing elsewhere. The proposed project is for commercial/retail that would temporarily bring people in and not permanently or for extended periods of time. Therefore, the project would have no impact with respect to these issues and no further analysis is warranted in the required EIR.

XV. PUBLIC SERVICES

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:

a) Fire protection?

Less than Significant Impact. The nearest fire station is located at Rosetta Canyon, which is approximately 5.8 miles east of the project site. The proposed project may increase demand for fire services as well as interfere with the response times that are established by RCFD guidelines due to the increase of buildings, employees, visitors, and residential population on-site. Per the City's Municipal Code Section 16.74.049, Fire Facilities Fee, the applicant will be required to pay Development Impact Fees (DIF) for proposed development.

Pursuant to the Fire Department's standard conditions of approval regarding adequate emergency access, street widths, etc., and the applicant's payment of the applicable DIFs, impacts would be less than significant. This will be further discussed in the required EIR.

b) Police protection?

Less than Significant Impact. The nearest Sheriff's station is located approximately 4.2 miles south of the project at 333 Limited Avenue. The proposed project may increase demand for law enforcement services due to the increase of buildings, employees, and visitors. The proposed project does not consist of permanent residential uses that would substantially increase population. The applicant is required to pay DIFs in accordance with the City's Municipal Code Section 16.74.

In addition, the Police Department will review and comment on the site plans submitted with the application for the development of the commercial components of the proposed project. The Police Department would require standard conditions of approval regarding adequate emergency access, lighting and landscaping, etc. Therefore, with compliance of standard conditions of approval and the applicant's payment of the DIF, impacts would be less than significant. This will be further discussed in the required EIR.

c) Schools?

No Impact. The development of the proposed project does not include residential land uses therefore not affecting student enrollment within the Lake Elsinore Unified Scholl District (LEUSD). The proposed project will be required to pay DIFs as levied by LEUSD. With payment of the LEUSD DIFs, the development of the proposed project would have no impact to school facilities and no further analysis is warranted in the EIR.

d) Parks?

Less than Significant. The development of the proposed project does not include residential land uses therefore not increasing direct park uses within the City of Lake Elsinore. The proposed project will be required to pay park fees per the City's Municipal Code Section 16.74 that would contribute to the maintenance and improvement costs of parks and associated facilities within the City. The development of the proposed project would incur less than significant impacts to park facilities.

e) Other public services/facilities?

No Impact. The proposed project does not have the potential to increase the use of library services of other public facilities due to the type of facility being constructed which does not include permanent residential uses. The applicant is required to pay the DIFs in accordance with City's Municipal Code Section 16.74. Therefore, with payment of the applicable DIFs, there would be no impact to other public services and facilities and no further analysis is warranted in the required EIR.

XVI. RECREATION

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?

Less than Significant Impact. The proposed project would consist of a commercial development and does not propose the construction of new residential development that would result in the increase use of existing neighborhood and regional parks and other recreations facilities. In addition, the proposed project employment is anticipated to be filled by existing residents or neighboring communities. In addition, the use of neighborhood and regional parks by employees would be limited to their breaks. Therefore, the potential for the proposed project to result in increased demands on neighborhood or regional parks or other recreational facilities would be less than significant. As is consistent with all commercial projects, the proposed retail center project would be required to pay park fees to the City for the purpose of establishing, improving and maintaining park land within the City. Overall, construction and operation of the proposed project would not result in the increase in use of park facilities that would be substantial, such that new or physically altered park facilities would be needed. Therefore, project impacts related to parks are less than significant and, and no further analysis is warranted in the required EIR.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?

Less than Significant Impact. As stated in Section XVI (a), the proposed project would consist of a commercial/retail development that does not include the development of recreational facilities or require the construction or expansion of recreation facilities. The construction and operation of the proposed project are not anticipated to negatively impact the surrounding recreational facilities. Furthermore, the development of the proposed project would not cause any additional environmental impacts beyond what is analyzed for the project within this document. Therefore, the proposed project would have a less than significant impact and no further analysis is warranted in the required EIR.

XVII. TRANSPORTATION

a) Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Less than Significant. The proposed project consists of the development of retail centers, drive-thru restaurants, gas station, car wash, and convenience store, which would generate vehicle trips to and from the currently vacant project site that would increase vehicular traffic volumes. The increase in these new vehicular traffic volumes could generate impacts to the existing intersections and roadway segments, and could result in conflicts with an adopted plan, ordinance or policy addressing the circulation system. A *Traffic Impact Analysis* (Appendix K) has been prepared according to the Riverside County Transportation Department's Traffic Impact Analysis Preparation Guide, which is utilized by the City to evaluate potential traffic impacts from new development. As detailed in Section 1.5 and 1.6 of the *Traffic Impact Analysis,* the proposed project would not conflict with a program plan, ordinance or policy addressing the circulation system with implementation of proposed design features and impacts are expected to be less than significant. This will be further evaluated in the required EIR.

b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?

Potentially Significant Impact. The proposed project will be required to complete a Vehicle Miles Traveled (VMT) analysis to demonstrate consistency with CEQA Guidelines section 15064.3, subdivision (b). As such, impacts regarding VMT are initially anticipated to be potentially significant and will be evaluated further in the required EIR.

c) Substantially increase hazards due to a geometric design feature (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)?

Less than Significant Impact. The proposed project would have an internal circulation system and would also consist of a total of four (4) driveways, two (2) located along Mountain Street, and the other two (2) located along Lake Street. Other design features that include sight distance design requirements, access points, pedestrian and bicycle facilities would comply with all applicable City codes, policies and standards, and would be reviewed and approved by the City's Engineering Department. With compliance of all applicable codes and regulations the project would be free of sharp curves and dangerous intersections and would not include any hazardous traffic features. Therefore, the impacts would be less than significant.

d) Result in inadequate emergency access?

Less than Significant Impact. The proposed project would consist of a commercial/retail center on a site that is currently vacant and surrounded by existing streets that would be improved, if necessary, by the proposed project. The project site is not identified as an emergency access route on any local or regional plans. Furthermore, as part of the review process of the proposed project, the Riverside County Fire Department would review proposed project plans to ensure they adequately accommodate emergency access upon buildout. Therefore, there would be no impact due to interference with an adopted emergency response plan or emergency evacuation plan and no further analysis is warranted in the required EIR.

XVIII. TRIBAL CULTURAL RESOURCES

a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k).

Less than Significant Impact. As described in the *Phase I Cultural Resources Survey,* two resources, P-33-007208 and P-33-017352, are located within the project site which have been previously determined as ineligible for listing on the CRHR. A survey conducted by Brian F. Smith and Associate (BFSA) relocated both P-33-007208 and P-33-017362 and determined that both resources within the project site remain not eligible for the CRHR. Therefore, no historical resources exist within the project site are listed or eligible for listing for the CRHR and impacts would be less than significant. This will be further evaluated in the required EIR.

b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

Potentially Significant Impact. The provisions of Public Resources Code § 21074 were established pursuant to Assembly Bill 52 (AB 52) and the provisions of AB 52 apply to projects, such as the proposed Project, that have a notice of preparation (NOP) after July 1, 2015. Pursuant to AB 52, the City of Lake Elsinore as Lead Agency is required to conduct consultation with any interested Tribes regarding the Project's potential impacts to cultural resources, including tribal cultural resource as defined in Public Resources Code § 21074. The required EIR shall document the results of the AB 52 processes and shall evaluate whether implementation of the Project would result in adverse effects to tribal cultural resources. Therefore, proposed project impacts to tribal cultural resources are anticipated to be potentially significant and will be evaluated further in the required EIR.

XIX. UTILITIES AND SERVICE SYSTEMS

a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or stormwater drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

Less than Significant Impact. Per the *SCE Will Serve Letter* (Appendix O), the project site is located within the service area of Southern California Edison (SCE) and electric power for the proposed project will be provided by SCE. The project site is located within the service area of the Elsinore Valley Municipal Water District (EVMWD), within the District's Regional Collection System. The proposed project would install connections to EVMWD water and wastewater conveyance lines within the street right-of-way on Lake Street and Mountain Street. The applicant would be required to pay for utility rates and connection fees to reduce the impacts from increased demands to water and wastewater services to a less than significant impact. Therefore, with payment of applicable utility connection fees, impacts would be less than significant. This will be examined further in the required EIR.

b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?

Less than Significant Impact. Domestic water is provided to the project site by the EVMWD. The EVMWD has adopted an Urban Water Management Plan (UWMP) dated June 2016. The 2016 EVMWD UWMP describes that the EVMWD would be able to provide water service within its boundaries during normal, dry and multiple dry year conditions. In addition, per the *EVMWD Service Planning Letter* (Appendix P), EVMWD has determined that water services are available to serve the proposed project. Furthermore, the proposed project does not require a Water Supply Assessment under Senate Bill 610, effective January 1, 2002, criteria. As such, the proposed project would have sufficient water supplies available during normal, dry and multiple dry years and impacts would be less than significant. This will be further analyzed in the required EIR.

c) Result in a determination by the wastewater treatment provider, which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Less than Significant Impact. Wastewater service will be provided to the project site by the EVMWD. Per the *EVMWD Service Planning Letter,* EVMWD has determined that wastewater services are available to serve the proposed project. As such, impacts to wastewater capacity are initially identified as less than significant and will be further addressed in the required EIR.

d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?

Potentially Significant Impact. The construction and operation of the proposed project would generate solid waste requiring off-site disposal. The required EIR will evaluate whether the proposed project's incremental contribution of solid waste to local landfill facilities would result, on a direct or cumulative basis, in an exceedance to the available capacity of the landfills. The required EIR will also evaluate whether any new or expanded solid waste facilities would be required to serve the proposed project.

g) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?

Less than Significant Impact. The proposed project would be required to comply with City and County waste reduction programs pursuant to the State's Integrated Waste Management Act and Chapter 14.12 of the City's Municipal Code. Solid waste generated from the proposed project would be conveyed to one of several landfills operated or managed by the Riverside County Waste Management Department (RCMWD). These existing landfills are required to comply with federal, state, and local statues and regulations related to solid waste. Compliance with federal, state, and local statues would reduce the amount of solid waste generated by the proposed project. The proposed project will comply with all applicable solid waste statutes and regulations. Therefore, impacts would be less than significant and no further analysis is required in the EIR.

XX. WILDFIRES

a) Substantially impair an adopted emergency response plan or emergency evacuation plan?

Less than Significant Impact. The proposed project would comply with all policies and regulations set forth in the Riverside County Operational Area (OA) Multi-Jurisdictional Local Hazard Mitigation Plan (LHMP) and the City's Emergency Preparedness Plan. All applicable local and State regulatory standards for adequate emergency access will be met. The proposed project would be reviewed by the City Fire Department to determine the specific fire requirements applicable to the proposed project and ensure compliance with these requirements. As such, the proposed project would not impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. No further analysis is required in the EIR.

b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?

c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?

b-c. Potentially Significant Impact. According to the City's General Plan EIR Figure 3.10-2, *Wildfire Susceptibility*, the project site is located within a moderate to very high wildfire hazard zone. The proposed project will require the installation of infrastructure that may result in temporary or ongoing impacts to the environment. As such, impacts regarding wildfire risk are initially identified as potentially significant and will be examined further in the required EIR**.**

V. MANDATORY FINDINGS OF SIGNIFICANCE

The following are Mandatory Findings of Significance in accordance with Section 21083 of CEQA and Section 15065 of the CEQA Guidelines.

a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?

Potentially Significant Impact. The proposed project has the potential to alter the quality of the existing physical environment. The introduction of the proposed project has the potential to reduce the habitat for sensitive plant of animal species. A site-specific biological investigation has been conducted to determine whether sensitive animals, sensitive plans species, and/or sensitive plant communities occur on the project site. Conversion of the project site from undeveloped to developed has the potential to impact major period of California prehistory. No historic resources are known to be present on the site. These issues shall be evaluated in the required EIR.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

Potentially Significant Impact. The proposed project has the potential to result in cumulatively considerable impacts in regards to the following areas: air quality' traffic and transportation; hydrology and water quality; and noise. The required EIR will evaluate the proposed projects potential to result in cumulatively significant impacts.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

Potentially Significant Impact. The potential for the proposed project to directly or indirectly affect human beings will be evaluated in the required EIR with respect to air quality, traffic and transportation, and noise.

VII. REFERENCES

The following documents were used as information sources during preparation of this document. Except as noted, they are available for public review at the City of Lake Elsinore, Community Development Department, 130 South Main Street, Lake Elsinore, CA 92530, ph. (951) 674-3124.

Air Quality Impact Analysis, 2019. Urban Crossroads. (Appendix A)

California Department of Transportation (Caltrans). 2020. California Scenic Highway Program. Available online at: https://dot.ca.gov/programs/design/lap-landscape-architecture-and-community-livability/lap-liv-i-scenic-highways

California Department of Conservation (CDOC). 2020. Farmland Mapping & Monitoring Program. Available online at: https://www.conservation.ca.gov/dlrp/fmmp

City of Lake Elsinore, Lake Elsinore Municipal Code

City of Lake Elsinore, 2011. City of Lake Elsinore General Plan

City of Lake Elsinore, 2011. City of Lake Elsinore General Plan EIR

City of Lake Elsinore, 2012. Local Hazard Mitigation Plan

Elsinore Valley Municipal Water District (EVMWD). 2020. 2015 Urban Water Management Plan. Available online at: https://www.emwd.org/post/urban-water-management-plan

EVMWD Service Planning Letter, 2020. Elsinore Valley Municipal Water District. (Appendix P)

Greenhouse Gas Analysis, 2019. Urban Crossroads. (Appendix G)

Habitat Assessment for Critical Area and Narrow Endemic Plan Species, and Burrowing Owl Survey (Phase I and Phase II Burrow Survey) (Appendix B)

Hydrology Study. Plump Engineering, Inc., 2019. (Appendix I)

Noise Impact Analysis, 2019. Urban Crossroads. (Appendix J)

Phase I Environmental Site Assessment, 2019. TA-GROUP DD. (Appendix H)

Preliminary Geotechnical Interpretive Report, 2019. Earth Strata Geotechnical Services. (Appendix D)

Preliminary Geotechnical Interpretive Report – Response Letter, 2020. Earth Strata Geotechnical Services. (Appendix E)

Preliminary Geotechnical Investigation Proposed Commercial Development "Lake Street Marketplace" NWC Mountain Street and Lake Street City of Lake Elsinore, California, 2007. Leighton Consulting, Inc. (Appendix F)

RCA Joint Project Review, LEAP 06-05/Lake Street Market Place, 2008. Western Riverside County Regional Conservation Authority. (Appendix N)

SCE Will Serve Letter, 2020. Southern California Edison. (Appendix O)

Traffic Impact Analysis, 2020. Urban Crossroads. (Appendix K)

Traffic Impact Analysis Appendices, 2020. Urban Crossroads. (Appendix L)

Water Quality Management Plan, 2019. Plump Engineering. (Appendix M)

NATIVE AMERICAN HERITAGE COMMISSION

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

August 31, 2020

Damaris Abraham
City of Lake Elsinore
130 South Main Street
Lake Elsinore, CA 92530

Re: 2020080538, Lake and Mountain Commercial Center Project, Riverside County

Dear Mr. Abraham:

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.

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

Lake Elsinore, California 92530
dabraham@lake-elsinore.org

Dear Ms. Damaris Abraham,

I received your NOP (plan app #2019-34, etc) dated August 28, 2020. Thank you for soliciting our views regarding the scope and content of the EIR.

In order to address the above, I need to bring up this most crucial date:
January 20, 2009.
On the above date, a public planning commission meeting took place.
I was present and I voiced my concerns.
In addition, I submitted doctor's letters on behalf of my husband, Hector Jimenez.
*Please note attached Planning Commission Agenda (01-20-2009) ITEM #3,
doctor's letters, an audio clip furnished by the City of Lake Elsinore (on CD originally),
web links to relevant news articles that documented this incident and a "vicinity map" of the proposed project site area similar to the location in your recent NOP mentioned above.

https://www.sandiegouniontribune.com/sdut-lake-elsinore-divided-commission-endorses-2009jan20-story.html?_amp=true

https://checkorphan.org/news/riverside-county-not-immune-valley-fever/

https://www.sandiegouniontribune.com/sdut-lake-elsinore-shopping-center-opponents-win-case-2010jun28-story.html

https://www.pe.com/2010/08/11/lake-elsinore-council-rescinds-shopping-centers-approval/

The above proposed shopping center did not proceed as planned -- in violation of
CEQA 15065 (a) (4) "The environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly."

Which brings me to the Lake and Mountain Commercial Center Initial Study/Notice of Preparation (54pp) on page 5, I.B, bullet 4 and Page 53, V.C....

This proposed commercial center has a different name, but is located in the almost exact area as previously applied for in 2009 -- literally on the other side of my fence.

I live on the following 2 acres:
389-030-020 & 389-030-021 (APNs).

The Lake and Mountain Commercial Center project location:
389-030-012 thru 018.

Please note per my husband's doctor:
My husband continues with his life-long chronic Coccidioidomycosis Meningitis and this proposed commercial center will cause substantial adverse effects on my husband.

Please review this email carefully. I will follow up with a response by regular mail.

I appreciate your attention to this serious matter.

Regards,

Araceli Jimenez

From: Damaris Abraham
To: Beck, Carly@Wildlife; Tricia A. Campbell (tcampbell@wrcrca.org)
Cc: Chris Moore; Pert, Heather@Wildlife
Subject: RE: [External]NOP SCH-2020080538, Lake and Mountain Commercial Center Project
Date: Friday, September 4, 2020 2:27:08 PM
Attachments: image002.jpg
image003.png

Hi Carly,

Yes, the JPR will be amended to include the changes.

Thanks,

Damaris Abraham
Senior Planner
City of Lake Elsinore
(951) 674-3124, ext. 913

From: Beck, Carly@Wildlife <Carly.Beck@wildlife.ca.gov>
Sent: Friday, September 4, 2020 2:18 PM
To: Tricia A. Campbell (tcampbell@wrcrca.org) <tcampbell@wrcrca.org>; Damaris Abraham <dabraham@lake-elsinore.org>
Cc: chris.moore@thealtumgroup.com; Pert, Heather@Wildlife <Heather.Pert@wildlife.ca.gov>
Subject: [External]NOP SCH-2020080538, Lake and Mountain Commercial Center Project

Message from external sender. Use Caution.

Mrs. Campbell and Ms. Abraham,

CDFW was recently sent a Notice of Preparation for the Lake and Mountain Commercial Center Project (SCH-2020080538). Upon review it seems that some of the Assessor's Parcel Numbers (APN), see list of APNs below, have previously been approved for development under JPR 08-08-20-01 (which was previously 06-08-31-01). The provided project description describes impacts to additional APNs and excludes others. Can either the City of Lake Elsinore or the RCA confirm if the JPR will be amended to include the changes to the project's footprint? Or provide the number of a separate JPR that may have been processed for the APN's not addressed in JPR 08-08-20-01. Any update you can provide on the project's MSHCP status would greatly be appreciated.

APNs:
389-030-012 (new)
389-030-013
389-030-014

389-030-015
389-030-016
389-030-017
389-030-018
389-030-020 (not included)
389-030-021 (not included)
389-030-022 (not included)

Cheers,

Carly Beck

Environmental Scientist
Inland Deserts Region
California Department of Fish and Wildlife
3602 Inland Empire Blvd., Suite C-220
Ontario, CA 91764
(909) 945-3294

Logo

From:	Damaris Abraham
To:	Gregory Hann; Danny Singh (dannysingh9@gmail.com)
Cc:	Chris Moore; Max Antono
Subject:	FW: NOP of a draft EIR for the Lake and Mountain Commercial Center Project (plan app # 2019-34, etc)
Date:	Friday, September 11, 2020 2:03:27 PM

FYI

From: Araceli Jimenez <abejaqueen3@gmail.com>
Sent: Friday, September 11, 2020 12:25 AM
To: Damaris Abraham <dabraham@lake-elsinore.org>
Subject: Re: NOP of a draft EIR for the Lake and Mountain Commercial Center Project (plan app # 2019-34, etc)

Dear Ms. Damaris Abraham,

Please make a note of the following:

https://www.pe.com/2020/09/10/man-rescued-from-100-foot-deep-well-in-lake-elsinore/

https://www.nbclosangeles.com/news/local/man-becomes-trapped-inside-abandoned-well-in-lake-elsinore/2426442/

https://www.kesq.com/news/2020/09/10/man-rescued-after-falling-into-an-abandoned-100-foot-deep-well/

https://patch.com/california/lakeelsinore-wildomar/man-falls-100-foot-well-lake-elsinore

The proposed Lake and Mountain Commercial Center Project site already causing major PROBLEM$!!

An alarmingly abandoned 100 foot deep well sits on the above mentioned site and could have caused a tragic death yesterday, Thursday, August 10, 2020. Just shows the lack of planning, precaution, consideration, safety — simply reckless, dangerous and negligent on behalf of the responsible party....

Your attention to this serious matter is appreciated.

Regards,

Araceli Jimenez

On Wed, Sep 2, 2020 at 2:24 AM Araceli Jimenez <abejaqueen3@gmail.com> wrote:

Mrs. Araceli Jimenez (& concerned family)
28885 Raveta Lane
Lake Elsinore, California
92530-1700
abejaqueen3@gmail.com

September 02, 2020

Ms. Damaris Abraham
City of Lake Elsinore Planning Division
130 South Main Street
Lake Elsinore, California 92530
dabraham@lake-elsinore.org

Dear Ms. Damaris Abraham,

I received your NOP (plan app #2019-34, etc) dated August 28, 2020. Thank you for soliciting our views regarding the scope and content of the EIR.

In order to address the above, I need to bring up this most crucial date:
January 20, 2009.
On the above date, a public planning commission meeting took place.
I was present and I voiced my concerns.
In addition, I submitted doctor's letters on behalf of my husband, Hector Jimenez.
*Please note attached Planning Commission Agenda

(01-20-2009) ITEM #3,
doctor's letters, an audio clip furnished by the City of Lake Elsinore (on CD originally),
web links to relevant news articles that documented this incident and a "vicinity map" of the proposed project site area similar to the location in your recent NOP mentioned above.

https://www.sandiegouniontribune.com/sdut-lake-elsinore-divided-commission-endorses-2009jan20-story.html?_amp=true

https://checkorphan.org/news/riverside-county-not-immune-valley-fever/

https://www.sandiegouniontribune.com/sdut-lake-elsinore-shopping-center-opponents-win-case-2010jun28-story.html

https://www.pe.com/2010/08/11/lake-elsinore-council-rescinds-shopping-centers-approval/

The above proposed shopping center did not proceed as planned -- in violation of
CEQA 15065 (a) (4) "The environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly."

Which brings me to the Lake and Mountain Commercial Center Initial Study/Notice of Preparation (54pp) on page 5, I.B, bullet 4 and Page 53, V.C....

This proposed commercial center has a different name, but is located in the almost exact area as previously applied for in 2009 -- literally on the other side of my fence.

I live on the following 2 acres:
389-030-020 & 389-030-021 (APNs).

The Lake and Mountain Commercial Center project location:
389-030-012 thru 018.

Please note per my husband's doctor:
My husband continues with his life-long chronic Coccidioidomycosis Meningitis and this proposed commercial center will cause substantial

adverse effects on my husband.

Please review this email carefully. I will follow up with a response by regular mail.

I appreciate your attention to this serious matter.

Regards,

Araceli Jimenez

From:	Damaris Abraham
To:	Chris Moore
Cc:	Max Antono
Subject:	FW: [External]Email contact from CitMountain/lake projecty of Lake Elsinore
Date:	Tuesday, September 8, 2020 8:07:14 AM

FYI

From: Angelo fallara <Angsel1@ymail.com>
Sent: Monday, September 7, 2020 6:07 PM
To: Damaris Abraham <dabraham@lake-elsinore.org>
Subject: [External]Email contact from CitMountain/lake projecty of Lake Elsinore

Message from external sender. Use Caution.

I am firmly opposed to this project as it will cause undue traffic and congestion for me to be able to get to my house as there is no other ingress or egress to avocado way other than mountain also the availability of property across from the junior high school at Lake and Lake shore and The project going up at the freeway exit at Lake Street please keep me informed as to any progress on this project or any petitions that I can sign against it thank you Angelo Fallara

29043 Avocado Way, Lake Elsinore CA 92530
928-706-4019

JASON E. UHLEY
General Manager-Chief Engineer

1995 MARKET STREET
RIVERSIDE, CA 92501
951.955.1200
FAX 951.788.9965
www.rcflood.org

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT

233449

September 8, 2020

City of Lake Elsinore
130 South Main Street
Lake Elsinore, CA 92530

Attention: Damaris Abraham

Re: PA 2019-34, Tract 37922, CUP 2019-19
APNs 389-030-012 through 018

The Riverside County Flood Control and Water Conservation District (District) does not normally recommend conditions for land divisions or other land use cases in incorporated cities. The District also does not plan check City land use cases or provide State Division of Real Estate letters or other flood hazard reports for such cases. District comments/recommendations for such cases are normally limited to items of specific interest to the District including District Master Drainage Plan facilities, other regional flood control and drainage facilities which could be considered a logical component or extension of a master plan system, and District Area Drainage Plan fees (development mitigation fees). In addition, information of a general nature is provided.

The District's review is based on the above-referenced project transmittal, received September 1, 2020. The District has not reviewed the proposed project in detail, and the following comments do not in any way constitute or imply District approval or endorsement of the proposed project with respect to flood hazard, public health and safety, or any other such issue:

☒ This project would not be impacted by District Master Drainage Plan facilities, nor are other facilities of regional interest proposed.

☐ This project involves District proposed Master Drainage Plan facilities, namely, ________. The District will accept ownership of such facilities on written request of the City. Facilities must be constructed to District standards, and District plan check and inspection will be required for District acceptance. Plan check, inspection, and administrative fees will be required.

☐ This project proposes channels, storm drains 36 inches or larger in diameter, or other facilities that could be considered regional in nature and/or a logical extension of the adopted ____________________ Master Drainage Plan. The District would consider accepting ownership of such facilities on written request of the City. Facilities must be constructed to District standards, and District plan check and inspection will be required for District acceptance. Plan check, inspection, and administrative fees will be required.

☒ This project is located within the limits of the District's West Elsinore Area Drainage Plan for which drainage fees have been adopted. If the project is proposing to create additional impervious surface area, applicable fees should be paid by cashier's check or money order only to the Flood Control District or City prior to issuance of grading or building permits. Fees to be paid should be at the rate in effect at the time of issuance of the actual permit.

☐ An encroachment permit shall be obtained for any construction related activities occurring within District right of way or facilities, namely, ____________________. For further information, contact the District's Encroachment Permit Section at 951.955.1266.

☐ The District's previous comments are still valid.

GENERAL INFORMATION

This project may require a National Pollutant Discharge Elimination System (NPDES) permit from the State Water Resources Control Board. Clearance for grading, recordation, or other final approval should not be given until the City has determined that the project has been granted a permit or is shown to be exempt.

If this project involves a Federal Emergency Management Agency (FEMA) mapped floodplain, then the City should require the applicant to provide all studies, calculations, plans, and other information required to meet FEMA requirements, and should further require that the applicant obtain a Conditional Letter of Map Revision (CLOMR) prior to grading, recordation, or other final approval of the project and a Letter of Map Revision (LOMR) prior to occupancy.

If a natural watercourse or mapped floodplain is impacted by this project, the City should require the applicant to obtain a Section 1602 Agreement from the California Department of Fish and Wildlife and a Clean Water Act Section 404 Permit from the U.S. Army Corps of Engineers, or written correspondence from these agencies indicating the project is exempt from these requirements. A Clean Water Act Section 401 Water Quality Certification may be required from the local California Regional Water Quality Control Board prior to issuance of the Corps 404 permit.

Very truly yours,

Deborah de Chambeau

DEBORAH DE CHAMBEAU
Engineering Project Manager

ec: Riverside County Planning Department
Attn: John Hildebrand

SLJ:blm

South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
South Coast AQMD (909) 396-2000 · www.aqmd.gov

SENT VIA E-MAIL: September 15, 2020
dabraham@lake-elsinore.org
Damaris Abraham, Senior Planner
City of Lake Elsinore, Planning Division
130 South Main Street
Lake Elsinore, CA 92530

Notice of Preparation of a Draft Environmental Impact Report for the Lake and Mountain Commercial Center Project (Proposed Project)

South Coast Air Quality Management District (South Coast AQMD) staff appreciates the opportunity to comment on the above-mentioned document. Our comments are recommendations on the analysis of potential air quality impacts from the Proposed Project that should be included in the Draft Environmental Impact Report (EIR). Please send a copy of the Draft EIR upon its completion and public release directly to South Coast AQMD as copies of the Draft EIR submitted to the State Clearinghouse are not forwarded. **In addition, please send all appendices and technical documents related to the air quality, health risk, and greenhouse gas analyses and electronic versions of all emission calculation spreadsheets, and air quality modeling and health risk assessment input and output files (not PDF files). Any delays in providing all supporting documentation for our review will require additional review time beyond the end of the comment period.**

Responsible Agency and South Coast AQMD Permits

South Coast AQMD is a Responsible Agency for the Proposed Project (CEQA Guidelines Section 15381) since implementation of the gasoline service station portion of the Proposed Project requires permits from South Coast AQMD. It is important to note that the assumptions in the air quality analysis in the Final EIR will be used as the basis for evaluating the permits under CEQA and imposing permit conditions and limits. In order to ensure that impacts from the permits are fully and adequately evaluated as required under CEQA Guidelines Section 15096(b), it is recommended that the Lead Agency initiate consultation with South Coast AQMD by contacting Jillian Wong, Ph.D., Manager, at jwong1@aqmd.gov.

CEQA Air Quality Analysis

Staff recommends that the Lead Agency use South Coast AQMD's CEQA Air Quality Handbook and website[1] as guidance when preparing the air quality and greenhouse gas analyses. It is also recommended that the Lead Agency use the CalEEMod[2] land use emissions software, which can estimate pollutant emissions from typical land use development and is the only software model maintained by the California Air Pollution Control Officers Association.

South Coast AQMD has developed both regional and localized significance thresholds. South Coast AQMD staff recommends that the Lead Agency quantify criteria pollutant emissions and compare the emissions to South Coast AQMD's CEQA regional pollutant emissions significance thresholds[3] and

[1] South Coast AQMD's CEQA Handbook and other resources for preparing air quality analyses can be found at: http://www.aqmd.gov/home/rules-compliance/ceqa/air-quality-analysis-handbook.
[2] CalEEMod is available free of charge at: www.caleemod.com.
[3] South Coast AQMD's CEQA regional pollutant emissions significance thresholds can be found at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf.

localized significance thresholds (LSTs)[4] to determine the Proposed Project's air quality impacts. The localized analysis can be conducted by either using the LST screening tables or performing dispersion modeling.

The Lead Agency should identify any potential adverse air quality impacts that could occur from all phases of the Proposed Project and all air pollutant sources related to the Proposed Project. Air quality impacts from both construction (including demolition, if any) and operations should be calculated. Construction-related air quality impacts typically include, but are not limited to, emissions from the use of heavy-duty equipment from grading, earth-loading/unloading, paving, architectural coatings, off-road mobile sources (e.g., heavy-duty construction equipment) and on-road mobile sources (e.g., construction worker vehicle trips, material transport trips, and hauling trips). Operation-related air quality impacts may include, but are not limited to, emissions from stationary sources (e.g., boilers and air pollution control devices), area sources (e.g., solvents and coatings), and vehicular trips (e.g., on- and off-road tailpipe emissions and entrained dust). Air quality impacts from indirect sources, such as sources that generate or attract vehicular trips, should be included in the analysis. Furthermore, emissions from the overlapping construction and operational activities should be combined and compared to South Coast AQMD's regional air quality CEQA ***operational*** thresholds to determine the level of significance.

If the Proposed Project generates diesel emissions from long-term construction or attracts diesel-fueled vehicular trips, especially heavy-duty diesel-fueled vehicles, it is recommended that the Lead Agency perform a mobile source health risk assessment[5].

The California Air Resources Board's (CARB) *Air Quality and Land Use Handbook: A Community Health Perspective*[6] is a general reference guide for evaluating and reducing air pollution impacts associated with new projects that go through the land use decision-making process with additional guidance on strategies to reduce air pollution exposure near high-volume roadways available in CARB's technical advisory[7].

The Proposed Project would include, among other things, a gasoline service station with 12 pumps. Benzene, which is a toxic air contaminant, may be emitted from the operation. To ensure that sensitive receptors are not going to be adversely affected by the exposure to benzene, it is recommended that the Lead Agency evaluate, quantify, and perform a health risk assessment for the Proposed Project in the Draft EIR[8].

Mitigation Measures

In the event that the Proposed Project results in significant adverse air quality impacts, CEQA requires that all feasible mitigation measures that go beyond what is required by law be utilized to minimize these impacts. Any impacts resulting from mitigation measures must also be analyzed. Several resources to assist the Lead Agency with identifying potential mitigation measures for the Proposed Project include South Coast AQMD's CEQA Air Quality Handbook[1], South Coast AQMD's Mitigation Monitoring and

---

[4] South Coast AQMD's guidance for performing a localized air quality analysis can be found at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds.

[5] South Coast AQMD's guidance for performing a mobile source health risk assessment can be found at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mobile-source-toxics-analysis.

[6] CARB's *Air Quality and Land Use Handbook: A Community Health Perspective* can be found at: http://www.arb.ca.gov/ch/handbook.pdf.

[7] CARB's technical advisory can be found at: https://www.arb.ca.gov/ch/landuse.htm.

[8] South Coast AQMD. Guidance for performing a gasoline dispensing station health risk assessment can be found here: http://www.aqmd.gov/home/permits/risk-assessment.

Reporting Plan for the 2016 Air Quality Management Plan[9], and Southern California Association of Government's Mitigation Monitoring and Reporting Plan for the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy[10].

South Coast AQMD staff is available to work with the Lead Agency to ensure that air quality, greenhouse gas, and health risk impacts from the Proposed Project are accurately evaluated and mitigated where feasible. If you have any questions regarding this letter, please contact me at lsun@aqmd.gov.

Sincerely,

Lijin Sun

Lijin Sun, J.D.
Program Supervisor, CEQA IGR
Planning, Rule Development & Area Sources

LS
RVC200901-15
Control Number

[9] South Coast AQMD's 2016 Air Quality Management Plan can be found at: http://www.aqmd.gov/docs/default-source/Agendas/Governing-Board/2017/2017-mar3-035.pdf (starting on page 86).
[10] Southern California Association of Governments' 2020-2045 RTP/SCS can be found at: https://www.connectsocal.org/Documents/PEIR/certified/Exhibit-A_ConnectSoCal_PEIR.pdf.

ENRICO NELSON

4129 Poplar Cir.
Lake Elsinore,Ca. 92530
Phone: (951)818-3732
E-mail: eknelson@live.com

Ms. Damaris Abraham
Senior Planner

130 South Main Street
Lake Elsinore, Ca.92530

Ms. Abraham:

I am writing this letter regarding the Lake and Mountain Commercial Center Project.

My family and I have lived here in Lake Elsinore for 9 years. When we moved out here from Los Angeles, my wife and I had to make decisions about our jobs, my wife was able to relocate, and I decided to commute to Los Angeles from Lake Elsinore. This was because we did not have to deal with the heavy traffic, loud noises of living in a big city, and most important the high crime rate. Yes, I do understand crime is everywhere, however we love the feel and peace of living in a small-town atmosphere. Knowing that my wife and children can experience this makes it especially important to us. The effects of gas stations and convenient stores so close to our neighborhood will always have horrific consequences.

I hope that you will listen to my concerns and make the best decisions for our community

Thank You

ENRICO NELSON
09/25/2020

From:	Damaris Abraham
To:	Chris Moore; Max Antono
Subject:	FW: [External]Lake & Mountain Commercial Center
Date:	Monday, September 14, 2020 12:57:56 PM

FYI

From: Mauricio Alvarez <malvarez@riversidetransit.com>
Sent: Monday, September 14, 2020 11:40 AM
To: Damaris Abraham <dabraham@lake-elsinore.org>
Subject: [External]Lake & Mountain Commercial Center

Message from external sender. Use Caution.

Good Morning Ms. Abraham,

RTA has reviewed the plans you have sent and have one comment:

1. ADA compliant, connected sidewalk on both Mountain St and Lake St.

Thank you for considering this comment.

Mauricio Alvarez, MBA
Planning Analyst
Riverside Transit Agency
p: 951.565.5260 | e: malvarez@riversidetransit.com
Website | Facebook | Twitter | Instagram
1825 Third Street, Riverside, CA 92507

Appendix B

Air Quality Impact Analysis

Lake and Mountain Shopping Center

AIR QUALITY IMPACT ANALYSIS

CITY OF LAKE ELSINORE

PREPARED BY:

Haseeb Qureshi
hqureshi@urbanxroads.com
(949) 336-5987

Alyssa Tamase
atamase@urbanxroads.com
(949) 336-5988

OCTOBER 24, 2019

TABLE OF CONTENTS

APPENDICES

LIST OF EXHIBITS

LIST OF TABLES

LIST OF ABBREVIATED TERMS

(1)	Reference
$\mu g/m^3$	Microgram per Cubic Meter
AQ	Air Quality
AQIA	Air Quality Impact Analysis
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
CAA	Federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
CALGreen	California Green Building Standards Code
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CITY	City of Lake Elsinore
CO	Carbon Monoxide
CY	Cubic Yards
EIR	Environmental Impact Reports
EPA	Environmental Protection Agency
GHG	Greenhouse Gas
LBS/DAY	Pounds Per Day
LST	Localized Significance Threshold
LST METHODOLOGY	Final Localized Significance Threshold Methodology
NAAQS	National Ambient Air Quality Standards
NO_2	Nitrogen Dioxide
NO_X	Nitrogen Oxides
NOP	Notice of Preparation
O_3	Ozone
Pb	Lead
PM_{10}	Particulate Matter 10 microns in diameter or less
$PM_{2.5}$	Particulate Matter 2.5 microns in diameter or less
PPM	Parts Per Million
Project	Lake and Mountain Shopping Center
ROG	Reactive Organic Gases
RTP/SCS	Regional Transportation Plan/ Sustainable Communities Strategy

SCAB	South Coast Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SF	Square Feet
SIP	State Implementation Plans
SO_2	Sulfur Dioxide
SRA	Source Receptor Area
TAC	Toxic Air Contaminant
VOC	Volatile Organic Compounds
VPH	Vehicles Per Hour

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EXECUTIVE SUMMARY

The results of this *Lake and Mountain Shopping Center Air Quality Impact Analysis* are summarized below based on the significance criteria in Section 3 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1). Table ES-1 shows the findings of significance for each potential air quality impact under CEQA before and after any required mitigation measures described below.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Regional Construction Emissions	3.4	*Less Than Significant*	*n/a*
Localized Construction Emissions	3.6	*Less Than Significant*	*n/a*
Regional Operational Emissions	3.5	*Less Than Significant*	*n/a*
Localized Operational Emissions	3.7	*Less Than Significant*	*n/a*
CO “Hot Spot” Analysis	3.8	*Less Than Significant*	*n/a*
Air Quality Management Plan	3.9	*Less Than Significant*	*n/a*
Sensitive Receptors	3.10	*Less Than Significant*	*n/a*
Odors	3.11	*Less Than Significant*	*n/a*
Cumulative Impacts	3.12	*Less Than Significant*	*n/a*

1 INTRODUCTION

This report presents the results of the air quality impact analysis (AQIA) prepared by Urban Crossroads, Inc., for the proposed Lake and Mountain Shopping Center ("Project"). The purpose of this AQIA is to evaluate the potential impacts to air quality associated with construction and operation of the proposed Project and recommend measures to mitigate impacts considered potentially significant in comparison to thresholds established by the South Coast Air Quality Management District (SCAQMD).

1.1 SITE LOCATION

The proposed Lake and Mountain Shopping Center Project is located on the northwest corner of Lake Street and Mountain Street in the City of Lake Elsinore, as shown on Exhibit 1-A. The Project site is currently vacant. Nearby existing residential tract homes are located east of the Project site across Lake Street and south across Mountain Street. Individual large lot single-family residential homes are located west and north of the Project site.

1.2 PROJECT DESCRIPTION

The Project is proposed to consist of 13,200 square feet of shopping center use, a gasoline service station with a 3,400 square foot convenience market, 7,365 square feet of fast-food restaurant with drive-through window use, and an automated car wash tunnel, as shown on Exhibit 1-B. It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2021.

1.3 STANDARD REGULATORY REQUIREMENTS

SCAQMD Rules that are currently applicable during construction activity for this Project include but are not limited to Rule 1113 (Architectural Coatings) (2) and Rule 403 (Fugitive Dust) (3).

The gasoline station is subject to and required to comply with SCAQMD Rules 461 (Gasoline Transfer and Dispensing) (4) as well as a Permit to Construct and Permit to Operate, Rules 201 (5) and 203 (6), respectively. These required permits identify a maximum annual throughput allowed based on specific fuel storage and dispensing equipment that is proposed by the operator.

1.4 BEST AVAILABLE CONTROL MEASURES (BACMS)

Measures listed below (or equivalent language) shall appear on all Project grading plans, construction specifications and bid documents, and the City shall ensure such language is incorporated prior to issuance of any development permits.

EXHIBIT 1-A: LOCATION MAP

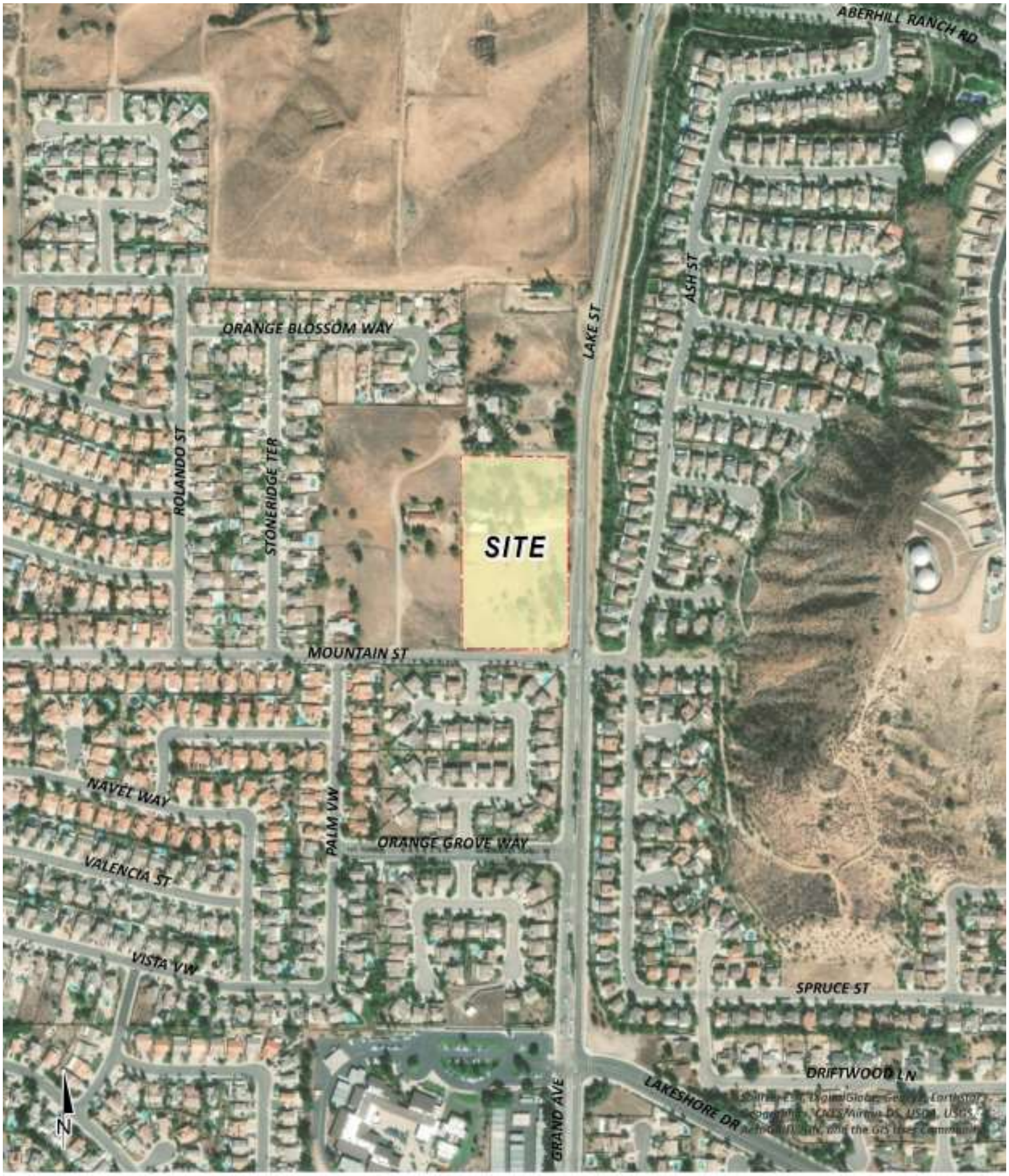
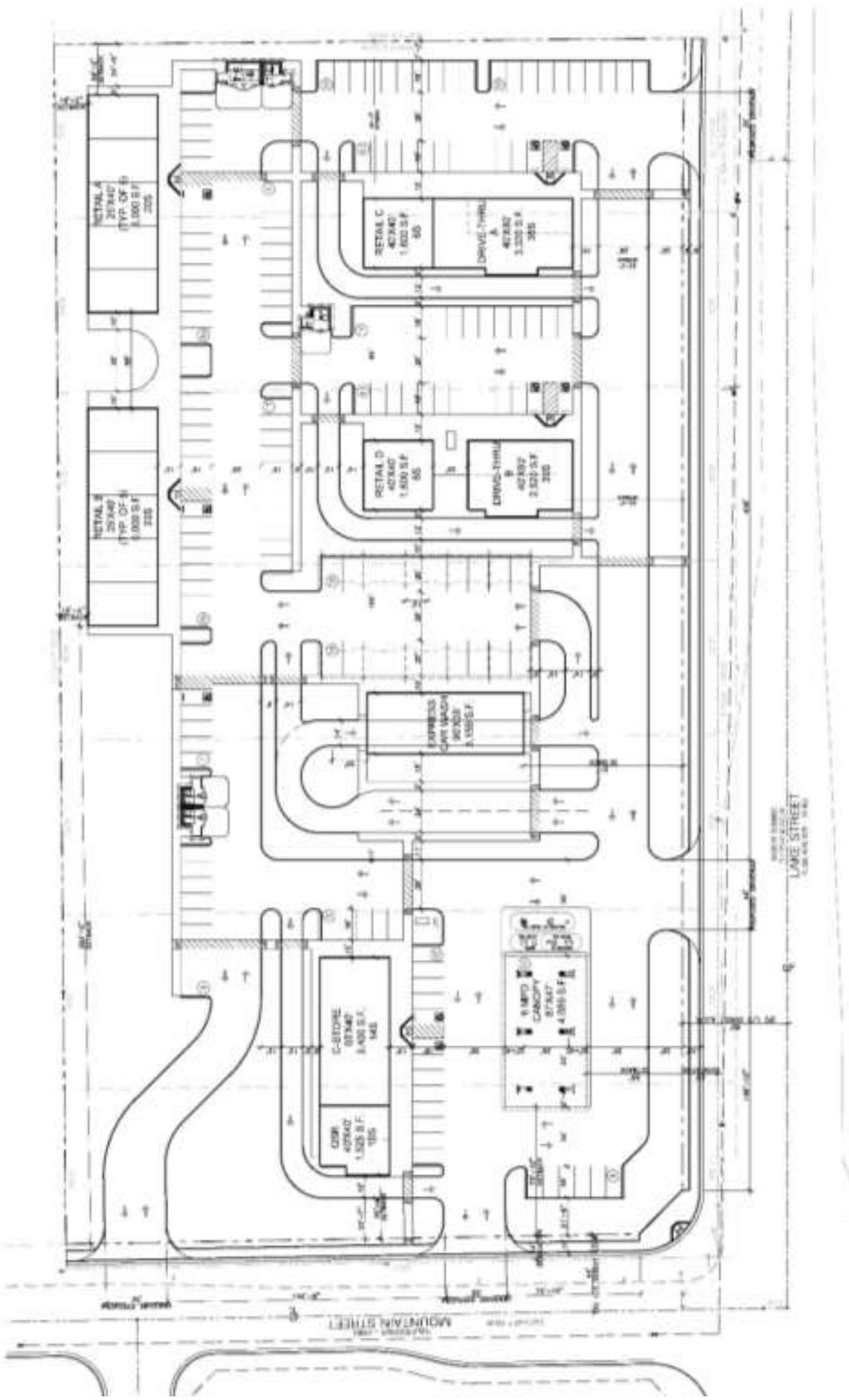


EXHIBIT 1-B: SITE PLAN



BACM AQ-1

All applicable measures shall be incorporated into Project plans and specifications as implementation of Rule 403, which include but are not limited to (3):

- All clearing, grading, earth-moving, or excavation activities shall cease when winds exceed 25 mph per SCAQMD guidelines in order to limit fugitive dust emissions.
- The contractor shall ensure that all disturbed unpaved roads and disturbed areas within the Project are watered at least three (3) times daily during dry weather. Watering, with complete coverage of disturbed areas, shall occur at least three times a day, preferably in the mid-morning, afternoon, and after work is done for the day.
- The contractor shall ensure that traffic speeds on unpaved roads and Project site areas are reduced to 15 miles per hour or less.

BACM AQ-2

The following measures shall be incorporated into Project plans and specifications as implementation of Rule 1113 (7):

- In order to limit the VOC content of architectural coatings used in the SCAB, architectural coatings shall be no more than a low VOC default level of 50 g/L unless otherwise specified in the SCAQMD Table of Standards (pg. 32-33).

1.5 CONSTRUCTION-SOURCE MITIGATION MEASURES

Project construction-source emissions will be less than significant. Therefore, no mitigation measures are required.

1.6 OPERATIONAL-SOURCE AIR POLLUTANT EMISSIONS MITIGATION MEASURES

Project operational-source emissions will be less than significant. Therefore, no mitigation measures are required.

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2 AIR QUALITY SETTING

This section provides an overview of the existing air quality conditions in the Project area and region.

2.1 SOUTH COAST AIR BASIN

The Project site is located in the South Coast Air Basin (SCAB) within the jurisdiction of SCAQMD (8). The SCAQMD was created by the 1977 Lewis-Presley Air Quality Management Act, which merged four county air pollution control bodies into one regional district. Under the Act, the SCAQMD is responsible for bringing air quality in areas under its jurisdiction into conformity with federal and state air quality standards. As previously stated, the Project site is located within the SCAB, a 6,745-square mile subregion of the SCAQMD, which includes portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County.

The SCAB is bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. The Los Angeles County portion of the Mojave Desert Air Basin is bounded by the San Gabriel Mountains to the south and west, the Los Angeles / Kern County border to the north, and the Los Angeles / San Bernardino County border to the east. The Riverside County portion of the Salton Sea Air Basin is bounded by the San Jacinto Mountains in the west and spans eastward up to the Palo Verde Valley.

2.2 REGIONAL CLIMATE

The regional climate has a substantial influence on air quality in the SCAB. In addition, the temperature, wind, humidity, precipitation, and amount of sunshine influence the air quality.

The annual average temperatures throughout the SCAB vary from the low to middle 60s (degrees Fahrenheit). Due to a decreased marine influence, the eastern portion of the SCAB shows greater variability in average annual minimum and maximum temperatures. January is the coldest month throughout the SCAB, with average minimum temperatures of 47°F in downtown Los Angeles and 36°F in San Bernardino. All portions of the SCAB have recorded maximum temperatures above 100°F.

Although the climate of the SCAB can be characterized as semi-arid, the air near the land surface is quite moist on most days because of the presence of a marine layer. This shallow layer of sea air is an important modifier of SCAB climate. Humidity restricts visibility in the SCAB, and the conversion of sulfur dioxide (SO_2) to sulfates is heightened in air with high relative humidity. The marine layer provides an environment for that conversion process, especially during the spring and summer months. The annual average relative humidity within the SCAB is 71 percent along the coast and 59 percent inland. Since the ocean effect is dominant, periods of heavy early morning fog are frequent and low stratus clouds are a characteristic feature. These effects decrease with distance from the coast.

More than 90 percent of the SCAB's rainfall occurs from November through April. The annual average rainfall varies from approximately nine inches in Riverside to fourteen inches in downtown Los Angeles. Monthly and yearly rainfall totals are extremely variable. Summer rainfall usually consists of widely scattered thunderstorms near the coast and slightly heavier shower activity in the eastern portion of the SCAB with frequency being higher near the coast.

Due to its generally clear weather, about three-quarters of available sunshine is received in the SCAB. The remaining one-quarter is absorbed by clouds. The ultraviolet portion of this abundant radiation is a key factor in photochemical reactions. On the shortest day of the year there are approximately 10 hours of possible sunshine, and on the longest day of the year there are approximately 14½ hours of possible sunshine.

The importance of wind to air pollution is considerable. The direction and speed of the wind determines the horizontal dispersion and transport of the air pollutants. During the late autumn to early spring rainy season, the SCAB is subjected to wind flows associated with the traveling storms moving through the region from the northwest. This period also brings five to ten periods of strong, dry offshore winds, locally termed "Santa Anas" each year. During the dry season, which coincides with the months of maximum photochemical smog concentrations, the wind flow is bimodal, typified by a daytime onshore sea breeze and a nighttime offshore drainage wind. Summer wind flows are created by the pressure differences between the relatively cold ocean and the unevenly heated and cooled land surfaces that modify the general northwesterly wind circulation over southern California. Nighttime drainage begins with the radiational cooling of the mountain slopes. Heavy, cool air descends the slopes and flows through the mountain passes and canyons as it follows the lowering terrain toward the ocean. Another characteristic wind regime in the SCAB is the "Catalina Eddy," a low level cyclonic (counterclockwise) flow centered over Santa Catalina Island which results in an offshore flow to the southwest. On most spring and summer days, some indication of an eddy is apparent in coastal sections.

In the SCAB, there are two distinct temperature inversion structures that control vertical mixing of air pollution. During the summer, warm high-pressure descending (subsiding) air is undercut by a shallow layer of cool marine air. The boundary between these two layers of air is a persistent marine subsidence/inversion. This boundary prevents vertical mixing which effectively acts as an impervious lid to pollutants over the entire SCAB. The mixing height for the inversion structure is normally situated 1,000 to 1,500 feet above mean sea level.

A second inversion-type forms in conjunction with the drainage of cool air off the surrounding mountains at night followed by the seaward drift of this pool of cool air. The top of this layer forms a sharp boundary with the warmer air aloft and creates nocturnal radiation inversions. These inversions occur primarily in the winter, when nights are longer and onshore flow is weakest. They are typically only a few hundred feet above mean sea level. These inversions effectively trap pollutants, such as NO_X and CO from vehicles, as the pool of cool air drifts seaward. Winter is therefore a period of high levels of primary pollutants along the coastline.

2.3 WIND PATTERNS AND PROJECT LOCATION

The distinctive climate of the Project area and the SCAB is determined by its terrain and geographical location. The SCAB is located in a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean in the southwest quadrant with high mountains forming the remainder of the perimeter.

Wind patterns across the south coastal region are characterized by westerly and southwesterly onshore winds during the day and easterly or northeasterly breezes at night. Winds are characteristically light although the speed is somewhat greater during the dry summer months than during the rainy winter season.

2.4 CRITERIA POLLUTANTS

Criteria pollutants are pollutants that are regulated through the development of human health based and/or environmentally based criteria for setting permissible levels. Criteria pollutants, their typical sources, and health effects are identified below (9):

TABLE 2-1: CRITERIA POLLUTANTS

Criteria Pollutant	Description	Sources	Health Effects
CO	CO is a colorless, odorless gas produced by the incomplete combustion of carbon-containing fuels, such as gasoline or wood. CO concentrations tend to be the highest during the winter morning, when little to no wind and surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone, motor vehicles operating at slow speeds are the primary source of CO in the SCAB. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.	Any source that burns fuel such as automobiles, trucks, heavy construction equipment, farming equipment and residential heating.	Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise, and electrocardiograph changes indicative of decreased oxygen supply to the heart. Inhaled CO has no direct toxic effect on the lungs but exerts its effect on tissues by interfering with oxygen transport and competing with oxygen to combine with hemoglobin present in the blood to form carboxyhemoglobin (COHb). Hence, conditions with an increased demand for oxygen supply can be adversely affected by exposure to CO. Individuals most at risk include fetuses, patients with diseases involving heart and blood vessels, and patients with chronic hypoxemia (oxygen deficiency) as seen at high altitudes.

Criteria Pollutant	Description	Sources	Health Effects
SO_2	SO_2 is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms sulfates (SO_4). Collectively, these pollutants are referred to as sulfur oxides (SO_X)	Coal or oil burning power plants and industries, refineries, diesel engines	A few minutes of exposure to low levels of SO_2 can result in airway constriction in some asthmatics, all of whom are sensitive to its effects. In asthmatics, increase in resistance to air flow, as well as reduction in breathing capacity leading to severe breathing difficulties, are observed after acute exposure to SO_2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO_2. Animal studies suggest that despite SO_2 being a respiratory irritant, it does not cause substantial lung injury at ambient concentrations. However, very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract. Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO_2 levels. In these studies, efforts to separate the effects of SO_2 from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically, or one pollutant alone is the predominant factor.

Criteria Pollutant	Description	Sources	Health Effects
NO_X	NO_X consist of nitric oxide (NO), nitrogen dioxide (NO_2) and nitrous oxide (N_2O) and are formed when nitrogen (N_2) combines with oxygen (O_2). Their lifespan in the atmosphere ranges from one to seven days for nitric oxide and nitrogen dioxide, to 170 years for nitrous oxide. NO_X are typically created during combustion processes and are major contributors to smog formation and acid deposition. NO_2 is a criteria air pollutant and may result in numerous adverse health effects; it absorbs blue light, resulting in a brownish-red cast to the atmosphere and reduced visibility. Of the seven types of nitrogen oxide compounds, NO_2 is the most abundant in the atmosphere. As ambient concentrations of NO_2 are related to traffic density, commuters in heavy traffic may be exposed to higher concentrations of NO_2 than those indicated by regional monitoring station.	Any source that burns fuel such as automobiles, trucks, heavy construction equipment, farming equipment and residential heating.	Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is associated with long-term exposure to NO_2 at levels found in homes with gas stoves, which are higher than ambient levels found in Southern California. Increase in resistance to air flow and airway contraction is observed after short-term exposure to NO_2 in healthy subjects. Larger decreases in lung functions are observed in individuals with asthma or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these sub-groups. In animals, exposure to levels of NO_2 considerably higher than ambient concentrations result in increased susceptibility to infections, possibly due to the observed changes in cells involved in maintaining immune functions. The severity of lung tissue damage associated with high levels of ozone exposure increases when animals are exposed to a combination of ozone and NO_2.
Ozone (O_3)	O_3 is a highly reactive and unstable gas that is formed when VOCs and NO_X, both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally	Formed when reactive organic gases (ROG) and NO_X react in the presence of sunlight. ROG sources	Individuals exercising outdoors, children, and people with preexisting lung disease, such as asthma and chronic pulmonary lung disease, are considered to be the most susceptible sub-groups for ozone effects.

Criteria Pollutant	Description	Sources	Health Effects
	highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.	include any source that burns fuels, (e.g., gasoline, natural gas, wood, oil) solvents, petroleum processing and storage and pesticides.	Short-term exposure (lasting for a few hours) to ozone at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. Elevated ozone levels are associated with increased school absences. In recent years, a correlation between elevated ambient ozone levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An increased risk for asthma has been found in children who participate in multiple outdoor sports and live in communities with high ozone levels. Ozone exposure under exercising conditions is known to increase the severity of the responses described above. Animal studies suggest that exposure to a combination of pollutants that includes ozone may be more toxic than exposure to ozone alone. Although lung volume and resistance changes observed after a single exposure diminish with repeated exposures, biochemical and cellular changes appear to persist, which can lead to subsequent lung structural changes.
Particulate Matter	PM_{10} (Particulate Matter less than 10 microns): A major air pollutant consisting of tiny solid or liquid particles of soot, dust,	Sources of PM_{10} include road dust, windblown dust and construction. Also	A consistent correlation between elevated ambient fine particulate matter (PM_{10} and $PM_{2.5}$) levels and an

Criteria Pollutant	Description	Sources	Health Effects
	smoke, fumes, and aerosols. Particulate matter pollution is a major cause of reduce visibility (haze) which is caused by the scattering of light and consequently the significant reduction air clarity. The size of the particles (10 microns or smaller, about 0.0004 inches or less) allows them to easily enter the lungs where they may be deposited, resulting in adverse health effects. Additionally, it should be noted that PM_{10} is considered a criteria air pollutant. $PM_{2.5}$ (Particulate Matter less than 2.5 microns): A similar air pollutant to PM_{10} consisting of tiny solid or liquid particles which are 2.5 microns or smaller (which is often referred to as fine particles). These particles are formed in the atmosphere from primary gaseous emissions that include sulfates formed from SO_2 release from power plants and industrial facilities and nitrates that are formed from NO_X release from power plants, automobiles and other types of combustion sources. The chemical composition of fine particles highly depends on location, time of year, and weather conditions. $PM_{2.5}$ is a criteria air pollutant.	formed from other pollutants (acid rain, NO_X, SO_X, organics). Incomplete combustion of any fuel. $PM_{2.5}$ comes from fuel combustion in motor vehicles, equipment and industrial sources, residential and agricultural burning. Also formed from reaction of other pollutants (acid rain, NO_X, SO_X, organics).	increase in mortality rates, respiratory infections, number and severity of asthma attacks and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. In recent years, some studies have reported an association between long-term exposure to air pollution dominated by fine particles and increased mortality, reduction in lifespan, and an increased mortality from lung cancer. Daily fluctuations in $PM_{2.5}$ concentration levels have also been related to hospital admissions for acute respiratory conditions in children, to school and kindergarten absences, to a decrease in respiratory lung volumes in normal children, and to increased medication use in children and adults with asthma. Recent studies show lung function growth in children is reduced with long term exposure to particulate matter. The elderly, people with pre-existing respiratory or cardiovascular disease, and children appear to be more susceptible to the effects of high levels of PM_{10} and $PM_{2.5}$.
Volatile Organic Compounds (VOC)	VOCs are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms) that exist in the ambient air. VOCs contribute to the formation of smog through atmospheric photochemical reactions and/or may be toxic. Compounds of carbon (also known as organic	Organic chemicals are widely used as ingredients in household products. Paints, varnishes and wax all contain organic solvents, as do many cleaning, disinfecting,	Breathing VOCs can irritate the eyes, nose and throat, can cause difficulty breathing and nausea, and can damage the central nervous system as well as other organs. Some VOCs can cause cancer. Not all VOCs have all these health

Criteria Pollutant	Description	Sources	Health Effects
	compounds) have different levels of reactivity; that is, they do not react at the same speed or do not form ozone to the same extent when exposed to photochemical processes. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints. Exceptions to the VOC designation include carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate. VOCs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The terms VOC and ROG (see below) interchangeably.	cosmetic, degreasing and hobby products. Fuels are made up of organic chemicals. All of these products can release organic compounds while you are using them, and, to some degree, when they are stored.	effects, though many have several.
ROG	Similar to VOC, ROGs are also precursors in forming ozone and consist of compounds containing methane, ethane, propane, butane, and longer chain hydrocarbons, which are typically the result of some type of combustion/decomposition process. Smog is formed when ROG and NO_X react in the presence of sunlight. ROGs are a criteria pollutant since they are a precursor to O_3, which is a criteria pollutant. The terms ROG and VOC (see previous) interchangeably.	Sources similar to VOCs.	Health effects similar to VOCs.
Lead (Pb)	Lead is a heavy metal that is highly persistent in the environment and is considered a criteria pollutant. In the past, the primary source of lead in the air was emissions from vehicles burning leaded gasoline. The major sources of lead emissions are ore and metals processing, particularly lead smelters, and piston-engine aircraft operating on leaded aviation gasoline. Other stationary sources include	Metal smelters, resource recovery, leaded gasoline, deterioration of lead paint.	Fetuses, infants, and children are more sensitive than others to the adverse effects of Pb exposure. Exposure to low levels of Pb can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased Pb levels are

Criteria Pollutant	Description	Sources	Health Effects
	waste incinerators, utilities, and lead-acid battery manufacturers. It should be noted that the Project does not include operational activities such as metal processing or lead acid battery manufacturing. As such, the Project is not anticipated to generate a quantifiable amount of lead emissions.		associated with increased blood pressure. Pb poisoning can cause anemia, lethargy, seizures, and death; although it appears that there are no direct effects of Pb on the respiratory system. Pb can be stored in the bone from early age environmental exposure, and elevated blood Pb levels can occur due to breakdown of bone tissue during pregnancy, hyperthyroidism (increased secretion of hormones from the thyroid gland) and osteoporosis (breakdown of bony tissue). Fetuses and breast-fed babies can be exposed to higher levels of Pb because of previous environmental Pb exposure of their mothers.
Odor	Odor means the perception experienced by a person when one or more chemical substances in the air come into contact with the human olfactory nerves.	Odors can come from many sources including animals, human activities, industry, natures, and vehicles.	Offensive odors can potentially affect human health in several ways. First, odorant compounds can irritate the eye, nose, and throat, which can reduce respiratory volume. Second, studies have shown that the VOCs that cause odors can stimulate sensory nerves to cause neurochemical changes that might influence health, for instance, by compromising the immune system. Finally, unpleasant odors can trigger memories or attitudes linked to unpleasant odors, causing cognitive and emotional effects such as stress.

2.5 EXISTING AIR QUALITY

Existing air quality is measured at established SCAQMD air quality monitoring stations. Monitored air quality is evaluated in the context of ambient air quality standards. These standards are the levels of air quality that are considered safe, with an adequate margin of safety, to protect the public health and welfare. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) currently in effect are shown in Table 2-2 (10).

The determination of whether a region's air quality is healthful or unhealthful is determined by comparing contaminant levels in ambient air samples to the state and federal standards. At the time of this AQIA, the most recent state and federal standards were updated by the California Air Resources Board (CARB) on May ,4 2016 and are presented in Table 2-2. The air quality in a region is considered to be in attainment by the state if the measured ambient air pollutant levels for O_3, CO (except 8-hour Lake Tahoe), SO_2 (1 and 24 hour), NO_2, PM_{10}, and $PM_{2.5}$ are not to be exceeded. All others are not to be equaled or exceeded. It should be noted that the three-year period is presented for informational purposes and is not the basis for how the State assigns attainment status. Attainment status for a pollutant means that the Air District meets the standards set by the EPA or the California EPA (CalEPA). Conversely, nonattainment means that an area has monitored air quality that does not meet the NAAQS or CAAQS standards. In order to improve air quality in nonattainment areas, a State Implementation Plan (SIP) is drafted by CARB. The SIP outlines the measures that the state will take to improve air quality. Once nonattainment areas meet the standards and additional redesignation requirements, the EPA will designate the area as a maintenance area (11).

TABLE 2-2: AMBIENT AIR QUALITY STANDARDS (1 OF 2)

Ambient Air Quality Standards

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

See footnotes on next page ...

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TABLE 2-2: AMBIENT AIR QUALITY STANDARDS (2 OF 2)

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 $\mu g/m^3$ 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 measurement method 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 U.S. 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 U.S. 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 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ 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 SO_2 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 SO_2 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.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

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 $\mu g/m^3$ 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.

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2.6 REGIONAL AIR QUALITY

Air pollution contributes to a wide variety of adverse health effects. The EPA has established NAAQS for six of the most common air pollutants: carbon monoxide, lead, ozone, particulate matter, nitrogen dioxide, and sulfur dioxide which are known as criteria pollutants. The SCAQMD monitors levels of various criteria pollutants at 37 permanent monitoring stations and 5 single-pollutant source Pb air monitoring sites throughout the air district (12). On February 21, 2019, CARB posted the 2018 amendments to the state and national area designations. See Table 2-3 for attainment designations for the SCAB (13). Appendix 2.1 provides geographic representation of the state and federal attainment status for applicable criteria pollutants within the SCAB.

TABLE 2-3: ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE SCAB

Criteria Pollutant	State Designation	Federal Designation
O_3 – 1-hour standard	Nonattainment	--
O_3 – 8-hour standard	Nonattainment	Nonattainment
PM_{10}	Nonattainment	Attainment
$PM_{2.5}$	Nonattainment	Nonattainment
CO	Attainment	Unclassifiable/Attainment
NO_2	Attainment	Unclassifiable/Attainment
SO_2	Unclassifiable/Attainment	Unclassifiable/Attainment
Pb[1]	Attainment	Unclassifiable/Attainment

Note: See Appendix 2.1 for a detailed map of State/National Area Designations within the SCAB
"-" = The national 1-hour O3 standard was revoked effective June 15, 2005

2.7 LOCAL AIR QUALITY

The Project site is located within the Source Receptor Area (SRA) 25 (14). Within SRA 25, the SCAQMD Elsinore Valley monitoring station is located 3.65 miles southeast of the Project site and is the nearest long-term air quality monitoring site for O_3, CO, NO_2, and PM_{10}. Relative to the Project site, the nearest long-term air quality monitoring site for $PM_{2.5}$ is the SCAQMD Saddleback Valley monitoring station (SRA 19), located approximately 16.44 miles southwest of the Project site (15).

The most recent three (3) years of data available is shown on Table 2-4 and identifies the number of days ambient air quality standards were exceeded for the study area, which is considered to be representative of the local air quality at the Project site. Data for O_3, CO, NO_2, PM_{10}, and $PM_{2.5}$ for 2016 through 2018 was obtained from the SCAQMD Air Quality Data Tables (16). Additionally, data for SO_2 has been omitted as attainment is regularly met in the SCAB and few monitoring stations measure SO_2 concentrations.

[1] The Federal nonattainment designation for lead is only applicable towards the Los Angeles County portion of the SCAB.

TABLE 2-4: PROJECT AREA AIR QUALITY MONITORING SUMMARY 2015-2018

POLLUTANT	STANDARD	YEAR		
		2016	2017	2018
O_3				
Maximum Federal 1-Hour Concentration (ppm)		0.124	0.121	0.116
Maximum Federal 8-Hour Concentration (ppm)		0.093	0.098	0.095
Number of Days Exceeding Federal 1-Hour Standard	>0.07 ppm	0	0	0
Number of Days Exceeding State 1-Hour Standard	> 0.09 ppm	15	23	16
Number of Days Exceeding Federal 8-Hour Standard	> 0.070 ppm	44	54	30
Number of Days Exceeding State 8-Hour Standard	> 0.070 ppm	45	54	30
CO				
Maximum Federal 1-Hour Concentration	> 35 ppm	1.200	1.200	1.100
Maximum Federal 8-Hour Concentration	> 20 ppm	0.600	0.800	0.800
NO_2				
Maximum Federal 1-Hour Concentration	> 0.100 ppm	0.051	0.049	0.041
Annual Federal Standard Design Value		0.008	0.008	0.009
PM_{10}				
Maximum Federal 24-Hour Concentration ($\mu g/m^3$)	> 150 $\mu g/m^3$	99.000	133.00	104.00
Annual Federal Arithmetic Mean ($\mu g/m^3$)		21.400	22.500	22.400
Number of Days Exceeding Federal 24-Hour Standard	> 150 $\mu g/m^3$	0	0	0
Number of Days Exceeding State 24-Hour Standard	> 50 $\mu g/m^3$	4	9	9
$PM_{2.5}$				
Maximum Federal 24-Hour Concentration ($\mu g/m^3$)	> 35 $\mu g/m^3$	24.790	19.500	20.800
Annual Federal Arithmetic Mean ($\mu g/m^3$)	> 12 $\mu g/m^3$	7.360	8.110	8.310
Number of Days Exceeding Federal 24-Hour Standard	> 35 $\mu g/m^3$	0	0	0

Source: Data for O_3, NO_2, PM_{10}, and $PM_{2.5}$ was obtained from CARB's iADAM. Data for CO was obtained from SCAQMD Air Quality Data Tables.
-- = data not available from ARB or SCAQMD

2.8 REGULATORY BACKGROUND

2.8.1 FEDERAL REGULATIONS

The EPA is responsible for setting and enforcing the NAAQS for O_3, CO, NO_X, SO_2, PM_{10}, and Pb (17). The EPA has jurisdiction over emissions sources that are under the authority of the federal government including aircraft, locomotives, and emissions sources outside state waters (Outer Continental Shelf). The EPA also establishes emission standards for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission requirements of the CARB.

The Federal Clean Air Act (CAA) was first enacted in 1955 and has been amended numerous times in subsequent years (1963, 1965, 1967, 1970, 1977, and 1990). The CAA establishes the federal air quality standards, the NAAQS, and specifies future dates for achieving compliance (18). The CAA also mandates that states submit and implement SIPs for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA that identify specific emission reduction goals for areas not meeting the NAAQS require a demonstration of reasonable further progress toward attainment and incorporate additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA most directly applicable to the development of the Project site include Title I (Non-Attainment Provisions) and Title II (Mobile Source Provisions) (19) (20). Title I provisions were established with the goal of attaining the NAAQS for the following criteria pollutants O_3, NO_2, SO_2, PM_{10}, CO, $PM_{2.5}$, and Pb. The NAAQS were amended in July 1997 to include an additional standard for O_3 and to adopt a NAAQS for $PM_{2.5}$. Table 2-3 (previously presented) provides the NAAQS within the SCAB.

Mobile source emissions are regulated in accordance with Title II provisions. These provisions require the use of cleaner burning gasoline and other cleaner burning fuels such as methanol and natural gas. Automobile manufacturers are also required to reduce tailpipe emissions of hydrocarbons and NO_X. NO_X is a collective term that includes all forms of nitrogen oxides (NO, NO_2, NO_3) which are emitted as byproducts of the combustion process.

2.8.2 CALIFORNIA REGULATIONS

California Air Resource Board. The CARB, which became part of the CalEPA in 1991, is responsible for ensuring implementation of the California Clean Air Act (AB 2595), responding to the federal CAA, and for regulating emissions from consumer products and motor vehicles. AB 2595 mandates achievement of the maximum degree of emissions reductions possible from vehicular and other mobile sources in order to attain the state ambient air quality standards by the earliest practical date. The CARB established the CAAQS for all pollutants for which the federal government has NAAQS and, in addition, establishes standards for sulfates, visibility, hydrogen sulfide, and vinyl chloride. However, at this time, hydrogen sulfide and vinyl chloride are not measured at any monitoring stations in the SCAB because they are not considered to be a regional air quality problem. Generally, the CAAQS are more stringent than the NAAQS (21) (17).

Local air quality management districts, such as the SCAQMD, regulate air emissions from stationary sources such as commercial and industrial facilities. All air pollution control districts have been formally designated as attainment or non-attainment for each CAAQS.

Serious non-attainment areas are required to prepare air quality management plans that include specified emission reduction strategies in an effort to meet clean air goals. These plans are required to include:

- Application of Best Available Retrofit Control Technology to existing sources;
- Developing control programs for area sources (e.g., architectural coatings and solvents) and indirect sources (e.g. motor vehicle use generated by residential and commercial development);
- A District permitting system designed to allow no net increase in emissions from any new or modified permitted sources of emissions;

- Implementing reasonably available transportation control measures and assuring a substantial reduction in growth rate of vehicle trips and miles traveled;
- Significant use of low emissions vehicles by fleet operators;
- Sufficient control strategies to achieve a five percent or more annual reduction in emissions or 15 percent or more in a period of three years for ROGs, NO_X, CO and PM_{10}. However, air basins may use alternative emission reduction strategy that achieves a reduction of less than five percent per year under certain circumstances.

Title 24 Energy Efficiency Standards and California Green Building Standards. CCR Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. California Code of Regulations, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on January 1, 2011, and is administered by the California Building Standards Commission. CALGreen is updated on a regular basis, with the most recent approved update consisting of the 2019 California Green Building Code Standards that will be effective January 1, 2020. Local jurisdictions are permitted to adopt more stringent requirements, as state law provides methods for local enhancements. CALGreen recognizes that many jurisdictions have developed existing construction and demolition ordinances and defers to them as the ruling guidance provided, they establish a minimum 65 percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. The State Building Code provides the minimum standard that buildings must meet in order to be certified for occupancy, which is generally enforced by the local building official.

Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas (GHG) emissions. The 2019 version of Title 24 was adopted by the California Energy Commission (CEC) and will become effective on January 1, 2020. As a conservative measure, the analysis herein assumes compliance with the 2016 Title 24 Standards and no additional reduction for compliance with the 2019 standards have been taken.

The 2019 Title 24 standards will result in less energy use, thereby reducing air pollutant emissions associated with energy consumption in the South Coast Air Basin and across the State of California. For example, the 2019 Title 24 standards will require solar photovoltaic systems for new homes, establish requirements for newly constructed healthcare facilities, encourage demand responsive technologies for residential buildings, and update indoor and outdoor lighting requirements for nonresidential buildings. The CEC anticipates that single-family homes built with the 2019 standards will use approximately 7 percent less energy compared to the residential homes built under the 2016 standards. Additionally, after implementation of solar photovoltaic systems, homes built under the 2019 standards will use about 53 percent less energy than homes built under the 2016 standards. Nonresidential buildings (such as the proposed Project) will use approximately 30 percent less energy due to lighting upgrade requirements (22).

Because the Project will be constructed after January 1,2019, the 2019 CALGreen standards are applicable to the Project and require, among other items (23):

- Short-term bicycle parking. If the new project or an additional alteration is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of new visitor motorized vehicle parking spaces being added, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with tenant spaces that have 10 or more tenant-occupants, provide secure bicycle parking for 5 percent of the tenant-occupant vehicular parking spaces with a minimum of one bicycle parking facility (5.106.4.1.2).
- Designated parking. In new projects or additions to alterations that add 10 or more vehicular parking spaces, provide designated parking for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).
- Construction waste management. Recycle and/or salvage for reuse a minimum of 65 percent of the nonhazardous construction and demolition waste in accordance with Section 5.408.1.1. 5.405.1.2, or 5.408.1.3; or meet a local construction and demolition waste management ordinance, whichever is more stringent (5.408.1).
- Excavated soil and land clearing debris. 100 percent of trees, stumps, rocks and associated vegetation and soils resulting primarily from land clearing shall be reused or recycled. For a phased project, such material may be stockpiled on site until the storage site is developed (5.408.3).
- Recycling by Occupants. Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of non-hazardous materials for recycling, including (at a minimum) paper, corrugated cardboard, glass, plastics, organic waste, and metals or meet a lawfully enacted local recycling ordinance, if more restrictive (5.410.1).
- Water conserving plumbing fixtures and fittings. Plumbing fixtures (water closets and urinals) and fittings (faucets and showerheads) shall comply with the following:
    - Water Closets. The effective flush volume of all water closets shall not exceed 1.28 gallons per flush (5.303.3.1)
    - Urinals. The effective flush volume of wall-mounted urinals shall not exceed 0.125 gallons per flush (5.303.3.2.1). The effective flush volume of floor-mounted or other urinals shall not exceed 0.5 gallons per flush (5.303.3.2.2).
    - Showerheads. Single showerheads shall have a minimum flow rate of not more than 1.8 gallons per minute and 80 psi (5.303.3.3.1). When a shower is served by more than one showerhead, the combine flow rate of all showerheads and/or other shower outlets controlled by a single valve shall not exceed 1.8 gallons per minute at 80 psi (5.303.3.3.2).
    - Faucets and fountains. Nonresidential lavatory faucets shall have a maximum flow rate of note more than 0.5 gallons per minute at 60 psi (5.303.3.4.1). Kitchen faucets shall have a maximum flow rate of not more than 1.8 gallons per minute of 60 psi (5.303.3.4.2). Wash fountains shall have a maximum flow rate of not more than 1.8 gallons per minute (5.303.3.4.3). Metering faucets shall not deliver more than 0.20 gallons per cycle (5.303.3.4.4). Metering faucets for wash fountains shall have a maximum flow rate not more than 0.20 gallons per cycle (5.303.3.4.5).

- Outdoor portable water use in landscaped areas. Nonresidential developments shall comply with a local water efficient landscape ordinance or the current California Department of Water Resources' Model Water Efficient (MWELO), whichever is more stringent (5.304.1).
- Water meters. Separate submeters or metering devices shall be installed for new buildings or additions in excess of 50,000 sf or for excess consumption where any tenant within a new building or within an addition that is project to consume more than 1,000 gal/day (5.303.1.1 and 5.303.1.2).
- Outdoor water use in rehabilitated landscape projects equal or greater than 2,500 sf. Rehabilitated landscape projects with an aggregate landscape area equal to or greater than 2,500 sf requiring a building or landscape permit (5.304.3).
- Commissioning. For new buildings 10,000 sf and over, building commissioning shall be included in the design and construction processes of the building project to verify that the building systems and components meet the owner's or owner representative's project requirements (5.410.2).

2.8.3 AIR QUALITY MANAGEMENT PLANNING

Currently, the NAAQS and CAAQS are exceeded in most parts of the SCAB. In response, the SCAQMD has adopted a series of Air Quality Management Plans (AQMPs) to meet the state and federal ambient air quality standards (24). AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy. A detailed discussion on the AQMP and Project consistency with the AQMP is provided in Section 3.9.

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3 PROJECT AIR QUALITY IMPACT

3.1 INTRODUCTION

The Project has been evaluated to determine if it will violate an air quality standard or contribute to an existing or projected air quality violation. Additionally, the Project has been evaluated to determine if it will result in a cumulatively considerable net increase of a criteria pollutant for which the SCAB is non-attainment under an applicable federal or state ambient air quality standard. The significance of these potential impacts is described in the following section.

3.2 STANDARDS OF SIGNIFICANCE

The criteria used to determine the significance of potential Project-related air quality impacts are taken from the Initial Study Checklist in Appendix G of the State CEQA Guidelines (14 CCR §§15000, et seq.). Based on these thresholds, a project would result in a significant impact related to air quality if it would (25):

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

The SCAQMD has also developed regional significance thresholds for other regulated pollutants, as summarized at Table 3-1 (26). The SCAQMD's CEQA Air Quality Significance Thresholds (April 2019) indicate that any projects in the SCAB with daily emissions that exceed any of the indicated thresholds should be considered as having an individually and cumulatively significant air quality impact.

TABLE 3-1: MAXIMUM DAILY EMISSIONS REGIONAL THRESHOLDS

Pollutant	Construction	Operations
Regional Thresholds		
NO_X	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM_{10}	150 lbs/day	150 lbs/day
$PM_{2.5}$	55 lbs/day	55 lbs/day
SO_X	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day

lbs/day = Pounds Per Day
Source: Regional Thresholds presented in this table are based on the SCAQMD Air Quality Significance Thresholds, April 2019

The SCAQMD also established Localized Significance Thresholds (LSTs) (27) in response to the SCAQMD Governing Board's Environmental Justice Initiative I-4. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest residence or sensitive receptor. The SCAQMD states that lead agencies can use the LSTs as another indicator of significance in its air quality impact analyses. LSTs applicable to the Project are summarized on Table 3-2. Additional information on LSTs is presented in Section 3.6 of this report.

TABLE 3-2: MAXIMUM DAILY EMISSIONS LOCALIZED THRESHOLDS

Pollutant	Construction	Operations
Localized Thresholds		
NO_X	325 lbs/day (Site Preparation)	N/A
	257 lbs/day (Grading)	
CO	1,677 lbs/day (Site Preparation)	N/A
	1,244 lbs/day (Grading)	
PM_{10}	11 lbs/day (Site Preparation)	N/A
	8 lbs/day (Grading)	
$PM_{2.5}$	7 lbs/day (Site Preparation)	N/A
	5 lbs/day (Grading)	

Source: Localized Thresholds presented in this table are based on the SCAQMD Final Localized Significance Threshold Methodology, July 2008

3.3 PROJECT-RELATED SOURCES OF POTENTIAL IMPACT

Land uses such as the Project affect air quality through construction-source and operational-source emissions.

On October 17, 2017, the SCAQMD in conjunction with the California Air Pollution Control Officers Association (CAPCOA) and other California air districts, released the latest version of the California Emissions Estimator Model™ (CalEEMod™) v2016.3.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$) and greenhouse gas (GHG) emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures (28). Accordingly, the latest version of CalEEMod™ has been used for this Project to determine construction and operational air quality emissions. Output from the model runs for both construction and operational activity are provided in Appendix 3.1.

3.4 CONSTRUCTION EMISSIONS

Construction activities associated with the Project will result in emissions of VOCs, NO_x, SO_x, CO, PM_{10}, and $PM_{2.5}$. Construction related emissions are expected from the following construction activities:

- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

Construction is expected to commence in May 2020 and will last through June 2020. Construction duration by phase is shown on Table 3-3. The duration of construction activity was estimated based on CalEEMod model defaults, past project experience, and a 2021 project buildout year. The construction schedule utilized in the analysis, shown in Table 3-3, represents a "worst-case" analysis scenario should construction occur any time after the respective dates since emission factors for construction decrease as time passes and the analysis year increases due to emission regulations becoming more stringent.[2] A detailed summary of construction equipment, shown in Table 3-4. The site-specific construction fleet may vary due to specific project needs at the time of construction. The duration of construction activity and associated equipment both represent a reasonable approximation of the expected construction fleet as required per CEQA guidelines. Please refer to specific detailed modeling inputs/outputs contained in Appendix 3.1 of this analysis.

Dust is typically a major concern during rough grading activities. Because such emissions are not amenable to collection and discharge through a controlled source, they are called "fugitive emissions". Fugitive dust emissions rates vary as a function of many parameters (soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation, etc.). CalEEMod was utilized to calculate fugitive dust emissions resulting from this phase of activity. It is our understanding that the Project will require approximately 22,417 cubic yards of soil export and has been modeled accordingly in CalEEMod.

Construction emissions for construction worker vehicles traveling to and from the Project site, as well as vendor trips (construction materials delivered to the Project site) were estimated based on CalEEMod.

TABLE 3-3: CONSTRUCTION DURATION

Phase Name	Start Date	End Date	Days
Site Preparation	05/30/2020	06/12/2020	10
Grading	06/13/2020	07/10/2020	20
Building Construction	07/11/2020	05/28/2021	230
Paving	05/29/2021	06/25/2021	20
Paving	06/26/2021	07/23/2021	20

[2] As shown in the California Emissions Estimator Model (CalEEMod) User's Guide Version 2016.3.2, Section 4.3 "OFFROAD Equipment" as the analysis year increases, emission factors for the same equipment pieces decrease due to the natural turnover of older equipment being replaced by newer less polluting equipment and new regulatory requirements.

TABLE 3-4: CONSTRUCTION EQUIPMENT

Activity	Equipment	Number	Hours Per Day
Site Preparation	Rubber Tired Dozers	3	8
	Crawler Tractors	4	8
	Graders	1	8
Grading	Excavators	1	8
	Graders	1	8
	Rubber Tired Dozers	1	8
	Crawler Tractors	3	8
Building Construction	Cranes	1	8
	Forklifts	3	8
	Generator Sets	1	8
	Tractors/Loaders/Backhoes	3	8
	Welders	1	8
Paving	Pavers	2	8
	Paving Equipment	2	8
	Rollers	2	8
Architectural Coating	Air Compressors	1	8

3.4.1 CONSTRUCTION EMISSIONS SUMMARY

SCAQMD Rules that are currently applicable during construction activity for this Project include but are not limited to: Rule 1113 (Architectural Coatings) (2) and Rule 403 (Fugitive Dust) (3). It should be noted that Best Available Control Measures (BACMs) are not mitigation as they are standard regulatory requirements. As such, credit for Rule 403 and Rule 1113 have been taken.

The estimated maximum daily construction emissions without mitigation are summarized on Table 3-5. Detailed construction model outputs are presented in Appendix 3.1. Under the assumed scenarios, emissions resulting from the Project construction would not exceed criteria pollutant thresholds established by the SCAQMD for emissions of any criteria pollutant. Therefore, a less than significant impact would occur and no mitigation measures are required.

TABLE 3-5: OVERALL CONSTRUCTION EMISSIONS SUMMARY

Year	Emissions (lbs/day)					
	VOC	NO_X	CO	SO_X	PM_{10}	$PM_{2.5}$
2020	6.12	75.92	24.93	0.15	11.06	6.77
2021	15.99	22.72	22.07	0.05	2.42	1.35
Maximum Daily Emissions	**15.99**	**75.92**	**24.93**	**0.15**	**11.06**	**6.77**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

3.5 OPERATIONAL EMISSIONS

Operational activities associated with the proposed Project will result in emissions of VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$. Operational emissions would be expected from the following primary sources:

- Area Source Emissions
- Energy Source Emissions
- Mobile Source Emissions
- Gasoline Dispensing Emissions

3.5.1 AREA SOURCE EMISSIONS

Architectural Coatings

Over a period of time, the buildings that are part of this Project will be subject to emissions resulting from the evaporation of solvents contained in paints, varnishes, primers, and other surface coatings as part of Project maintenance. The emissions associated with architectural coatings were calculated using the CalEEMod.

Consumer Products

Consumer products include, but are not limited to detergents, cleaning compounds, polishes, personal care products, and lawn and garden products. Many of these products contain organic compounds which when released in the atmosphere can react to form ozone and other photochemically reactive pollutants. The emissions associated with use of consumer products were calculated based on defaults provided within the CalEEMod model.

Landscape Maintenance Equipment

Landscape maintenance equipment would generate emissions from fuel combustion and evaporation of unburned fuel. Equipment in this category would include lawnmowers, shedders/grinders, blowers, trimmers, chain saws, and hedge trimmers used to maintain the landscaping of the Project. The emissions associated with landscape maintenance equipment were calculated based on assumptions provided in the CalEEMod model.

3.5.2 ENERGY SOURCE EMISSIONS

Combustion Emissions Associated with Natural Gas and Electricity

Electricity and natural gas are used by almost every project. Criteria pollutant emissions are emitted through the generation of electricity and consumption of natural gas. However, because electrical generating facilities for the Project area are located either outside the region (state) or offset through the use of pollution credits (RECLAIM) for generation within the SCAB, criteria pollutant emissions from offsite generation of electricity is generally excluded from the evaluation of significance and only natural gas use is considered. The emissions associated with natural gas use were calculated using CalEEMod.

3.5.3 MOBILE SOURCE EMISSIONS

Vehicles

Project mobile source air quality emissions are primarily dependent on both overall daily vehicle trip generation. Trip characteristics available from the report, *Lake and Mountain Shopping Center Traffic Impact Analysis* (Urban Crossroads, Inc. 2019) were utilized in this analysis (29).

It should be noted that due to the nature of the Project (Shopping Center, Gasoline/Service Station with Convenience Market, Fast-Food Restaurant with Drive-Through, and Automated Car Wash), the Project's location, a substantial amount of residential land uses within a 3-mile radius of the Project site, and other retail uses located in the project vicinity (as shown on Exhibit 3-A), an average trip length for customers of 3 miles was used in the assessment as opposed to the 8.4-mile model CalEEMod default trip length value which would not be appropriate for the Project. Additionally, 96% of all trips are assumed to be customer trips, 3% of all trips are assumed to be workers, and 1% of all trips are assumed to be other trips.

Fugitive Dust Related to Vehicular Travel

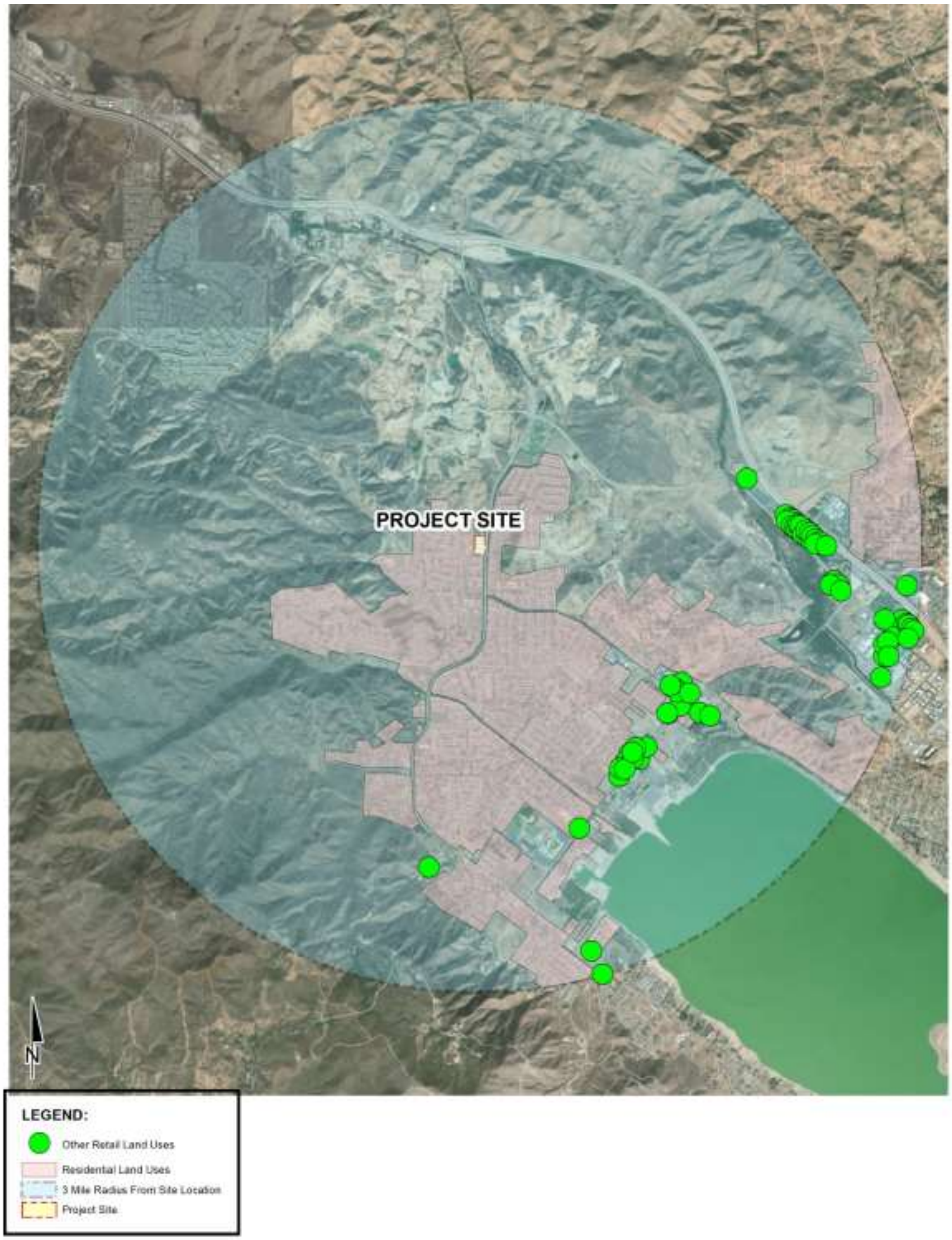
Vehicles traveling on paved roads would be a source of fugitive emissions due to the generation of road dust inclusive of tire wear particulates. The emissions estimates for travel on paved roads were calculated using the CalEEMod model.

3.5.4 GASOLINE DISPENSING EMISSIONS

The storage, transfer and dispensing of gasoline is not expected to generate significant ROG (VOC) emissions. The enhanced vapor recovery systems required by SCAQMD Rule 461 would substantially reduce VOC emissions and mitigate any potential for the project to exceed the daily emissions thresholds set by SCAQMD.

For example, SCAQMD Rule 461 sets a maximum limit of 0.15 pounds of VOC per 1,000 gallons from the storage, transfer and dispensing of gasoline and 0.38 pounds of VOC per 1,000 gallons from the dispensing of gasoline into vehicle fuel tanks (Phase II) for a total of 0.53 pounds of VOC per 1,000 gallons of gasoline. Typical gas station gasoline throughput is estimated to be 2,000,000 gallons/year or 5,479.45 gallons/day. This would result in approximately 2.90 pounds of additional VOC per day.

EXHIBIT 3-A: 3 MILE RADIUS



3.5.5 OPERATIONAL EMISSIONS SUMMARY

Table 3-6 summarizes the Project's daily regional emissions from on-going operations. During operational activity, the Project will not exceed any of the thresholds of significance. Detailed construction model outputs are presented in Appendix 3.1. Therefore, a less than significant impact would occur and no mitigation measures are required.

TABLE 3-6: SUMMARY OF OPERATIONAL EMISSIONS

Operational Activities – Summer Scenario	Emissions (lbs/day)					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Area Source	0.70	3.0E-05	3.0E-03	0.00	1.0E-05	1.0E-05
Energy Source	0.06	0.55	0.46	3.32E-03	0.04	0.04
Mobile	23.51	35.55	81.88	0.13	10.69	2.95
Gasoline Dispensing	2.90	0	0	0	0	0
Total Maximum Daily Emissions	**27.18**	**36.10**	**82.35**	**0.14**	**10.73**	**2.99**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
Operational Activities – Winter Scenario	**Emissions (lbs/day)**					
	VOC	**NO_X**	**CO**	**SO_X**	**PM_{10}**	**$PM_{2.5}$**
Area Source	0.70	3.0E-05	3.0E-03	0.00	1.0E-05	1.0E-05
Energy Source	0.06	0.55	0.46	3.32E-03	0.04	0.04
Mobile	20.84	36.47	81.73	0.12	10.69	2.96
Gasoline Dispensing	2.90	0	0	0	0	0
Total Maximum Daily Emissions	**24.5**	**37.02**	**82.20**	**0.13**	**10.73**	**2.99**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

3.6 LOCALIZED SIGNIFICANCE - CONSTRUCTION ACTIVITY

BACKGROUND ON LOCALIZED SIGNIFICANCE THRESHOLD (LST) DEVELOPMENT

The analysis makes use of methodology included in the SCAQMD *Final Localized Significance Threshold Methodology* (Methodology) (19). The SCAQMD has established that impacts to air quality are significant if there is a potential to contribute or cause localized exceedances of the federal and/or state ambient air quality standards (NAAQS/CAAQS). Collectively, these are referred to as Localized Significance Thresholds (LSTs).

The significance of localized emissions impacts depends on whether ambient levels in the vicinity of any given project are above or below State standards. In the case of CO and NO_2, if ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. If ambient levels already exceed a state or federal standard, then project emissions are considered significant if they increase ambient concentrations by a measurable amount. This would apply to PM_{10} and $PM_{2.5}$; both of which are non-attainment pollutants.

The SCAQMD established LSTs in response to the SCAQMD Governing Board's Environmental Justice Initiative I-4. LSTs represent the maximum emissions from a project that will not cause or contribute to an exceedance of the most stringent applicable federal or state ambient air quality standard at the nearest residence or sensitive receptor. The SCAQMD states that lead agencies can use the LSTs as another indicator of significance in its air quality impact analyses.

LSTs were developed in response to environmental justice and health concerns raised by the public regarding exposure of individuals to criteria pollutants in local communities. To address the issue of localized significance, the SCAQMD adopted LSTs that show whether a project would cause or contribute to localized air quality impacts and thereby cause or contribute to potential localized adverse health effects. The analysis makes use of methodology included in the SCAQMD *Final Localized Significance Threshold Methodology* (LST Methodology) (27).

EMISSIONS CONSIDERED

SCAQMD's Methodology clearly states that "off-site mobile emissions from the Project should not be included in the emissions compared to LSTs (30)." Therefore, for purposes of the construction LST analysis, only emissions included in the CalEEMod "on-site" emissions outputs were considered.

APPLICABILITY OF LSTS FOR THE PROJECT

For this Project, the appropriate Source Receptor Area (SRA) for the LST is the Lake Elsinore monitoring station (SRA 25). LSTs apply to carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter ≤ 10 microns (PM_{10}), and particulate matter ≤ 2.5 microns ($PM_{2.5}$). The SCAQMD produced look-up tables for projects less than or equal to 5 acres in size.

In order to determine the appropriate methodology for determining localized impacts that could occur as a result of Project-related construction, the following process is undertaken:

- The CalEEMod model is utilized to determine the maximum daily on-site emissions that will occur during construction activity.
- The SCAQMD's Fact Sheet for Applying CalEEMod to Localized Significance Thresholds (21) is used to determine the maximum site acreage that is actively disturbed based on the construction equipment fleet and equipment hours as estimated in CalEEMod.
- If the total acreage disturbed is less than or equal to five acres per day, then the SCAQMD's screening look-up tables are utilized to determine if a Project has the potential to result in a significant impact (the SCAQMD recommends that Projects exceeding the screening look-up tables undergo dispersion modeling to determine actual impacts). The look-up tables establish a maximum daily emissions threshold in pounds per day that can be compared to CalEEMod outputs.

- The LST methodology presents mass emission rates for each SRA, project sizes of 1, 2, and 5 acres, and nearest receptor distances of 25, 50, 100, 200, and 500 meters. For project sizes between the values given, or with receptors at distances between the given receptors, the methodology uses linear interpolation to determine the thresholds.

MAXIMUM DAILY DISTURBED-ACREAGE

Table 3-7 is used to determine the maximum daily disturbed-acreage for purposes of modeling localized emissions. As shown, the proposed Project could actively disturb approximately 1.5 acres per day during the site preparation and 3.0 acres per day during the grading phase of construction.

TABLE 3-7: MAXIMUM DAILY DISTURBED-ACREAGE

Construction Phase	Equipment Type	Equipment Quantity	Acres graded per 8-hour day	Operating Hours per Day	Acres graded per day
Site Preparation	Rubber Tired Dozers	3	0.5	8	1.5
	Crawler Tractors	4	0.5	8	2.0
	Graders	1	0.5	8	0.5
Total acres disturbed per day during Site Preparation					4.0
Construction Phase	**Equipment Type**	**Equipment Quantity**	**Acres graded per 8-hour day**	**Operating Hours per Day**	**Acres graded per day**
Grading	Graders	1	0.5	8	0.5
	Rubber Tired Dozers	1	0.5	8	0.5
	Crawler Tractors	3	0.5	8	1.5
Total acres disturbed per day during Grading					2.5

Sensitive Receptors

Some people are especially sensitive to air pollution and are given special consideration when evaluating air quality impacts from projects. These groups of people include children, the elderly, individuals with pre-existing respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Structures that house these persons or places where they gather to exercise are defined as "sensitive receptors"; they are also known to be locations where an individual can remain for 24 hours.

Sensitive receptors near the Project site include existing residential homes and school uses, as described below and illustrated on Exhibit 3-B. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this air study will experience lower concentrations than those presented in this report due to particulate dispersion, additional attenuation from distance, and the shielding of intervening structures.

EXHIBIT 3-B: RECEPTOR LOCATIONS

R1: Located approximately 53 feet north of the Project site, R1 represents an existing single-family home at 28891 Lake Street.

R2: Location R2 represents existing single-family home at 3748 Ash Street located approximately 191 feet east of the Project site. A

R3: Location R3 represents the existing single-family home at 14851 Noblewood Circle roughly 109 feet south of the Project site.

R4: Location R4 represents the existing single-family home at 14857 Noblewood Circle located approximately 92 feet south of the Project site.

R5: Location R5 represents an existing single-family home located at 1510 Mountain Street approximately 371 feet west of the Project site.

R6: Location R6 represents an existing single-family home located roughly 85 feet west of the Project site at 28885 Raveta Lane.

The nearest sensitive receptor, R1 represents the existing residential home located approximately 53 feet/16 meters north of the Project site at 28891 Lake Street. Notwithstanding, the *Methodology* explicitly states that "*It is possible that a project may have receptors closer than 25 meters. Projects with boundaries located closer than 25 meters to the nearest receptor should use the LSTs for receptors located at 25 meters* (31)*.*" Accordingly, LSTs for receptors at 25 meters are utilized in this analysis and provide for a conservative i.e. "health protective" standard of care. This would also ensure that any other sensitive receptors (residents or school students) located in close proximity to the Project site are considered to determine if potential impacts occur.

CONSTRUCTION-SOURCE EMISSIONS LST ANALYSIS

Since the total acreage disturbed is less than five acres per day for both the site preparation phase and the grading phase, the SCAQMD's screening look-up tables are utilized in determining impacts. It should be noted that since the look-up tables identifies thresholds at only 1 acre, 2 acres, and 5 acres, linear regression has been utilized, consistent with SCAQMD guidance, in order to interpolate the threshold values for the other disturbed acreage not identified. As previously noted, a 320-meter receptor distance is utilized to determine the LSTs for emissions of CO, NO_2, PM_{10}, and $PM_{2.5}$.

Table 3-8 identifies the localized impacts at the nearest receptor location in the vicinity of the Project. Without mitigation, localized construction emissions would not exceed the applicable SCAQMD LSTs for emissions of any criteria pollutant. Outputs from the model runs for construction LSTs are provided in Appendix 3.1. Therefore, a less than significant impact would occur and no mitigation measures are required.

TABLE 3-8: LOCALIZED SIGNIFICANCE SUMMARY CONSTRUCTION

On-Site Site Preparation Emissions	Emissions (lbs/day)			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**70.09**	**24.20**	**10.86**	**6.71**
SCAQMD Localized Threshold	325	1,677	11	7
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**
On-Site Mass Grading Emissions	**Emissions (lbs/day)**			
	NO_X	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**42.41**	**16.71**	**4.95**	**2.97**
SCAQMD Localized Threshold	257	1,244	8	5
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**

3.7 LOCALIZED SIGNIFICANCE – LONG-TERM OPERATIONAL ACTIVITY

The development of the proposed project consists of retail uses. According to SCAQMD LST methodology, LSTs would apply to the operational phase of a proposed project, if the project includes stationary sources, or attracts mobile sources that may spend long periods queuing and idling at the site (e.g., transfer facilities and warehouse buildings). The proposed project does not include such uses, and thus, due to the lack of significant stationary source emissions, no long-term localized significance threshold analysis is needed.

3.8 CO "HOT SPOT" ANALYSIS

As discussed below, the Project would not result in potentially adverse CO concentrations or "hot spots." Further, detailed modeling of Project-specific carbon monoxide (CO) "hot spots" is not needed to reach this conclusion.

An adverse CO concentration, known as a "hot spot", would occur if an exceedance of the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm were to occur. At the time of the 1993 Handbook, the SCAB was designated nonattainment under the California AAQS and National AAQS for CO (32).

It has long been recognized that CO hotspots are caused by vehicular emissions, primarily when idling at congested intersections. In response, vehicle emissions standards have become increasingly stringent in the last twenty years. Currently, the allowable CO emissions standard in California is a maximum of 3.4 grams/mile for passenger cars (there are requirements for certain vehicles that are more stringent). With the turnover of older vehicles, introduction of cleaner fuels, and implementation of increasingly sophisticated and efficient emissions control technologies, CO concentration in the SCAB is now designated as attainment, as previously noted in Table 2-3. Also, CO concentrations in the Project vicinity have steadily declined, as indicated by historical emissions data presented previously at Table 2-4.

To establish a more accurate record of baseline CO concentrations affecting the SCAB, a CO "hot spot" analysis was conducted in 2003 for four busy intersections in Los Angeles at the peak morning and afternoon time periods. This "hot spot" analysis did not predict any violation of CO standards, as shown on Table 3-9.

TABLE 3-9: CO MODEL RESULTS

Intersection Location	CO Concentrations (parts per million)		
	Morning 1-hour	Afternoon 1-hour	8-hour
Wilshire/Veteran	4.6	3.5	3.7
Sunset/Highland	4	4.5	3.5
La Cienega/Century	3.7	3.1	5.2
Long Beach/Imperial	3	3.1	8.4

Source: 2003 AQMP, Appendix V: Modeling and Attainment Demonstrations
Notes: Federal 1-hour standard is 35 ppm and the deferral 8-hour standard is 9.0 ppm.

Based on the SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the SCAB were a result of unusual meteorological and topographical conditions and not a result of traffic volumes and congestion at a particular intersection. As evidence of this, for example, 8.4 ppm CO concentration measured at the Long Beach Blvd. and Imperial Hwy. intersection (highest CO generating intersection within the "hot spot" analysis), only 0.7 ppm was attributable to the traffic volumes and congestion at this intersection; the remaining 7.7 ppm were due to the ambient air measurements at the time the 2003 AQMP was prepared (32). Therefore, even if the traffic volumes for the proposed Project were double or even triple of the traffic volumes generated at the Long Beach Blvd. and Imperial Hwy. intersection, coupled with the on-going improvements in ambient air quality, the Project would not be capable of resulting in a CO "hot spot" at any study area intersections.

Similar considerations are also employed by other Air Districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District (BAAQMD) concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (33).

Traffic volumes generating the CO concentrations for the "hot spot" analysis is shown on Table 3-10. The busiest intersection evaluated was that at Wilshire Blvd. and Veteran Ave., which has a daily traffic volume of approximately 100,000 vehicles per day and AM/PM traffic volumes of 8,062 vehicles per hour and 7,719 vehicles per hour respectively (32). The 2003 AQMP estimated that the 1-hour concentration for this intersection was 4.6 ppm; this indicates that, should the daily traffic volume increase four times to 400,000 vehicles per day, CO concentrations (4.6 ppm x 4= 18.4 ppm) would still not likely exceed the most stringent 1-hour CO standard (20.0 ppm).[3]

3 Based on the ratio of the CO standard (20.0 ppm) and the modeled value (4.6 ppm).

As shown on Exhibit 8-4 of the TIA, the highest average daily trips on a segment of road would be 60,600 daily trips on Lake Street between A and D Street, which is lower than the highest daily traffic volumes at Wilshire Blvd. and Veteran Ave. of 100,000 vehicles per day (29). Additionally, the 2003 AQMP determined that the highest traffic volumes on a segment of road is 8,674 vehicles per hour on La Cienega Boulevard and Century Boulevard. The highest trips on a segment of road for the Project is 5,911 vehicles per hour on Lake Street and Nichols Road. As such, Project-related traffic volumes are less than the traffic volumes identified in the 2003 AQMP.

The proposed Project considered herein would not produce the volume of traffic required to generate a CO "hot spot" either in the context of the 2003 Los Angeles hot spot study, or based on representative BAAQMD CO threshold considerations, as shown on Table 3-11. Therefore, CO "hot spots" are not an environmental impact of concern for the proposed Project. Localized air quality impacts related to mobile-source emissions would therefore be less than significant.

TABLE 3-10: TRAFFIC VOLUMES

Intersection Location	Peak Traffic Volumes (vph)				
	Eastbound (AM/PM)	Westbound (AM/PM)	Southbound (AM/PM)	Northbound (AM/PM)	Total (AM/PM)
Wilshire/Veteran	4,954/2,069	1,830/3,317	721/1,400	560/933	8,062/7,719
Sunset/Highland	1,417/1,764	1,342/1,540	2,304/1,832	1,551/2,238	6,614/5,374
La Cienega/Century	2,540/2,243	1,890/2,728	1,384/2,029	821/1,674	6,634/8,674
Long Beach/Imperial	1,217/2,020	1,760/1,400	479/944	756/1,150	4,212/5,514

Vph = vehicles per hour
Source: 2003 AQMP

TABLE 3-11: CUMULATIVE WITH PROJECT PEAK HOUR TRAFFIC VOLUMES

Intersection Location	Peak Traffic Volumes (vph)				
	Northbound (AM/PM)	Southbound (AM/PM)	Eastbound (AM/PM)	Westbound (AM/PM)	Total (AM/PM)
Lake St./Temescal Canyon Rd.	1,660/1,815	935/1,889	1,418/777	0/0	4,013/4,481
Lake St./Nichols Rd.	1,696/1,481	990/1,695	595/745	1,525/1,990	4,806/5,911
Lake St./A St.	1,683/1,784	1,077/1,964	155/615	175/215	3,090/4,578
Lake St./D St.	1,369/1,111	1,072/1,918	510/773	250/270	3,201/4,072

Source: *Lake and Mountain Shopping Center Traffic Impact Analysis* (Urban Crossroads, 2019).

3.9 AIR QUALITY MANAGEMENT PLANNING

The Project site is located within the SCAB, which is characterized by relatively poor air quality. The SCAQMD has jurisdiction over an approximately 10,743 square-mile area consisting of the four-county Basin and the Los Angeles County and Riverside County portions of what use to be referred to as the Southeast Desert Air Basin. In these areas, the SCAQMD is principally responsible for air pollution control, and works directly with the Southern California Association of Governments (SCAG), county transportation commissions, local governments, as well as state and federal agencies to reduce emissions from stationary, mobile, and indirect sources to meet state and federal ambient air quality standards.

Currently, these state and federal air quality standards are exceeded in most parts of the Basin. In response, the SCAQMD has adopted a series of Air Quality Management Plans (AQMPs) to meet the state and federal ambient air quality standards. AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy.

In March 2017, the AQMD released the Final 2016 AQMP. The 2016 AQMP continues to evaluate current integrated strategies and control measures to meet the NAAQS, as well as, explore new and innovative methods to reach its goals. Some of these approaches include utilizing incentive programs, recognizing existing co-benefit programs from other sectors, and developing a strategy with fair-share reductions at the federal, state, and local levels (34). Similar to the 2012 AQMP, the 2016 AQMP incorporates scientific and technological information and planning assumptions, including the 2016 Regional Transportation Plan/ Sustainable Communities Strategy (RTP/SCS) and updated emission inventory methodologies for various source categories (35). The Project's consistency with the AQMP will be determined using the 2016 AQMP is discussed below:

Criteria for determining consistency with the AQMP are defined in Chapter 12, Section 12.2 and Section 12.3 of the SCAQMD's CEQA Air Quality Handbook (1993) (36). These indicators are as follows:

- Consistency Criterion No. 1: The proposed Project will not result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay the timely attainment of air quality standards or the interim emissions reductions specified in the AQMP.

<u>Construction Impacts</u>

The violations that Consistency Criterion No. 1 refers to are the CAAQS and NAAQS. CAAQS and NAAQS violations would occur if localized significance thresholds (LSTs) or regional significance thresholds were exceeded. The Project would not exceed the applicable LST thresholds or regional significance thresholds for construction activity. Therefore, the Project would not conflict with the AQMP according to this criterion.

<u>Operational Impacts</u>

The Project would not exceed the applicable LST or regional significance thresholds for operational activity. Therefore, the Project would not conflict with the AQMP according to this criterion.

On the basis of the preceding discussion, the Project is consistent with the first criterion.

- Consistency Criterion No. 2: The Project will not exceed the assumptions in the AQMP based on the years of Project build-out phase.

Overview

The 2016 AQMP demonstrates that the applicable ambient air quality standards can be achieved within the timeframes required under federal law. Growth projections from local general plans adopted by cities in the district are provided to the SCAG, which develops regional growth forecasts, which are then used to develop future air quality forecasts for the AQMP. Development consistent with the growth projections in the City of Lake Elsinore General Plan (referred to as the "General Plan") is considered to be consistent with the AQMP.

Construction Impacts

Peak day emissions generated by construction activities are largely independent of land use assignments, but rather are a function of development scope and maximum area of disturbance. Irrespective of the site's land use designation, development of the site to its maximum potential would likely occur, with disturbance of the entire site occurring during construction activities.

Operational Impacts

The Project site is consistent with the existing retail/commercial land use and general commercial zoning designation. As such, the project is considered to be consistent with the underlying land use designations for the subject site as programmed into the AQMP.

AQMP Consistency Conclusion

The Project would not result in or cause NAAQS or CAAQS violations. The Project's proposed land use designation for the subject site is permitted/conditionally permitted in the adopted City General Plan. The Project is therefore consistent with the AQMP.

3.10 POTENTIAL IMPACTS TO SENSITIVE RECEPTORS

The potential impact of Project-generated air pollutant emissions at sensitive receptors has also been considered. Sensitive receptors can include uses such as long-term health care facilities, rehabilitation centers, and retirement homes. Residences, schools, playgrounds, child care centers, and athletic facilities can also be considered as sensitive receptors.

Results of the LST analysis indicate that the Project will not exceed the SCAQMD localized significance thresholds during construction activity (after implementation of applicable mitigation measures). Results of the LST analysis indicate that the Project will not exceed the SCAQMD localized significance thresholds during operational activity. Therefore, sensitive receptors would not be adversely affected during Project construction, nor as the result of Project operations.

The proposed Project would not result in a CO "hotspot" as a result of Project related traffic during ongoing operations, nor would the Project result in a significant adverse health impact as discussed in Section 3.8.

3.10.1 TAC-RELATED HEALTH RISKS

Emissions resulting from the gasoline service station have the potential to result in toxic air contaminants (TACs) (e.g., benzene, hexane, MTBE, toluene, xylene) and have the potential to contribute to health risk in the project vicinity. It should be noted that standard regulatory controls would apply to the project in addition to any permits required that demonstrate appropriate operational controls. It is unknown at the time the annual amount of gasoline that will be required for the proposed gas station. As a conservative measure, it is assumed that the gasoline station would have an annual throughout of approximately 2,000,000 gallons. For purposes of this evaluation, cancer risk estimates can be made consistent with the methodology presented in SCAQMD's *Risk Assessment Procedures for Rules 1401, 1401.1 & 212* which provides screening-level risk estimates for gasoline dispensing operations. The Project site is located within Source Receptor Area (SRA) 25 and the gasoline station canopy is located approximately 190 feet/58 meters of a residential land use. Based on this screening procedure it is anticipated that no residential sensitive receptors in the project vicinity will be exposed to a cancer risk of greater than 1.82 in one million which is less than the applicable threshold of 10 in one million. It should be noted that this screening-level risk estimate is very conservative (i.e. it would overstate rather than understate potential impacts). Upon entitlement the Project will be required to obtain requisite permits from the SCAQMD which will ultimately dictate the maximum annual throughput allowed.

3.11 ODORS

The potential for the Project to generate objectionable odors has also been considered. Land uses generally associated with odor complaints include:

- Agricultural uses (livestock and farming)
- Wastewater treatment plants
- Food processing plants
- Chemical plants
- Composting operations
- Refineries
- Landfills
- Dairies
- Fiberglass molding facilities

The Project does not contain land uses typically associated with emitting objectionable odors. Potential odor sources associated with the proposed Project may result from construction equipment exhaust and the application of asphalt and architectural coatings during construction activities and the temporary storage of typical solid waste (refuse) associated with the proposed Project's (long-term operational) uses. Standard construction requirements would minimize odor impacts from construction. The construction odor emissions would be temporary, short-term, and intermittent in nature and would cease upon completion of the respective phase of construction and is thus considered less than significant. It is expected that Project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with the City's solid waste regulations. There may be some odors associated with gasoline dispensing but these odors would dissipate as a function of distance from the site and are not anticipated to affect any nearby sensitive land uses. The proposed Project would also be required to comply with SCAQMD Rule 402 to prevent occurrences of public nuisances. There may also be intermittent odors associated with the gasoline service station, however any odors associated with the gasoline service station would also be governed by SCAQMD Rule 402 and best management practices. Therefore, odors associated with the proposed Project construction and operations would be less than significant and no mitigation is required.

3.12 CUMULATIVE IMPACTS

As previously shown in Table 2-3, the CAAQS designate the Project site as nonattainment for O_3 PM_{10}, and $PM_{2.5}$ while the NAAQS designates the Project site as nonattainment for O_3 and $PM_{2.5}$.

The AQMD has published a report on how to address cumulative impacts from air pollution: *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution* (37). In this report the AQMD clearly states (Page D-3):

> *…the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or Environmental Impact Report (EIR). The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for toxic air contaminant (TAC) emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility-wide) is HI > 3.0. It should be noted that the HI is only one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts.*
>
> *Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant.*

Therefore, this analysis assumes that individual projects that do not generate operational or construction emissions that exceed the SCAQMD's recommended daily thresholds for project-specific impacts would also not cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment, and, therefore, would not be considered to have a significant, adverse air quality impact. Alternatively, individual project-related construction and operational emissions that exceed SCAQMD thresholds for project-specific impacts would be considered cumulatively considerable. As previously noted, the Project will not exceed the applicable SCAQMD regional threshold for construction and operational-source emissions. As such, the Project will not result in a cumulatively significant impact for construction or operational activity.

4 FINDINGS & CONCLUSIONS

CONSTRUCTION-SOURCE EMISSIONS

REGIONAL IMPACTS

For regional emissions, the Project would not exceed the numerical thresholds of significance established by the SCAQMD for any criteria pollutant. Therefore, a less than significant impact would occur and no mitigation measures are required.

LOCALIZED IMPACTS

Project construction-source emissions would not exceed the SCAQMD's localized significance thresholds for any criteria pollutant. Therefore, a less than significant impact would occur.

ODORS

Established requirements addressing construction equipment operations, and construction material use, storage, and disposal requirements act to minimize odor impacts that may result from construction activities. Moreover, construction-source odor emissions would be temporary, short-term, and intermittent in nature and would not result in persistent impacts that would affect substantial numbers of people. Potential construction-source odor impacts are therefore considered less-than-significant.

OPERATIONAL-SOURCE EMISSIONS

REGIONAL IMPACTS

For regional emissions, the Project would not exceed the numerical thresholds of significance established by the SCAQMD. Thus, a less than significant impact would occur for Project-related operational-source emissions and no mitigation measures are required.

LOCALIZED IMPACTS

Project operational-source emissions would not result in or cause a significant localized air quality impact as discussed in the operational LSTs section of this report. The proposed Project would not result in a significant CO "hotspot" as a result of Project related traffic during ongoing operations.

ODORS

Substantial odor-generating sources include land uses such as agricultural activities, feedlots, wastewater treatment facilities, landfills or various heavy industrial uses. The Project does not propose any such uses or activities that would result in potentially significant operational-source odor impacts. Potential sources of operational odors generated by the Project would include disposal of miscellaneous refuse. Moreover, SCAQMD Rule 402 acts to prevent occurrences of odor nuisances (38). Consistent with City requirements, all Project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with solid waste regulations. Potential operational-source odor impacts are therefore considered less-than-significant.

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6 CERTIFICATIONS

The contents of this air study report represent an accurate depiction of the environmental impacts associated with the proposed Lake and Mountain Shopping Center Project. The information contained in this air quality impact assessment report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5987.

Haseeb Qureshi
Associate Principal
URBAN CROSSROADS, INC.
260 E. Baker St., Suite 200
Costa Mesa, CA 92626
(949) 336-5987
hqureshi@urbanxroads.com

EDUCATION

Master of Science in Environmental Studies
California State University, Fullerton • May, 2010

Bachelor of Arts in Environmental Analysis and Design
University of California, Irvine • June, 2006

PROFESSIONAL AFFILIATIONS

AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association
ASTM – American Society for Testing and Materials

PROFESSIONAL CERTIFICATIONS

Planned Communities and Urban Infill – Urban Land Institute • June, 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April, 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August, 2007
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Air Dispersion Modeling – Lakes Environmental • June, 2006

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APPENDIX 2.1:

STATE/FEDERAL ATTAINMENT STATUS OF CRITERIA POLLUTANTS

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APPENDIX C

MAPS AND TABLES OF AREA DESIGNATIONS FOR STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS

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APPENDIX C

MAPS AND TABLES OF AREA DESIGNATIONS FOR STATE AND NATIONAL AMBIENT AIR QUALITY STANDARDS

This attachment fulfills the requirement of Health and Safety Code section 40718 for CARB to publish maps that identify areas where one or more violations of any State ambient air quality standard (State standard) or national ambient air quality standard (national standard) have been measured. The national standards are those promulgated under section 109 of the federal Clean Air Act (42 U.S.C. 7409).

This attachment is divided into three parts. The first part comprises a table showing the levels, averaging times, and measurement methods for each of the State and national standards. This is followed by a section containing maps and tables showing the area designations for each pollutant for which there is a State standard in the California Code of Regulations, title 17, section 70200. The last section contains maps and tables showing the most current area designations for the national standards.

Ambient Air Quality Standards

(Updated 5/4/16)

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

See footnotes on next page ...

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 $\mu g/m^3$ 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 measurement method which can be shown to the satisfaction of the CARB 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 U.S. 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 U.S. 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 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ 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 SO_2 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 SO_2 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.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.

12. The CARB 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 $\mu g/m^3$ 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 CARB 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.

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Area Designations for the State Ambient Air Quality Standards

The following maps and tables show the area designations for each pollutant with a State standard set forth in the California Code of Regulations, title 17, section 60200. Each area is identified as attainment, nonattainment, nonattainment-transitional, or unclassified for each pollutant, as shown below:

Attainment	A
Nonattainment	N
Nonattainment-Transitional	NA-T
Unclassified	U

In general, CARB designates areas by air basin for pollutants with a regional impact and by county for pollutants with a more local impact. However, when there are areas within an air basin or county with distinctly different air quality deriving from sources and conditions not affecting the entire air basin or county, CARB may designate a smaller area. Generally, when boundaries of the designated area differ from the air basin or county boundaries, the description of the specific area is referenced at the bottom of the summary table.

FIGURE 1

2018
Area Designations for State
Ambient Air Quality Standards
OZONE
N
0 50 100 200 Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Shasta
Lassen
Humboldt
Trinity
Tehema
SACRAMENTO VALLEY
Plumas
SUTTER BUTTES
Butte
Mendocino
Glenn
Sierra
MOUNTAIN COUNTIES
Nevada
LAKE COUNTY
Colusa
Yuba
Lake
Sutter
Placer
LAKE TAHOE
Yolo
El Dorado
Alpine
Sonoma
Napa
Sac
Amador
SAN FRANCISCO BAY AREA
Solano
Calaveras
Marin
San Joaquin
Contra Costa
Tuolumne
Mono
San Francisco
Alameda
Mariposa
GREAT BASIN VALLEYS
San Mateo
Stanislaus
Santa Clara
Merced
Santa Cruz
Madera
SAN JOAQUIN VALLEY
San Benito
Fresno
NORTH CENTRAL COAST
Inyo
Tulare
Monterey
Kings
San Luis Obispo
Kern
SOUTH CENTRAL COAST
Santa Barbara
San Bernardino
Los Angeles
MOJAVE DESERT
Ventura
Riverside
Orange
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
SALTON SEA
Unclassified
Attainment
Nonattainment-Transitional
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 1

California Ambient Air Quality Standards
Area Designations for Ozone (1)

	N	NA-T	U	A		N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN					NORTHEAST PLATEAU AIR BASIN				X
Alpine County			X		SACRAMENTO VALLEY AIR BASIN				
Inyo County	X				Colusa and Glenn Counties				X
Mono County	X				Sutter/Yuba Counties				
LAKE COUNTY AIR BASIN				X	Sutter Buttes	X			
LAKE TAHOE AIR BASIN				X	Remainder of Sutter County				X
MOJAVE DESERT AIR BASIN	X				Yuba County				X
MOUNTAIN COUNTIES AIR BASIN					Yolo/Solano Counties		X		
Amador County	X				Remainder of Air Basin	X			
Calaveras County	X				SALTON SEA AIR BASIN	X			
El Dorado County (portion)	X				SAN DIEGO AIR BASIN	X			
Mariposa County	X				SAN FRANCISCO BAY AREA AIR BASIN	X			
Nevada County	X				SAN JOAQUIN VALLEY AIR BASIN	X			
Placer County (portion)	X				SOUTH CENTRAL COAST AIR BASIN				
Plumas County			X		San Luis Obispo County	X			
Sierra County			X		Santa Barbara County		X		
Tuolumne County	X				Ventura County	X			
NORTH CENTRAL COAST AIR BASIN		X			SOUTH COAST AIR BASIN	X			
NORTH COAST AIR BASIN				X					

(1) AB 3048 (Olberg) and AB 2525 (Miller) signed into law in 1996, made changes to Health and Safety Code, section 40925.5. One of the changes allows nonattainment districts to become nonattainment-transitional for ozone by operation of law.

FIGURE 2

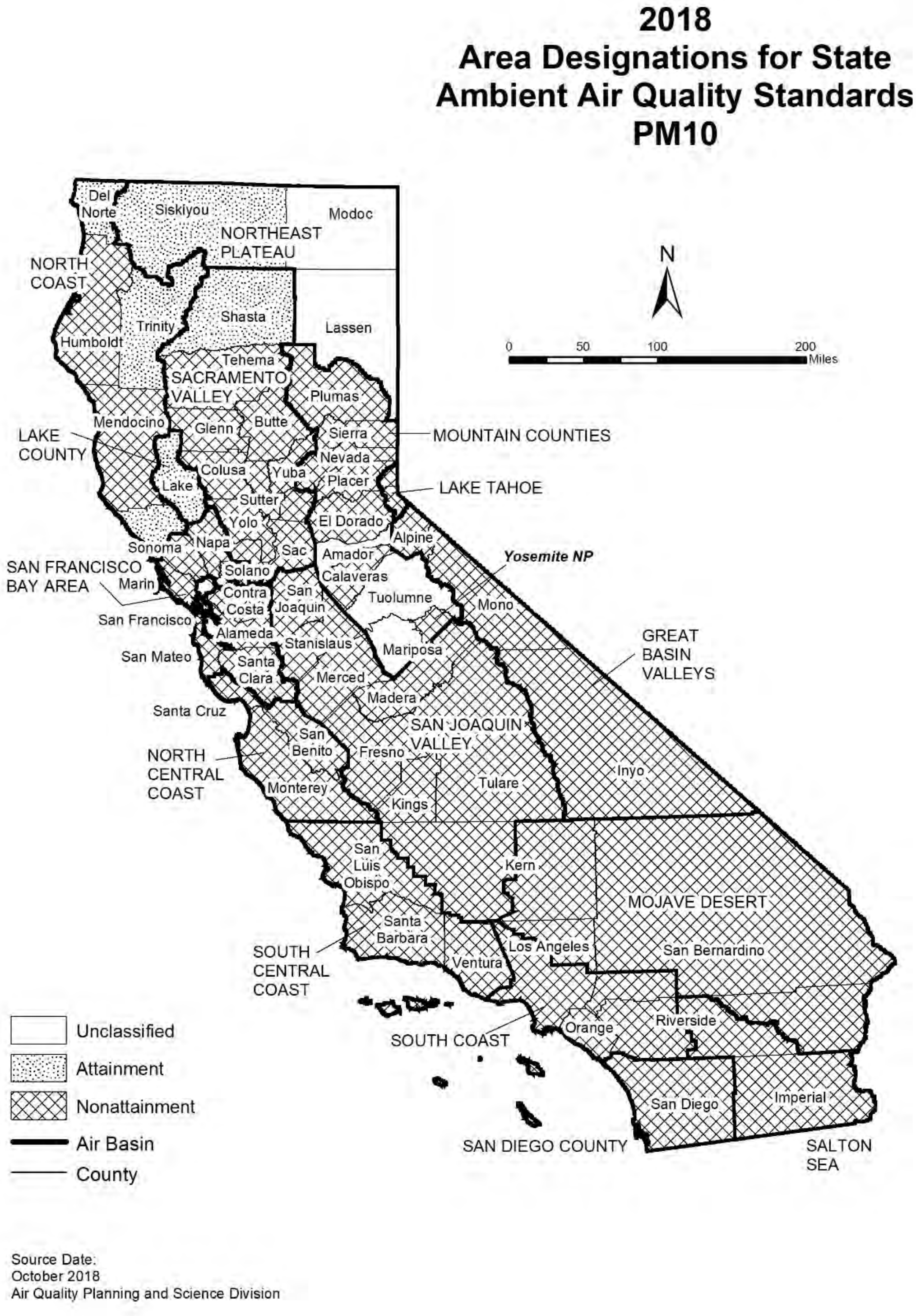
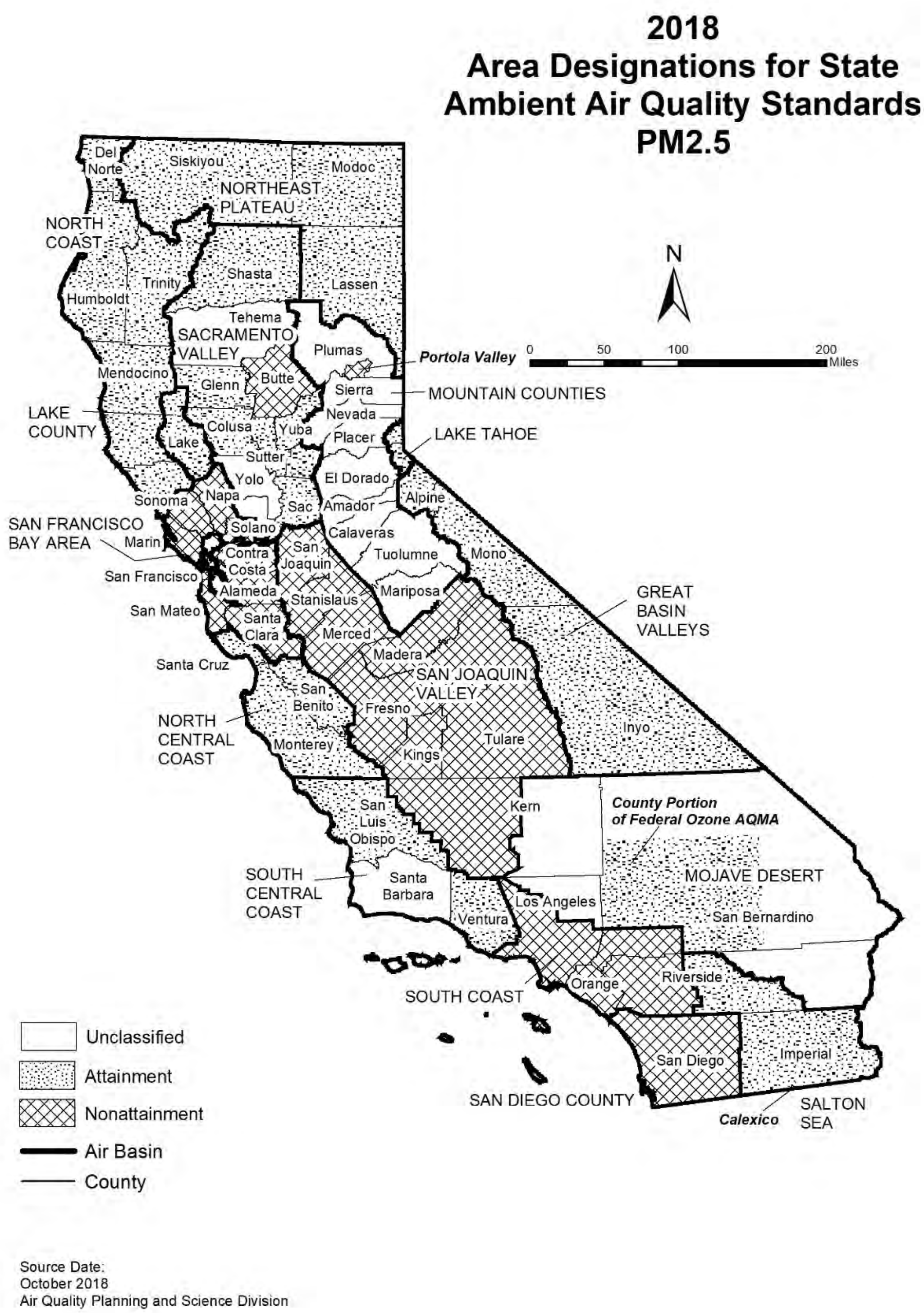

2018
Area Designations for State
Ambient Air Quality Standards
PM10
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Trinity
Shasta
Lassen
Humboldt
Tehema
SACRAMENTO VALLEY
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
LAKE COUNTY
Nevada
Colusa
Yuba
Placer
Lake
LAKE TAHOE
Sutter
Yolo
El Dorado
Alpine
Sonoma
Napa
Sac
Amador
Yosemite NP
SAN FRANCISCO BAY AREA
Solano
Calaveras
Marin
Contra Costa
San Joaquin
Tuolumne
Mono
San Francisco
Alameda
Stanislaus
Mariposa
GREAT BASIN VALLEYS
San Mateo
Santa Clara
Merced
Madera
Santa Cruz
SAN JOAQUIN VALLEY
San Benito
NORTH CENTRAL COAST
Fresno
Inyo
Tulare
Monterey
Kings
San Luis Obispo
Kern
MOJAVE DESERT
Santa Barbara
Los Angeles
San Bernardino
Ventura
SOUTH CENTRAL COAST
Orange
Riverside
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
SALTON SEA
N
0
50
100
200
Miles
Unclassified
Attainment
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 2

California Ambient Air Quality Standards
Area Designation for Suspended Particulate Matter (PM10)

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN	X			NORTH CENTRAL COAST AIR BASIN	X		
LAKE COUNTY AIR BASIN			X	NORTH COAST AIR BASIN			
LAKE TAHOE AIR BASIN	X			Del Norte, Sonoma (portion) and Trinity Counties			X
MOJAVE DESERT AIR BASIN	X			Remainder of Air Basin	X		
MOUNTAIN COUNTIES AIR BASIN				NORTHEAST PLATEAU AIR BASIN			
Amador County		X		Siskiyou County			X
Calaveras County	X			Remainder of Air Basin		X	
El Dorado County (portion)	X			SACRAMENTO VALLEY AIR BASIN			
Mariposa County				Shasta County			X
- Yosemite National Park	X			Remainder of Air Basin	X		
- Remainder of County		X		SALTON SEA AIR BASIN	X		
Nevada County	X			SAN DIEGO AIR BASIN	X		
Placer County (portion)	X			SAN FRANCISCO BAY AREA AIR BASIN	X		
Plumas County	X			SAN JOAQUIN VALLEY AIR BASIN	X		
Sierra County	X			SOUTH CENTRAL COAST AIR BASIN	X		
Tuolumne County		X		SOUTH COAST AIR BASIN	X		

FIGURE 3



2018
Area Designations for State
Ambient Air Quality Standards
PM2.5
N
0 50 100 200 Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Trinity
Shasta
Lassen
Humboldt
Tehema
SACRAMENTO VALLEY
Plumas
Portola Valley
Butte
Glenn
Mendocino
Sierra
MOUNTAIN COUNTIES
Nevada
LAKE COUNTY
Colusa
Yuba
Lake
Placer
LAKE TAHOE
Sutter
Yolo
El Dorado
Sonoma
Napa
Sac
Amador
Alpine
SAN FRANCISCO BAY AREA
Solano
Calaveras
Marin
Contra Costa
San Joaquin
Tuolumne
Mono
San Francisco
Alameda
Stanislaus
Mariposa
GREAT BASIN VALLEYS
San Mateo
Santa Clara
Merced
Madera
Santa Cruz
SAN JOAQUIN VALLEY
San Benito
Fresno
NORTH CENTRAL COAST
Inyo
Monterey
Kings
Tulare
San Luis Obispo
Kern
County Portion of Federal Ozone AQMA
MOJAVE DESERT
SOUTH CENTRAL COAST
Santa Barbara
Los Angeles
Ventura
San Bernardino
Riverside
Orange
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
Calexico
SALTON SEA
Unclassified
Attainment
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 3

California Ambient Air Quality Standards
Area Designations for Fine Particulate Matter (PM2.5)

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN			X	SALTON SEA AIR BASIN			
LAKE COUNTY AIR BASIN			X	Imperial County			
LAKE TAHOE AIR BASIN			X	- City of Calexico (3)	X		
MOJAVE DESERT AIR BASIN				Remainder of Air Basin			X
San Bernardino County				SAN DIEGO AIR BASIN	X		
- County portion of federal Southeast Desert Modified AQMA for Ozone (1)			X	SAN FRANCISCO BAY AREA AIR BASIN	X		
				SAN JOAQUIN VALLEY AIR BASIN	X		
Remainder of Air Basin		X		SOUTH CENTRAL COAST AIR BASIN			
MOUNTAIN COUNTIES AIR BASIN				San Luis Obispo County			X
Plumas County				Santa Barbara County		X	
- Portola Valley (2)	X			Ventura County			X
Remainder of Air Basin		X		SOUTH COAST AIR BASIN	X		
NORTH CENTRAL COAST AIR BASIN			X				
NORTH COAST AIR BASIN			X				
NORTHEAST PLATEAU AIR BASIN			X				
SACRAMENTO VALLEY AIR BASIN							
Butte County	X						
Colusa County			X				
Glenn County			X				
Placer County (portion)			X				
Sacramento County			X				
Shasta County			X				
Sutter and Yuba Counties			X				
Remainder of Air Basin		X					

(1) California Code of Regulations, title 17, section 60200(b)

(2) California Code of Regulations, title 17, section 60200(c)

(3) California Code of Regulations, title 17, section 60200(a)

FIGURE 4

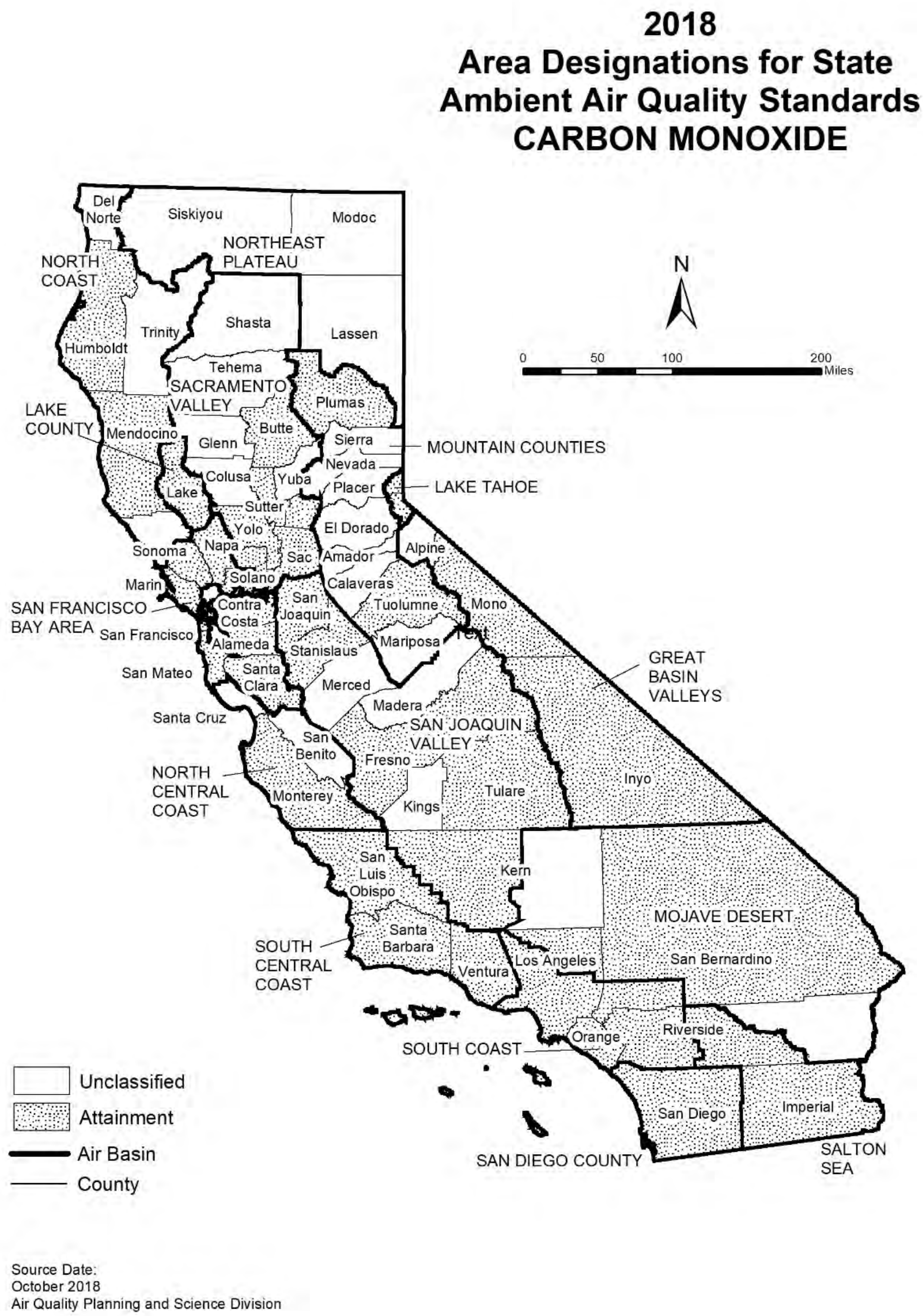

2018
Area Designations for State
Ambient Air Quality Standards
CARBON MONOXIDE
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Trinity
Shasta
Lassen
Humboldt
Tehema
SACRAMENTO VALLEY
Plumas
LAKE COUNTY
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Nevada
Colusa
Yuba
Placer
LAKE TAHOE
Lake
Sutter
Yolo
El Dorado
Sonoma
Napa
Sac
Amador
Alpine
Solano
Marin
Calaveras
SAN FRANCISCO BAY AREA
Contra Costa
San Joaquin
Tuolumne
Mono
San Francisco
Alameda
Stanislaus
Mariposa
GREAT BASIN VALLEYS
San Mateo
Santa Clara
Merced
Madera
Santa Cruz
SAN JOAQUIN VALLEY
San Benito
Fresno
Inyo
NORTH CENTRAL COAST
Monterey
Tulare
Kings
San Luis Obispo
Kern
MOJAVE DESERT
SOUTH CENTRAL COAST
Santa Barbara
Ventura
Los Angeles
San Bernardino
Orange
Riverside
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
SALTON SEA
N
0 50 100 200 Miles
Unclassified
Attainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 4

California Ambient Air Quality Standards
Area Designation for Carbon Monoxide*

	N	NA-T	U	A		N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN					SACRAMENTO VALLEY AIR BASIN				
Alpine County			X		Butte County				X
Inyo County				X	Colusa County			X	
Mono County				X	Glenn County			X	
LAKE COUNTY AIR BASIN				X	Placer County (portion)				X
LAKE TAHOE AIR BASIN				X	Sacramento County				X
MOJAVE DESERT AIR BASIN					Shasta County			X	
Kern County (portion)			X		Solano County (portion)				X
Los Angeles County (portion)				X	Sutter County				X
Riverside County (portion)			X		Tehama County			X	
San Bernardino County (portion)				X	Yolo County				X
MOUNTAIN COUNTIES AIR BASIN					Yuba County			X	
Amador County			X		SALTON SEA AIR BASIN				X
Calaveras County			X		SAN DIEGO AIR BASIN				X
El Dorado County (portion)			X		SAN FRANCISCO BAY AREA AIR BASIN				X
Mariposa County			X		SAN JOAQUIN VALLEY AIR BASIN				
Nevada County			X		Fresno County				X
Placer County (portion)			X		Kern County (portion)				X
Plumas County				X	Kings County			X	
Sierra County			X		Madera County			X	
Tuolumne County				X	Merced County			X	
NORTH CENTRAL COAST AIR BASIN					San Joaquin County				X
Monterey County				X	Stanislaus County				X
San Benito County			X		Tulare County				X
Santa Cruz County			X		SOUTH CENTRAL COAST AIR BASIN				X
NORTH COAST AIR BASIN					SOUTH COAST AIR BASIN				X
Del Norte County			X						
Humboldt County				X					
Mendocino County				X					
Sonoma County (portion)			X						
Trinity County			X						
NORTHEAST PLATEAU AIR BASIN			X						

* The area designated for carbon monoxide is a county or portion of a county

FIGURE 5


2018
Area Designations for State
Ambient Air Quality Standards
NITROGEN DIOXIDE
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Shasta
Trinity
Lassen
Humboldt
Tehema
SACRAMENTO VALLEY
Plumas
Butte
Mendocino
Glenn
Sierra
MOUNTAIN COUNTIES
Colusa
Nevada
LAKE COUNTY
Yuba
Lake
Sutter
Placer
LAKE TAHOE
Yolo
El Dorado
Napa
Sac
Alpine
Sonoma
Amador
SAN FRANCISCO BAY AREA
Solano
Calaveras
Marin
Contra Costa
San Joaquin
Tuolumne
Mono
San Francisco
Alameda
Mariposa
GREAT BASIN VALLEYS
San Mateo
Santa Clara
Stanislaus
Merced
Madera
Santa Cruz
SAN JOAQUIN VALLEY
San Benito
Fresno
NORTH CENTRAL COAST
Monterey
Tulare
Inyo
Kings
San Luis Obispo
Kern
MOJAVE DESERT
Santa Barbara
Los Angeles
SOUTH CENTRAL COAST
San Bernardino
Ventura
SOUTH COAST
Orange
Riverside
CA 60 (Portion)
San Diego
Imperial
SAN DIEGO COUNTY
SALTON SEA
N
0
50
100
200
Miles
Los Angeles
San Bernardino
CA 60 (Portion)
Riverside
Orange
Attainment
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 5

California Ambient Air Quality Standards
Area Designation for Nitrogen Dioxide

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN			X	SACRAMENTO VALLEY AIR BASIN			X
LAKE COUNTY AIR BASIN			X	SALTON SEA AIR BASIN			X
LAKE TAHOE AIR BASIN			X	SAN DIEGO AIR BASIN			X
MOJAVE DESERT AIR BASIN			X	SAN FRANCISCO BAY AREA AIR BASIN			X
MOUNTAIN COUNTIES AIR BASIN			X	SAN JOAQUIN VALLEY AIR BASIN			X
NORTH CENTRAL COAST AIR BASIN			X	SOUTH CENTRAL COAST AIR BASIN			X
NORTH COAST AIR BASIN			X	SOUTH COAST AIR BASIN			
NORTHEAST PLATEAU AIR BASIN			X	CA 60 Near-road Portion of San Bernardino, Riverside, and Los Angeles Counties	X		
				Remainder of Air Basin			X

FIGURE 6

Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 6

California Ambient Air Quality Standards
Area Designation for Sulfur Dioxide*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SACRAMENTO VALLEY AIR BASIN		X
LAKE COUNTY AIR BASIN		X	SALTON SEA AIR BASIN		X
LAKE TAHOE AIR BASIN		X	SAN DIEGO AIR BASIN		X
MOJAVE DESERT AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X	SOUTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X			

* The area designated for sulfur dioxide is a county or portion of a county

FIGURE 7

Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 7

California Ambient Air Quality Standards
Area Designation for Sulfates

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN			X	SACRAMENTO VALLEY AIR BASIN			X
LAKE COUNTY AIR BASIN			X	SALTON SEA AIR BASIN			X
LAKE TAHOE AIR BASIN			X	SAN DIEGO AIR BASIN			X
MOJAVE DESERT AIR BASIN			X	SAN FRANCISCO BAY AREA AIR BASIN			X
MOUNTAIN COUNTIES AIR BASIN			X	SAN JOAQUIN VALLEY AIR BASIN			X
NORTH CENTRAL COAST AIR BASIN			X	SOUTH CENTRAL COAST AIR BASIN			X
NORTH COAST AIR BASIN			X	SOUTH COAST AIR BASIN			X
NORTHEAST PLATEAU AIR BASIN			X				

FIGURE 8


2018
Area Designations for State
Ambient Air Quality Standards
LEAD
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Humboldt
Trinity
Shasta
Lassen
Tehama
SACRAMENTO VALLEY
Plumas
Butte
Glenn
Mendocino
Sierra
MOUNTAIN COUNTIES
LAKE COUNTY
Nevada
Colusa
Yuba
Placer
LAKE TAHOE
Lake
El Dorado
Yolo
Sonoma
Alpine
Napa
SAN FRANCISCO BAY AREA
Solano
Calaveras
Marin
Tuolumne
San Joaquin
Mono
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Madera
GREAT BASIN VALLEYS
Santa Cruz
Fresno
SAN JOAQUIN VALLEY
San Benito
Inyo
NORTH CENTRAL COAST
Tulare
Monterey
Kings
San Luis Obispo
Kern
MOJAVE DESERT
Santa Barbara
San Bernardino
SOUTH CENTRAL COAST
Ventura
Los Angeles
SOUTH COAST
Orange
Riverside
San Diego
Imperial
SAN DIEGO COUNTY
SALTON SEA
N
0
50
100
200
Miles
Attainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 8

California Ambient Air Quality Standards
Area Designations for Lead (particulate)*

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN			X	SALTON SEA AIR BASIN			X
LAKE COUNTY AIR BASIN			X	SAN DIEGO AIR BASIN			X
LAKE TAHOE AIR BASIN			X	SAN FRANCISCO BAY AREA AIR BASIN			X
MOJAVE DESERT AIR BASIN			X	SAN JOAQUIN VALLEY AIR BASIN			X
MOUNTAIN COUNTIES AIR BASIN			X	SOUTH CENTRAL COAST AIR BASIN			X
NORTH CENTRAL COAST AIR BASIN			X	SOUTH COAST AIR BASIN			X
NORTH COAST AIR BASIN			X				
NORTHEAST PLATEAU AIR BASIN			X				
SACRAMENTO VALLEY AIR BASIN			X				

* The area designated for lead is a county or portion of a county. Since all areas in the State are in attainment for this standard, air basins are indicated here for simplicity.

FIGURE 9

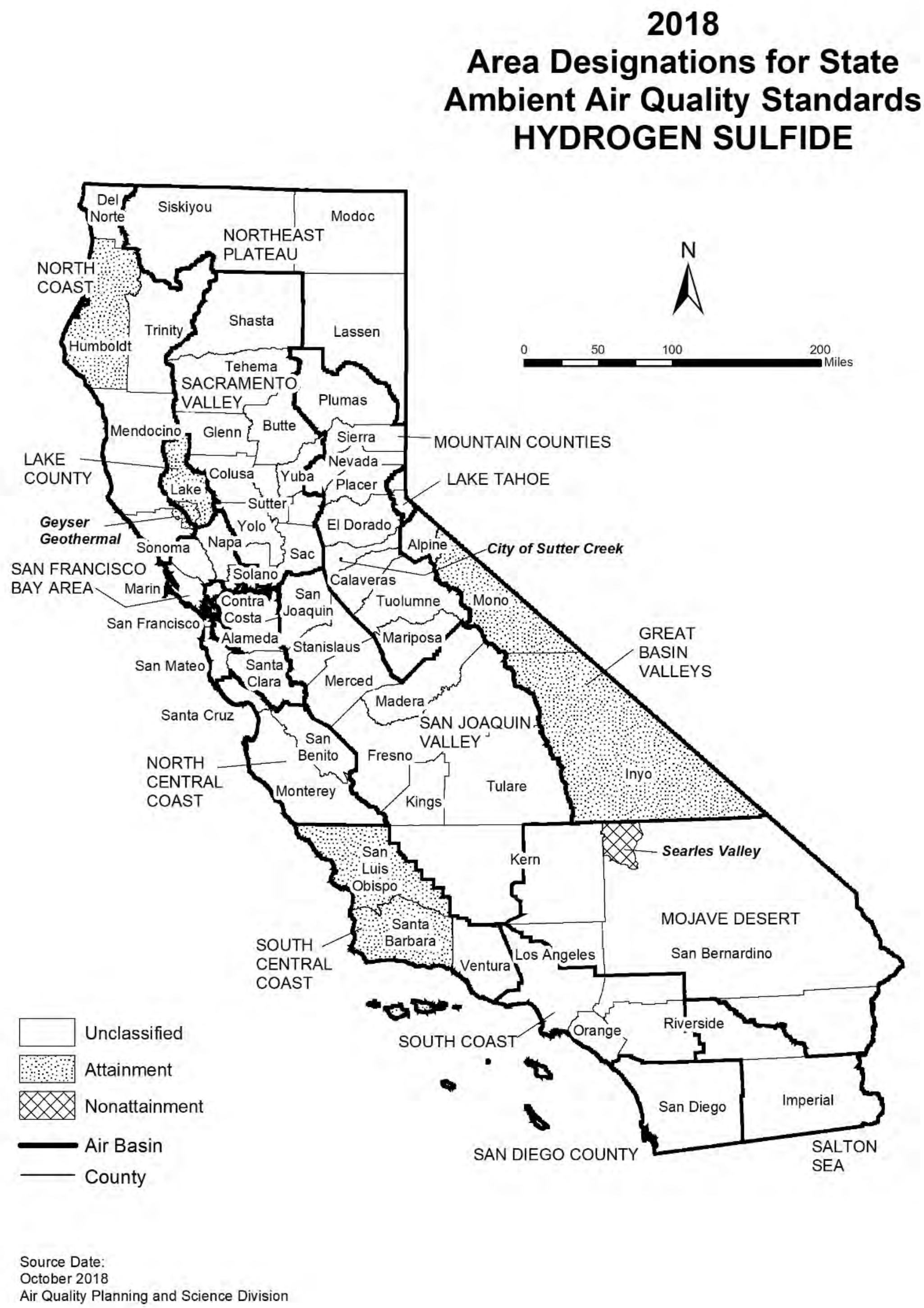

2018
Area Designations for State
Ambient Air Quality Standards
HYDROGEN SULFIDE
N
0 50 100 200 Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Shasta
Trinity
Lassen
Humboldt
Tehema
SACRAMENTO VALLEY
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
LAKE COUNTY
Colusa
Yuba
Nevada
Placer
LAKE TAHOE
Lake
Sutter
Geyser Geothermal
Yolo
El Dorado
Sonoma
Napa
Sac
Alpine
City of Sutter Creek
SAN FRANCISCO BAY AREA
Solano
Calaveras
Marin
Contra Costa
San Joaquin
Tuolumne
Mono
San Francisco
Alameda
Stanislaus
Mariposa
GREAT BASIN VALLEYS
San Mateo
Santa Clara
Merced
Madera
Santa Cruz
SAN JOAQUIN VALLEY
San Benito
Fresno
NORTH CENTRAL COAST
Monterey
Kings
Tulare
Inyo
San Luis Obispo
Kern
Searles Valley
MOJAVE DESERT
Santa Barbara
SOUTH CENTRAL COAST
Ventura
Los Angeles
San Bernardino
Riverside
Orange
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
SALTON SEA
Unclassified
Attainment
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 9

California Ambient Air Quality Standards
Area Designation for Hydrogen Sulfide*

	N	NA-T	U	A		N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN					NORTH CENTRAL COAST AIR BASIN			X	
Alpine County			X		NORTH COAST AIR BASIN				
Inyo County				X	Del Norte County			X	
Mono County				X	Humboldt County				X
LAKE COUNTY AIR BASIN				X	Mendocino County			X	
LAKE TAHOE AIR BASIN			X		Sonoma County (portion)				
MOJAVE DESERT AIR BASIN					- Geyser Geothermal Area (2)				X
Kern County (portion)			X		- Remainder of County			X	
Los Angeles County (portion)			X		Trinity County			X	
Riverside County (portion)			X		NORTHEAST PLATEAU AIR BASIN			X	
San Bernardino County (portion)					SACRAMENTO VALLEY AIR BASIN			X	
- Searles Valley Planning Area (1)	X				SALTON SEA AIR BASIN			X	
- Remainder of County			X		SAN DIEGO AIR BASIN			X	
MOUNTAIN COUNTIES AIR BASIN					SAN FRANCISCO BAY AREA AIR BASIN			X	
Amador County					SAN JOAQUIN VALLEY AIR BASIN			X	
- City of Sutter Creek	X				SOUTH CENTRAL COAST AIR BASIN				
- Remainder of County			X		San Luis Obispo County				X
Calaveras County			X		Santa Barbara County				X
El Dorado County (portion)			X		Ventura County			X	
Mariposa County			X		SOUTH COAST AIR BASIN			X	
Nevada County			X						
Placer County (portion)			X						
Plumas County			X						
Sierra County			X						
Tuolumne County			X						

* The area designated for hydrogen sulfide is a county or portion of a county

(1) 52 Federal Register 29384 (August 7, 1987)

(2) California Code of Regulations, title 17, section 60200(d)

FIGURE 10

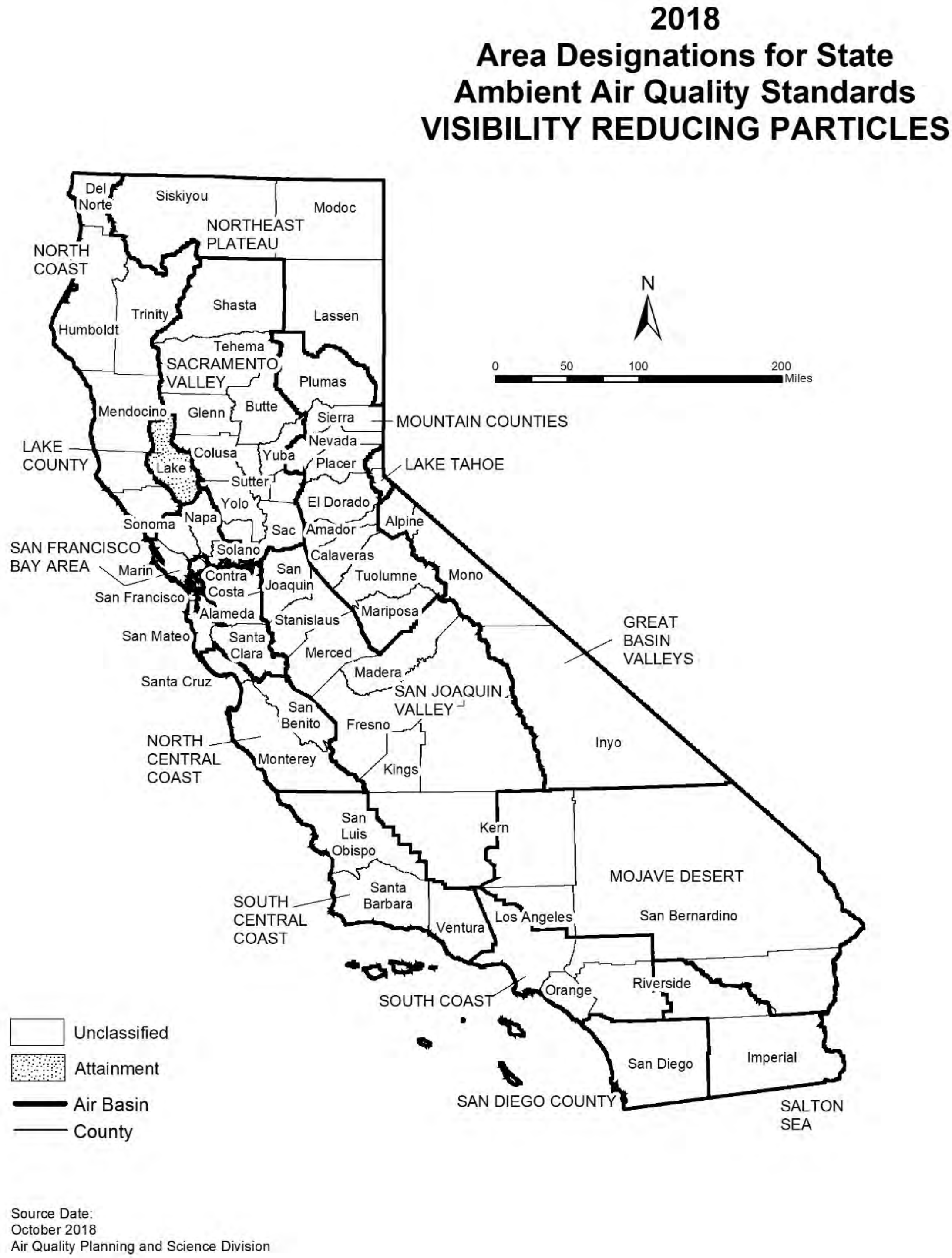

2018
Area Designations for State
Ambient Air Quality Standards
VISIBILITY REDUCING PARTICLES
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Shasta
Trinity
Lassen
Humboldt
Tehema
SACRAMENTO VALLEY
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
LAKE COUNTY
Colusa
Yuba
Nevada
Lake
Placer
LAKE TAHOE
Sutter
Yolo
El Dorado
Sonoma
Napa
Sac
Amador
Alpine
SAN FRANCISCO BAY AREA
Solano
Calaveras
Marin
Contra Costa
San Joaquin
Tuolumne
Mono
San Francisco
Alameda
Stanislaus
Mariposa
GREAT BASIN VALLEYS
San Mateo
Santa Clara
Merced
Madera
Santa Cruz
SAN JOAQUIN VALLEY
San Benito
Fresno
Inyo
NORTH CENTRAL COAST
Monterey
Kings
San Luis Obispo
Kern
MOJAVE DESERT
SOUTH CENTRAL COAST
Santa Barbara
Ventura
Los Angeles
San Bernardino
SOUTH COAST
Orange
Riverside
San Diego
Imperial
SAN DIEGO COUNTY
SALTON SEA
N
0 50 100 200 Miles
Unclassified
Attainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 10

California Ambient Air Quality Standards
Area Designation for Visibility Reducing Particles

	N	NA-T	U	A		N	NA-T	U	A
GREAT BASIN VALLEYS AIR BASIN			X		SACRAMENTO VALLEY AIR BASIN			X	
LAKE COUNTY AIR BASIN				X	SALTON SEA AIR BASIN			X	
LAKE TAHOE AIR BASIN			X		SAN DIEGO AIR BASIN			X	
MOJAVE DESERT AIR BASIN			X		SAN FRANCISCO BAY AREA AIR BASIN			X	
MOUNTAIN COUNTIES AIR BASIN			X		SAN JOAQUIN VALLEY AIR BASIN			X	
NORTH CENTRAL COAST AIR BASIN			X		SOUTH CENTRAL COAST AIR BASIN			X	
NORTH COAST AIR BASIN			X		SOUTH COAST AIR BASIN			X	
NORTHEAST PLATEAU AIR BASIN			X						

Area Designations for the National Ambient Air Quality Standards

The following maps and tables show the area designations for each pollutant with a national ambient air quality standard. Additional information about the federal area designations is available on the U.S. EPA website:

https://www.epa.gov/green-book

Over the last several years, U.S. EPA has been reviewing the levels of the various national standards. The agency has already promulgated new standard levels for some pollutants and is considering revising the levels for others. Information about the status of these reviews is available on the U.S. EPA website:

https://www.epa.gov/criteria-air-pollutants

Designation Categories

Suspended Particulate Matter (PM_{10}). The U.S. EPA uses three categories to designate areas with respect to PM_{10}:

- Attainment
- Nonattainment
- Unclassifiable

Ozone, Fine Suspended Particulate Matter ($PM_{2.5}$), Carbon Monoxide (CO), and Nitrogen Dioxide (NO_2). The U.S. EPA uses two categories to designate areas with respect to these standards:

- Nonattainment
- Unclassifiable/Attainment

The national 1-hour ozone standard was revoked effective June 15, 2005, and the area designations map reflects the 2015 national 8-hour ozone standard of 0.070 ppm. Original designations were finalized on August 3, 2018.

On December 14, 2012, the U.S. EPA established a new national annual primary $PM_{2.5}$ standard of 12.0 $\mu g/m^3$. New area designations reflecting this revised standard became final in December 2014. The current designation map reflects the most recently revised (2012) annual average standard of 12.0 $\mu g/m^3$ as well as the 24-hour standard of 35 $\mu g/m^3$, revised in 2006.

On January 22, 2010, the U.S. EPA established a new national 1-hour NO_2 standard of 100 parts per billion (ppb) and retained the annual average standard of 53 ppb. Designations for the primary NO_2 standard became effective on February 29, 2012. All areas of California meet this standard.

Sulfur Dioxide (SO_2). The U.S. EPA uses three categories to designate areas with respect to the 24-hour and annual average sulfur dioxide standards. These designation categories are:

- Nonattainment,
- Unclassifiable, and
- Attainment/Unclassifiable.

On June 2, 2010, the U.S. EPA established a new primary 1-hour SO_2 standard of 75 parts per billion (ppb). At the same time, U.S. EPA revoked the 24-hour and annual average standards. Area designations for the 1-hour SO_2 standard were finalized on December 21, 2017 and are reflected in the area designations map.

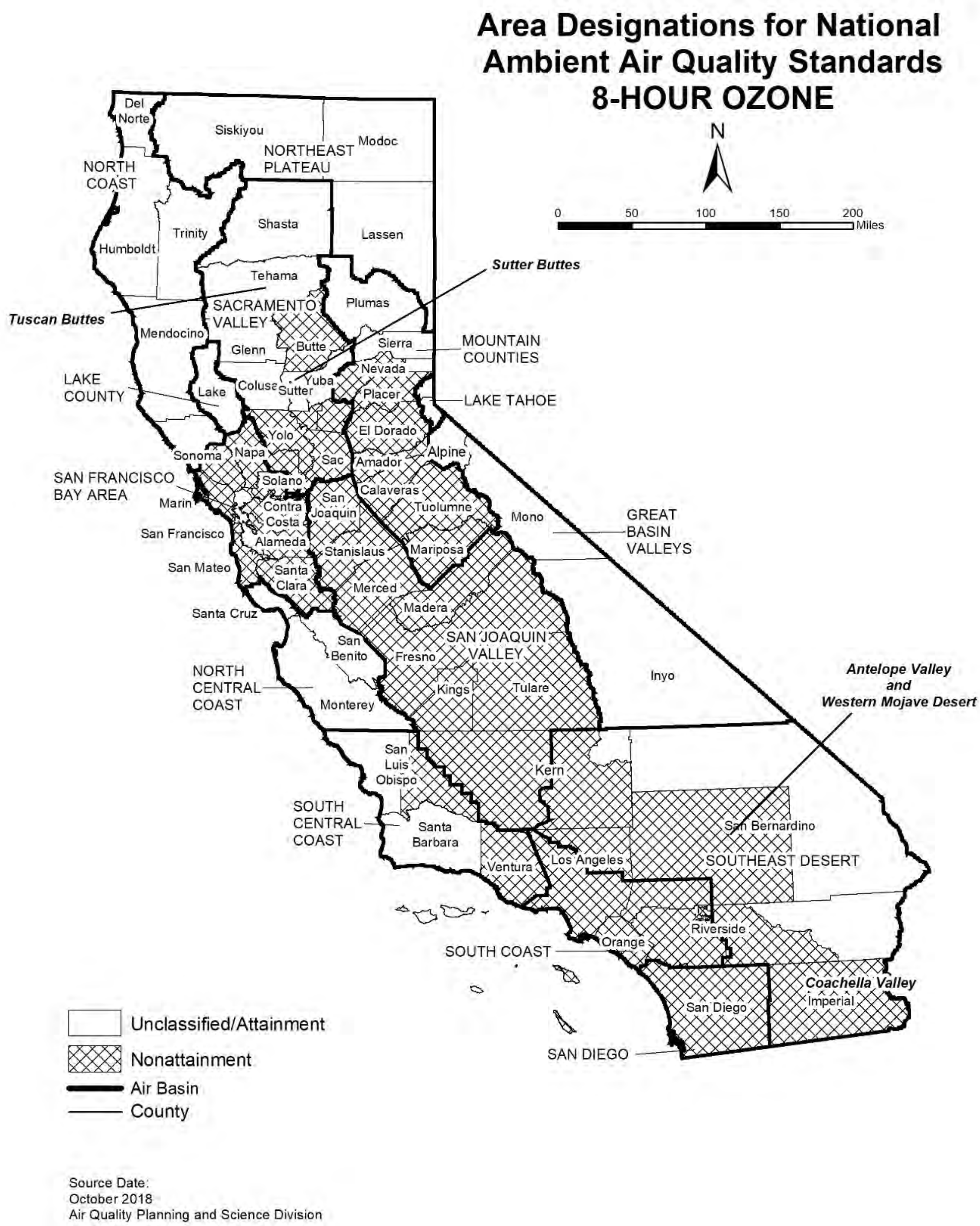
Lead (particulate). The U.S. EPA promulgated a new rolling 3-month average lead standard in October 2008 of 0.15 µg/m^3. Designations were made for this standard in November 2010.

Designation Areas

From time to time, the boundaries of the California air basins have been changed to facilitate the planning process. CARB generally initiates these changes, and they are not always reflected in the U.S. EPA's area designations. For purposes of consistency, the maps in this attachment reflect area designation boundaries and nomenclature as promulgated by the U.S. EPA. In some cases, these may not be the same as those adopted by CARB. For example, the national area designations reflect the former Southeast Desert Air Basin. In accordance with Health and Safety Code section 39606.1, CARB redefined this area in 1996 to be the Mojave Desert Air Basin and Salton Sea Air Basin. The definitions and boundaries for all areas designated for the national standards can be found in Title 40, Code of Federal Regulations (CFR), Chapter I, Subchapter C, Part 81.305. They are available on the web at:

https://ecfr.io/Title-40/se40.20.81_1305

FIGURE 11



Area Designations for National Ambient Air Quality Standards
8-HOUR OZONE
N
0 50 100 150 200 Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Shasta
Lassen
Trinity
Humboldt
Tehama
Sutter Buttes
Tuscan Buttes
SACRAMENTO VALLEY
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Nevada
LAKE COUNTY
Lake
Colusa
Yuba
Sutter
Placer
LAKE TAHOE
Yolo
El Dorado
Sonoma
Napa
Sac
Alpine
Amador
SAN FRANCISCO BAY AREA
Solano
Marin
Calaveras
San Joaquin
Contra Costa
Tuolumne
Mono
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Madera
Santa Cruz
SAN JOAQUIN VALLEY
San Benito
Fresno
NORTH CENTRAL COAST
Kings
Tulare
Inyo
Antelope Valley and Western Mojave Desert
Monterey
San Luis Obispo
Kern
SOUTH CENTRAL COAST
Santa Barbara
San Bernardino
SOUTHEAST DESERT
Ventura
Los Angeles
Riverside
Orange
SOUTH COAST
Coachella Valley
San Diego
Imperial
SAN DIEGO
Unclassified/Attainment
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 11

National Ambient Air Quality Standards
Area Designations for 8-Hour Ozone*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SACRAMENTO VALLEY AIR BASIN (cont.)		
LAKE COUNTY AIR BASIN		X	Yolo County (2)	X	
LAKE TAHOE AIR BASIN		X	Yuba County		X
MOUNTAIN COUNTIES AIR BASIN			SAN DIEGO COUNTY	X	
Amador County	X		SAN FRANCISCO BAY AREA AIR BASIN	X	
Calaveras County	X		SAN JOAQUIN VALLEY AIR BASIN	X	
El Dorado County (portion) (2)	X		SOUTH CENTRAL COAST AIR BASIN (1)		
Mariposa County	X		San Luis Obispo County		
Nevada County			- Eastern San Luis Obispo County	X	
- Western Nevada County	X		- Remainder of County		X
- Remainder of County		X	Santa Barbara County		X
Placer County (portion) (2)	X		Ventura County		
Plumas County		X	- Area excluding Anacapa and San Nicolas Islands	X	
Sierra County		X	- Channel Islands (1)		X
Tuolumne County	X		SOUTH COAST AIR BASIN (1)	X	
NORTH CENTRAL COAST AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		
NORTH COAST AIR BASIN		X	Kern County (portion)	X	
NORTHEAST PLATEAU AIR BASIN		X	- Indian Wells Valley		X
SACRAMENTO VALLEY AIR BASIN			Imperial County	X	
Butte County	X		Los Angeles County (portion)	X	
Colusa County		X	Riverside County (portion)		
Glenn County		X	- Coachella Valley	X	
Sacramento Metro Area (2)	X		- Non-AQMA portion		X
Shasta County		X	San Bernardino County		
Sutter County			- Western portion (AQMA)	X	
- Sutter Buttes	X		- Eastern portion (non-AQMA)		X
- Southern portion of Sutter County (2)	X				
- Remainder of Sutter County		X			
Tehama County					
- Tuscan Buttes	X				
- Remainder of Tehama County		X			

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

NOTE: This map and table reflect the 2015 8-hour ozone standard of 0.070 ppm.

(1) South Central Coast Air Basin Channel Islands:
Santa Barbara County includes Santa Cruz, San Miguel, Santa Rosa, and Santa Barbara Islands.
Ventura County includes Anacapa and San Nicolas Islands.
South Coast Air Basin:
Los Angeles County includes San Clemente and Santa Catalina Islands.

(2) For this purpose, the Sacramento Metro Area comprises all of Sacramento and Yolo Counties, the Sacramento Valley Air Basin portion of Solano County, the southern portion of Sutter County, and the Sacramento Valley and Mountain Counties Air Basins portions of Placer and El Dorado counties.

FIGURE 12

Area Designations for National Ambient Air Quality Standards PM10
N
0
50
100
150
200
Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Shasta
Lassen
Trinity
Humboldt
Tehema
SACRAMENTO VALLEY
Plumas
Mendocino
Glenn
Butte
Sierra
Nevada
MOUNTAIN COUNTIES
LAKE COUNTY
Colusa
Yuba
Lake
Sutter
Placer
LAKE TAHOE
Yolo
El Dorado
Alpine
Sacramento County
Sonoma
Napa
Sac
Amador
Mono
SAN FRANCISCO BAY AREA
Marin
Solano
Calaveras
Mono Basin
San Joaquin
Contra Costa
Tuolumne
Mammoth Lake
San Francisco
GREAT BASIN VALLEYS
Alameda
Mariposa
Stanislaus
San Mateo
Santa Clara
Merced
Madera
Inyo
Santa Cruz
San Benito
SAN JOAQUIN VALLEY
Fresno
Owens Valley
NORTH CENTRAL COAST
Monterey
Kings
Tulare
Coso Junction
Trona
San Luis Obispo
Kern
Indian Wells Valley
San Bernardino
SOUTH CENTRAL COAST
Santa Barbara
Ventura
Los Angeles
SOUTHEAST DESERT
Riverside
Coachella Valley
SOUTH COAST
Orange
Imperial
San Diego
SAN DIEGO COUNTY
Unclassified
Attainment
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 12

National Ambient Air Quality Standards
Area Designations for Suspended Particulate Matter (PM10)*

	N	U	A		N	U	A
GREAT BASIN VALLEYS AIR BASIN				SAN DIEGO COUNTY		X	
Alpine County		X		SAN FRANCISCO BAY AREA AIR BASIN		X	
Inyo County				SAN JOAQUIN VALLEY AIR BASIN			X
- Owens Valley Planning Area	X			SOUTH CENTRAL COAST AIR BASIN		X	
- Coso Junction			X	SOUTH COAST AIR BASIN			X
- Remainder of County		X		SOUTHEAST DESERT AIR BASIN			
Mono County				Eastern Kern County			
- Mammoth Lake Planning Area			X	- Indian Wells Valley			X
- Mono Lake Basin	X			- Portion within San Joaquin Valley Planning Area	X		
- Remainder of County		X		- Remainder of County		X	
LAKE COUNTY AIR BASIN		X		Imperial County			
LAKE TAHOE AIR BASIN		X		- Imperial Valley Planning Area	X		
MOUNTAIN COUNTIES AIR BASIN				- Remainder of County		X	
Placer County (portion) (2)		X		Los Angeles County (portion)		X	
Remainder of Air Basin		X		Riverside County (portion)			
NORTH CENTRAL COAST AIR BASIN		X		- Coachella Valley (3)	X		
NORTH COAST AIR BASIN		X		- Non-AQMA portion		X	
NORTHEAST PLATEAU AIR BASIN		X		San Bernardino County			
SACRAMENTO VALLEY AIR BASIN				- Trona	X		
Butte County		X		- Remainder of County	X		
Colusa County		X					
Glenn County		X					
Placer County (portion) (2)		X					
Sacramento County (1)			X				
Shasta County		X					
Solano County (portion)		X					
Sutter County		X					
Tehama County		X					
Yolo County		X					
Yuba County		X					

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.
(1) Air quality in Sacramento County meets the national PM10 standards. The request for redesignation to attainment was approved by U.S. EPA in September 2013.
(2) U.S. EPA designation puts the Sacramento Valley Air Basin portion of Placer County in the Mountain Counties Air Basin.
(3) Air quality in Coachella Valley meets the national PM10 standards. A request for redesignation to attainment has been submitted to U.S. EPA.

FIGURE 13


Area Designations for National Ambient Air Quality Standards PM2.5
N
0
50
100
150
200
Miles
NORTH COAST
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
Humboldt
Trinity
Shasta
Lassen
Tehama
SACRAMENTO VALLEY
Plumas
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Mendocino
Nevada
LAKE COUNTY
Colusa
Yuba
Placer
Lake
Sutter
LAKE TAHOE
Yolo
El Dorado
Sonoma
Napa
Sacramento
Alpine
Amador
SAN FRANCISCO BAY AREA
Solano
Calaveras
GREAT BASIN VALLEYS
Marin
Tuolumne
Contra Costa
San Joaquin
Mono
Alameda
Stanislaus
Mariposa
San Mateo
Merced
Santa Clara
Madera
Santa Cruz
Fresno
NORTH CENTRAL COAST
San Benito
SAN JOAQUIN VALLEY
Inyo
Tulare
Monterey
Kings
San Luis Obispo
Kern
San Bernardino
SOUTH CENTRAL COAST
Santa Barbara
SOUTHEAST DESERT
Ventura
Los Angeles
Riverside
Orange
SOUTH COAST
Imperial
San Diego
SAN DIEGO COUNTY
Unclassified/Attainment
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 13

National Ambient Air Quality Standards
Area Designations for Fine Particulate Matter (PM2.5)*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SAN DIEGO COUNTY		X
LAKE COUNTY AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN (2)	X	
LAKE TAHOE AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN	X	
MOUNTAIN COUNTIES AIR BASIN			SOUTH CENTRAL COAST AIR BASIN		X
Plumas County			SOUTH COAST AIR BASIN (3)	X	
- Portola Valley Portion of Plumas	X		SOUTHEAST DESERT AIR BASIN		
- Remainder of Plumas County		X	Imperial County (portion) (4)	X	
Remainder of Air Basin		X	Remainder of Air Basin		X
NORTH CENTRAL COAST AIR BASIN		X			
NORTH COAST AIR BASIN		X			
NORTHEAST PLATEAU AIR BASIN		X			
SACRAMENTO VALLEY AIR BASIN					
Sacramento Metro Area (1)	X				
Sutter County		X			
Yuba County (portion)		X			
Remainder of Air Basin		X			

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305. This map reflects the 2006 24-hour PM2.5 standard as well as the 1997 and 2012 PM2.5 annual standards.

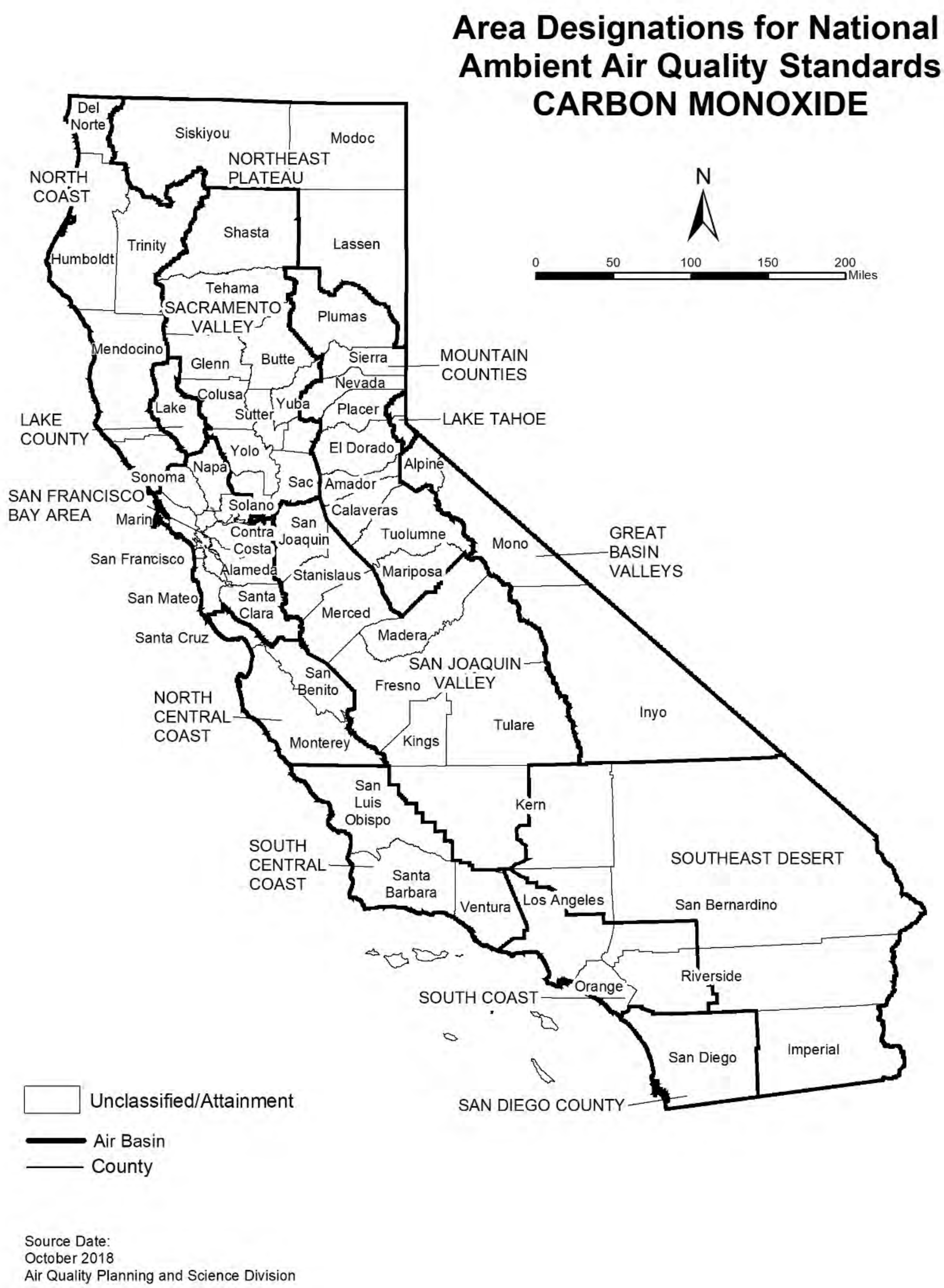
(1) For this purpose, Sacramento Metro Area comprises all of Sacramento and portions of El Dorado, Placer, Solano, and Yolo Counties. Air quality in this area meets the national PM2.5 standards. A Determination of Attainment for the 2006 24-hour PM2.5 standard was made by U.S. EPA in June 2017.

(2) Air quality in this area meets the national PM2.5 standards. A Determination of Attainment for the 2006 24-hour PM2.5 standard was made by U.S. EPA in June 2017.

(3) Those lands of the Santa Rosa Band of Cahulla Mission Indians in Riverside County are designated Unclassifiable/Attainment.

(4) That portion of Imperial County encompassing the urban and surrounding areas of Brawley, Calexico, El Centro, Heber, Holtville, Imperial, Seeley, and Westmorland. Air quality in this area meets the national PM2.5 standards. A Determination of Attainment for the 2006 24-hour PM2.5 standard was made by U.S. EPA in June 2017.

FIGURE 14



Area Designations for National
Ambient Air Quality Standards
CARBON MONOXIDE
N
0 50 100 150 200 Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Shasta
Lassen
Trinity
Humboldt
Tehama
SACRAMENTO VALLEY
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Nevada
Colusa
Yuba
Lake
Sutter
Placer
LAKE TAHOE
LAKE COUNTY
Yolo
El Dorado
Napa
Alpine
Sonoma
Sac
Amador
SAN FRANCISCO BAY AREA
Solano
Calaveras
Marin
Contra Costa
San Joaquin
Tuolumne
Mono
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Santa Cruz
Madera
SAN JOAQUIN VALLEY
San Benito
Fresno
NORTH CENTRAL COAST
Inyo
Tulare
Monterey
Kings
San Luis Obispo
Kern
SOUTH CENTRAL COAST
SOUTHEAST DESERT
Santa Barbara
Ventura
Los Angeles
San Bernardino
Riverside
Orange
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
Unclassified/Attainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 14

National Ambient Air Quality Standards
Area Designations for Carbon Monoxide*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SACRAMENTO VALLEY AIR BASIN		X
LAKE COUNTY AIR BASIN		X	SAN DIEGO COUNTY		X
LAKE TAHOE AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X	SOUTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		X

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

FIGURE 15


Area Designations for National Ambient Air Quality Standards NITROGEN DIOXIDE
N
0 50 100 150 200 Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Shasta
Lassen
Trinity
Humboldt
Tehema
Plumas
SACRAMENTO VALLEY
Mendocino
Glenn
Butte
Sierra
Nevada
MOUNTAIN COUNTIES
Colusa
Yuba
Placer
LAKE TAHOE
LAKE COUNTY
Lake
Sutter
Yolo
El Dorado
Napa
Alpine
Sonoma
Sac
Amador
SAN FRANCISCO BAY AREA
Solano
Marin
Contra Costa
San Joaquin
Calaveras
Tuolumne
Mono
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Santa Cruz
Madera
SAN JOAQUIN VALLEY
San Benito
NORTH CENTRAL COAST
Fresno
Inyo
Tulare
Monterey
Kings
San Luis Obispo
Kern
SOUTH CENTRAL COAST
SOUTHEAST DESERT
Santa Barbara
Los Angeles
San Bernardino
Ventura
Riverside
Orange
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
Unclassified/Attainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

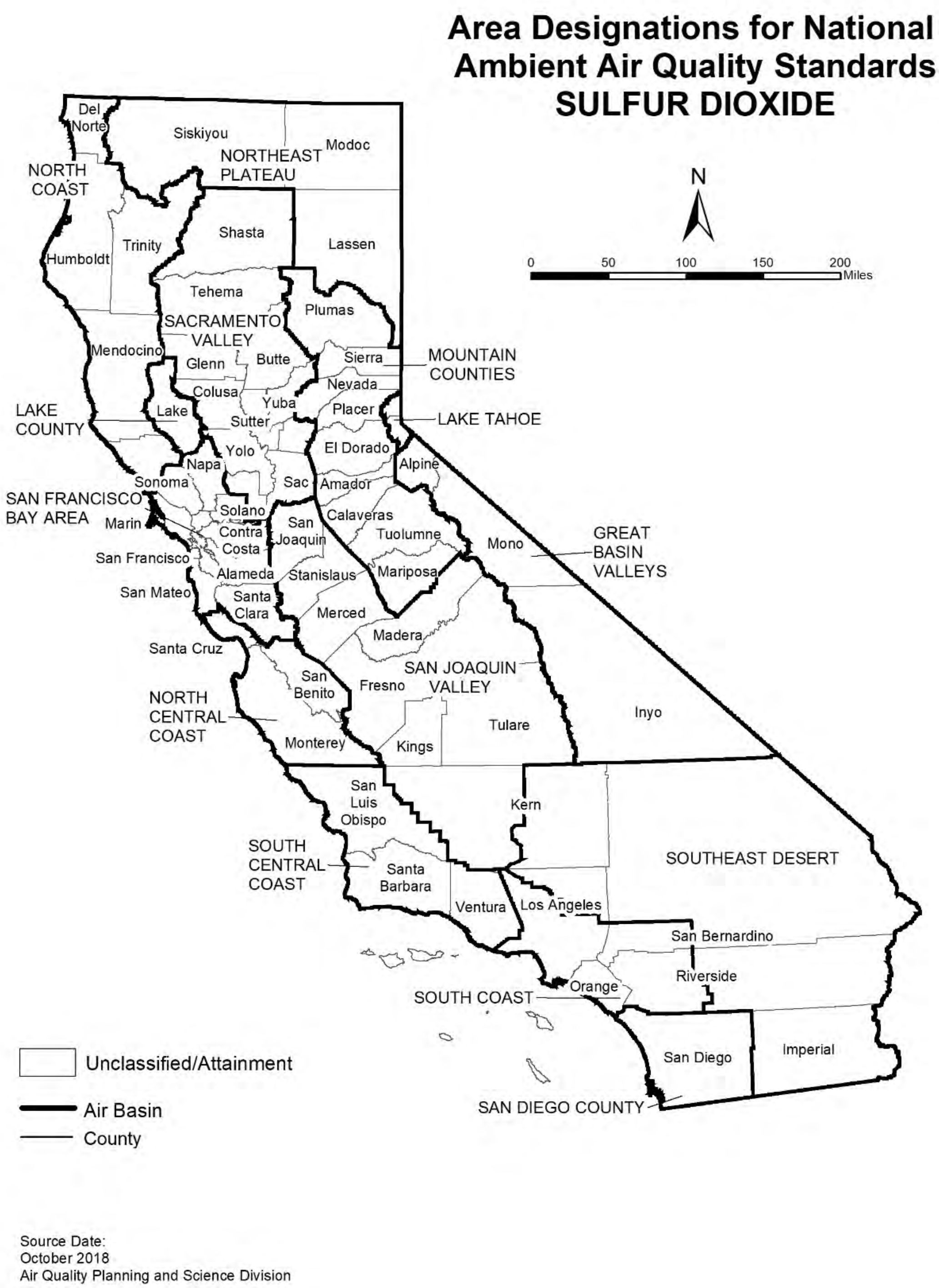
TABLE 15

National Ambient Air Quality Standards
Area Designations for Nitrogen Dioxide*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SACRAMENTO VALLEY AIR BASIN		X
LAKE COUNTY AIR BASIN		X	SAN DIEGO COUNTY		X
LAKE TAHOE AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		X
NORTH COAST AIR BASIN		X	SOUTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		X

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

FIGURE 16



Area Designations for National Ambient Air Quality Standards SULFUR DIOXIDE
N
0 50 100 150 200 Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Shasta
Lassen
Trinity
Humboldt
Tehema
Plumas
SACRAMENTO VALLEY
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Colusa
Nevada
Yuba
LAKE COUNTY
Lake
Sutter
Placer
LAKE TAHOE
Yolo
El Dorado
Napa
Alpine
Sonoma
Sac
Amador
SAN FRANCISCO BAY AREA
Solano
Marin
Contra Costa
San Joaquin
Calaveras
Tuolumne
Mono
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Madera
Santa Cruz
SAN JOAQUIN VALLEY
San Benito
Fresno
NORTH CENTRAL COAST
Inyo
Tulare
Monterey
Kings
San Luis Obispo
Kern
SOUTH CENTRAL COAST
SOUTHEAST DESERT
Santa Barbara
Ventura
Los Angeles
San Bernardino
Riverside
Orange
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
Unclassified/Attainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 16

National Ambient Air Quality Standards
Area Designations for Sulfur Dioxide*

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		
LAKE COUNTY AIR BASIN		X	San Luis Obispo County		X
LAKE TAHOE AIR BASIN		X	Santa Barbara County		X
MOUNTAIN COUNTIES AIR BASIN		X	Ventura County		X
NORTH CENTRAL COAST AIR BASIN		X	Channel Islands (1)		X
NORTH COAST AIR BASIN		X	SOUTH COAST AIR BASIN		X
NORTHEAST PLATEAU AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		
SACRAMENTO VALLEY AIR BASIN		X	Imperial County		X
SAN DIEGO COUNTY		X	Remainder of Air Basin		X
SAN FRANCISCO BAY AREA AIR BASIN		X			
SAN JOAQUIN VALLEY AIR BASIN					
Fresno County		X			
Kern County (portion)		X			
Kings County		X			
Madera County		X			
Merced County		X			
San Joaquin County		X			
Stanislaus County		X			
Tulare County		X			

* Definitions and references for all areas can be found in 40 CFR, Chapter I, Part 81.305.

NOTE: This map and table reflect the 2010 1-hour SO_2 standard of 75 ppb.

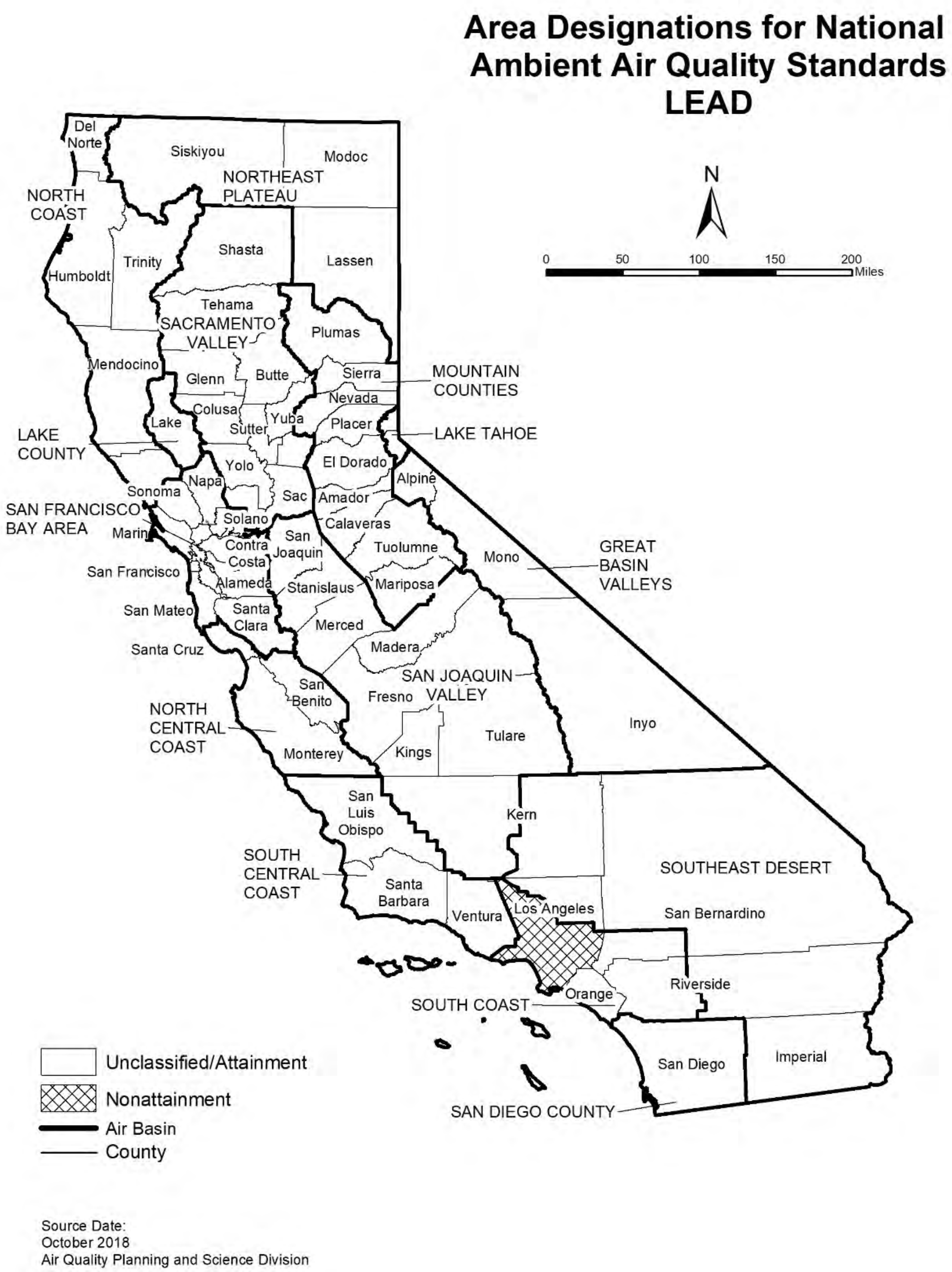
(1) South Central Coast Air Basin Channel Islands:

Santa Barbara County includes Santa Cruz, San Miguel, Santa Rosa, and Santa Barbara Islands.

Ventura County includes Anacapa and San Nicolas Islands.

Note that the San Clemente and Santa Catalina Islands are considered part of Los Angeles County, and therefore, are included as part of the South Coast Air Basin.

FIGURE 17



Area Designations for National Ambient Air Quality Standards
LEAD
N
0
50
100
150
200
Miles
Del Norte
Siskiyou
Modoc
NORTHEAST PLATEAU
NORTH COAST
Shasta
Lassen
Trinity
Humboldt
Tehama
SACRAMENTO VALLEY
Plumas
Mendocino
Glenn
Butte
Sierra
MOUNTAIN COUNTIES
Nevada
Colusa
Yuba
Lake
Sutter
Placer
LAKE TAHOE
LAKE COUNTY
El Dorado
Yolo
Napa
Alpine
Sonoma
Sac
Amador
SAN FRANCISCO BAY AREA
Solano
Marin
Calaveras
San Joaquin
Contra Costa
Tuolumne
Mono
GREAT BASIN VALLEYS
San Francisco
Alameda
Stanislaus
Mariposa
San Mateo
Santa Clara
Merced
Santa Cruz
Madera
SAN JOAQUIN VALLEY
San Benito
Fresno
NORTH CENTRAL COAST
Inyo
Tulare
Monterey
Kings
San Luis Obispo
Kern
SOUTH CENTRAL COAST
SOUTHEAST DESERT
Santa Barbara
Ventura
Los Angeles
San Bernardino
Riverside
Orange
SOUTH COAST
San Diego
Imperial
SAN DIEGO COUNTY
Unclassified/Attainment
Nonattainment
Air Basin
County
Source Date:
October 2018
Air Quality Planning and Science Division

TABLE 17

National Ambient Air Quality Standards
Area Designations for Lead (particulate)

	N	U/A		N	U/A
GREAT BASIN VALLEYS AIR BASIN		X	SAN DIEGO COUNTY		X
LAKE COUNTY AIR BASIN		X	SAN FRANCISCO BAY AREA AIR BASIN		X
LAKE TAHOE AIR BASIN		X	SAN JOAQUIN VALLEY AIR BASIN		X
MOUNTAIN COUNTIES AIR BASIN		X	SOUTH CENTRAL COAST AIR BASIN		X
NORTH CENTRAL COAST AIR BASIN		X	SOUTH COAST AIR BASIN		
NORTH COAST AIR BASIN		X	Los Angeles County (portion) (1)	X	
NORTHEAST PLATEAU AIR BASIN		X	Remainder of Air Basin		X
SACRAMENTO VALLEY AIR BASIN		X	SOUTHEAST DESERT AIR BASIN		X

(1) Portion of County in Air Basin, not including Channel Islands

APPENDIX 3.1:

CALEEMOD CONSTRUCTION AND OPERATIONAL EMISSIONS MODEL OUTPUTS

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12769 - Lake and Mountain

Riverside-South Coast County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	5.01	Acre	5.01	218,235.60	0
Fast Food Restaurant with Drive Thru	7.37	1000sqft	0.17	7,365.00	0
Convenience Market With Gas Pumps	3.40	1000sqft	0.08	3,400.00	0
Regional Shopping Center	13.20	1000sqft	0.30	13,200.00	0
User Defined Retail	1.00	User Defined Unit	0.07	3,150.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.4 **Precipitation Freq (Days)** 28

Climate Zone 10 **Operational Year** 2021

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 702.44 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot acerage = information from site plan

Construction Phase -

Off-road Equipment - Hours are based on an 8-hour workday.

Off-road Equipment - Hours are based on an 8-hour workday.

Off-road Equipment - Crawler Tractors Utilized in Lieu of T/L/B

Off-road Equipment -

Off-road Equipment - Crawler Tractors Utilized in Lieu of T/L/B

Trips and VMT -

Grading -

Vehicle Trips - TG based on ITE 10th edition

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Energy Use - User Defined Retail Rates Consistent with Convenience Market With Gas Pump.

Water And Wastewater - Water Usage from Car Wash estimated as 30 gallons/vehicle washed

Solid Waste - Car Wash Solid Waste assumed to be equivalent to Convenience Market With Gas Pumps

Construction Off-road Equipment Mitigation -

Energy Mitigation -

Water Mitigation -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	0.00	5.61
tblEnergyUse	NT24E	0.00	2.44
tblEnergyUse	NT24NG	0.00	0.30
tblEnergyUse	T24E	0.00	4.58

tblEnergyUse	T24NG	0.00	1.92
tblFleetMix	HHD	0.07	0.05
tblFleetMix	HHD	0.07	0.05
tblFleetMix	HHD	0.07	0.05
tblFleetMix	HHD	0.07	0.05
tblFleetMix	LDA	0.54	0.69
tblFleetMix	LDA	0.54	0.69
tblFleetMix	LDA	0.54	0.69
tblFleetMix	LDA	0.54	0.69
tblFleetMix	LDT1	0.04	0.10
tblFleetMix	LDT1	0.04	0.10
tblFleetMix	LDT1	0.04	0.10
tblFleetMix	LDT1	0.04	0.10
tblFleetMix	LDT2	0.19	0.10
tblFleetMix	LDT2	0.19	0.10
tblFleetMix	LDT2	0.19	0.10
tblFleetMix	LDT2	0.19	0.10
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.1410e-003	0.00
tblFleetMix	LHD2	5.1410e-003	0.00
tblFleetMix	LHD2	5.1410e-003	0.00
tblFleetMix	LHD2	5.1410e-003	0.00
tblFleetMix	MCY	4.5820e-003	5.0000e-003
tblFleetMix	MCY	4.5820e-003	5.0000e-003

tblFleetMix	MCY	4.5820e-003	5.0000e-003
tblFleetMix	MCY	4.5820e-003	5.0000e-003
tblFleetMix	MDV	0.12	0.06
tblFleetMix	MDV	0.12	0.06
tblFleetMix	MDV	0.12	0.06
tblFleetMix	MDV	0.12	0.06
tblFleetMix	MH	1.0380e-003	0.00
tblFleetMix	MH	1.0380e-003	0.00
tblFleetMix	MH	1.0380e-003	0.00
tblFleetMix	MH	1.0380e-003	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.3830e-003	0.00
tblFleetMix	OBUS	1.3830e-003	0.00
tblFleetMix	OBUS	1.3830e-003	0.00
tblFleetMix	OBUS	1.3830e-003	0.00
tblFleetMix	SBUS	9.4500e-004	0.00
tblFleetMix	SBUS	9.4500e-004	0.00
tblFleetMix	SBUS	9.4500e-004	0.00
tblFleetMix	SBUS	9.4500e-004	0.00
tblFleetMix	UBUS	1.1830e-003	0.00
tblFleetMix	UBUS	1.1830e-003	0.00
tblFleetMix	UBUS	1.1830e-003	0.00
tblFleetMix	UBUS	1.1830e-003	0.00
tblGrading	MaterialExported	0.00	22,417.00

tblLandUse	LandUseSquareFeet	7,370.00	7,365.00
tblLandUse	LandUseSquareFeet	0.00	3,150.00
tblLandUse	LotAcreage	0.00	0.07
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblSolidWaste	SolidWasteGenerationRate	0.00	10.22
tblVehicleEF	HHD	1.43	0.03
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.10	0.00
tblVehicleEF	HHD	3.28	7.55
tblVehicleEF	HHD	0.46	0.36
tblVehicleEF	HHD	1.46	2.9270e-003
tblVehicleEF	HHD	6,485.38	1,409.07
tblVehicleEF	HHD	1,461.92	1,350.00
tblVehicleEF	HHD	4.62	0.03
tblVehicleEF	HHD	26.41	7.34
tblVehicleEF	HHD	2.69	3.05
tblVehicleEF	HHD	0.01	0.01

tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	3.8000e-005	0.00
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8680e-003	8.8980e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	3.5000e-005	0.00
tblVehicleEF	HHD	8.4000e-005	4.0000e-006
tblVehicleEF	HHD	2.5800e-003	1.0300e-004
tblVehicleEF	HHD	0.85	0.58
tblVehicleEF	HHD	4.8000e-005	2.0000e-006
tblVehicleEF	HHD	0.07	0.07
tblVehicleEF	HHD	1.8000e-004	5.3700e-004
tblVehicleEF	HHD	0.05	1.0000e-006
tblVehicleEF	HHD	0.06	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	7.1000e-005	0.00
tblVehicleEF	HHD	8.4000e-005	4.0000e-006
tblVehicleEF	HHD	2.5800e-003	1.0300e-004
tblVehicleEF	HHD	0.97	0.66
tblVehicleEF	HHD	4.8000e-005	2.0000e-006
tblVehicleEF	HHD	0.11	0.09
tblVehicleEF	HHD	1.8000e-004	5.3700e-004
tblVehicleEF	HHD	0.05	1.0000e-006
tblVehicleEF	HHD	1.35	0.03

tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.10	0.00
tblVehicleEF	HHD	2.39	7.39
tblVehicleEF	HHD	0.46	0.36
tblVehicleEF	HHD	1.39	2.7700e-003
tblVehicleEF	HHD	6,867.98	1,402.59
tblVehicleEF	HHD	1,461.92	1,350.00
tblVehicleEF	HHD	4.62	0.03
tblVehicleEF	HHD	27.25	7.10
tblVehicleEF	HHD	2.54	2.88
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	3.8000e-005	0.00
tblVehicleEF	HHD	0.01	9.7680e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8680e-003	8.8980e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	3.5000e-005	0.00
tblVehicleEF	HHD	1.6300e-004	8.0000e-006
tblVehicleEF	HHD	2.9560e-003	1.1800e-004
tblVehicleEF	HHD	0.80	0.60
tblVehicleEF	HHD	9.2000e-005	4.0000e-006
tblVehicleEF	HHD	0.07	0.07
tblVehicleEF	HHD	1.8400e-004	5.5600e-004
tblVehicleEF	HHD	0.04	1.0000e-006

tblVehicleEF	HHD	0.06	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	6.9000e-005	0.00
tblVehicleEF	HHD	1.6300e-004	8.0000e-006
tblVehicleEF	HHD	2.9560e-003	1.1800e-004
tblVehicleEF	HHD	0.92	0.69
tblVehicleEF	HHD	9.2000e-005	4.0000e-006
tblVehicleEF	HHD	0.11	0.09
tblVehicleEF	HHD	1.8400e-004	5.5600e-004
tblVehicleEF	HHD	0.05	1.0000e-006
tblVehicleEF	HHD	1.54	0.03
tblVehicleEF	HHD	0.03	3.2330e-003
tblVehicleEF	HHD	0.10	0.00
tblVehicleEF	HHD	4.51	7.76
tblVehicleEF	HHD	0.45	0.32
tblVehicleEF	HHD	1.47	2.9120e-003
tblVehicleEF	HHD	5,957.03	1,414.57
tblVehicleEF	HHD	1,461.92	1,340.32
tblVehicleEF	HHD	4.62	0.03
tblVehicleEF	HHD	25.25	7.65
tblVehicleEF	HHD	2.67	3.02
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	3.8000e-005	0.00
tblVehicleEF	HHD	0.02	0.01

tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8680e-003	8.8710e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	3.5000e-005	0.00
tblVehicleEF	HHD	6.7000e-005	4.0000e-006
tblVehicleEF	HHD	2.7490e-003	1.2100e-004
tblVehicleEF	HHD	0.91	0.54
tblVehicleEF	HHD	4.1000e-005	2.0000e-006
tblVehicleEF	HHD	0.07	0.07
tblVehicleEF	HHD	1.9200e-004	5.6500e-004
tblVehicleEF	HHD	0.05	1.0000e-006
tblVehicleEF	HHD	0.06	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	7.1000e-005	0.00
tblVehicleEF	HHD	6.7000e-005	4.0000e-006
tblVehicleEF	HHD	2.7490e-003	1.2100e-004
tblVehicleEF	HHD	1.05	0.62
tblVehicleEF	HHD	4.1000e-005	2.0000e-006
tblVehicleEF	HHD	0.11	0.08
tblVehicleEF	HHD	1.9200e-004	5.6500e-004
tblVehicleEF	HHD	0.05	1.0000e-006
tblVehicleEF	LDA	4.0430e-003	2.4680e-003
tblVehicleEF	LDA	5.4670e-003	0.05
tblVehicleEF	LDA	0.58	0.66
tblVehicleEF	LDA	1.16	2.12
tblVehicleEF	LDA	255.91	265.87
tblVehicleEF	LDA	58.81	54.73

tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	1.6140e-003	1.4470e-003
tblVehicleEF	LDA	2.2650e-003	1.9190e-003
tblVehicleEF	LDA	1.4880e-003	1.3330e-003
tblVehicleEF	LDA	2.0830e-003	1.7640e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.10	0.10
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.01	9.5180e-003
tblVehicleEF	LDA	0.04	0.21
tblVehicleEF	LDA	0.07	0.23
tblVehicleEF	LDA	2.5630e-003	2.6300e-003
tblVehicleEF	LDA	6.0800e-004	5.4200e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.10	0.10
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.21
tblVehicleEF	LDA	0.08	0.25
tblVehicleEF	LDA	4.5900e-003	2.8100e-003
tblVehicleEF	LDA	4.7470e-003	0.05
tblVehicleEF	LDA	0.71	0.81
tblVehicleEF	LDA	1.02	1.87
tblVehicleEF	LDA	278.73	289.14
tblVehicleEF	LDA	58.81	54.24
tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	1.6140e-003	1.4470e-003

tblVehicleEF	LDA	2.2650e-003	1.9190e-003
tblVehicleEF	LDA	1.4880e-003	1.3330e-003
tblVehicleEF	LDA	2.0830e-003	1.7640e-003
tblVehicleEF	LDA	0.10	0.14
tblVehicleEF	LDA	0.12	0.12
tblVehicleEF	LDA	0.07	0.10
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.21
tblVehicleEF	LDA	0.06	0.20
tblVehicleEF	LDA	2.7930e-003	2.8600e-003
tblVehicleEF	LDA	6.0500e-004	5.3700e-004
tblVehicleEF	LDA	0.10	0.14
tblVehicleEF	LDA	0.12	0.12
tblVehicleEF	LDA	0.07	0.10
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.21
tblVehicleEF	LDA	0.07	0.22
tblVehicleEF	LDA	3.8980e-003	2.3810e-003
tblVehicleEF	LDA	5.6140e-003	0.05
tblVehicleEF	LDA	0.54	0.62
tblVehicleEF	LDA	1.19	2.17
tblVehicleEF	LDA	249.57	259.47
tblVehicleEF	LDA	58.81	54.82
tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	1.6140e-003	1.4470e-003
tblVehicleEF	LDA	2.2650e-003	1.9190e-003
tblVehicleEF	LDA	1.4880e-003	1.3330e-003

tblVehicleEF	LDA	2.0830e-003	1.7640e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	9.8140e-003	9.1880e-003
tblVehicleEF	LDA	0.04	0.24
tblVehicleEF	LDA	0.08	0.23
tblVehicleEF	LDA	2.4990e-003	2.5670e-003
tblVehicleEF	LDA	6.0800e-004	5.4200e-004
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.24
tblVehicleEF	LDA	0.08	0.26
tblVehicleEF	LDT1	0.01	8.0140e-003
tblVehicleEF	LDT1	0.02	0.09
tblVehicleEF	LDT1	1.46	1.62
tblVehicleEF	LDT1	3.40	2.43
tblVehicleEF	LDT1	315.98	317.00
tblVehicleEF	LDT1	72.28	66.64
tblVehicleEF	LDT1	0.14	0.14
tblVehicleEF	LDT1	2.5300e-003	2.2930e-003
tblVehicleEF	LDT1	3.6970e-003	2.9510e-003
tblVehicleEF	LDT1	2.3290e-003	2.1110e-003
tblVehicleEF	LDT1	3.4000e-003	2.7140e-003
tblVehicleEF	LDT1	0.21	0.23

tblVehicleEF	LDT1	0.35	0.27
tblVehicleEF	LDT1	0.14	0.15
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.20	0.87
tblVehicleEF	LDT1	0.24	0.44
tblVehicleEF	LDT1	3.1780e-003	3.1370e-003
tblVehicleEF	LDT1	7.8300e-004	6.5900e-004
tblVehicleEF	LDT1	0.21	0.23
tblVehicleEF	LDT1	0.35	0.27
tblVehicleEF	LDT1	0.14	0.15
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.20	0.87
tblVehicleEF	LDT1	0.26	0.48
tblVehicleEF	LDT1	0.01	9.0560e-003
tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	1.76	1.96
tblVehicleEF	LDT1	2.99	2.15
tblVehicleEF	LDT1	343.19	341.79
tblVehicleEF	LDT1	72.28	66.01
tblVehicleEF	LDT1	0.13	0.13
tblVehicleEF	LDT1	2.5300e-003	2.2930e-003
tblVehicleEF	LDT1	3.6970e-003	2.9510e-003
tblVehicleEF	LDT1	2.3290e-003	2.1110e-003
tblVehicleEF	LDT1	3.4000e-003	2.7140e-003
tblVehicleEF	LDT1	0.41	0.44
tblVehicleEF	LDT1	0.43	0.34
tblVehicleEF	LDT1	0.27	0.29

tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.20	0.88
tblVehicleEF	LDT1	0.21	0.38
tblVehicleEF	LDT1	3.4550e-003	3.3820e-003
tblVehicleEF	LDT1	7.7500e-004	6.5300e-004
tblVehicleEF	LDT1	0.41	0.44
tblVehicleEF	LDT1	0.43	0.34
tblVehicleEF	LDT1	0.27	0.29
tblVehicleEF	LDT1	0.05	0.06
tblVehicleEF	LDT1	0.20	0.88
tblVehicleEF	LDT1	0.23	0.42
tblVehicleEF	LDT1	0.01	7.7080e-003
tblVehicleEF	LDT1	0.02	0.09
tblVehicleEF	LDT1	1.37	1.51
tblVehicleEF	LDT1	3.46	2.48
tblVehicleEF	LDT1	307.88	309.49
tblVehicleEF	LDT1	72.28	66.77
tblVehicleEF	LDT1	0.14	0.14
tblVehicleEF	LDT1	2.5300e-003	2.2930e-003
tblVehicleEF	LDT1	3.6970e-003	2.9510e-003
tblVehicleEF	LDT1	2.3290e-003	2.1110e-003
tblVehicleEF	LDT1	3.4000e-003	2.7140e-003
tblVehicleEF	LDT1	0.18	0.19
tblVehicleEF	LDT1	0.39	0.30
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	0.23	1.01

tblVehicleEF	LDT1	0.25	0.45
tblVehicleEF	LDT1	3.0960e-003	3.0630e-003
tblVehicleEF	LDT1	7.8400e-004	6.6100e-004
tblVehicleEF	LDT1	0.18	0.19
tblVehicleEF	LDT1	0.39	0.30
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.23	1.01
tblVehicleEF	LDT1	0.27	0.50
tblVehicleEF	LDT2	5.6080e-003	4.2470e-003
tblVehicleEF	LDT2	7.2840e-003	0.07
tblVehicleEF	LDT2	0.76	0.98
tblVehicleEF	LDT2	1.53	2.73
tblVehicleEF	LDT2	355.02	338.79
tblVehicleEF	LDT2	81.24	71.51
tblVehicleEF	LDT2	0.08	0.09
tblVehicleEF	LDT2	1.6030e-003	1.4980e-003
tblVehicleEF	LDT2	2.3320e-003	1.9580e-003
tblVehicleEF	LDT2	1.4740e-003	1.3790e-003
tblVehicleEF	LDT2	2.1450e-003	1.8010e-003
tblVehicleEF	LDT2	0.07	0.11
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.01	0.02
tblVehicleEF	LDT2	0.06	0.44
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	3.5560e-003	3.3520e-003

tblVehicleEF	LDT2	8.3800e-004	7.0800e-004
tblVehicleEF	LDT2	0.07	0.11
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.06	0.44
tblVehicleEF	LDT2	0.11	0.37
tblVehicleEF	LDT2	6.3630e-003	4.8280e-003
tblVehicleEF	LDT2	6.3270e-003	0.06
tblVehicleEF	LDT2	0.93	1.20
tblVehicleEF	LDT2	1.35	2.42
tblVehicleEF	LDT2	386.34	362.86
tblVehicleEF	LDT2	81.24	70.86
tblVehicleEF	LDT2	0.07	0.08
tblVehicleEF	LDT2	1.6030e-003	1.4980e-003
tblVehicleEF	LDT2	2.3320e-003	1.9580e-003
tblVehicleEF	LDT2	1.4740e-003	1.3790e-003
tblVehicleEF	LDT2	2.1450e-003	1.8010e-003
tblVehicleEF	LDT2	0.14	0.22
tblVehicleEF	LDT2	0.14	0.17
tblVehicleEF	LDT2	0.10	0.17
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.44
tblVehicleEF	LDT2	0.09	0.29
tblVehicleEF	LDT2	3.8710e-003	3.5900e-003
tblVehicleEF	LDT2	8.3500e-004	7.0100e-004
tblVehicleEF	LDT2	0.14	0.22

tblVehicleEF	LDT2	0.14	0.17
tblVehicleEF	LDT2	0.10	0.17
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.06	0.44
tblVehicleEF	LDT2	0.09	0.32
tblVehicleEF	LDT2	5.3900e-003	4.0760e-003
tblVehicleEF	LDT2	7.4940e-003	0.07
tblVehicleEF	LDT2	0.71	0.91
tblVehicleEF	LDT2	1.57	2.80
tblVehicleEF	LDT2	345.65	331.49
tblVehicleEF	LDT2	81.24	71.65
tblVehicleEF	LDT2	0.08	0.09
tblVehicleEF	LDT2	1.6030e-003	1.4980e-003
tblVehicleEF	LDT2	2.3320e-003	1.9580e-003
tblVehicleEF	LDT2	1.4740e-003	1.3790e-003
tblVehicleEF	LDT2	2.1450e-003	1.8010e-003
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.13	0.15
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.01	0.02
tblVehicleEF	LDT2	0.07	0.51
tblVehicleEF	LDT2	0.10	0.34
tblVehicleEF	LDT2	3.4620e-003	3.2800e-003
tblVehicleEF	LDT2	8.3900e-004	7.0900e-004
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.13	0.15
tblVehicleEF	LDT2	0.05	0.07

tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.51
tblVehicleEF	LDT2	0.11	0.38
tblVehicleEF	LHD1	5.4460e-003	4.8820e-003
tblVehicleEF	LHD1	0.01	5.3310e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	0.96	0.72
tblVehicleEF	LHD1	2.41	0.96
tblVehicleEF	LHD1	9.26	9.44
tblVehicleEF	LHD1	607.95	639.95
tblVehicleEF	LHD1	30.36	10.54
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	2.21	1.60
tblVehicleEF	LHD1	9.7200e-004	9.7000e-004
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.7100e-004	2.3300e-004
tblVehicleEF	LHD1	9.3000e-004	9.2800e-004
tblVehicleEF	LHD1	2.5390e-003	2.5010e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.0100e-004	2.1400e-004
tblVehicleEF	LHD1	3.8710e-003	3.1780e-003
tblVehicleEF	LHD1	0.10	0.08
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.9010e-003	1.5570e-003
tblVehicleEF	LHD1	0.08	0.06

tblVehicleEF	LHD1	0.31	0.50
tblVehicleEF	LHD1	0.26	0.08
tblVehicleEF	LHD1	9.3000e-005	9.1000e-005
tblVehicleEF	LHD1	5.9620e-003	6.2250e-003
tblVehicleEF	LHD1	3.4900e-004	1.0400e-004
tblVehicleEF	LHD1	3.8710e-003	3.1780e-003
tblVehicleEF	LHD1	0.10	0.08
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.9010e-003	1.5570e-003
tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.31	0.50
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	5.4460e-003	4.8940e-003
tblVehicleEF	LHD1	0.01	5.4200e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	0.97	0.73
tblVehicleEF	LHD1	2.29	0.92
tblVehicleEF	LHD1	9.26	9.44
tblVehicleEF	LHD1	607.95	639.97
tblVehicleEF	LHD1	30.36	10.46
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	2.08	1.51
tblVehicleEF	LHD1	9.7200e-004	9.7000e-004
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.7100e-004	2.3300e-004

tblVehicleEF	LHD1	9.3000e-004	9.2800e-004
tblVehicleEF	LHD1	2.5390e-003	2.5010e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.0100e-004	2.1400e-004
tblVehicleEF	LHD1	7.2450e-003	5.9530e-003
tblVehicleEF	LHD1	0.12	0.09
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.6380e-003	2.9980e-003
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	0.32	0.50
tblVehicleEF	LHD1	0.25	0.07
tblVehicleEF	LHD1	9.3000e-005	9.1000e-005
tblVehicleEF	LHD1	5.9620e-003	6.2250e-003
tblVehicleEF	LHD1	3.4700e-004	1.0300e-004
tblVehicleEF	LHD1	7.2450e-003	5.9530e-003
tblVehicleEF	LHD1	0.12	0.09
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	3.6380e-003	2.9980e-003
tblVehicleEF	LHD1	0.10	0.08
tblVehicleEF	LHD1	0.32	0.50
tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	5.4460e-003	4.8810e-003
tblVehicleEF	LHD1	0.01	5.3180e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	0.96	0.72
tblVehicleEF	LHD1	2.41	0.96

tblVehicleEF	LHD1	9.26	9.44
tblVehicleEF	LHD1	607.95	639.95
tblVehicleEF	LHD1	30.36	10.54
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	2.18	1.59
tblVehicleEF	LHD1	9.7200e-004	9.7000e-004
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.7100e-004	2.3300e-004
tblVehicleEF	LHD1	9.3000e-004	9.2800e-004
tblVehicleEF	LHD1	2.5390e-003	2.5010e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.0100e-004	2.1400e-004
tblVehicleEF	LHD1	3.4570e-003	2.8250e-003
tblVehicleEF	LHD1	0.11	0.09
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.7350e-003	1.4150e-003
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	0.33	0.53
tblVehicleEF	LHD1	0.26	0.08
tblVehicleEF	LHD1	9.3000e-005	9.1000e-005
tblVehicleEF	LHD1	5.9620e-003	6.2250e-003
tblVehicleEF	LHD1	3.4900e-004	1.0400e-004
tblVehicleEF	LHD1	3.4570e-003	2.8250e-003
tblVehicleEF	LHD1	0.11	0.09
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.7350e-003	1.4150e-003

tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.33	0.53
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD2	3.6660e-003	3.1720e-003
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tblVehicleEF	LHD2	8.3110e-003	9.0280e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.50	0.53
tblVehicleEF	LHD2	1.15	0.56
tblVehicleEF	LHD2	14.48	14.86
tblVehicleEF	LHD2	604.20	638.83
tblVehicleEF	LHD2	23.56	7.29
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	1.71	1.77
tblVehicleEF	LHD2	1.3360e-003	1.4390e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.8700e-004	1.1400e-004
tblVehicleEF	LHD2	1.2780e-003	1.3770e-003
tblVehicleEF	LHD2	2.6970e-003	2.7110e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.5600e-004	1.0500e-004
tblVehicleEF	LHD2	1.4980e-003	1.6870e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.7800e-004	8.4200e-004
tblVehicleEF	LHD2	0.06	0.06

tblVehicleEF	LHD2	0.09	0.25
tblVehicleEF	LHD2	0.11	0.04
tblVehicleEF	LHD2	1.4100e-004	1.4200e-004
tblVehicleEF	LHD2	5.8740e-003	6.1550e-003
tblVehicleEF	LHD2	2.5700e-004	7.2000e-005
tblVehicleEF	LHD2	1.4980e-003	1.6870e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.7800e-004	8.4200e-004
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.09	0.25
tblVehicleEF	LHD2	0.12	0.05
tblVehicleEF	LHD2	3.6660e-003	3.1790e-003
tblVehicleEF	LHD2	4.5800e-003	3.8860e-003
tblVehicleEF	LHD2	8.0210e-003	8.7250e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.51	0.53
tblVehicleEF	LHD2	1.10	0.53
tblVehicleEF	LHD2	14.48	14.86
tblVehicleEF	LHD2	604.20	638.83
tblVehicleEF	LHD2	23.56	7.25
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	1.62	1.67
tblVehicleEF	LHD2	1.3360e-003	1.4390e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.8700e-004	1.1400e-004

tblVehicleEF	LHD2	1.2780e-003	1.3770e-003
tblVehicleEF	LHD2	2.6970e-003	2.7110e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.5600e-004	1.0500e-004
tblVehicleEF	LHD2	2.8320e-003	3.1830e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.4720e-003	1.6130e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.09	0.25
tblVehicleEF	LHD2	0.11	0.04
tblVehicleEF	LHD2	1.4100e-004	1.4200e-004
tblVehicleEF	LHD2	5.8740e-003	6.1560e-003
tblVehicleEF	LHD2	2.5600e-004	7.2000e-005
tblVehicleEF	LHD2	2.8320e-003	3.1830e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.4720e-003	1.6130e-003
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.09	0.25
tblVehicleEF	LHD2	0.12	0.05
tblVehicleEF	LHD2	3.6660e-003	3.1700e-003
tblVehicleEF	LHD2	4.5170e-003	3.8490e-003
tblVehicleEF	LHD2	8.3600e-003	9.0930e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.50	0.53
tblVehicleEF	LHD2	1.16	0.56

tblVehicleEF	LHD2	14.48	14.86
tblVehicleEF	LHD2	604.20	638.83
tblVehicleEF	LHD2	23.56	7.30
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	1.70	1.75
tblVehicleEF	LHD2	1.3360e-003	1.4390e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.8700e-004	1.1400e-004
tblVehicleEF	LHD2	1.2780e-003	1.3770e-003
tblVehicleEF	LHD2	2.6970e-003	2.7110e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.5600e-004	1.0500e-004
tblVehicleEF	LHD2	1.1910e-003	1.3290e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	6.6000e-004	7.0100e-004
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.09	0.27
tblVehicleEF	LHD2	0.11	0.04
tblVehicleEF	LHD2	1.4100e-004	1.4200e-004
tblVehicleEF	LHD2	5.8740e-003	6.1550e-003
tblVehicleEF	LHD2	2.5700e-004	7.2000e-005
tblVehicleEF	LHD2	1.1910e-003	1.3290e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.6000e-004	7.0100e-004

tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.09	0.27
tblVehicleEF	LHD2	0.12	0.05
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	19.52	19.61
tblVehicleEF	MCY	9.67	8.55
tblVehicleEF	MCY	165.74	208.30
tblVehicleEF	MCY	46.23	60.73
tblVehicleEF	MCY	1.13	1.13
tblVehicleEF	MCY	1.7750e-003	1.7570e-003
tblVehicleEF	MCY	3.4010e-003	2.8660e-003
tblVehicleEF	MCY	1.6600e-003	1.6440e-003
tblVehicleEF	MCY	3.2060e-003	2.7000e-003
tblVehicleEF	MCY	1.69	1.66
tblVehicleEF	MCY	0.85	0.84
tblVehicleEF	MCY	0.92	0.90
tblVehicleEF	MCY	2.15	2.16
tblVehicleEF	MCY	0.57	1.87
tblVehicleEF	MCY	2.08	1.83
tblVehicleEF	MCY	2.0380e-003	2.0610e-003
tblVehicleEF	MCY	6.8100e-004	6.0100e-004
tblVehicleEF	MCY	1.69	1.66
tblVehicleEF	MCY	0.85	0.84
tblVehicleEF	MCY	0.92	0.90
tblVehicleEF	MCY	2.65	2.65
tblVehicleEF	MCY	0.57	1.87

tblVehicleEF	MCY	2.26	1.99
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	20.23	20.27
tblVehicleEF	MCY	9.11	8.00
tblVehicleEF	MCY	165.74	209.26
tblVehicleEF	MCY	46.23	59.19
tblVehicleEF	MCY	0.98	0.98
tblVehicleEF	MCY	1.7750e-003	1.7570e-003
tblVehicleEF	MCY	3.4010e-003	2.8660e-003
tblVehicleEF	MCY	1.6600e-003	1.6440e-003
tblVehicleEF	MCY	3.2060e-003	2.7000e-003
tblVehicleEF	MCY	3.35	3.28
tblVehicleEF	MCY	1.24	1.23
tblVehicleEF	MCY	2.10	2.05
tblVehicleEF	MCY	2.13	2.13
tblVehicleEF	MCY	0.57	1.86
tblVehicleEF	MCY	1.86	1.63
tblVehicleEF	MCY	2.0490e-003	2.0710e-003
tblVehicleEF	MCY	6.6500e-004	5.8600e-004
tblVehicleEF	MCY	3.35	3.28
tblVehicleEF	MCY	1.24	1.23
tblVehicleEF	MCY	2.10	2.05
tblVehicleEF	MCY	2.62	2.63
tblVehicleEF	MCY	0.57	1.86
tblVehicleEF	MCY	2.02	1.77
tblVehicleEF	MCY	0.42	0.32

tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	19.04	19.14
tblVehicleEF	MCY	9.62	8.49
tblVehicleEF	MCY	165.74	207.52
tblVehicleEF	MCY	46.23	60.64
tblVehicleEF	MCY	1.12	1.12
tblVehicleEF	MCY	1.7750e-003	1.7570e-003
tblVehicleEF	MCY	3.4010e-003	2.8660e-003
tblVehicleEF	MCY	1.6600e-003	1.6440e-003
tblVehicleEF	MCY	3.2060e-003	2.7000e-003
tblVehicleEF	MCY	1.60	1.59
tblVehicleEF	MCY	1.05	1.04
tblVehicleEF	MCY	0.74	0.73
tblVehicleEF	MCY	2.15	2.15
tblVehicleEF	MCY	0.65	2.12
tblVehicleEF	MCY	2.08	1.83
tblVehicleEF	MCY	2.0310e-003	2.0540e-003
tblVehicleEF	MCY	6.8100e-004	6.0000e-004
tblVehicleEF	MCY	1.60	1.59
tblVehicleEF	MCY	1.05	1.04
tblVehicleEF	MCY	0.74	0.73
tblVehicleEF	MCY	2.64	2.65
tblVehicleEF	MCY	0.65	2.12
tblVehicleEF	MCY	2.27	1.99
tblVehicleEF	MDV	0.01	5.7580e-003
tblVehicleEF	MDV	0.02	0.09
tblVehicleEF	MDV	1.42	1.20

tblVehicleEF	MDV	3.18	3.27
tblVehicleEF	MDV	488.89	421.49
tblVehicleEF	MDV	110.15	88.73
tblVehicleEF	MDV	0.17	0.12
tblVehicleEF	MDV	1.7110e-003	1.5730e-003
tblVehicleEF	MDV	2.4630e-003	2.0550e-003
tblVehicleEF	MDV	1.5780e-003	1.4510e-003
tblVehicleEF	MDV	2.2660e-003	1.8910e-003
tblVehicleEF	MDV	0.11	0.13
tblVehicleEF	MDV	0.20	0.17
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.11	0.50
tblVehicleEF	MDV	0.25	0.45
tblVehicleEF	MDV	4.9000e-003	4.1680e-003
tblVehicleEF	MDV	1.1570e-003	8.7800e-004
tblVehicleEF	MDV	0.11	0.13
tblVehicleEF	MDV	0.20	0.17
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.50
tblVehicleEF	MDV	0.27	0.49
tblVehicleEF	MDV	0.01	6.5120e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.73	1.46
tblVehicleEF	MDV	2.81	2.88
tblVehicleEF	MDV	530.71	447.07

tblVehicleEF	MDV	110.15	87.92
tblVehicleEF	MDV	0.16	0.11
tblVehicleEF	MDV	1.7110e-003	1.5730e-003
tblVehicleEF	MDV	2.4630e-003	2.0550e-003
tblVehicleEF	MDV	1.5780e-003	1.4510e-003
tblVehicleEF	MDV	2.2660e-003	1.8910e-003
tblVehicleEF	MDV	0.22	0.26
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.17	0.21
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.50
tblVehicleEF	MDV	0.21	0.39
tblVehicleEF	MDV	5.3230e-003	4.4210e-003
tblVehicleEF	MDV	1.1510e-003	8.7000e-004
tblVehicleEF	MDV	0.22	0.26
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.17	0.21
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.50
tblVehicleEF	MDV	0.23	0.43
tblVehicleEF	MDV	0.01	5.5370e-003
tblVehicleEF	MDV	0.02	0.09
tblVehicleEF	MDV	1.33	1.12
tblVehicleEF	MDV	3.24	3.34
tblVehicleEF	MDV	476.42	413.84
tblVehicleEF	MDV	110.15	88.88
tblVehicleEF	MDV	0.16	0.12

tblVehicleEF	MDV	1.7110e-003	1.5730e-003
tblVehicleEF	MDV	2.4630e-003	2.0550e-003
tblVehicleEF	MDV	1.5780e-003	1.4510e-003
tblVehicleEF	MDV	2.2660e-003	1.8910e-003
tblVehicleEF	MDV	0.09	0.10
tblVehicleEF	MDV	0.21	0.18
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.13	0.57
tblVehicleEF	MDV	0.25	0.46
tblVehicleEF	MDV	4.7750e-003	4.0920e-003
tblVehicleEF	MDV	1.1590e-003	8.8000e-004
tblVehicleEF	MDV	0.09	0.10
tblVehicleEF	MDV	0.21	0.18
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.03
tblVehicleEF	MDV	0.13	0.57
tblVehicleEF	MDV	0.28	0.50
tblVehicleEF	MH	0.03	3.3370e-003
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tblVehicleEF	MH	2.70	0.34
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tblVehicleEF	MH	1,002.10	941.76
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tblVehicleEF	MH	1.67	4.43
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.14

tblVehicleEF	MH	1.0860e-003	0.00
tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.14
tblVehicleEF	MH	9.9800e-004	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.08	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.09	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.35	0.00
tblVehicleEF	MH	9.9460e-003	8.9030e-003
tblVehicleEF	MH	6.8100e-004	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.08	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.13	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.39	0.00
tblVehicleEF	MH	0.03	3.3370e-003
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	2.78	0.34
tblVehicleEF	MH	5.56	0.00
tblVehicleEF	MH	1,002.10	941.76
tblVehicleEF	MH	57.67	0.00
tblVehicleEF	MH	1.55	4.18
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.14

tblVehicleEF	MH	1.0860e-003	0.00
tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.14
tblVehicleEF	MH	9.9800e-004	0.00
tblVehicleEF	MH	2.87	0.00
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tblVehicleEF	MH	0.10	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.34	0.00
tblVehicleEF	MH	9.9470e-003	8.9030e-003
tblVehicleEF	MH	6.7400e-004	0.00
tblVehicleEF	MH	2.87	0.00
tblVehicleEF	MH	0.10	0.00
tblVehicleEF	MH	1.06	0.00
tblVehicleEF	MH	0.13	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
tblVehicleEF	MH	0.03	3.3370e-003
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tblVehicleEF	MH	1.65	4.38
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.14

tblVehicleEF	MH	1.0860e-003	0.00
tblVehicleEF	MH	3.2460e-003	4.0000e-003
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tblVehicleEF	MH	0.53	0.00
tblVehicleEF	MH	0.09	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.35	0.00
tblVehicleEF	MH	9.9460e-003	8.9030e-003
tblVehicleEF	MH	6.8200e-004	0.00
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tblVehicleEF	MH	0.03	0.00
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tblVehicleEF	MHD	1,066.63	1,001.03
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tblVehicleEF	MHD	1.0680e-003	2.4180e-003
tblVehicleEF	MHD	6.4490e-003	0.08
tblVehicleEF	MHD	7.8800e-004	9.6000e-005
tblVehicleEF	MHD	1.0220e-003	2.3130e-003
tblVehicleEF	MHD	6.1670e-003	0.08
tblVehicleEF	MHD	7.2400e-004	8.8000e-005
tblVehicleEF	MHD	1.7450e-003	7.1900e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	8.5800e-004	3.5500e-004
tblVehicleEF	MHD	0.03	0.11
tblVehicleEF	MHD	0.02	0.10
tblVehicleEF	MHD	0.37	0.05
tblVehicleEF	MHD	1.4610e-003	7.1000e-004
tblVehicleEF	MHD	0.01	9.5290e-003
tblVehicleEF	MHD	6.6100e-004	8.1000e-005
tblVehicleEF	MHD	1.7450e-003	7.1900e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	8.5800e-004	3.5500e-004
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tblVehicleEF	MHD	0.40	0.05
tblVehicleEF	MHD	0.02	2.9880e-003
tblVehicleEF	MHD	3.7740e-003	6.0080e-003

tblVehicleEF	MHD	0.05	8.2030e-003
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tblVehicleEF	MHD	0.28	0.57
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tblVehicleEF	MHD	6.4490e-003	0.08
tblVehicleEF	MHD	7.8800e-004	9.6000e-005
tblVehicleEF	MHD	8.6100e-004	1.9530e-003
tblVehicleEF	MHD	6.1670e-003	0.08
tblVehicleEF	MHD	7.2400e-004	8.8000e-005
tblVehicleEF	MHD	3.3760e-003	1.3770e-003
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tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	1.6840e-003	7.0100e-004
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tblVehicleEF	MHD	0.02	0.11
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tblVehicleEF	MHD	1.5460e-003	7.2500e-004
tblVehicleEF	MHD	0.01	9.5290e-003
tblVehicleEF	MHD	6.5600e-004	8.0000e-005
tblVehicleEF	MHD	3.3760e-003	1.3770e-003
tblVehicleEF	MHD	0.06	0.02

tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	1.6840e-003	7.0100e-004
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tblVehicleEF	MHD	0.06	8.5610e-003
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tblVehicleEF	MHD	7.8800e-004	9.6000e-005
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tblVehicleEF	MHD	6.1670e-003	0.08
tblVehicleEF	MHD	7.2400e-004	8.8000e-005
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tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	6.7900e-004	2.8800e-004
tblVehicleEF	MHD	0.03	0.11

tblVehicleEF	MHD	0.02	0.11
tblVehicleEF	MHD	0.37	0.05
tblVehicleEF	MHD	1.3440e-003	6.9100e-004
tblVehicleEF	MHD	0.01	9.5290e-003
tblVehicleEF	MHD	6.6300e-004	8.1000e-005
tblVehicleEF	MHD	1.3320e-003	5.6300e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	6.7900e-004	2.8800e-004
tblVehicleEF	MHD	0.04	0.12
tblVehicleEF	MHD	0.02	0.11
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tblVehicleEF	OBUS	0.01	8.9240e-003
tblVehicleEF	OBUS	8.0950e-003	8.5070e-003
tblVehicleEF	OBUS	0.03	0.02
tblVehicleEF	OBUS	0.27	0.50
tblVehicleEF	OBUS	0.54	0.93
tblVehicleEF	OBUS	6.17	2.58
tblVehicleEF	OBUS	75.04	73.28
tblVehicleEF	OBUS	1,098.07	1,407.22
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tblVehicleEF	OBUS	1.12	1.70
tblVehicleEF	OBUS	1.2100e-004	1.7750e-003
tblVehicleEF	OBUS	6.0450e-003	0.04
tblVehicleEF	OBUS	8.2300e-004	1.9000e-004
tblVehicleEF	OBUS	1.1600e-004	1.6990e-003

tblVehicleEF	OBUS	5.7680e-003	0.04
tblVehicleEF	OBUS	7.5700e-004	1.7400e-004
tblVehicleEF	OBUS	2.1800e-003	2.5990e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	9.3000e-004	1.1120e-003
tblVehicleEF	OBUS	0.04	0.09
tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.39	0.12
tblVehicleEF	OBUS	7.2800e-004	6.9900e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.0900e-004	2.0600e-004
tblVehicleEF	OBUS	2.1800e-003	2.5990e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	9.3000e-004	1.1120e-003
tblVehicleEF	OBUS	0.05	0.11
tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.42	0.14
tblVehicleEF	OBUS	0.01	8.9470e-003
tblVehicleEF	OBUS	8.2540e-003	8.6370e-003
tblVehicleEF	OBUS	0.03	0.02
tblVehicleEF	OBUS	0.26	0.48
tblVehicleEF	OBUS	0.55	0.94
tblVehicleEF	OBUS	5.76	2.41
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tblVehicleEF	OBUS	1,098.07	1,407.25

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tblVehicleEF	OBUS	1.0200e-004	1.5000e-003
tblVehicleEF	OBUS	6.0450e-003	0.04
tblVehicleEF	OBUS	8.2300e-004	1.9000e-004
tblVehicleEF	OBUS	9.8000e-005	1.4350e-003
tblVehicleEF	OBUS	5.7680e-003	0.04
tblVehicleEF	OBUS	7.5700e-004	1.7400e-004
tblVehicleEF	OBUS	4.0690e-003	4.7330e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	1.7890e-003	2.1320e-003
tblVehicleEF	OBUS	0.04	0.09
tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.37	0.12
tblVehicleEF	OBUS	7.6100e-004	7.0400e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.0200e-004	2.0400e-004
tblVehicleEF	OBUS	4.0690e-003	4.7330e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	1.7890e-003	2.1320e-003
tblVehicleEF	OBUS	0.05	0.11
tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.40	0.13
tblVehicleEF	OBUS	0.01	8.9200e-003

tblVehicleEF	OBUS	8.0660e-003	8.4690e-003
tblVehicleEF	OBUS	0.03	0.02
tblVehicleEF	OBUS	0.28	0.53
tblVehicleEF	OBUS	0.54	0.92
tblVehicleEF	OBUS	6.22	2.60
tblVehicleEF	OBUS	70.30	72.56
tblVehicleEF	OBUS	1,098.07	1,407.21
tblVehicleEF	OBUS	70.10	20.90
tblVehicleEF	OBUS	0.34	0.44
tblVehicleEF	OBUS	1.11	1.68
tblVehicleEF	OBUS	1.4700e-004	2.1560e-003
tblVehicleEF	OBUS	6.0450e-003	0.04
tblVehicleEF	OBUS	8.2300e-004	1.9000e-004
tblVehicleEF	OBUS	1.4100e-004	2.0620e-003
tblVehicleEF	OBUS	5.7680e-003	0.04
tblVehicleEF	OBUS	7.5700e-004	1.7400e-004
tblVehicleEF	OBUS	1.8870e-003	2.3830e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	8.5400e-004	1.0620e-003
tblVehicleEF	OBUS	0.04	0.09
tblVehicleEF	OBUS	0.05	0.27
tblVehicleEF	OBUS	0.39	0.13
tblVehicleEF	OBUS	6.8300e-004	6.9200e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.1000e-004	2.0700e-004
tblVehicleEF	OBUS	1.8870e-003	2.3830e-003

tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	8.5400e-004	1.0620e-003
tblVehicleEF	OBUS	0.05	0.11
tblVehicleEF	OBUS	0.05	0.27
tblVehicleEF	OBUS	0.42	0.14
tblVehicleEF	SBUS	0.84	0.08
tblVehicleEF	SBUS	0.01	6.6110e-003
tblVehicleEF	SBUS	0.06	6.9670e-003
tblVehicleEF	SBUS	7.83	3.03
tblVehicleEF	SBUS	0.64	0.53
tblVehicleEF	SBUS	6.66	0.94
tblVehicleEF	SBUS	1,146.29	366.87
tblVehicleEF	SBUS	1,103.40	1,115.27
tblVehicleEF	SBUS	53.92	6.06
tblVehicleEF	SBUS	10.00	3.57
tblVehicleEF	SBUS	4.65	4.82
tblVehicleEF	SBUS	0.01	4.0660e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.5700e-004	4.0000e-005
tblVehicleEF	SBUS	0.01	3.8900e-003
tblVehicleEF	SBUS	2.6950e-003	2.6510e-003
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.2000e-004	3.6000e-005
tblVehicleEF	SBUS	4.6830e-003	1.3080e-003
tblVehicleEF	SBUS	0.03	8.6250e-003

tblVehicleEF	SBUS	0.94	0.36
tblVehicleEF	SBUS	2.1770e-003	6.2500e-004
tblVehicleEF	SBUS	0.11	0.10
tblVehicleEF	SBUS	0.02	0.05
tblVehicleEF	SBUS	0.37	0.04
tblVehicleEF	SBUS	0.01	3.5040e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.5500e-004	6.0000e-005
tblVehicleEF	SBUS	4.6830e-003	1.3080e-003
tblVehicleEF	SBUS	0.03	8.6250e-003
tblVehicleEF	SBUS	1.35	0.52
tblVehicleEF	SBUS	2.1770e-003	6.2500e-004
tblVehicleEF	SBUS	0.13	0.11
tblVehicleEF	SBUS	0.02	0.05
tblVehicleEF	SBUS	0.40	0.04
tblVehicleEF	SBUS	0.84	0.08
tblVehicleEF	SBUS	0.01	6.6860e-003
tblVehicleEF	SBUS	0.05	5.8380e-003
tblVehicleEF	SBUS	7.71	2.99
tblVehicleEF	SBUS	0.65	0.54
tblVehicleEF	SBUS	4.83	0.68
tblVehicleEF	SBUS	1,198.60	377.09
tblVehicleEF	SBUS	1,103.40	1,115.28
tblVehicleEF	SBUS	53.92	5.63
tblVehicleEF	SBUS	10.32	3.66
tblVehicleEF	SBUS	4.37	4.53
tblVehicleEF	SBUS	9.1190e-003	3.4340e-003

tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.5700e-004	4.0000e-005
tblVehicleEF	SBUS	8.7240e-003	3.2850e-003
tblVehicleEF	SBUS	2.6950e-003	2.6510e-003
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.2000e-004	3.6000e-005
tblVehicleEF	SBUS	8.4640e-003	2.3620e-003
tblVehicleEF	SBUS	0.03	9.1440e-003
tblVehicleEF	SBUS	0.93	0.36
tblVehicleEF	SBUS	4.0830e-003	1.1650e-003
tblVehicleEF	SBUS	0.11	0.10
tblVehicleEF	SBUS	0.01	0.05
tblVehicleEF	SBUS	0.31	0.03
tblVehicleEF	SBUS	0.01	3.6000e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.2400e-004	5.6000e-005
tblVehicleEF	SBUS	8.4640e-003	2.3620e-003
tblVehicleEF	SBUS	0.03	9.1440e-003
tblVehicleEF	SBUS	1.35	0.52
tblVehicleEF	SBUS	4.0830e-003	1.1650e-003
tblVehicleEF	SBUS	0.13	0.11
tblVehicleEF	SBUS	0.01	0.05
tblVehicleEF	SBUS	0.34	0.04
tblVehicleEF	SBUS	0.84	0.08
tblVehicleEF	SBUS	0.01	6.6040e-003
tblVehicleEF	SBUS	0.07	7.2110e-003

tblVehicleEF	SBUS	8.00	3.09
tblVehicleEF	SBUS	0.63	0.53
tblVehicleEF	SBUS	7.02	0.98
tblVehicleEF	SBUS	1,074.07	352.76
tblVehicleEF	SBUS	1,103.40	1,115.26
tblVehicleEF	SBUS	53.92	6.14
tblVehicleEF	SBUS	9.56	3.44
tblVehicleEF	SBUS	4.60	4.78
tblVehicleEF	SBUS	0.01	4.9380e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.5700e-004	4.0000e-005
tblVehicleEF	SBUS	0.01	4.7240e-003
tblVehicleEF	SBUS	2.6950e-003	2.6510e-003
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.2000e-004	3.6000e-005
tblVehicleEF	SBUS	4.1680e-003	1.1480e-003
tblVehicleEF	SBUS	0.03	8.8290e-003
tblVehicleEF	SBUS	0.94	0.36
tblVehicleEF	SBUS	2.1000e-003	6.0300e-004
tblVehicleEF	SBUS	0.11	0.10
tblVehicleEF	SBUS	0.02	0.06
tblVehicleEF	SBUS	0.38	0.04
tblVehicleEF	SBUS	0.01	3.3710e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.6100e-004	6.1000e-005
tblVehicleEF	SBUS	4.1680e-003	1.1480e-003

tblVehicleEF	SBUS	0.03	8.8290e-003
tblVehicleEF	SBUS	1.35	0.52
tblVehicleEF	SBUS	2.1000e-003	6.0300e-004
tblVehicleEF	SBUS	0.13	0.11
tblVehicleEF	SBUS	0.02	0.06
tblVehicleEF	SBUS	0.41	0.05
tblVehicleEF	UBUS	1.51	3.35
tblVehicleEF	UBUS	0.09	0.02
tblVehicleEF	UBUS	8.45	26.05
tblVehicleEF	UBUS	15.26	1.50
tblVehicleEF	UBUS	1,822.40	1,617.71
tblVehicleEF	UBUS	153.45	18.08
tblVehicleEF	UBUS	4.95	0.32
tblVehicleEF	UBUS	0.50	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.06	2.9340e-003
tblVehicleEF	UBUS	1.4200e-003	1.6100e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4780e-003
tblVehicleEF	UBUS	0.05	2.7920e-003
tblVehicleEF	UBUS	1.3060e-003	1.4800e-004
tblVehicleEF	UBUS	9.7430e-003	1.6370e-003
tblVehicleEF	UBUS	0.11	9.7740e-003
tblVehicleEF	UBUS	4.7860e-003	7.1300e-004
tblVehicleEF	UBUS	0.52	0.05
tblVehicleEF	UBUS	0.02	0.05
tblVehicleEF	UBUS	1.17	0.07

tblVehicleEF	UBUS	9.9960e-003	4.8690e-003
tblVehicleEF	UBUS	1.8100e-003	1.7900e-004
tblVehicleEF	UBUS	9.7430e-003	1.6370e-003
tblVehicleEF	UBUS	0.11	9.7740e-003
tblVehicleEF	UBUS	4.7860e-003	7.1300e-004
tblVehicleEF	UBUS	2.08	3.43
tblVehicleEF	UBUS	0.02	0.05
tblVehicleEF	UBUS	1.28	0.08
tblVehicleEF	UBUS	1.52	3.35
tblVehicleEF	UBUS	0.08	0.02
tblVehicleEF	UBUS	8.53	26.06
tblVehicleEF	UBUS	13.06	1.28
tblVehicleEF	UBUS	1,822.40	1,617.72
tblVehicleEF	UBUS	153.45	17.70
tblVehicleEF	UBUS	4.62	0.31
tblVehicleEF	UBUS	0.50	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.06	2.9340e-003
tblVehicleEF	UBUS	1.4200e-003	1.6100e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4780e-003
tblVehicleEF	UBUS	0.05	2.7920e-003
tblVehicleEF	UBUS	1.3060e-003	1.4800e-004
tblVehicleEF	UBUS	0.02	2.9250e-003
tblVehicleEF	UBUS	0.14	0.01
tblVehicleEF	UBUS	9.6600e-003	1.4550e-003
tblVehicleEF	UBUS	0.53	0.05

tblVehicleEF	UBUS	0.02	0.05
tblVehicleEF	UBUS	1.06	0.07
tblVehicleEF	UBUS	9.9970e-003	4.8690e-003
tblVehicleEF	UBUS	1.7720e-003	1.7500e-004
tblVehicleEF	UBUS	0.02	2.9250e-003
tblVehicleEF	UBUS	0.14	0.01
tblVehicleEF	UBUS	9.6600e-003	1.4550e-003
tblVehicleEF	UBUS	2.09	3.43
tblVehicleEF	UBUS	0.02	0.05
tblVehicleEF	UBUS	1.17	0.07
tblVehicleEF	UBUS	1.51	3.35
tblVehicleEF	UBUS	0.09	0.02
tblVehicleEF	UBUS	8.44	26.05
tblVehicleEF	UBUS	15.44	1.49
tblVehicleEF	UBUS	1,822.40	1,617.71
tblVehicleEF	UBUS	153.45	18.06
tblVehicleEF	UBUS	4.92	0.31
tblVehicleEF	UBUS	0.50	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.06	2.9340e-003
tblVehicleEF	UBUS	1.4200e-003	1.6100e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4780e-003
tblVehicleEF	UBUS	0.05	2.7920e-003
tblVehicleEF	UBUS	1.3060e-003	1.4800e-004
tblVehicleEF	UBUS	8.9770e-003	1.7200e-003
tblVehicleEF	UBUS	0.13	0.01

tblVehicleEF	UBUS	4.3820e-003	7.5400e-004
tblVehicleEF	UBUS	0.52	0.05
tblVehicleEF	UBUS	0.03	0.05
tblVehicleEF	UBUS	1.18	0.07
tblVehicleEF	UBUS	9.9960e-003	4.8690e-003
tblVehicleEF	UBUS	1.8130e-003	1.7900e-004
tblVehicleEF	UBUS	8.9770e-003	1.7200e-003
tblVehicleEF	UBUS	0.13	0.01
tblVehicleEF	UBUS	4.3820e-003	7.5400e-004
tblVehicleEF	UBUS	2.08	3.43
tblVehicleEF	UBUS	0.03	0.05
tblVehicleEF	UBUS	1.29	0.08
tblVehicleTrips	CC_TL	8.40	3.00
tblVehicleTrips	CC_TL	8.40	3.00
tblVehicleTrips	CC_TL	8.40	3.00
tblVehicleTrips	CC_TL	8.40	3.00
tblVehicleTrips	CC_TTP	80.20	96.00
tblVehicleTrips	CC_TTP	78.80	96.00
tblVehicleTrips	CC_TTP	64.70	96.00
tblVehicleTrips	CC_TTP	0.00	96.00
tblVehicleTrips	CNW_TTP	19.00	3.00
tblVehicleTrips	CNW_TTP	19.00	3.00
tblVehicleTrips	CNW_TTP	19.00	3.00
tblVehicleTrips	CNW_TTP	0.00	3.00
tblVehicleTrips	CW_TTP	0.80	1.00
tblVehicleTrips	CW_TTP	2.20	1.00
tblVehicleTrips	CW_TTP	16.30	1.00

tblVehicleTrips	CW_TTP	0.00	1.00
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	35.00	0.00
tblVehicleTrips	PB_TP	65.00	70.00
tblVehicleTrips	PB_TP	50.00	67.00
tblVehicleTrips	PB_TP	11.00	39.00
tblVehicleTrips	PR_TP	14.00	30.00
tblVehicleTrips	PR_TP	29.00	33.00
tblVehicleTrips	PR_TP	54.00	61.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	1,448.33	700.00
tblVehicleTrips	ST_TR	722.03	616.12
tblVehicleTrips	ST_TR	0.00	775.00
tblVehicleTrips	SU_TR	1,182.08	700.00
tblVehicleTrips	SU_TR	542.72	472.58
tblVehicleTrips	SU_TR	0.00	775.00
tblVehicleTrips	WD_TR	845.60	837.58
tblVehicleTrips	WD_TR	496.12	470.95
tblVehicleTrips	WD_TR	42.70	114.93
tblVehicleTrips	WD_TR	0.00	775.00
tblWater	IndoorWaterUseRate	0.00	4,248,600.00

2.0 Emissions Summary

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					
2020	6.1198	75.6323	24.9292	0.1522	20.3885	2.9903	23.3788	10.2131	2.7511	12.9642	0.0000	15,733.4034	15,733.4034	2.0536	0.0000	15,784.7438
2021	15.9893	22.7236	22.0652	0.0500	1.3851	1.0388	2.4239	0.3732	0.9753	1.3485	0.0000	4,904.4463	4,904.4463	0.7789	0.0000	4,923.9196
Maximum	**15.9893**	**75.6323**	**24.9292**	**0.1522**	**20.3885**	**2.9903**	**23.3788**	**10.2131**	**2.7511**	**12.9642**	**0.0000**	**15,733.4034**	**15,733.4034**	**2.0536**	**0.0000**	**15,784.7438**

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					
2020	6.1198	75.6323	24.9292	0.1522	8.0742	2.9903	11.0646	4.0156	2.7511	6.7667	0.0000	15,733.4034	15,733.4034	2.0536	0.0000	15,784.7438
2021	15.9893	22.7236	22.0652	0.0500	1.3851	1.0388	2.4239	0.3732	0.9753	1.3485	0.0000	4,904.4463	4,904.4463	0.7789	0.0000	4,923.9196
Maximum	**15.9893**	**75.6323**	**24.9292**	**0.1522**	**8.0742**	**2.9903**	**11.0646**	**4.0156**	**2.7511**	**6.7667**	**0.0000**	**15,733.4034**	**15,733.4034**	**2.0536**	**0.0000**	**15,784.7438**

	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**	**56.56**	**0.00**	**47.72**	**58.54**	**0.00**	**43.30**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	0.7000	3.0000e-005	3.0700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5600e-003	6.5600e-003	2.0000e-005		7.0000e-003
Energy	0.0608	0.5527	0.4643	3.3200e-003		0.0420	0.0420		0.0420	0.0420		663.2492	663.2492	0.0127	0.0122	667.1905
Mobile	23.5154	35.5502	81.8792	0.1325	10.5139	0.1739	10.6878	2.7916	0.1632	2.9548		13,555.8906	13,555.8906	1.3009		13,588.4125
Total	**24.2761**	**36.1030**	**82.3466**	**0.1358**	**10.5139**	**0.2159**	**10.7298**	**2.7916**	**0.2052**	**2.9968**		**14,219.1464**	**14,219.1464**	**1.3136**	**0.0122**	**14,255.6100**

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	0.7000	3.0000e-005	3.0700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5600e-003	6.5600e-003	2.0000e-005		7.0000e-003
Energy	0.0608	0.5527	0.4643	3.3200e-003		0.0420	0.0420		0.0420	0.0420		663.2492	663.2492	0.0127	0.0122	667.1905
Mobile	23.5154	35.5502	81.8792	0.1325	10.5139	0.1739	10.6878	2.7916	0.1632	2.9548		13,555.8906	13,555.8906	1.3009		13,588.4125
Total	**24.2761**	**36.1030**	**82.3466**	**0.1358**	**10.5139**	**0.2159**	**10.7298**	**2.7916**	**0.2052**	**2.9968**		**14,219.1464**	**14,219.1464**	**1.3136**	**0.0122**	**14,255.6100**

	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	Site Preparation	Site Preparation	5/30/2020	6/12/2020	5	10	
2	Grading	Grading	6/13/2020	7/10/2020	5	20	
3	Building Construction	Building Construction	7/11/2020	5/28/2021	5	230	
4	Paving	Paving	5/29/2021	6/25/2021	5	20	
5	Architectural Coating	Architectural Coating	6/26/2021	7/23/2021	5	20	

Acres of Grading (Site Preparation Phase): 20

Acres of Grading (Grading Phase): 40

Acres of Paving: 5.01

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 40,673; Non-Residential Outdoor: 13,558; Striped Parking Area: 13,094 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Crawler Tractors	4	8.00	212	0.43
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Crawler Tractors	3	8.00	212	0.43
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	0	8.00	97	0.37
Building Construction	Cranes	1	8.00	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	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
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
Architectural Coating	Air Compressors	1	8.00	78	0.48
Site Preparation	Graders	1	8.00	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	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	2,802.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	101.00	40.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2020

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					20.1873	0.0000	20.1873	10.1597	0.0000	10.1597			0.0000			0.0000
Off-Road	6.0282	70.0929	24.2034	0.0636		2.9891	2.9891		2.7500	2.7500		6,164.2620	6,164.2620	1.9937		6,214.1031
Total	**6.0282**	**70.0929**	**24.2034**	**0.0636**	**20.1873**	**2.9891**	**23.1764**	**10.1597**	**2.7500**	**12.9097**		**6,164.2620**	**6,164.2620**	**1.9937**		**6,214.1031**

3.2 Site Preparation - 2020

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
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
Worker	0.0916	0.0542	0.7258	1.9900e-003	0.2012	1.2200e-003	0.2024	0.0534	1.1200e-003	0.0545		198.2870	198.2870	5.0800e-003		198.4141
Total	**0.0916**	**0.0542**	**0.7258**	**1.9900e-003**	**0.2012**	**1.2200e-003**	**0.2024**	**0.0534**	**1.1200e-003**	**0.0545**		**198.2870**	**198.2870**	**5.0800e-003**		**198.4141**

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					7.8730	0.0000	7.8730	3.9623	0.0000	3.9623			0.0000			0.0000
Off-Road	6.0282	70.0929	24.2034	0.0636		2.9891	2.9891		2.7500	2.7500	0.0000	6,164.2620	6,164.2620	1.9937		6,214.1031
Total	**6.0282**	**70.0929**	**24.2034**	**0.0636**	**7.8730**	**2.9891**	**10.8621**	**3.9623**	**2.7500**	**6.7123**	**0.0000**	**6,164.2620**	**6,164.2620**	**1.9937**		**6,214.1031**

3.2 Site Preparation - 2020

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
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
Worker	0.0916	0.0542	0.7258	1.9900e-003	0.2012	1.2200e-003	0.2024	0.0534	1.1200e-003	0.0545		198.2870	198.2870	5.0800e-003		198.4141
Total	**0.0916**	**0.0542**	**0.7258**	**1.9900e-003**	**0.2012**	**1.2200e-003**	**0.2024**	**0.0534**	**1.1200e-003**	**0.0545**		**198.2870**	**198.2870**	**5.0800e-003**		**198.4141**

3.3 Grading - 2020

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					8.2850	0.0000	8.2850	3.5607	0.0000	3.5607			0.0000			0.0000
Off-Road	3.5369	42.4134	16.7138	0.0439		1.7160	1.7160		1.5787	1.5787		4,251.3448	4,251.3448	1.3750		4,285.7191
Total	**3.5369**	**42.4134**	**16.7138**	**0.0439**	**8.2850**	**1.7160**	**10.0010**	**3.5607**	**1.5787**	**5.1395**		**4,251.3448**	**4,251.3448**	**1.3750**		**4,285.7191**

3.3 Grading - 2020

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	0.7205	33.1737	4.0932	0.1067	2.4509	0.1057	2.5566	0.6719	0.1011	0.7730		11,316.819 4	11,316.819 4	0.6744		11,333.679 7
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
Worker	0.0763	0.0451	0.6048	1.6600e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		165.2392	165.2392	4.2400e-003		165.3451
Total	**0.7969**	**33.2189**	**4.6980**	**0.1083**	**2.6185**	**0.1067**	**2.7253**	**0.7163**	**0.1021**	**0.8184**		**11,482.05 86**	**11,482.05 86**	**0.6787**		**11,499.02 47**

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					3.2312	0.0000	3.2312	1.3887	0.0000	1.3887			0.0000			0.0000
Off-Road	3.5369	42.4134	16.7138	0.0439		1.7160	1.7160		1.5787	1.5787	0.0000	4,251.344 8	4,251.344 8	1.3750		4,285.719 1
Total	**3.5369**	**42.4134**	**16.7138**	**0.0439**	**3.2312**	**1.7160**	**4.9472**	**1.3887**	**1.5787**	**2.9674**	**0.0000**	**4,251.344 8**	**4,251.344 8**	**1.3750**		**4,285.719 1**

3.3 Grading - 2020

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	0.7205	33.1737	4.0932	0.1067	2.4509	0.1057	2.5566	0.6719	0.1011	0.7730		11,316.819 4	11,316.819 4	0.6744		11,333.679 7
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
Worker	0.0763	0.0451	0.6048	1.6600e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		165.2392	165.2392	4.2400e-003		165.3451
Total	**0.7969**	**33.2189**	**4.6980**	**0.1083**	**2.6185**	**0.1067**	**2.7253**	**0.7163**	**0.1021**	**0.8184**		**11,482.05 86**	**11,482.05 86**	**0.6787**		**11,499.02 47**

3.4 Building Construction - 2020

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	2.2551	20.6494	17.9678	0.0288		1.1948	1.1948		1.1218	1.1218		2,735.699 9	2,735.699 9	0.6819		2,752.748 1
Total	**2.2551**	**20.6494**	**17.9678**	**0.0288**		**1.1948**	**1.1948**		**1.1218**	**1.1218**		**2,735.699 9**	**2,735.699 9**	**0.6819**		**2,752.748 1**

3.4 Building Construction - 2020

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
Vendor	0.1115	4.1157	0.7529	0.0105	0.2561	0.0234	0.2796	0.0738	0.0224	0.0961		1,101.563 7	1,101.563 7	0.0826		1,103.629 3
Worker	0.5140	0.3040	4.0725	0.0112	1.1289	6.8400e-003	1.1358	0.2994	6.3000e-003	0.3057		1,112.6105	1,112.6105	0.0285		1,113.3235
Total	**0.6255**	**4.4196**	**4.8254**	**0.0216**	**1.3851**	**0.0303**	**1.4153**	**0.3732**	**0.0287**	**0.4018**		**2,214.174 2**	**2,214.174 2**	**0.1111**		**2,216.952 7**

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	2.2551	20.6494	17.9678	0.0288		1.1948	1.1948		1.1218	1.1218	0.0000	2,735.699 9	2,735.699 9	0.6819		2,752.748 1
Total	**2.2551**	**20.6494**	**17.9678**	**0.0288**		**1.1948**	**1.1948**		**1.1218**	**1.1218**	**0.0000**	**2,735.699 9**	**2,735.699 9**	**0.6819**		**2,752.748 1**

3.4 Building Construction - 2020

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
Vendor	0.1115	4.1157	0.7529	0.0105	0.2561	0.0234	0.2796	0.0738	0.0224	0.0961		1,101.563 7	1,101.563 7	0.0826		1,103.629 3
Worker	0.5140	0.3040	4.0725	0.0112	1.1289	6.8400e-003	1.1358	0.2994	6.3000e-003	0.3057		1,112.6105	1,112.6105	0.0285		1,113.3235
Total	**0.6255**	**4.4196**	**4.8254**	**0.0216**	**1.3851**	**0.0303**	**1.4153**	**0.3732**	**0.0287**	**0.4018**		**2,214.174 2**	**2,214.174 2**	**0.1111**		**2,216.952 7**

3.4 Building Construction - 2021

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	2.0228	18.7492	17.6706	0.0288		1.0251	1.0251		0.9625	0.9625		2,736.043 8	2,736.043 8	0.6751		2,752.921 2
Total	**2.0228**	**18.7492**	**17.6706**	**0.0288**		**1.0251**	**1.0251**		**0.9625**	**0.9625**		**2,736.043 8**	**2,736.043 8**	**0.6751**		**2,752.921 2**

3.4 Building Construction - 2021

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
Vendor	0.0934	3.7016	0.6604	0.0104	0.2561	7.0400e-003	0.2632	0.0738	6.7300e-003	0.0805		1,093.004 1	1,093.004 1	0.0782		1,094.958 9
Worker	0.4788	0.2728	3.7341	0.0108	1.1289	6.6500e-003	1.1356	0.2994	6.1300e-003	0.3055		1,075.398 4	1,075.398 4	0.0256		1,076.039 5
Total	**0.5722**	**3.9744**	**4.3945**	**0.0212**	**1.3851**	**0.0137**	**1.3988**	**0.3732**	**0.0129**	**0.3860**		**2,168.402 5**	**2,168.402 5**	**0.1038**		**2,170.998 4**

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	2.0228	18.7492	17.6706	0.0288		1.0251	1.0251		0.9625	0.9625	0.0000	2,736.043 8	2,736.043 8	0.6751		2,752.921 2
Total	**2.0228**	**18.7492**	**17.6706**	**0.0288**		**1.0251**	**1.0251**		**0.9625**	**0.9625**	**0.0000**	**2,736.043 8**	**2,736.043 8**	**0.6751**		**2,752.921 2**

3.4 Building Construction - 2021

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
Vendor	0.0934	3.7016	0.6604	0.0104	0.2561	7.0400e-003	0.2632	0.0738	6.7300e-003	0.0805		1,093.0041	1,093.0041	0.0782		1,094.9589
Worker	0.4788	0.2728	3.7341	0.0108	1.1289	6.6500e-003	1.1356	0.2994	6.1300e-003	0.3055		1,075.3984	1,075.3984	0.0256		1,076.0395
Total	**0.5722**	**3.9744**	**4.3945**	**0.0212**	**1.3851**	**0.0137**	**1.3988**	**0.3732**	**0.0129**	**0.3860**		**2,168.4025**	**2,168.4025**	**0.1038**		**2,170.9984**

3.5 Paving - 2021

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	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2556**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.5 Paving - 2021

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
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
Worker	0.0711	0.0405	0.5546	1.6000e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		159.7126	159.7126	3.8100e-003		159.8078
Total	**0.0711**	**0.0405**	**0.5546**	**1.6000e-003**	**0.1677**	**9.9000e-004**	**0.1687**	**0.0445**	**9.1000e-004**	**0.0454**		**159.7126**	**159.7126**	**3.8100e-003**		**159.8078**

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	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2556**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.5 Paving - 2021

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
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
Worker	0.0711	0.0405	0.5546	1.6000e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		159.7126	159.7126	3.8100e-003		159.8078
Total	**0.0711**	**0.0405**	**0.5546**	**1.6000e-003**	**0.1677**	**9.9000e-004**	**0.1687**	**0.0445**	**9.1000e-004**	**0.0454**		**159.7126**	**159.7126**	**3.8100e-003**		**159.8078**

3.6 Architectural Coating - 2021

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	15.6026					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2919	2.0358	2.4234	3.9600e-003		0.1255	0.1255		0.1255	0.1255		375.2641	375.2641	0.0258		375.9079
Total	**15.8944**	**2.0358**	**2.4234**	**3.9600e-003**		**0.1255**	**0.1255**		**0.1255**	**0.1255**		**375.2641**	**375.2641**	**0.0258**		**375.9079**

3.6 Architectural Coating - 2021

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
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
Worker	0.0948	0.0540	0.7394	2.1400e-003	0.2236	1.3200e-003	0.2249	0.0593	1.2100e-003	0.0605		212.9502	212.9502	5.0800e-003		213.0771
Total	**0.0948**	**0.0540**	**0.7394**	**2.1400e-003**	**0.2236**	**1.3200e-003**	**0.2249**	**0.0593**	**1.2100e-003**	**0.0605**		**212.9502**	**212.9502**	**5.0800e-003**		**213.0771**

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	15.6026					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2919	2.0358	2.4234	3.9600e-003		0.1255	0.1255		0.1255	0.1255	0.0000	375.2641	375.2641	0.0258		375.9079
Total	**15.8944**	**2.0358**	**2.4234**	**3.9600e-003**		**0.1255**	**0.1255**		**0.1255**	**0.1255**	**0.0000**	**375.2641**	**375.2641**	**0.0258**		**375.9079**

3.6 Architectural Coating - 2021

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
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
Worker	0.0948	0.0540	0.7394	2.1400e-003	0.2236	1.3200e-003	0.2249	0.0593	1.2100e-003	0.0605		212.9502	212.9502	5.0800e-003		213.0771
Total	**0.0948**	**0.0540**	**0.7394**	**2.1400e-003**	**0.2236**	**1.3200e-003**	**0.2249**	**0.0593**	**1.2100e-003**	**0.0605**		**212.9502**	**212.9502**	**5.0800e-003**		**213.0771**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Category	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
	lb/day										lb/day					
Mitigated	23.5154	35.5502	81.8792	0.1325	10.5139	0.1739	10.6878	2.7916	0.1632	2.9548		13,555.8906	13,555.8906	1.3009		13,588.4125
Unmitigated	23.5154	35.5502	81.8792	0.1325	10.5139	0.1739	10.6878	2.7916	0.1632	2.9548		13,555.8906	13,555.8906	1.3009		13,588.4125

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	2,847.77	2,380.00	2380.00	1,033,287	1,033,287
Fast Food Restaurant with Drive Thru	3,470.90	4,540.80	3482.91	1,505,068	1,505,068
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Regional Shopping Center	1,517.08	659.60	333.17	902,534	902,534
User Defined Retail	775.00	775.00	775.00	917,671	917,671
Total	8,610.75	8,355.41	6,971.08	4,358,561	4,358,561

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
Convenience Market With Gas	16.60	3.00	6.90	1.00	96.00	3.00	30	0	70
Fast Food Restaurant with Drive	16.60	3.00	6.90	1.00	96.00	3.00	33	0	67
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Regional Shopping Center	16.60	3.00	6.90	1.00	96.00	3.00	61	0	39
User Defined Retail	16.60	3.00	6.90	1.00	96.00	3.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.690000	0.097000	0.097000	0.064000	0.000000	0.000000	0.000000	0.047000	0.000000	0.000000	0.005000	0.000000	0.000000
Fast Food Restaurant with Drive Thru	0.690000	0.097000	0.097000	0.064000	0.000000	0.000000	0.000000	0.047000	0.000000	0.000000	0.005000	0.000000	0.000000
Other Non-Asphalt Surfaces	0.542116	0.037578	0.185203	0.118503	0.016241	0.005141	0.017392	0.068695	0.001383	0.001183	0.004582	0.000945	0.001038
Regional Shopping Center	0.690000	0.097000	0.097000	0.064000	0.000000	0.000000	0.000000	0.047000	0.000000	0.000000	0.005000	0.000000	0.000000
User Defined Retail	0.690000	0.097000	0.097000	0.064000	0.000000	0.000000	0.000000	0.047000	0.000000	0.000000	0.005000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	0.0608	0.5527	0.4643	3.3200e-003		0.0420	0.0420		0.0420	0.0420		663.2492	663.2492	0.0127	0.0122	667.1905
NaturalGas Unmitigated	0.0608	0.5527	0.4643	3.3200e-003		0.0420	0.0420		0.0420	0.0420		663.2492	663.2492	0.0127	0.0122	667.1905

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					
Convenience Market With Gas Pumps	20.6795	2.2000e-004	2.0300e-003	1.7000e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004		2.4329	2.4329	5.0000e-005	4.0000e-005	2.4473
Fast Food Restaurant with Drive Thru	5517.49	0.0595	0.5409	0.4544	3.2500e-003		0.0411	0.0411		0.0411	0.0411		649.1170	649.1170	0.0124	0.0119	652.9744
Other Non-Asphalt Surfaces	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
Regional Shopping Center	80.2849	8.7000e-004	7.8700e-003	6.6100e-003	5.0000e-005		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004		9.4453	9.4453	1.8000e-004	1.7000e-004	9.5014
User Defined Retail	19.1589	2.1000e-004	1.8800e-003	1.5800e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		2.2540	2.2540	4.0000e-005	4.0000e-005	2.2674
Total		**0.0608**	**0.5527**	**0.4643**	**3.3200e-003**		**0.0420**	**0.0420**		**0.0420**	**0.0420**		**663.2492**	**663.2492**	**0.0127**	**0.0122**	**667.1905**

5.2 Energy by Land Use - NaturalGas

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					
Convenience Market With Gas Pumps	0.0206795	2.2000e-004	2.0300e-003	1.7000e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004		2.4329	2.4329	5.0000e-005	4.0000e-005	2.4473
Fast Food Restaurant with Drive Thru	5.51749	0.0595	0.5409	0.4544	3.2500e-003		0.0411	0.0411		0.0411	0.0411		649.1170	649.1170	0.0124	0.0119	652.9744
Other Non-Asphalt Surfaces	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
Regional Shopping Center	0.0802849	8.7000e-004	7.8700e-003	6.6100e-003	5.0000e-005		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004		9.4453	9.4453	1.8000e-004	1.7000e-004	9.5014
User Defined Retail	0.0191589	2.1000e-004	1.8800e-003	1.5800e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		2.2540	2.2540	4.0000e-005	4.0000e-005	2.2674
Total		**0.0608**	**0.5527**	**0.4643**	**3.3200e-003**		**0.0420**	**0.0420**		**0.0420**	**0.0420**		**663.2492**	**663.2492**	**0.0127**	**0.0122**	**667.1905**

6.0 Area Detail

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	0.7000	3.0000e-005	3.0700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5600e-003	6.5600e-003	2.0000e-005		7.0000e-003
Unmitigated	0.7000	3.0000e-005	3.0700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5600e-003	6.5600e-003	2.0000e-005		7.0000e-003

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	0.0855					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6142					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.9000e-004	3.0000e-005	3.0700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5600e-003	6.5600e-003	2.0000e-005		7.0000e-003
Total	**0.7000**	**3.0000e-005**	**3.0700e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.5600e-003**	**6.5600e-003**	**2.0000e-005**		**7.0000e-003**

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	0.0855					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6142					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.9000e-004	3.0000e-005	3.0700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5600e-003	6.5600e-003	2.0000e-005		7.0000e-003
Total	**0.7000**	**3.0000e-005**	**3.0700e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.5600e-003**	**6.5600e-003**	**2.0000e-005**		**7.0000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

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

12769 - Lake and Mountain

Riverside-South Coast County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	5.01	Acre	5.01	218,235.60	0
Fast Food Restaurant with Drive Thru	7.37	1000sqft	0.17	7,365.00	0
Convenience Market With Gas Pumps	3.40	1000sqft	0.08	3,400.00	0
Regional Shopping Center	13.20	1000sqft	0.30	13,200.00	0
User Defined Retail	1.00	User Defined Unit	0.07	3,150.00	0

1.2 Other Project Characteristics

Urbanization Urban **Wind Speed (m/s)** 2.4 **Precipitation Freq (Days)** 28

Climate Zone 10 **Operational Year** 2021

Utility Company Southern California Edison

CO2 Intensity (lb/MWhr) 702.44 **CH4 Intensity (lb/MWhr)** 0.029 **N2O Intensity (lb/MWhr)** 0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot acerage = information from site plan

Construction Phase -

Off-road Equipment - Hours are based on an 8-hour workday.

Off-road Equipment - Hours are based on an 8-hour workday.

Off-road Equipment - Crawler Tractors Utilized in Lieu of T/L/B

Off-road Equipment -

Off-road Equipment - Crawler Tractors Utilized in Lieu of T/L/B

Trips and VMT -

Grading -

Vehicle Trips - TG based on ITE 10th edition

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Energy Use - User Defined Retail Rates Consistent with Convenience Market With Gas Pump.

Water And Wastewater - Water Usage from Car Wash estimated as 30 gallons/vehicle washed

Solid Waste - Car Wash Solid Waste assumed to be equivalent to Convenience Market With Gas Pumps

Construction Off-road Equipment Mitigation -

Energy Mitigation -

Water Mitigation -

Fleet Mix -

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	0.00	5.61
tblEnergyUse	NT24E	0.00	2.44
tblEnergyUse	NT24NG	0.00	0.30
tblEnergyUse	T24E	0.00	4.58

tblEnergyUse	T24NG	0.00	1.92
tblFleetMix	HHD	0.07	0.05
tblFleetMix	HHD	0.07	0.05
tblFleetMix	HHD	0.07	0.05
tblFleetMix	HHD	0.07	0.05
tblFleetMix	LDA	0.54	0.69
tblFleetMix	LDA	0.54	0.69
tblFleetMix	LDA	0.54	0.69
tblFleetMix	LDA	0.54	0.69
tblFleetMix	LDT1	0.04	0.10
tblFleetMix	LDT1	0.04	0.10
tblFleetMix	LDT1	0.04	0.10
tblFleetMix	LDT1	0.04	0.10
tblFleetMix	LDT2	0.19	0.10
tblFleetMix	LDT2	0.19	0.10
tblFleetMix	LDT2	0.19	0.10
tblFleetMix	LDT2	0.19	0.10
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD1	0.02	0.00
tblFleetMix	LHD2	5.1410e-003	0.00
tblFleetMix	LHD2	5.1410e-003	0.00
tblFleetMix	LHD2	5.1410e-003	0.00
tblFleetMix	LHD2	5.1410e-003	0.00
tblFleetMix	MCY	4.5820e-003	5.0000e-003
tblFleetMix	MCY	4.5820e-003	5.0000e-003

tblFleetMix	MCY	4.5820e-003	5.0000e-003
tblFleetMix	MCY	4.5820e-003	5.0000e-003
tblFleetMix	MDV	0.12	0.06
tblFleetMix	MDV	0.12	0.06
tblFleetMix	MDV	0.12	0.06
tblFleetMix	MDV	0.12	0.06
tblFleetMix	MH	1.0380e-003	0.00
tblFleetMix	MH	1.0380e-003	0.00
tblFleetMix	MH	1.0380e-003	0.00
tblFleetMix	MH	1.0380e-003	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	MHD	0.02	0.00
tblFleetMix	OBUS	1.3830e-003	0.00
tblFleetMix	OBUS	1.3830e-003	0.00
tblFleetMix	OBUS	1.3830e-003	0.00
tblFleetMix	OBUS	1.3830e-003	0.00
tblFleetMix	SBUS	9.4500e-004	0.00
tblFleetMix	SBUS	9.4500e-004	0.00
tblFleetMix	SBUS	9.4500e-004	0.00
tblFleetMix	SBUS	9.4500e-004	0.00
tblFleetMix	UBUS	1.1830e-003	0.00
tblFleetMix	UBUS	1.1830e-003	0.00
tblFleetMix	UBUS	1.1830e-003	0.00
tblFleetMix	UBUS	1.1830e-003	0.00
tblGrading	MaterialExported	0.00	22,417.00

tblLandUse	LandUseSquareFeet	7,370.00	7,365.00
tblLandUse	LandUseSquareFeet	0.00	3,150.00
tblLandUse	LotAcreage	0.00	0.07
tblOffRoadEquipment	OffRoadEquipmentType		Graders
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	4.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	0.00	3.00
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	PhaseName		Grading
tblOffRoadEquipment	PhaseName		Site Preparation
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblSolidWaste	SolidWasteGenerationRate	0.00	10.22
tblVehicleEF	HHD	1.43	0.03
tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.10	0.00
tblVehicleEF	HHD	3.28	7.55
tblVehicleEF	HHD	0.46	0.36
tblVehicleEF	HHD	1.46	2.9270e-003
tblVehicleEF	HHD	6,485.38	1,409.07
tblVehicleEF	HHD	1,461.92	1,350.00
tblVehicleEF	HHD	4.62	0.03
tblVehicleEF	HHD	26.41	7.34
tblVehicleEF	HHD	2.69	3.05
tblVehicleEF	HHD	0.01	0.01

tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	3.8000e-005	0.00
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8680e-003	8.8980e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	3.5000e-005	0.00
tblVehicleEF	HHD	8.4000e-005	4.0000e-006
tblVehicleEF	HHD	2.5800e-003	1.0300e-004
tblVehicleEF	HHD	0.85	0.58
tblVehicleEF	HHD	4.8000e-005	2.0000e-006
tblVehicleEF	HHD	0.07	0.07
tblVehicleEF	HHD	1.8000e-004	5.3700e-004
tblVehicleEF	HHD	0.05	1.0000e-006
tblVehicleEF	HHD	0.06	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	7.1000e-005	0.00
tblVehicleEF	HHD	8.4000e-005	4.0000e-006
tblVehicleEF	HHD	2.5800e-003	1.0300e-004
tblVehicleEF	HHD	0.97	0.66
tblVehicleEF	HHD	4.8000e-005	2.0000e-006
tblVehicleEF	HHD	0.11	0.09
tblVehicleEF	HHD	1.8000e-004	5.3700e-004
tblVehicleEF	HHD	0.05	1.0000e-006
tblVehicleEF	HHD	1.35	0.03

tblVehicleEF	HHD	0.03	0.02
tblVehicleEF	HHD	0.10	0.00
tblVehicleEF	HHD	2.39	7.39
tblVehicleEF	HHD	0.46	0.36
tblVehicleEF	HHD	1.39	2.7700e-003
tblVehicleEF	HHD	6,867.98	1,402.59
tblVehicleEF	HHD	1,461.92	1,350.00
tblVehicleEF	HHD	4.62	0.03
tblVehicleEF	HHD	27.25	7.10
tblVehicleEF	HHD	2.54	2.88
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	3.8000e-005	0.00
tblVehicleEF	HHD	0.01	9.7680e-003
tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8680e-003	8.8980e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	3.5000e-005	0.00
tblVehicleEF	HHD	1.6300e-004	8.0000e-006
tblVehicleEF	HHD	2.9560e-003	1.1800e-004
tblVehicleEF	HHD	0.80	0.60
tblVehicleEF	HHD	9.2000e-005	4.0000e-006
tblVehicleEF	HHD	0.07	0.07
tblVehicleEF	HHD	1.8400e-004	5.5600e-004
tblVehicleEF	HHD	0.04	1.0000e-006

tblVehicleEF	HHD	0.06	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	6.9000e-005	0.00
tblVehicleEF	HHD	1.6300e-004	8.0000e-006
tblVehicleEF	HHD	2.9560e-003	1.1800e-004
tblVehicleEF	HHD	0.92	0.69
tblVehicleEF	HHD	9.2000e-005	4.0000e-006
tblVehicleEF	HHD	0.11	0.09
tblVehicleEF	HHD	1.8400e-004	5.5600e-004
tblVehicleEF	HHD	0.05	1.0000e-006
tblVehicleEF	HHD	1.54	0.03
tblVehicleEF	HHD	0.03	3.2330e-003
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tblVehicleEF	HHD	4.51	7.76
tblVehicleEF	HHD	0.45	0.32
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tblVehicleEF	HHD	5,957.03	1,414.57
tblVehicleEF	HHD	1,461.92	1,340.32
tblVehicleEF	HHD	4.62	0.03
tblVehicleEF	HHD	25.25	7.65
tblVehicleEF	HHD	2.67	3.02
tblVehicleEF	HHD	0.02	0.01
tblVehicleEF	HHD	0.06	0.06
tblVehicleEF	HHD	0.04	0.04
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	3.8000e-005	0.00
tblVehicleEF	HHD	0.02	0.01

tblVehicleEF	HHD	0.03	0.03
tblVehicleEF	HHD	8.8680e-003	8.8710e-003
tblVehicleEF	HHD	0.01	0.05
tblVehicleEF	HHD	3.5000e-005	0.00
tblVehicleEF	HHD	6.7000e-005	4.0000e-006
tblVehicleEF	HHD	2.7490e-003	1.2100e-004
tblVehicleEF	HHD	0.91	0.54
tblVehicleEF	HHD	4.1000e-005	2.0000e-006
tblVehicleEF	HHD	0.07	0.07
tblVehicleEF	HHD	1.9200e-004	5.6500e-004
tblVehicleEF	HHD	0.05	1.0000e-006
tblVehicleEF	HHD	0.06	0.01
tblVehicleEF	HHD	0.01	0.01
tblVehicleEF	HHD	7.1000e-005	0.00
tblVehicleEF	HHD	6.7000e-005	4.0000e-006
tblVehicleEF	HHD	2.7490e-003	1.2100e-004
tblVehicleEF	HHD	1.05	0.62
tblVehicleEF	HHD	4.1000e-005	2.0000e-006
tblVehicleEF	HHD	0.11	0.08
tblVehicleEF	HHD	1.9200e-004	5.6500e-004
tblVehicleEF	HHD	0.05	1.0000e-006
tblVehicleEF	LDA	4.0430e-003	2.4680e-003
tblVehicleEF	LDA	5.4670e-003	0.05
tblVehicleEF	LDA	0.58	0.66
tblVehicleEF	LDA	1.16	2.12
tblVehicleEF	LDA	255.91	265.87
tblVehicleEF	LDA	58.81	54.73

tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	1.6140e-003	1.4470e-003
tblVehicleEF	LDA	2.2650e-003	1.9190e-003
tblVehicleEF	LDA	1.4880e-003	1.3330e-003
tblVehicleEF	LDA	2.0830e-003	1.7640e-003
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.10	0.10
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.01	9.5180e-003
tblVehicleEF	LDA	0.04	0.21
tblVehicleEF	LDA	0.07	0.23
tblVehicleEF	LDA	2.5630e-003	2.6300e-003
tblVehicleEF	LDA	6.0800e-004	5.4200e-004
tblVehicleEF	LDA	0.05	0.07
tblVehicleEF	LDA	0.10	0.10
tblVehicleEF	LDA	0.04	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.21
tblVehicleEF	LDA	0.08	0.25
tblVehicleEF	LDA	4.5900e-003	2.8100e-003
tblVehicleEF	LDA	4.7470e-003	0.05
tblVehicleEF	LDA	0.71	0.81
tblVehicleEF	LDA	1.02	1.87
tblVehicleEF	LDA	278.73	289.14
tblVehicleEF	LDA	58.81	54.24
tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	1.6140e-003	1.4470e-003

tblVehicleEF	LDA	2.2650e-003	1.9190e-003
tblVehicleEF	LDA	1.4880e-003	1.3330e-003
tblVehicleEF	LDA	2.0830e-003	1.7640e-003
tblVehicleEF	LDA	0.10	0.14
tblVehicleEF	LDA	0.12	0.12
tblVehicleEF	LDA	0.07	0.10
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.21
tblVehicleEF	LDA	0.06	0.20
tblVehicleEF	LDA	2.7930e-003	2.8600e-003
tblVehicleEF	LDA	6.0500e-004	5.3700e-004
tblVehicleEF	LDA	0.10	0.14
tblVehicleEF	LDA	0.12	0.12
tblVehicleEF	LDA	0.07	0.10
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.21
tblVehicleEF	LDA	0.07	0.22
tblVehicleEF	LDA	3.8980e-003	2.3810e-003
tblVehicleEF	LDA	5.6140e-003	0.05
tblVehicleEF	LDA	0.54	0.62
tblVehicleEF	LDA	1.19	2.17
tblVehicleEF	LDA	249.57	259.47
tblVehicleEF	LDA	58.81	54.82
tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	1.6140e-003	1.4470e-003
tblVehicleEF	LDA	2.2650e-003	1.9190e-003
tblVehicleEF	LDA	1.4880e-003	1.3330e-003

tblVehicleEF	LDA	2.0830e-003	1.7640e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	9.8140e-003	9.1880e-003
tblVehicleEF	LDA	0.04	0.24
tblVehicleEF	LDA	0.08	0.23
tblVehicleEF	LDA	2.4990e-003	2.5670e-003
tblVehicleEF	LDA	6.0800e-004	5.4200e-004
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.24
tblVehicleEF	LDA	0.08	0.26
tblVehicleEF	LDT1	0.01	8.0140e-003
tblVehicleEF	LDT1	0.02	0.09
tblVehicleEF	LDT1	1.46	1.62
tblVehicleEF	LDT1	3.40	2.43
tblVehicleEF	LDT1	315.98	317.00
tblVehicleEF	LDT1	72.28	66.64
tblVehicleEF	LDT1	0.14	0.14
tblVehicleEF	LDT1	2.5300e-003	2.2930e-003
tblVehicleEF	LDT1	3.6970e-003	2.9510e-003
tblVehicleEF	LDT1	2.3290e-003	2.1110e-003
tblVehicleEF	LDT1	3.4000e-003	2.7140e-003
tblVehicleEF	LDT1	0.21	0.23

tblVehicleEF	LDT1	0.35	0.27
tblVehicleEF	LDT1	0.14	0.15
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.20	0.87
tblVehicleEF	LDT1	0.24	0.44
tblVehicleEF	LDT1	3.1780e-003	3.1370e-003
tblVehicleEF	LDT1	7.8300e-004	6.5900e-004
tblVehicleEF	LDT1	0.21	0.23
tblVehicleEF	LDT1	0.35	0.27
tblVehicleEF	LDT1	0.14	0.15
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.20	0.87
tblVehicleEF	LDT1	0.26	0.48
tblVehicleEF	LDT1	0.01	9.0560e-003
tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	1.76	1.96
tblVehicleEF	LDT1	2.99	2.15
tblVehicleEF	LDT1	343.19	341.79
tblVehicleEF	LDT1	72.28	66.01
tblVehicleEF	LDT1	0.13	0.13
tblVehicleEF	LDT1	2.5300e-003	2.2930e-003
tblVehicleEF	LDT1	3.6970e-003	2.9510e-003
tblVehicleEF	LDT1	2.3290e-003	2.1110e-003
tblVehicleEF	LDT1	3.4000e-003	2.7140e-003
tblVehicleEF	LDT1	0.41	0.44
tblVehicleEF	LDT1	0.43	0.34
tblVehicleEF	LDT1	0.27	0.29

tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.20	0.88
tblVehicleEF	LDT1	0.21	0.38
tblVehicleEF	LDT1	3.4550e-003	3.3820e-003
tblVehicleEF	LDT1	7.7500e-004	6.5300e-004
tblVehicleEF	LDT1	0.41	0.44
tblVehicleEF	LDT1	0.43	0.34
tblVehicleEF	LDT1	0.27	0.29
tblVehicleEF	LDT1	0.05	0.06
tblVehicleEF	LDT1	0.20	0.88
tblVehicleEF	LDT1	0.23	0.42
tblVehicleEF	LDT1	0.01	7.7080e-003
tblVehicleEF	LDT1	0.02	0.09
tblVehicleEF	LDT1	1.37	1.51
tblVehicleEF	LDT1	3.46	2.48
tblVehicleEF	LDT1	307.88	309.49
tblVehicleEF	LDT1	72.28	66.77
tblVehicleEF	LDT1	0.14	0.14
tblVehicleEF	LDT1	2.5300e-003	2.2930e-003
tblVehicleEF	LDT1	3.6970e-003	2.9510e-003
tblVehicleEF	LDT1	2.3290e-003	2.1110e-003
tblVehicleEF	LDT1	3.4000e-003	2.7140e-003
tblVehicleEF	LDT1	0.18	0.19
tblVehicleEF	LDT1	0.39	0.30
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	0.23	1.01

tblVehicleEF	LDT1	0.25	0.45
tblVehicleEF	LDT1	3.0960e-003	3.0630e-003
tblVehicleEF	LDT1	7.8400e-004	6.6100e-004
tblVehicleEF	LDT1	0.18	0.19
tblVehicleEF	LDT1	0.39	0.30
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.23	1.01
tblVehicleEF	LDT1	0.27	0.50
tblVehicleEF	LDT2	5.6080e-003	4.2470e-003
tblVehicleEF	LDT2	7.2840e-003	0.07
tblVehicleEF	LDT2	0.76	0.98
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tblVehicleEF	LDT2	355.02	338.79
tblVehicleEF	LDT2	81.24	71.51
tblVehicleEF	LDT2	0.08	0.09
tblVehicleEF	LDT2	1.6030e-003	1.4980e-003
tblVehicleEF	LDT2	2.3320e-003	1.9580e-003
tblVehicleEF	LDT2	1.4740e-003	1.3790e-003
tblVehicleEF	LDT2	2.1450e-003	1.8010e-003
tblVehicleEF	LDT2	0.07	0.11
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.01	0.02
tblVehicleEF	LDT2	0.06	0.44
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	3.5560e-003	3.3520e-003

tblVehicleEF	LDT2	8.3800e-004	7.0800e-004
tblVehicleEF	LDT2	0.07	0.11
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.06	0.44
tblVehicleEF	LDT2	0.11	0.37
tblVehicleEF	LDT2	6.3630e-003	4.8280e-003
tblVehicleEF	LDT2	6.3270e-003	0.06
tblVehicleEF	LDT2	0.93	1.20
tblVehicleEF	LDT2	1.35	2.42
tblVehicleEF	LDT2	386.34	362.86
tblVehicleEF	LDT2	81.24	70.86
tblVehicleEF	LDT2	0.07	0.08
tblVehicleEF	LDT2	1.6030e-003	1.4980e-003
tblVehicleEF	LDT2	2.3320e-003	1.9580e-003
tblVehicleEF	LDT2	1.4740e-003	1.3790e-003
tblVehicleEF	LDT2	2.1450e-003	1.8010e-003
tblVehicleEF	LDT2	0.14	0.22
tblVehicleEF	LDT2	0.14	0.17
tblVehicleEF	LDT2	0.10	0.17
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.44
tblVehicleEF	LDT2	0.09	0.29
tblVehicleEF	LDT2	3.8710e-003	3.5900e-003
tblVehicleEF	LDT2	8.3500e-004	7.0100e-004
tblVehicleEF	LDT2	0.14	0.22

tblVehicleEF	LDT2	0.14	0.17
tblVehicleEF	LDT2	0.10	0.17
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.06	0.44
tblVehicleEF	LDT2	0.09	0.32
tblVehicleEF	LDT2	5.3900e-003	4.0760e-003
tblVehicleEF	LDT2	7.4940e-003	0.07
tblVehicleEF	LDT2	0.71	0.91
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tblVehicleEF	LDT2	345.65	331.49
tblVehicleEF	LDT2	81.24	71.65
tblVehicleEF	LDT2	0.08	0.09
tblVehicleEF	LDT2	1.6030e-003	1.4980e-003
tblVehicleEF	LDT2	2.3320e-003	1.9580e-003
tblVehicleEF	LDT2	1.4740e-003	1.3790e-003
tblVehicleEF	LDT2	2.1450e-003	1.8010e-003
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.13	0.15
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.01	0.02
tblVehicleEF	LDT2	0.07	0.51
tblVehicleEF	LDT2	0.10	0.34
tblVehicleEF	LDT2	3.4620e-003	3.2800e-003
tblVehicleEF	LDT2	8.3900e-004	7.0900e-004
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.13	0.15
tblVehicleEF	LDT2	0.05	0.07

tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.51
tblVehicleEF	LDT2	0.11	0.38
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tblVehicleEF	LHD1	0.01	5.3310e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	0.96	0.72
tblVehicleEF	LHD1	2.41	0.96
tblVehicleEF	LHD1	9.26	9.44
tblVehicleEF	LHD1	607.95	639.95
tblVehicleEF	LHD1	30.36	10.54
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	2.21	1.60
tblVehicleEF	LHD1	9.7200e-004	9.7000e-004
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.7100e-004	2.3300e-004
tblVehicleEF	LHD1	9.3000e-004	9.2800e-004
tblVehicleEF	LHD1	2.5390e-003	2.5010e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.0100e-004	2.1400e-004
tblVehicleEF	LHD1	3.8710e-003	3.1780e-003
tblVehicleEF	LHD1	0.10	0.08
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.9010e-003	1.5570e-003
tblVehicleEF	LHD1	0.08	0.06

tblVehicleEF	LHD1	0.31	0.50
tblVehicleEF	LHD1	0.26	0.08
tblVehicleEF	LHD1	9.3000e-005	9.1000e-005
tblVehicleEF	LHD1	5.9620e-003	6.2250e-003
tblVehicleEF	LHD1	3.4900e-004	1.0400e-004
tblVehicleEF	LHD1	3.8710e-003	3.1780e-003
tblVehicleEF	LHD1	0.10	0.08
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.9010e-003	1.5570e-003
tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.31	0.50
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	5.4460e-003	4.8940e-003
tblVehicleEF	LHD1	0.01	5.4200e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	0.97	0.73
tblVehicleEF	LHD1	2.29	0.92
tblVehicleEF	LHD1	9.26	9.44
tblVehicleEF	LHD1	607.95	639.97
tblVehicleEF	LHD1	30.36	10.46
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	2.08	1.51
tblVehicleEF	LHD1	9.7200e-004	9.7000e-004
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.7100e-004	2.3300e-004

tblVehicleEF	LHD1	9.3000e-004	9.2800e-004
tblVehicleEF	LHD1	2.5390e-003	2.5010e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.0100e-004	2.1400e-004
tblVehicleEF	LHD1	7.2450e-003	5.9530e-003
tblVehicleEF	LHD1	0.12	0.09
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.6380e-003	2.9980e-003
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	0.32	0.50
tblVehicleEF	LHD1	0.25	0.07
tblVehicleEF	LHD1	9.3000e-005	9.1000e-005
tblVehicleEF	LHD1	5.9620e-003	6.2250e-003
tblVehicleEF	LHD1	3.4700e-004	1.0300e-004
tblVehicleEF	LHD1	7.2450e-003	5.9530e-003
tblVehicleEF	LHD1	0.12	0.09
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	3.6380e-003	2.9980e-003
tblVehicleEF	LHD1	0.10	0.08
tblVehicleEF	LHD1	0.32	0.50
tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	5.4460e-003	4.8810e-003
tblVehicleEF	LHD1	0.01	5.3180e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	0.96	0.72
tblVehicleEF	LHD1	2.41	0.96

tblVehicleEF	LHD1	9.26	9.44
tblVehicleEF	LHD1	607.95	639.95
tblVehicleEF	LHD1	30.36	10.54
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	2.18	1.59
tblVehicleEF	LHD1	9.7200e-004	9.7000e-004
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.7100e-004	2.3300e-004
tblVehicleEF	LHD1	9.3000e-004	9.2800e-004
tblVehicleEF	LHD1	2.5390e-003	2.5010e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.0100e-004	2.1400e-004
tblVehicleEF	LHD1	3.4570e-003	2.8250e-003
tblVehicleEF	LHD1	0.11	0.09
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.7350e-003	1.4150e-003
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	0.33	0.53
tblVehicleEF	LHD1	0.26	0.08
tblVehicleEF	LHD1	9.3000e-005	9.1000e-005
tblVehicleEF	LHD1	5.9620e-003	6.2250e-003
tblVehicleEF	LHD1	3.4900e-004	1.0400e-004
tblVehicleEF	LHD1	3.4570e-003	2.8250e-003
tblVehicleEF	LHD1	0.11	0.09
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.7350e-003	1.4150e-003

tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.33	0.53
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD2	3.6660e-003	3.1720e-003
tblVehicleEF	LHD2	4.5290e-003	3.8570e-003
tblVehicleEF	LHD2	8.3110e-003	9.0280e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.50	0.53
tblVehicleEF	LHD2	1.15	0.56
tblVehicleEF	LHD2	14.48	14.86
tblVehicleEF	LHD2	604.20	638.83
tblVehicleEF	LHD2	23.56	7.29
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	1.71	1.77
tblVehicleEF	LHD2	1.3360e-003	1.4390e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.8700e-004	1.1400e-004
tblVehicleEF	LHD2	1.2780e-003	1.3770e-003
tblVehicleEF	LHD2	2.6970e-003	2.7110e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.5600e-004	1.0500e-004
tblVehicleEF	LHD2	1.4980e-003	1.6870e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.7800e-004	8.4200e-004
tblVehicleEF	LHD2	0.06	0.06

tblVehicleEF	LHD2	0.09	0.25
tblVehicleEF	LHD2	0.11	0.04
tblVehicleEF	LHD2	1.4100e-004	1.4200e-004
tblVehicleEF	LHD2	5.8740e-003	6.1550e-003
tblVehicleEF	LHD2	2.5700e-004	7.2000e-005
tblVehicleEF	LHD2	1.4980e-003	1.6870e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.7800e-004	8.4200e-004
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.09	0.25
tblVehicleEF	LHD2	0.12	0.05
tblVehicleEF	LHD2	3.6660e-003	3.1790e-003
tblVehicleEF	LHD2	4.5800e-003	3.8860e-003
tblVehicleEF	LHD2	8.0210e-003	8.7250e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.51	0.53
tblVehicleEF	LHD2	1.10	0.53
tblVehicleEF	LHD2	14.48	14.86
tblVehicleEF	LHD2	604.20	638.83
tblVehicleEF	LHD2	23.56	7.25
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	1.62	1.67
tblVehicleEF	LHD2	1.3360e-003	1.4390e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.8700e-004	1.1400e-004

tblVehicleEF	LHD2	1.2780e-003	1.3770e-003
tblVehicleEF	LHD2	2.6970e-003	2.7110e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.5600e-004	1.0500e-004
tblVehicleEF	LHD2	2.8320e-003	3.1830e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.4720e-003	1.6130e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.09	0.25
tblVehicleEF	LHD2	0.11	0.04
tblVehicleEF	LHD2	1.4100e-004	1.4200e-004
tblVehicleEF	LHD2	5.8740e-003	6.1560e-003
tblVehicleEF	LHD2	2.5600e-004	7.2000e-005
tblVehicleEF	LHD2	2.8320e-003	3.1830e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.4720e-003	1.6130e-003
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.09	0.25
tblVehicleEF	LHD2	0.12	0.05
tblVehicleEF	LHD2	3.6660e-003	3.1700e-003
tblVehicleEF	LHD2	4.5170e-003	3.8490e-003
tblVehicleEF	LHD2	8.3600e-003	9.0930e-003
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tblVehicleEF	LHD2	0.50	0.53
tblVehicleEF	LHD2	1.16	0.56

tblVehicleEF	LHD2	14.48	14.86
tblVehicleEF	LHD2	604.20	638.83
tblVehicleEF	LHD2	23.56	7.30
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	1.70	1.75
tblVehicleEF	LHD2	1.3360e-003	1.4390e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.8700e-004	1.1400e-004
tblVehicleEF	LHD2	1.2780e-003	1.3770e-003
tblVehicleEF	LHD2	2.6970e-003	2.7110e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.5600e-004	1.0500e-004
tblVehicleEF	LHD2	1.1910e-003	1.3290e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	6.6000e-004	7.0100e-004
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.09	0.27
tblVehicleEF	LHD2	0.11	0.04
tblVehicleEF	LHD2	1.4100e-004	1.4200e-004
tblVehicleEF	LHD2	5.8740e-003	6.1550e-003
tblVehicleEF	LHD2	2.5700e-004	7.2000e-005
tblVehicleEF	LHD2	1.1910e-003	1.3290e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.6000e-004	7.0100e-004

tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.09	0.27
tblVehicleEF	LHD2	0.12	0.05
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	19.52	19.61
tblVehicleEF	MCY	9.67	8.55
tblVehicleEF	MCY	165.74	208.30
tblVehicleEF	MCY	46.23	60.73
tblVehicleEF	MCY	1.13	1.13
tblVehicleEF	MCY	1.7750e-003	1.7570e-003
tblVehicleEF	MCY	3.4010e-003	2.8660e-003
tblVehicleEF	MCY	1.6600e-003	1.6440e-003
tblVehicleEF	MCY	3.2060e-003	2.7000e-003
tblVehicleEF	MCY	1.69	1.66
tblVehicleEF	MCY	0.85	0.84
tblVehicleEF	MCY	0.92	0.90
tblVehicleEF	MCY	2.15	2.16
tblVehicleEF	MCY	0.57	1.87
tblVehicleEF	MCY	2.08	1.83
tblVehicleEF	MCY	2.0380e-003	2.0610e-003
tblVehicleEF	MCY	6.8100e-004	6.0100e-004
tblVehicleEF	MCY	1.69	1.66
tblVehicleEF	MCY	0.85	0.84
tblVehicleEF	MCY	0.92	0.90
tblVehicleEF	MCY	2.65	2.65
tblVehicleEF	MCY	0.57	1.87

tblVehicleEF	MCY	2.26	1.99
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	20.23	20.27
tblVehicleEF	MCY	9.11	8.00
tblVehicleEF	MCY	165.74	209.26
tblVehicleEF	MCY	46.23	59.19
tblVehicleEF	MCY	0.98	0.98
tblVehicleEF	MCY	1.7750e-003	1.7570e-003
tblVehicleEF	MCY	3.4010e-003	2.8660e-003
tblVehicleEF	MCY	1.6600e-003	1.6440e-003
tblVehicleEF	MCY	3.2060e-003	2.7000e-003
tblVehicleEF	MCY	3.35	3.28
tblVehicleEF	MCY	1.24	1.23
tblVehicleEF	MCY	2.10	2.05
tblVehicleEF	MCY	2.13	2.13
tblVehicleEF	MCY	0.57	1.86
tblVehicleEF	MCY	1.86	1.63
tblVehicleEF	MCY	2.0490e-003	2.0710e-003
tblVehicleEF	MCY	6.6500e-004	5.8600e-004
tblVehicleEF	MCY	3.35	3.28
tblVehicleEF	MCY	1.24	1.23
tblVehicleEF	MCY	2.10	2.05
tblVehicleEF	MCY	2.62	2.63
tblVehicleEF	MCY	0.57	1.86
tblVehicleEF	MCY	2.02	1.77
tblVehicleEF	MCY	0.42	0.32

tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	19.04	19.14
tblVehicleEF	MCY	9.62	8.49
tblVehicleEF	MCY	165.74	207.52
tblVehicleEF	MCY	46.23	60.64
tblVehicleEF	MCY	1.12	1.12
tblVehicleEF	MCY	1.7750e-003	1.7570e-003
tblVehicleEF	MCY	3.4010e-003	2.8660e-003
tblVehicleEF	MCY	1.6600e-003	1.6440e-003
tblVehicleEF	MCY	3.2060e-003	2.7000e-003
tblVehicleEF	MCY	1.60	1.59
tblVehicleEF	MCY	1.05	1.04
tblVehicleEF	MCY	0.74	0.73
tblVehicleEF	MCY	2.15	2.15
tblVehicleEF	MCY	0.65	2.12
tblVehicleEF	MCY	2.08	1.83
tblVehicleEF	MCY	2.0310e-003	2.0540e-003
tblVehicleEF	MCY	6.8100e-004	6.0000e-004
tblVehicleEF	MCY	1.60	1.59
tblVehicleEF	MCY	1.05	1.04
tblVehicleEF	MCY	0.74	0.73
tblVehicleEF	MCY	2.64	2.65
tblVehicleEF	MCY	0.65	2.12
tblVehicleEF	MCY	2.27	1.99
tblVehicleEF	MDV	0.01	5.7580e-003
tblVehicleEF	MDV	0.02	0.09
tblVehicleEF	MDV	1.42	1.20

tblVehicleEF	MDV	3.18	3.27
tblVehicleEF	MDV	488.89	421.49
tblVehicleEF	MDV	110.15	88.73
tblVehicleEF	MDV	0.17	0.12
tblVehicleEF	MDV	1.7110e-003	1.5730e-003
tblVehicleEF	MDV	2.4630e-003	2.0550e-003
tblVehicleEF	MDV	1.5780e-003	1.4510e-003
tblVehicleEF	MDV	2.2660e-003	1.8910e-003
tblVehicleEF	MDV	0.11	0.13
tblVehicleEF	MDV	0.20	0.17
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.11	0.50
tblVehicleEF	MDV	0.25	0.45
tblVehicleEF	MDV	4.9000e-003	4.1680e-003
tblVehicleEF	MDV	1.1570e-003	8.7800e-004
tblVehicleEF	MDV	0.11	0.13
tblVehicleEF	MDV	0.20	0.17
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.50
tblVehicleEF	MDV	0.27	0.49
tblVehicleEF	MDV	0.01	6.5120e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.73	1.46
tblVehicleEF	MDV	2.81	2.88
tblVehicleEF	MDV	530.71	447.07

tblVehicleEF	MDV	110.15	87.92
tblVehicleEF	MDV	0.16	0.11
tblVehicleEF	MDV	1.7110e-003	1.5730e-003
tblVehicleEF	MDV	2.4630e-003	2.0550e-003
tblVehicleEF	MDV	1.5780e-003	1.4510e-003
tblVehicleEF	MDV	2.2660e-003	1.8910e-003
tblVehicleEF	MDV	0.22	0.26
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.17	0.21
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.50
tblVehicleEF	MDV	0.21	0.39
tblVehicleEF	MDV	5.3230e-003	4.4210e-003
tblVehicleEF	MDV	1.1510e-003	8.7000e-004
tblVehicleEF	MDV	0.22	0.26
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.17	0.21
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.50
tblVehicleEF	MDV	0.23	0.43
tblVehicleEF	MDV	0.01	5.5370e-003
tblVehicleEF	MDV	0.02	0.09
tblVehicleEF	MDV	1.33	1.12
tblVehicleEF	MDV	3.24	3.34
tblVehicleEF	MDV	476.42	413.84
tblVehicleEF	MDV	110.15	88.88
tblVehicleEF	MDV	0.16	0.12

tblVehicleEF	MDV	1.7110e-003	1.5730e-003
tblVehicleEF	MDV	2.4630e-003	2.0550e-003
tblVehicleEF	MDV	1.5780e-003	1.4510e-003
tblVehicleEF	MDV	2.2660e-003	1.8910e-003
tblVehicleEF	MDV	0.09	0.10
tblVehicleEF	MDV	0.21	0.18
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.13	0.57
tblVehicleEF	MDV	0.25	0.46
tblVehicleEF	MDV	4.7750e-003	4.0920e-003
tblVehicleEF	MDV	1.1590e-003	8.8000e-004
tblVehicleEF	MDV	0.09	0.10
tblVehicleEF	MDV	0.21	0.18
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.03
tblVehicleEF	MDV	0.13	0.57
tblVehicleEF	MDV	0.28	0.50
tblVehicleEF	MH	0.03	3.3370e-003
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tblVehicleEF	MH	2.70	0.34
tblVehicleEF	MH	5.98	0.00
tblVehicleEF	MH	1,002.10	941.76
tblVehicleEF	MH	57.67	0.00
tblVehicleEF	MH	1.67	4.43
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.14

tblVehicleEF	MH	1.0860e-003	0.00
tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.14
tblVehicleEF	MH	9.9800e-004	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.08	0.00
tblVehicleEF	MH	0.54	0.00
tblVehicleEF	MH	0.09	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.35	0.00
tblVehicleEF	MH	9.9460e-003	8.9030e-003
tblVehicleEF	MH	6.8100e-004	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.08	0.00
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tblVehicleEF	MH	0.13	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.39	0.00
tblVehicleEF	MH	0.03	3.3370e-003
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	2.78	0.34
tblVehicleEF	MH	5.56	0.00
tblVehicleEF	MH	1,002.10	941.76
tblVehicleEF	MH	57.67	0.00
tblVehicleEF	MH	1.55	4.18
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.14

tblVehicleEF	MH	1.0860e-003	0.00
tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.14
tblVehicleEF	MH	9.9800e-004	0.00
tblVehicleEF	MH	2.87	0.00
tblVehicleEF	MH	0.10	0.00
tblVehicleEF	MH	1.06	0.00
tblVehicleEF	MH	0.10	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.34	0.00
tblVehicleEF	MH	9.9470e-003	8.9030e-003
tblVehicleEF	MH	6.7400e-004	0.00
tblVehicleEF	MH	2.87	0.00
tblVehicleEF	MH	0.10	0.00
tblVehicleEF	MH	1.06	0.00
tblVehicleEF	MH	0.13	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
tblVehicleEF	MH	0.03	3.3370e-003
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	2.70	0.34
tblVehicleEF	MH	6.02	0.00
tblVehicleEF	MH	1,002.10	941.76
tblVehicleEF	MH	57.67	0.00
tblVehicleEF	MH	1.65	4.38
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.14

tblVehicleEF	MH	1.0860e-003	0.00
tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.14
tblVehicleEF	MH	9.9800e-004	0.00
tblVehicleEF	MH	1.58	0.00
tblVehicleEF	MH	0.10	0.00
tblVehicleEF	MH	0.53	0.00
tblVehicleEF	MH	0.09	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.35	0.00
tblVehicleEF	MH	9.9460e-003	8.9030e-003
tblVehicleEF	MH	6.8200e-004	0.00
tblVehicleEF	MH	1.58	0.00
tblVehicleEF	MH	0.10	0.00
tblVehicleEF	MH	0.53	0.00
tblVehicleEF	MH	0.13	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.39	0.00
tblVehicleEF	MHD	0.02	3.1500e-003
tblVehicleEF	MHD	3.7220e-003	5.9790e-003
tblVehicleEF	MHD	0.06	8.4870e-003
tblVehicleEF	MHD	0.35	0.34
tblVehicleEF	MHD	0.28	0.57
tblVehicleEF	MHD	6.06	1.01
tblVehicleEF	MHD	151.96	74.93
tblVehicleEF	MHD	1,066.63	1,001.03
tblVehicleEF	MHD	55.49	8.18

tblVehicleEF	MHD	0.65	0.69
tblVehicleEF	MHD	0.99	2.37
tblVehicleEF	MHD	1.0680e-003	2.4180e-003
tblVehicleEF	MHD	6.4490e-003	0.08
tblVehicleEF	MHD	7.8800e-004	9.6000e-005
tblVehicleEF	MHD	1.0220e-003	2.3130e-003
tblVehicleEF	MHD	6.1670e-003	0.08
tblVehicleEF	MHD	7.2400e-004	8.8000e-005
tblVehicleEF	MHD	1.7450e-003	7.1900e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	8.5800e-004	3.5500e-004
tblVehicleEF	MHD	0.03	0.11
tblVehicleEF	MHD	0.02	0.10
tblVehicleEF	MHD	0.37	0.05
tblVehicleEF	MHD	1.4610e-003	7.1000e-004
tblVehicleEF	MHD	0.01	9.5290e-003
tblVehicleEF	MHD	6.6100e-004	8.1000e-005
tblVehicleEF	MHD	1.7450e-003	7.1900e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	8.5800e-004	3.5500e-004
tblVehicleEF	MHD	0.04	0.12
tblVehicleEF	MHD	0.02	0.10
tblVehicleEF	MHD	0.40	0.05
tblVehicleEF	MHD	0.02	2.9880e-003
tblVehicleEF	MHD	3.7740e-003	6.0080e-003

tblVehicleEF	MHD	0.05	8.2030e-003
tblVehicleEF	MHD	0.26	0.28
tblVehicleEF	MHD	0.28	0.57
tblVehicleEF	MHD	5.78	0.96
tblVehicleEF	MHD	160.96	76.44
tblVehicleEF	MHD	1,066.63	1,001.04
tblVehicleEF	MHD	55.49	8.10
tblVehicleEF	MHD	0.67	0.70
tblVehicleEF	MHD	0.93	2.23
tblVehicleEF	MHD	9.0000e-004	2.0410e-003
tblVehicleEF	MHD	6.4490e-003	0.08
tblVehicleEF	MHD	7.8800e-004	9.6000e-005
tblVehicleEF	MHD	8.6100e-004	1.9530e-003
tblVehicleEF	MHD	6.1670e-003	0.08
tblVehicleEF	MHD	7.2400e-004	8.8000e-005
tblVehicleEF	MHD	3.3760e-003	1.3770e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	1.6840e-003	7.0100e-004
tblVehicleEF	MHD	0.03	0.11
tblVehicleEF	MHD	0.02	0.11
tblVehicleEF	MHD	0.36	0.04
tblVehicleEF	MHD	1.5460e-003	7.2500e-004
tblVehicleEF	MHD	0.01	9.5290e-003
tblVehicleEF	MHD	6.5600e-004	8.0000e-005
tblVehicleEF	MHD	3.3760e-003	1.3770e-003
tblVehicleEF	MHD	0.06	0.02

tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	1.6840e-003	7.0100e-004
tblVehicleEF	MHD	0.04	0.12
tblVehicleEF	MHD	0.02	0.11
tblVehicleEF	MHD	0.39	0.05
tblVehicleEF	MHD	0.02	3.3820e-003
tblVehicleEF	MHD	3.6890e-003	5.9600e-003
tblVehicleEF	MHD	0.06	8.5610e-003
tblVehicleEF	MHD	0.49	0.43
tblVehicleEF	MHD	0.27	0.57
tblVehicleEF	MHD	6.14	1.02
tblVehicleEF	MHD	139.53	72.84
tblVehicleEF	MHD	1,066.63	1,001.03
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tblVehicleEF	MHD	0.62	0.67
tblVehicleEF	MHD	0.98	2.35
tblVehicleEF	MHD	1.2990e-003	2.9380e-003
tblVehicleEF	MHD	6.4490e-003	0.08
tblVehicleEF	MHD	7.8800e-004	9.6000e-005
tblVehicleEF	MHD	1.2430e-003	2.8110e-003
tblVehicleEF	MHD	6.1670e-003	0.08
tblVehicleEF	MHD	7.2400e-004	8.8000e-005
tblVehicleEF	MHD	1.3320e-003	5.6300e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	6.7900e-004	2.8800e-004
tblVehicleEF	MHD	0.03	0.11

tblVehicleEF	MHD	0.02	0.11
tblVehicleEF	MHD	0.37	0.05
tblVehicleEF	MHD	1.3440e-003	6.9100e-004
tblVehicleEF	MHD	0.01	9.5290e-003
tblVehicleEF	MHD	6.6300e-004	8.1000e-005
tblVehicleEF	MHD	1.3320e-003	5.6300e-004
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tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	6.7900e-004	2.8800e-004
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tblVehicleEF	OBUS	8.0950e-003	8.5070e-003
tblVehicleEF	OBUS	0.03	0.02
tblVehicleEF	OBUS	0.27	0.50
tblVehicleEF	OBUS	0.54	0.93
tblVehicleEF	OBUS	6.17	2.58
tblVehicleEF	OBUS	75.04	73.28
tblVehicleEF	OBUS	1,098.07	1,407.22
tblVehicleEF	OBUS	70.10	20.86
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tblVehicleEF	OBUS	1.12	1.70
tblVehicleEF	OBUS	1.2100e-004	1.7750e-003
tblVehicleEF	OBUS	6.0450e-003	0.04
tblVehicleEF	OBUS	8.2300e-004	1.9000e-004
tblVehicleEF	OBUS	1.1600e-004	1.6990e-003

tblVehicleEF	OBUS	5.7680e-003	0.04
tblVehicleEF	OBUS	7.5700e-004	1.7400e-004
tblVehicleEF	OBUS	2.1800e-003	2.5990e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	9.3000e-004	1.1120e-003
tblVehicleEF	OBUS	0.04	0.09
tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.39	0.12
tblVehicleEF	OBUS	7.2800e-004	6.9900e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.0900e-004	2.0600e-004
tblVehicleEF	OBUS	2.1800e-003	2.5990e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	9.3000e-004	1.1120e-003
tblVehicleEF	OBUS	0.05	0.11
tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.42	0.14
tblVehicleEF	OBUS	0.01	8.9470e-003
tblVehicleEF	OBUS	8.2540e-003	8.6370e-003
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tblVehicleEF	OBUS	0.26	0.48
tblVehicleEF	OBUS	0.55	0.94
tblVehicleEF	OBUS	5.76	2.41
tblVehicleEF	OBUS	78.48	73.81
tblVehicleEF	OBUS	1,098.07	1,407.25

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tblVehicleEF	OBUS	1.0200e-004	1.5000e-003
tblVehicleEF	OBUS	6.0450e-003	0.04
tblVehicleEF	OBUS	8.2300e-004	1.9000e-004
tblVehicleEF	OBUS	9.8000e-005	1.4350e-003
tblVehicleEF	OBUS	5.7680e-003	0.04
tblVehicleEF	OBUS	7.5700e-004	1.7400e-004
tblVehicleEF	OBUS	4.0690e-003	4.7330e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	1.7890e-003	2.1320e-003
tblVehicleEF	OBUS	0.04	0.09
tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.37	0.12
tblVehicleEF	OBUS	7.6100e-004	7.0400e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.0200e-004	2.0400e-004
tblVehicleEF	OBUS	4.0690e-003	4.7330e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	1.7890e-003	2.1320e-003
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tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.40	0.13
tblVehicleEF	OBUS	0.01	8.9200e-003

tblVehicleEF	OBUS	8.0660e-003	8.4690e-003
tblVehicleEF	OBUS	0.03	0.02
tblVehicleEF	OBUS	0.28	0.53
tblVehicleEF	OBUS	0.54	0.92
tblVehicleEF	OBUS	6.22	2.60
tblVehicleEF	OBUS	70.30	72.56
tblVehicleEF	OBUS	1,098.07	1,407.21
tblVehicleEF	OBUS	70.10	20.90
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tblVehicleEF	OBUS	1.11	1.68
tblVehicleEF	OBUS	1.4700e-004	2.1560e-003
tblVehicleEF	OBUS	6.0450e-003	0.04
tblVehicleEF	OBUS	8.2300e-004	1.9000e-004
tblVehicleEF	OBUS	1.4100e-004	2.0620e-003
tblVehicleEF	OBUS	5.7680e-003	0.04
tblVehicleEF	OBUS	7.5700e-004	1.7400e-004
tblVehicleEF	OBUS	1.8870e-003	2.3830e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	8.5400e-004	1.0620e-003
tblVehicleEF	OBUS	0.04	0.09
tblVehicleEF	OBUS	0.05	0.27
tblVehicleEF	OBUS	0.39	0.13
tblVehicleEF	OBUS	6.8300e-004	6.9200e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.1000e-004	2.0700e-004
tblVehicleEF	OBUS	1.8870e-003	2.3830e-003

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tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	8.5400e-004	1.0620e-003
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tblVehicleEF	SBUS	53.92	6.06
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tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.5700e-004	4.0000e-005
tblVehicleEF	SBUS	0.01	3.8900e-003
tblVehicleEF	SBUS	2.6950e-003	2.6510e-003
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.2000e-004	3.6000e-005
tblVehicleEF	SBUS	4.6830e-003	1.3080e-003
tblVehicleEF	SBUS	0.03	8.6250e-003

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tblVehicleEF	SBUS	0.02	0.05
tblVehicleEF	SBUS	0.37	0.04
tblVehicleEF	SBUS	0.01	3.5040e-003
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tblVehicleEF	SBUS	6.5500e-004	6.0000e-005
tblVehicleEF	SBUS	4.6830e-003	1.3080e-003
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tblVehicleEF	SBUS	2.1770e-003	6.2500e-004
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tblVehicleEF	SBUS	9.1190e-003	3.4340e-003

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tblVehicleEF	SBUS	0.03	0.03
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tblVehicleEF	SBUS	2.6950e-003	2.6510e-003
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.2000e-004	3.6000e-005
tblVehicleEF	SBUS	8.4640e-003	2.3620e-003
tblVehicleEF	SBUS	0.03	9.1440e-003
tblVehicleEF	SBUS	0.93	0.36
tblVehicleEF	SBUS	4.0830e-003	1.1650e-003
tblVehicleEF	SBUS	0.11	0.10
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tblVehicleEF	SBUS	0.31	0.03
tblVehicleEF	SBUS	0.01	3.6000e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.2400e-004	5.6000e-005
tblVehicleEF	SBUS	8.4640e-003	2.3620e-003
tblVehicleEF	SBUS	0.03	9.1440e-003
tblVehicleEF	SBUS	1.35	0.52
tblVehicleEF	SBUS	4.0830e-003	1.1650e-003
tblVehicleEF	SBUS	0.13	0.11
tblVehicleEF	SBUS	0.01	0.05
tblVehicleEF	SBUS	0.34	0.04
tblVehicleEF	SBUS	0.84	0.08
tblVehicleEF	SBUS	0.01	6.6040e-003
tblVehicleEF	SBUS	0.07	7.2110e-003

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tblVehicleEF	SBUS	0.63	0.53
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tblVehicleEF	SBUS	1,103.40	1,115.26
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tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.5700e-004	4.0000e-005
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tblVehicleEF	SBUS	4.2000e-004	3.6000e-005
tblVehicleEF	SBUS	4.1680e-003	1.1480e-003
tblVehicleEF	SBUS	0.03	8.8290e-003
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tblVehicleEF	SBUS	2.1000e-003	6.0300e-004
tblVehicleEF	SBUS	0.11	0.10
tblVehicleEF	SBUS	0.02	0.06
tblVehicleEF	SBUS	0.38	0.04
tblVehicleEF	SBUS	0.01	3.3710e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.6100e-004	6.1000e-005
tblVehicleEF	SBUS	4.1680e-003	1.1480e-003

tblVehicleEF	SBUS	0.03	8.8290e-003
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tblVehicleEF	UBUS	1,822.40	1,617.71
tblVehicleEF	UBUS	153.45	18.08
tblVehicleEF	UBUS	4.95	0.32
tblVehicleEF	UBUS	0.50	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.06	2.9340e-003
tblVehicleEF	UBUS	1.4200e-003	1.6100e-004
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tblVehicleEF	UBUS	3.0000e-003	5.4780e-003
tblVehicleEF	UBUS	0.05	2.7920e-003
tblVehicleEF	UBUS	1.3060e-003	1.4800e-004
tblVehicleEF	UBUS	9.7430e-003	1.6370e-003
tblVehicleEF	UBUS	0.11	9.7740e-003
tblVehicleEF	UBUS	4.7860e-003	7.1300e-004
tblVehicleEF	UBUS	0.52	0.05
tblVehicleEF	UBUS	0.02	0.05
tblVehicleEF	UBUS	1.17	0.07

tblVehicleEF	UBUS	9.9960e-003	4.8690e-003
tblVehicleEF	UBUS	1.8100e-003	1.7900e-004
tblVehicleEF	UBUS	9.7430e-003	1.6370e-003
tblVehicleEF	UBUS	0.11	9.7740e-003
tblVehicleEF	UBUS	4.7860e-003	7.1300e-004
tblVehicleEF	UBUS	2.08	3.43
tblVehicleEF	UBUS	0.02	0.05
tblVehicleEF	UBUS	1.28	0.08
tblVehicleEF	UBUS	1.52	3.35
tblVehicleEF	UBUS	0.08	0.02
tblVehicleEF	UBUS	8.53	26.06
tblVehicleEF	UBUS	13.06	1.28
tblVehicleEF	UBUS	1,822.40	1,617.72
tblVehicleEF	UBUS	153.45	17.70
tblVehicleEF	UBUS	4.62	0.31
tblVehicleEF	UBUS	0.50	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.06	2.9340e-003
tblVehicleEF	UBUS	1.4200e-003	1.6100e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4780e-003
tblVehicleEF	UBUS	0.05	2.7920e-003
tblVehicleEF	UBUS	1.3060e-003	1.4800e-004
tblVehicleEF	UBUS	0.02	2.9250e-003
tblVehicleEF	UBUS	0.14	0.01
tblVehicleEF	UBUS	9.6600e-003	1.4550e-003
tblVehicleEF	UBUS	0.53	0.05

tblVehicleEF	UBUS	0.02	0.05
tblVehicleEF	UBUS	1.06	0.07
tblVehicleEF	UBUS	9.9970e-003	4.8690e-003
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tblVehicleEF	UBUS	0.02	2.9250e-003
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tblVehicleEF	UBUS	9.6600e-003	1.4550e-003
tblVehicleEF	UBUS	2.09	3.43
tblVehicleEF	UBUS	0.02	0.05
tblVehicleEF	UBUS	1.17	0.07
tblVehicleEF	UBUS	1.51	3.35
tblVehicleEF	UBUS	0.09	0.02
tblVehicleEF	UBUS	8.44	26.05
tblVehicleEF	UBUS	15.44	1.49
tblVehicleEF	UBUS	1,822.40	1,617.71
tblVehicleEF	UBUS	153.45	18.06
tblVehicleEF	UBUS	4.92	0.31
tblVehicleEF	UBUS	0.50	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.06	2.9340e-003
tblVehicleEF	UBUS	1.4200e-003	1.6100e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4780e-003
tblVehicleEF	UBUS	0.05	2.7920e-003
tblVehicleEF	UBUS	1.3060e-003	1.4800e-004
tblVehicleEF	UBUS	8.9770e-003	1.7200e-003
tblVehicleEF	UBUS	0.13	0.01

tblVehicleEF	UBUS	4.3820e-003	7.5400e-004
tblVehicleEF	UBUS	0.52	0.05
tblVehicleEF	UBUS	0.03	0.05
tblVehicleEF	UBUS	1.18	0.07
tblVehicleEF	UBUS	9.9960e-003	4.8690e-003
tblVehicleEF	UBUS	1.8130e-003	1.7900e-004
tblVehicleEF	UBUS	8.9770e-003	1.7200e-003
tblVehicleEF	UBUS	0.13	0.01
tblVehicleEF	UBUS	4.3820e-003	7.5400e-004
tblVehicleEF	UBUS	2.08	3.43
tblVehicleEF	UBUS	0.03	0.05
tblVehicleEF	UBUS	1.29	0.08
tblVehicleTrips	CC_TL	8.40	3.00
tblVehicleTrips	CC_TL	8.40	3.00
tblVehicleTrips	CC_TL	8.40	3.00
tblVehicleTrips	CC_TL	8.40	3.00
tblVehicleTrips	CC_TTP	80.20	96.00
tblVehicleTrips	CC_TTP	78.80	96.00
tblVehicleTrips	CC_TTP	64.70	96.00
tblVehicleTrips	CC_TTP	0.00	96.00
tblVehicleTrips	CNW_TTP	19.00	3.00
tblVehicleTrips	CNW_TTP	19.00	3.00
tblVehicleTrips	CNW_TTP	19.00	3.00
tblVehicleTrips	CNW_TTP	0.00	3.00
tblVehicleTrips	CW_TTP	0.80	1.00
tblVehicleTrips	CW_TTP	2.20	1.00
tblVehicleTrips	CW_TTP	16.30	1.00

tblVehicleTrips	CW_TTP	0.00	1.00
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	35.00	0.00
tblVehicleTrips	PB_TP	65.00	70.00
tblVehicleTrips	PB_TP	50.00	67.00
tblVehicleTrips	PB_TP	11.00	39.00
tblVehicleTrips	PR_TP	14.00	30.00
tblVehicleTrips	PR_TP	29.00	33.00
tblVehicleTrips	PR_TP	54.00	61.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	1,448.33	700.00
tblVehicleTrips	ST_TR	722.03	616.12
tblVehicleTrips	ST_TR	0.00	775.00
tblVehicleTrips	SU_TR	1,182.08	700.00
tblVehicleTrips	SU_TR	542.72	472.58
tblVehicleTrips	SU_TR	0.00	775.00
tblVehicleTrips	WD_TR	845.60	837.58
tblVehicleTrips	WD_TR	496.12	470.95
tblVehicleTrips	WD_TR	42.70	114.93
tblVehicleTrips	WD_TR	0.00	775.00
tblWater	IndoorWaterUseRate	0.00	4,248,600.00

2.0 Emissions Summary

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					
2020	6.1179	75.9240	24.7905	0.1494	20.3885	2.9903	23.3788	10.2131	2.7511	12.9642	0.0000	15,433.2652	15,433.2652	2.1168	0.0000	15,486.1863
2021	15.9875	22.7010	21.4660	0.0485	1.3851	1.0391	2.4241	0.3732	0.9755	1.3487	0.0000	4,752.6821	4,752.6821	0.7845	0.0000	4,772.2951
Maximum	**15.9875**	**75.9240**	**24.7905**	**0.1494**	**20.3885**	**2.9903**	**23.3788**	**10.2131**	**2.7511**	**12.9642**	**0.0000**	**15,433.2652**	**15,433.2652**	**2.1168**	**0.0000**	**15,486.1863**

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					
2020	6.1179	75.9240	24.7905	0.1494	8.0742	2.9903	11.0646	4.0156	2.7511	6.7667	0.0000	15,433.2652	15,433.2652	2.1168	0.0000	15,486.1863
2021	15.9875	22.7010	21.4660	0.0485	1.3851	1.0391	2.4241	0.3732	0.9755	1.3487	0.0000	4,752.6821	4,752.6821	0.7845	0.0000	4,772.2951
Maximum	**15.9875**	**75.9240**	**24.7905**	**0.1494**	**8.0742**	**2.9903**	**11.0646**	**4.0156**	**2.7511**	**6.7667**	**0.0000**	**15,433.2652**	**15,433.2652**	**2.1168**	**0.0000**	**15,486.1863**

	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**	**56.56**	**0.00**	**47.72**	**58.54**	**0.00**	**43.30**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

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	0.7000	3.0000e-005	3.0700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5600e-003	6.5600e-003	2.0000e-005		7.0000e-003
Energy	0.0608	0.5527	0.4643	3.3200e-003		0.0420	0.0420		0.0420	0.0420		663.2492	663.2492	0.0127	0.0122	667.1905
Mobile	20.8407	36.4677	81.7279	0.1241	10.5135	0.1750	10.6886	2.7914	0.1643	2.9558		12,694.8961	12,694.8961	1.4378		12,730.8407
Total	**21.6014**	**37.0204**	**82.1952**	**0.1274**	**10.5135**	**0.2171**	**10.7306**	**2.7914**	**0.2064**	**2.9978**		**13,358.1518**	**13,358.1518**	**1.4505**	**0.0122**	**13,398.0383**

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	0.7000	3.0000e-005	3.0700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5600e-003	6.5600e-003	2.0000e-005		7.0000e-003
Energy	0.0608	0.5527	0.4643	3.3200e-003		0.0420	0.0420		0.0420	0.0420		663.2492	663.2492	0.0127	0.0122	667.1905
Mobile	20.8407	36.4677	81.7279	0.1241	10.5135	0.1750	10.6886	2.7914	0.1643	2.9558		12,694.8961	12,694.8961	1.4378		12,730.8407
Total	**21.6014**	**37.0204**	**82.1952**	**0.1274**	**10.5135**	**0.2171**	**10.7306**	**2.7914**	**0.2064**	**2.9978**		**13,358.1518**	**13,358.1518**	**1.4505**	**0.0122**	**13,398.0383**

	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	Site Preparation	Site Preparation	5/30/2020	6/12/2020	5	10	
2	Grading	Grading	6/13/2020	7/10/2020	5	20	
3	Building Construction	Building Construction	7/11/2020	5/28/2021	5	230	
4	Paving	Paving	5/29/2021	6/25/2021	5	20	
5	Architectural Coating	Architectural Coating	6/26/2021	7/23/2021	5	20	

Acres of Grading (Site Preparation Phase): 20

Acres of Grading (Grading Phase): 40

Acres of Paving: 5.01

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 40,673; Non-Residential Outdoor: 13,558; Striped Parking Area: 13,094 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Crawler Tractors	4	8.00	212	0.43
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Crawler Tractors	3	8.00	212	0.43
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	0	8.00	97	0.37
Building Construction	Cranes	1	8.00	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	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
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
Architectural Coating	Air Compressors	1	8.00	78	0.48
Site Preparation	Graders	1	8.00	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	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	2,802.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	101.00	40.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2020

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					20.1873	0.0000	20.1873	10.1597	0.0000	10.1597			0.0000			0.0000
Off-Road	6.0282	70.0929	24.2034	0.0636		2.9891	2.9891		2.7500	2.7500		6,164.2620	6,164.2620	1.9937		6,214.1031
Total	**6.0282**	**70.0929**	**24.2034**	**0.0636**	**20.1873**	**2.9891**	**23.1764**	**10.1597**	**2.7500**	**12.9097**		**6,164.2620**	**6,164.2620**	**1.9937**		**6,214.1031**

3.2 Site Preparation - 2020

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
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
Worker	0.0897	0.0560	0.5871	1.7900e-003	0.2012	1.2200e-003	0.2024	0.0534	1.1200e-003	0.0545		177.8824	177.8824	4.4200e-003		177.9929
Total	**0.0897**	**0.0560**	**0.5871**	**1.7900e-003**	**0.2012**	**1.2200e-003**	**0.2024**	**0.0534**	**1.1200e-003**	**0.0545**		**177.8824**	**177.8824**	**4.4200e-003**		**177.9929**

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					7.8730	0.0000	7.8730	3.9623	0.0000	3.9623			0.0000			0.0000
Off-Road	6.0282	70.0929	24.2034	0.0636		2.9891	2.9891		2.7500	2.7500	0.0000	6,164.2620	6,164.2620	1.9937		6,214.1031
Total	**6.0282**	**70.0929**	**24.2034**	**0.0636**	**7.8730**	**2.9891**	**10.8621**	**3.9623**	**2.7500**	**6.7123**	**0.0000**	**6,164.2620**	**6,164.2620**	**1.9937**		**6,214.1031**

3.2 Site Preparation - 2020

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
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
Worker	0.0897	0.0560	0.5871	1.7900e-003	0.2012	1.2200e-003	0.2024	0.0534	1.1200e-003	0.0545		177.8824	177.8824	4.4200e-003		177.9929
Total	**0.0897**	**0.0560**	**0.5871**	**1.7900e-003**	**0.2012**	**1.2200e-003**	**0.2024**	**0.0534**	**1.1200e-003**	**0.0545**		**177.8824**	**177.8824**	**4.4200e-003**		**177.9929**

3.3 Grading - 2020

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					8.2850	0.0000	8.2850	3.5607	0.0000	3.5607			0.0000			0.0000
Off-Road	3.5369	42.4134	16.7138	0.0439		1.7160	1.7160		1.5787	1.5787		4,251.3448	4,251.3448	1.3750		4,285.7191
Total	**3.5369**	**42.4134**	**16.7138**	**0.0439**	**8.2850**	**1.7160**	**10.0010**	**3.5607**	**1.5787**	**5.1395**		**4,251.3448**	**4,251.3448**	**1.3750**		**4,285.7191**

3.3 Grading - 2020

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	0.7579	33.4638	4.7940	0.1040	2.4509	0.1072	2.5581	0.6719	0.1026	0.7744		11,033.685 0	11,033.685 0	0.7382		11,052.13 98
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
Worker	0.0748	0.0467	0.4893	1.4900e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		148.2354	148.2354	3.6800e-003		148.3274
Total	**0.8326**	**33.5105**	**5.2832**	**0.1055**	**2.6185**	**0.1082**	**2.7268**	**0.7163**	**0.1035**	**0.8198**		**11,181.92 04**	**11,181.92 04**	**0.7419**		**11,200.46 72**

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					3.2312	0.0000	3.2312	1.3887	0.0000	1.3887			0.0000			0.0000
Off-Road	3.5369	42.4134	16.7138	0.0439		1.7160	1.7160		1.5787	1.5787	0.0000	4,251.344 8	4,251.344 8	1.3750		4,285.719 1
Total	**3.5369**	**42.4134**	**16.7138**	**0.0439**	**3.2312**	**1.7160**	**4.9472**	**1.3887**	**1.5787**	**2.9674**	**0.0000**	**4,251.344 8**	**4,251.344 8**	**1.3750**		**4,285.719 1**

3.3 Grading - 2020

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	0.7579	33.4638	4.7940	0.1040	2.4509	0.1072	2.5581	0.6719	0.1026	0.7744		11,033.685 0	11,033.685 0	0.7382		11,052.139 8
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
Worker	0.0748	0.0467	0.4893	1.4900e-003	0.1677	1.0200e-003	0.1687	0.0445	9.3000e-004	0.0454		148.2354	148.2354	3.6800e-003		148.3274
Total	**0.8326**	**33.5105**	**5.2832**	**0.1055**	**2.6185**	**0.1082**	**2.7268**	**0.7163**	**0.1035**	**0.8198**		**11,181.92 04**	**11,181.92 04**	**0.7419**		**11,200.46 72**

3.4 Building Construction - 2020

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	2.2551	20.6494	17.9678	0.0288		1.1948	1.1948		1.1218	1.1218		2,735.699 9	2,735.699 9	0.6819		2,752.748 1
Total	**2.2551**	**20.6494**	**17.9678**	**0.0288**		**1.1948**	**1.1948**		**1.1218**	**1.1218**		**2,735.699 9**	**2,735.699 9**	**0.6819**		**2,752.748 1**

3.4 Building Construction - 2020

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
Vendor	0.1176	4.0941	0.8816	0.0101	0.2561	0.0237	0.2798	0.0738	0.0227	0.0964		1,060.171 1	1,060.1711	0.0919		1,062.469 6
Worker	0.5033	0.3145	3.2944	0.0100	1.1289	6.8400e-003	1.1358	0.2994	6.3000e-003	0.3057		998.1182	998.1182	0.0248		998.7379
Total	**0.6209**	**4.4086**	**4.1760**	**0.0201**	**1.3851**	**0.0305**	**1.4156**	**0.3732**	**0.0290**	**0.4021**		**2,058.289 2**	**2,058.289 2**	**0.1167**		**2,061.207 5**

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	2.2551	20.6494	17.9678	0.0288		1.1948	1.1948		1.1218	1.1218	0.0000	2,735.699 9	2,735.699 9	0.6819		2,752.748 1
Total	**2.2551**	**20.6494**	**17.9678**	**0.0288**		**1.1948**	**1.1948**		**1.1218**	**1.1218**	**0.0000**	**2,735.699 9**	**2,735.699 9**	**0.6819**		**2,752.748 1**

3.4 Building Construction - 2020

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
Vendor	0.1176	4.0941	0.8816	0.0101	0.2561	0.0237	0.2798	0.0738	0.0227	0.0964		1,060.171 1	1,060.171 1	0.0919		1,062.469 6
Worker	0.5033	0.3145	3.2944	0.0100	1.1289	6.8400e-003	1.1358	0.2994	6.3000e-003	0.3057		998.1182	998.1182	0.0248		998.7379
Total	**0.6209**	**4.4086**	**4.1760**	**0.0201**	**1.3851**	**0.0305**	**1.4156**	**0.3732**	**0.0290**	**0.4021**		**2,058.289 2**	**2,058.289 2**	**0.1167**		**2,061.207 5**

3.4 Building Construction - 2021

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	2.0228	18.7492	17.6706	0.0288		1.0251	1.0251		0.9625	0.9625		2,736.043 8	2,736.043 8	0.6751		2,752.921 2
Total	**2.0228**	**18.7492**	**17.6706**	**0.0288**		**1.0251**	**1.0251**		**0.9625**	**0.9625**		**2,736.043 8**	**2,736.043 8**	**0.6751**		**2,752.921 2**

3.4 Building Construction - 2021

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
Vendor	0.0992	3.6697	0.7812	9.9800e-003	0.2561	7.2500e-003	0.2634	0.0738	6.9400e-003	0.0807		1,051.8929	1,051.8929	0.0871		1,054.0711
Worker	0.4699	0.2821	3.0141	9.6800e-003	1.1289	6.6500e-003	1.1356	0.2994	6.1300e-003	0.3055		964.7455	964.7455	0.0223		965.3028
Total	**0.5691**	**3.9518**	**3.7954**	**0.0197**	**1.3851**	**0.0139**	**1.3990**	**0.3732**	**0.0131**	**0.3862**		**2,016.6384**	**2,016.6384**	**0.1094**		**2,019.3739**

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	2.0228	18.7492	17.6706	0.0288		1.0251	1.0251		0.9625	0.9625	0.0000	2,736.0438	2,736.0438	0.6751		2,752.9212
Total	**2.0228**	**18.7492**	**17.6706**	**0.0288**		**1.0251**	**1.0251**		**0.9625**	**0.9625**	**0.0000**	**2,736.0438**	**2,736.0438**	**0.6751**		**2,752.9212**

3.4 Building Construction - 2021

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
Vendor	0.0992	3.6697	0.7812	9.9800e-003	0.2561	7.2500e-003	0.2634	0.0738	6.9400e-003	0.0807		1,051.892 9	1,051.892 9	0.0871		1,054.0711
Worker	0.4699	0.2821	3.0141	9.6800e-003	1.1289	6.6500e-003	1.1356	0.2994	6.1300e-003	0.3055		964.7455	964.7455	0.0223		965.3028
Total	**0.5691**	**3.9518**	**3.7954**	**0.0197**	**1.3851**	**0.0139**	**1.3990**	**0.3732**	**0.0131**	**0.3862**		**2,016.638 4**	**2,016.638 4**	**0.1094**		**2,019.373 9**

3.5 Paving - 2021

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	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235		2,207.210 9	2,207.210 9	0.7139		2,225.057 3
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2556**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**		**2,207.210 9**	**2,207.210 9**	**0.7139**		**2,225.057 3**

3.5 Paving - 2021

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
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
Worker	0.0698	0.0419	0.4476	1.4400e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		143.2790	143.2790	3.3100e-003		143.3618
Total	**0.0698**	**0.0419**	**0.4476**	**1.4400e-003**	**0.1677**	**9.9000e-004**	**0.1687**	**0.0445**	**9.1000e-004**	**0.0454**		**143.2790**	**143.2790**	**3.3100e-003**		**143.3618**

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	1.2556	12.9191	14.6532	0.0228		0.6777	0.6777		0.6235	0.6235	0.0000	2,207.2109	2,207.2109	0.7139		2,225.0573
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.2556**	**12.9191**	**14.6532**	**0.0228**		**0.6777**	**0.6777**		**0.6235**	**0.6235**	**0.0000**	**2,207.2109**	**2,207.2109**	**0.7139**		**2,225.0573**

3.5 Paving - 2021

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
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
Worker	0.0698	0.0419	0.4476	1.4400e-003	0.1677	9.9000e-004	0.1687	0.0445	9.1000e-004	0.0454		143.2790	143.2790	3.3100e-003		143.3618
Total	**0.0698**	**0.0419**	**0.4476**	**1.4400e-003**	**0.1677**	**9.9000e-004**	**0.1687**	**0.0445**	**9.1000e-004**	**0.0454**		**143.2790**	**143.2790**	**3.3100e-003**		**143.3618**

3.6 Architectural Coating - 2021

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	15.6026					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2919	2.0358	2.4234	3.9600e-003		0.1255	0.1255		0.1255	0.1255		375.2641	375.2641	0.0258		375.9079
Total	**15.8944**	**2.0358**	**2.4234**	**3.9600e-003**		**0.1255**	**0.1255**		**0.1255**	**0.1255**		**375.2641**	**375.2641**	**0.0258**		**375.9079**

3.6 Architectural Coating - 2021

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
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
Worker	0.0931	0.0559	0.5969	1.9200e-003	0.2236	1.3200e-003	0.2249	0.0593	1.2100e-003	0.0605		191.0387	191.0387	4.4100e-003		191.1491
Total	**0.0931**	**0.0559**	**0.5969**	**1.9200e-003**	**0.2236**	**1.3200e-003**	**0.2249**	**0.0593**	**1.2100e-003**	**0.0605**		**191.0387**	**191.0387**	**4.4100e-003**		**191.1491**

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	15.6026					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2919	2.0358	2.4234	3.9600e-003		0.1255	0.1255		0.1255	0.1255	0.0000	375.2641	375.2641	0.0258		375.9079
Total	**15.8944**	**2.0358**	**2.4234**	**3.9600e-003**		**0.1255**	**0.1255**		**0.1255**	**0.1255**	**0.0000**	**375.2641**	**375.2641**	**0.0258**		**375.9079**

3.6 Architectural Coating - 2021

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
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
Worker	0.0931	0.0559	0.5969	1.9200e-003	0.2236	1.3200e-003	0.2249	0.0593	1.2100e-003	0.0605		191.0387	191.0387	4.4100e-003		191.1491
Total	**0.0931**	**0.0559**	**0.5969**	**1.9200e-003**	**0.2236**	**1.3200e-003**	**0.2249**	**0.0593**	**1.2100e-003**	**0.0605**		**191.0387**	**191.0387**	**4.4100e-003**		**191.1491**

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	20.8407	36.4677	81.7279	0.1241	10.5135	0.1750	10.6886	2.7914	0.1643	2.9558		12,694.8961	12,694.8961	1.4378		12,730.8407
Unmitigated	20.8407	36.4677	81.7279	0.1241	10.5135	0.1750	10.6886	2.7914	0.1643	2.9558		12,694.8961	12,694.8961	1.4378		12,730.8407

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	2,847.77	2,380.00	2380.00	1,033,287	1,033,287
Fast Food Restaurant with Drive Thru	3,470.90	4,540.80	3482.91	1,505,068	1,505,068
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Regional Shopping Center	1,517.08	659.60	333.17	902,534	902,534
User Defined Retail	775.00	775.00	775.00	917,671	917,671
Total	8,610.75	8,355.41	6,971.08	4,358,561	4,358,561

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
Convenience Market With Gas	16.60	3.00	6.90	1.00	96.00	3.00	30	0	70
Fast Food Restaurant with Drive	16.60	3.00	6.90	1.00	96.00	3.00	33	0	67
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Regional Shopping Center	16.60	3.00	6.90	1.00	96.00	3.00	61	0	39
User Defined Retail	16.60	3.00	6.90	1.00	96.00	3.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.690000	0.097000	0.097000	0.064000	0.000000	0.000000	0.000000	0.047000	0.000000	0.000000	0.005000	0.000000	0.000000
Fast Food Restaurant with Drive Thru	0.690000	0.097000	0.097000	0.064000	0.000000	0.000000	0.000000	0.047000	0.000000	0.000000	0.005000	0.000000	0.000000
Other Non-Asphalt Surfaces	0.542116	0.037578	0.185203	0.118503	0.016241	0.005141	0.017392	0.068695	0.001383	0.001183	0.004582	0.000945	0.001038
Regional Shopping Center	0.690000	0.097000	0.097000	0.064000	0.000000	0.000000	0.000000	0.047000	0.000000	0.000000	0.005000	0.000000	0.000000
User Defined Retail	0.690000	0.097000	0.097000	0.064000	0.000000	0.000000	0.000000	0.047000	0.000000	0.000000	0.005000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	0.0608	0.5527	0.4643	3.3200e-003		0.0420	0.0420		0.0420	0.0420		663.2492	663.2492	0.0127	0.0122	667.1905
NaturalGas Unmitigated	0.0608	0.5527	0.4643	3.3200e-003		0.0420	0.0420		0.0420	0.0420		663.2492	663.2492	0.0127	0.0122	667.1905

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					
Convenience Market With Gas Pumps	20.6795	2.2000e-004	2.0300e-003	1.7000e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004		2.4329	2.4329	5.0000e-005	4.0000e-005	2.4473
Fast Food Restaurant with Drive Thru	5517.49	0.0595	0.5409	0.4544	3.2500e-003		0.0411	0.0411		0.0411	0.0411		649.1170	649.1170	0.0124	0.0119	652.9744
Other Non-Asphalt Surfaces	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
Regional Shopping Center	80.2849	8.7000e-004	7.8700e-003	6.6100e-003	5.0000e-005		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004		9.4453	9.4453	1.8000e-004	1.7000e-004	9.5014
User Defined Retail	19.1589	2.1000e-004	1.8800e-003	1.5800e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		2.2540	2.2540	4.0000e-005	4.0000e-005	2.2674
Total		**0.0608**	**0.5527**	**0.4643**	**3.3200e-003**		**0.0420**	**0.0420**		**0.0420**	**0.0420**		**663.2492**	**663.2492**	**0.0127**	**0.0122**	**667.1905**

5.2 Energy by Land Use - NaturalGas

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					
Convenience Market With Gas Pumps	0.0206795	2.2000e-004	2.0300e-003	1.7000e-003	1.0000e-005		1.5000e-004	1.5000e-004		1.5000e-004	1.5000e-004		2.4329	2.4329	5.0000e-005	4.0000e-005	2.4473
Fast Food Restaurant with Drive Thru	5.51749	0.0595	0.5409	0.4544	3.2500e-003		0.0411	0.0411		0.0411	0.0411		649.1170	649.1170	0.0124	0.0119	652.9744
Other Non-Asphalt Surfaces	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
Regional Shopping Center	0.0802849	8.7000e-004	7.8700e-003	6.6100e-003	5.0000e-005		6.0000e-004	6.0000e-004		6.0000e-004	6.0000e-004		9.4453	9.4453	1.8000e-004	1.7000e-004	9.5014
User Defined Retail	0.0191589	2.1000e-004	1.8800e-003	1.5800e-003	1.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004		2.2540	2.2540	4.0000e-005	4.0000e-005	2.2674
Total		**0.0608**	**0.5527**	**0.4643**	**3.3200e-003**		**0.0420**	**0.0420**		**0.0420**	**0.0420**		**663.2492**	**663.2492**	**0.0127**	**0.0122**	**667.1905**

6.0 Area Detail

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	0.7000	3.0000e-005	3.0700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5600e-003	6.5600e-003	2.0000e-005		7.0000e-003
Unmitigated	0.7000	3.0000e-005	3.0700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5600e-003	6.5600e-003	2.0000e-005		7.0000e-003

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	0.0855					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6142					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.9000e-004	3.0000e-005	3.0700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5600e-003	6.5600e-003	2.0000e-005		7.0000e-003
Total	**0.7000**	**3.0000e-005**	**3.0700e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.5600e-003**	**6.5600e-003**	**2.0000e-005**		**7.0000e-003**

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	0.0855					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.6142					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Landscaping	2.9000e-004	3.0000e-005	3.0700e-003	0.0000		1.0000e-005	1.0000e-005		1.0000e-005	1.0000e-005		6.5600e-003	6.5600e-003	2.0000e-005		7.0000e-003
Total	**0.7000**	**3.0000e-005**	**3.0700e-003**	**0.0000**		**1.0000e-005**	**1.0000e-005**		**1.0000e-005**	**1.0000e-005**		**6.5600e-003**	**6.5600e-003**	**2.0000e-005**		**7.0000e-003**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

8.0 Waste Detail

8.1 Mitigation Measures Waste

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

Appendix C

Habitat Assessment for Critical Area and Narrow Endemic Plan Species, and Burrowing Owl Survey Phase I (Habitat Assessment) and Phase II (Burrow Survey) and Discussion of Multiple Species Habitat Conservation Plan Issues

Lake Elsinore Acquisition Process (LEAP)

LAKE STREET / MOUNTAIN STREET SITE
CITY OF LAKE ELSINORE, RIVERSIDE COUNTY, CALIFORNIA
HABITAT ASSESSMENTS FOR CRITICAL AREA
AND NARROW ENDEMIC PLANT SPECIES
and BURROWING OWL SURVEY
PHASE I (HABITAT ASSESSMENT) AND PHASE II (BURROW SURVEY)
and DISCUSSION OF MULTIPLE SPECIES HABITAT CONSERVATION PLAN ISSUES
APN #'s: 389-030-012 through 18
PSBS#U715
JPR 21-02-04-01; LEAP 2020-01

A 6.074-acre Property, Total Area Originally Surveyed: Approximately 10.5 acres
PROJECT SITE LOCATION: City of Lake Elsinore, USGS 7.5' Alberhill, California quadrangle
Section 27, Township 5 South, Range 5 West

Prepared for:
Tiger Petroleum, Inc.
c/o
Gregory S. Hann, Architect, Empire Design Group, Inc.

Physical Address:
24861 Washington Ave.
Murrieta, CA 92562
951-696-1490; Email: ghann@empiregr.biz

Mailing Address:
P.O. Box 944
Murrieta, CA 92564
www.EmpireDesignGroup.biz

***Prepared by*:**
R. Mitchel Beauchamp and Cornelius W. Bouscaren (Field Biologists and Preparers)
Michael U. Evans (Director of Operations, Report Reviewer)
Fabiana Dunker (Technical Production Manager)
Pacific Southwest Biological Services, Inc.
Post Office Box 985
National City, CA 91951-0985
Telephone: (619) 477-5333, Facsimile: (619) 477-5380
mitch@psbs.com

Principal Investigators:
R. Mitchel Beauchamp and Cornelius W. Bouscaren (Field Biologists and Preparers)
Surveys Conducted By:
R. Mitchel Beauchamp and Cornelius W. Bouscaren
Surveys Conducted On: 20 and 21 December 2005, 16 May 2008 and 23 August 2019
Report Date:4 January 2006 (revised 14 April 2021)

INFORMATION SUMMARY

A.	Report Date:	Originally prepared 4 January 2006 (revised 14April 2021)
B.	Report Title:	Lake Street / Mountain Street Site, City of Lake Elsinore, Riverside County, California Habitat Assessments for Critical Area and Narrow Endemic Plant Species, and Burrowing Owl Survey (Phase I Habitat Assessment and Phase II Burrow Survey), and Discussion of Multiple Species Habitat Conservation Plan Issues
C.	Case & APN #:	APN #'s: 389-030-012 through 18
D.	Project Location:	The project site is located in the southeast 1/4 of the southwest 1/4 Section 27, Township 5 South, Range 5 West, USGS 7.5' Alberhill, California quadrangle. UTM: 11-S: 463,060mE; 3,728,240mN. Lat: 33° 44' 16.1"N; Long: 117° 08' 1.9"W. The site is within Subunit 2: Alberhill, of the Elsinore Area Plan of the MSHCP.
E.	Applicant:	Tiger Petroleum, Inc.
F.	MOU Principal:	R. Mitchel Beauchamp, M. Sc., President Pacific Southwest Biological Services, Inc. (619) 477-5333. P. O. Box 985, National City, CA 91951-0985
G.	Preparers:	R. Mitchel Beauchamp and Cornelius W. Bouscaren (Biologists and Preparers) Michael U. Evans (Director of Operations, Report Reviewer), Fabiana Dunker (Technical Production Manager)
H.	Date of Surveys:	20 and 21 December 2005, 16 May 2008 and 23 August 2019
I.	Summary:	Habitat assessments for Critical Area and Narrow Endemic Plant Species were conducted. None of these were observed on the site or have a meaningful potential for occurrence on the site. A survey for the Burrowing Owl (Phase I, Habitat Assessment, and Phase II, Burrow Survey) on the 6.074-acre site did not detect this species, or Burrowing Owl burrows, during the survey. This species is not currently present on or near the project site. There are no riparian/riverine areas on the site. There are no vernal pools or a need for Fairy Shrimp surveys. There is no urban/wildlands interface. **This document is intended to assist in the application for initiation of the Lake Elsinore Leap Acquisition Process (LEAP), as part of Full Consistency Determination with the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP).**

Lake Elsinore Acquisition Process (LEAP)
LAKE STREET / MOUNTAIN STREET SITE
CITY OF LAKE ELSINORE, RIVERSIDE COUNTY, CALIFORNIA

HABITAT ASSESSMENTS FOR CRITICAL AREA
AND NARROW ENDEMIC PLANT SPECIES, and BURROWING OWL SURVEY
PHASE I (HABITAT ASSESSMENT) AND PHASE II (BURROW SURVEY)
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APN #'s: 389-030-012 through 18

UTM: 11-S: 463,060mE; 3,728,240mN
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JPR 21-02-04-01; LEAP 2020-01

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Tiger Petroleum, Inc.
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Gregory S. Hann, Architect
Empire Design Group, Inc.
Mailing Address:
P.O. Box 944
Murrieta, CA 92564
951-696-1490
ghann@empiregr.biz
www.EmpireDesignGroup.biz

Prepared by
Pacific Southwest Biological Services, Inc.
Post Office Box 985
National City, CA 91951-0985
Telephone: 619-477-5333
mitch@psbs.com

PSBS #U715

4 January 2006
(Revised 14 April 2021)

R Mitchel Beauchamp

R. Mitchel Beauchamp, M. Sc., President

Lake Elsinore Acquisition Process (LEAP)
LAKE STREET / MOUNTAIN STREET SITE
CITY OF LAKE ELSINORE, RIVERSIDE COUNTY, CALIFORNIA
HABITAT ASSESSMENTS FOR CRITICAL AREA
AND NARROW ENDEMIC PLANT SPECIES, and
BURROWING OWL SURVEY
PHASE I (HABITAT ASSESSMENT) AND PHASE II (BURROW SURVEY)
and DISCUSSION OF MULTIPLE SPECIES HABITAT CONSERVATION PLAN ISSUES
JPR 21-02-04-01; LEAP 2020-01

APN #'s: 389-030-012 through 18
4 January 2006
(Revised 14 April 2021)

SUMMARY
Habitat assessments for Critical Area and Narrow Endemic plant species were conducted on the approximately 6.074-acre site in the City of Lake Elsinore. **None of these plant species were observed on the site or have a meaningful potential for occurrence on the site.** A survey for the Burrowing Owl (Phase I, Habitat Assessment, and Phase II, Burrow Survey) was conducted. **No Burrowing Owls, or Burrowing Owl burrows, were observed during the surveys.** There are no riparian/riverine areas on the site. There are no vernal pools or a need for Fairy Shrimp surveys. There is no urban/wildlands interface. This document is intended to assist in the application for initiation of the Lake Elsinore Leap Acquisition Process (LEAP), as part of Full Consistency Determination with the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). **This document has been revised in light of comments dated 12 February 2021 from Regional Conservation Authority.**

INTRODUCTION
PURPOSE OF THE STUDY
Pacific Southwest Biological Services, Inc., (Pacific Southwest), at the request of Tiger Petroleum, Inc., conducted habitat assessments for Critical Area and Narrow Endemic plant species, and a Phase I (Habitat Assessment) and Phase II (Burrow Survey) survey for the Burrowing Owl (*Athene cunicularia*) on the 6.074-acre property in the City of Lake Elsinore, in southwestern Riverside County. The MSHCP, which was adopted by the County of Riverside 17 June 2003, adopted and finalized by the regulatory agencies 22 June 2004, and implemented beginning 23 June 2004, requires focused surveys for this species. The purpose of the survey was to satisfy this requirement and determine habitat suitability for these plant species, and presence/absence of the Burrowing Owl on the property.

PROJECT LOCATION
The site is located in southwestern Riverside County in the City of Lake Elsinore. The map location is within the southeast 1/4 of the southwest 1/4, Section 27, Township 5 South, Range 5 West, USGS 7.5' Alberhill, California quadrangle (Figures 1 & 2). Access to the site from U. S. Interstate Highway 15 (Corona Freeway) is south on Lake Street approximately 2.5 miles to Mountain Street; the site is in the northwest quadrant of this intersection. The site is within Subunit 2: Alberhill, of the Elsinore Area Plan. The site is within the MSHCP Habitat

Conservation Mitigation Fee Area. The site is **not** within the Stephens' Kangaroo Rat Conservation Plan Fee Assessment Area.

PROJECT DESCRIPTION

Plans are currently in place for the proposed commercial/retail center on 7 parcels involving 6.074 acres, northwest of the Lake Street/Mountain Street intersection. The project proposes a 3,400sf C-store with attached 1,525sf QSR and an associated 6 MPD 4,089sf fueling canopy; a proposed 3,150sf, 90'long express conveyor belt car wash with associated 20 vacuum stalls; a proposed 5,000sf retail building A consisting of 5 suites; a proposed 5,000sf retail building B consisting of 5 suites; a proposed 3,320sf drive-thru building A fast food restaurant with an attached 1,600sf retail building C; a proposed 2,520sf drive-thru B fast food restaurant with a non-attached 1,600sf retail building D; on-site improvements consisting of on-site parking, WQMP areas, site circulation, landscaping and site lighting. Off-site improvements consist of new utility connections, right of way dedications, driveway approaches, a proposed median and undergrounding of existing telephone/power lines and removal of power poles fronting the project site.

The site has been the focus of proposed development and biotic survey since 2005. The prior project of 10.5 acres (Figure 4) involved additional lands to the north and west and is now limited to the 7 parcels, involving 6.074 acres. Prior comments by Regional Conservation Authority (JPR 2-08-08-20-019 were reviewed. That opinion found that the proposed project was consistent with the MSHCP. A comparison of that area and the present foot print are given below. The present project includes all of APNs 389-030-012 through 18 even though some cartographic and coordination differences occur between County Assessor and RCA data bases.

SURVEY METHODS

Prior to the field surveys, a review was made of prior reports of assessments of nearby properties (Pacific Southwest 2005). Reviews were also made of the adopted MSHCP documents.

Principal Biologist R. Mitchel Beauchamp, with field assistant Abel R. Jiménez, conducted the habitat assessments for sensitive plants on the site 20 December 2005 during the period 1000-1100 hours. The parcels were traversed on foot, observing the plants and vegetation and recording observations as they were made. This prior survey area included APNs 389-030-12 thru 018 and 028, 29 and includes **the current project impact area of 6.074 acres APNs 389-030-12 through 18**. That 2005 survey area was of 10.5 acres.

Biologist Cornelius W. Bouscaren conducted the habitat assessment and survey for the Burrowing Owl according to accepted survey protocol (Lincer and Steenhof 1997) on 21 December 2005 during the period 1050-1230 hours. During the survey the temperature range was 78°F, 25% high clouds were present, and winds were calm. The survey was performed by walking through suitable habitat on the site and in areas within approximately 500 feet of the project impact zone. Survey transects in suitable habitat were spaced to allow 100% visual coverage of the ground surface, with transect center lines no more than approximately 100 feet apart. Binoculars (8.5x44) were used to aid in the detection and identification of wildlife. The survey area included in this survey includes APNs **389-030-012 thru and including -018.** This survey area is 6.074 acres.

In 2005 and 2008, the Principal Biologist performed field reviews of the area described above and determined that current habitat conditions closely reflected those encountered in December 2005. Also note that, when investigating the initial project site, a larger area, including adjacent parcels to the north and east were investigated as well. Figure 3 (Vegetation and Sensitive Resources) shows the project area as well as the additional area initially investigated. The survey area included in this survey included APNs 389-030-12 thru 018. This **23 August 2019** survey area is 6.074 acres.

Annual precipitation prior to the survey was generally normal (see Site Precipitation Record below) elevation.

Site Precipitation Record

Month	**Precipitation in inches**
December 2004	2.18
January 2005	5.63
February 2005	5.04
March 2005	0.93
April 2005	0.43
May 2005	0.43
June 2005	0.04
July 2005	0.00
August 2005	0.00
September 2005	0.26
October 2005	0.37
November 2005	0.00
December 1-21 2005	0.04

Source: weatherunderground.com
Station: Riverside March Field, approximately 13 miles northeast of site

GENERAL PHYSIOGRAPHY

The property occupies varied terrain, generally trending to the east and south, with a high of approximately 1,532 feet above mean sea level on the western boundary to a low of approximately 1,480 feet in the southwest corner. The project site consists of 7 separate parcels, one of which supported an occupied residence at the time of the survey. Other parcels were vacant. All parcels display evidence of recent weed abatement through disking.

Geologic strata for the area are mapped as Quaternary Pleistocene non-marine (Rogers 1965). Soils for the area are mapped as Gorgonio gravelly loamy fine sand, 2-15% slopes, Greenfield sandy loam, 8-15% slopes, eroded, Hanford coarse sandy loam, 2-8% slopes, Monserate sandy loam, shallow, 5-15% slopes, eroded, and Terrace escarpments (Knecht 1971).

Surrounding lands uses include Urban/Developed across Lake Street to the east and across Mountain Avenue to the south, Non-native Grassland and Urban/Developed to the west, and fallow agricultural fields to the north.

BOTANICAL RESOURCES

Vegetation Communities

Six discernible vegetation/habitat types occur on the original project property, or within 500 feet of the project impact zone: Disturbed Habitat, Urban/Developed, Non-native Grassland, Extensive Agriculture (Fallow), Riversidean Sage Scrub, and Southern Mixed Chaparral (Figure 3). **Only the first three occurred on the smaller southern site and no native plant communities persist on the site currently**. A description of the vegetation communities on the property, the appropriate Holland Element Code Number (#) on the property follow.

Urban/Developed (#11000)

There are several occupied residences on the site, as well as ancillary structures. An assortment of inactive vehicles and mechanical equipment occupies part of the northernmost parcel, as does a small power substation.

Disturbed Habitat (#11030)

Some of the land without structures has been disked for fuel reduction purposes, leaving essentially unvegetated areas.

Non-native Grassland (#42200)

This ground cover constitutes unoccupied land that has not been recently disked supports a sparse cover of weedy species, including Short-pod Mustard (*Hirschfeldia incana*), Horseweed (*Conyza canadensis*), Red Brome (*Bromus madritensis* ssp. *rubens*), Doveweed (*Eremocarpus setigerus*), Hare Barley (*Hordeum murinum* ssp. *leporinum*), and Telegraph Weed (*Heterotheca grandiflora*).

Flora

Plants observed on the site are largely associated with the present or past cultivation of the land or residential landscaping. Native elements are those which have been able to persist or re-establish following cessation of cultivation activities. The list of plants observed indicates at least 45 taxa occur on the site; of this total, 32 (71%) are exotic, cultivated plants or introduced, largely Mediterranean-region non-native plants (Appendix 1). Two separate stands of native Box Springs Goldenbush (*Ericameria palmeri* var. *pachylepis*) occur on the site, notable only because persisting as re-sprouts from roots despite past cultivation of the sites.

Although the survey was conducted during seasons when not all plants on the property, especially annuals, would be detectible, the list includes the great majority of the flora on the site. Several sensitive plants were sought based upon MSHCP requirements. Due to the lack of proper substrate or prior disturbance of the soils on the site, none of these have a meaningful potential for occurrence on the project site. Table 1 lists these plants and the specific reasons they are unlikely to occur on the site. No sensitive plants were observed or are expected to occur on the property.

Table 1. Habitat Assessments for Sensitive Plant Species - Lake Street/Mountain Street Site

SPECIES NAME	STATUS Federal/State/CNPS	HABITAT REQUIREMENTS	PROBABILITY OF OCCURRENCE	HCP: W. Riverside Co. MSHCP 2003
Allium munzii Munz's Onion	FE/CT/1B (3-3-3)	Chaparral, coastal scrub, cismontane woodlands, pinyon-juniper woodland, valley & foothill grassland, esp in heavy clay soils, grows in grasslands & openings within shrublands or woodlands, 300-1035 m.	None. Clay soils absent	Covered, NE
Ambrosia pumila San Diego Ambrosia	FE/None/1B (3-3-2)	Chaparral, coastal scrub, valley & foothill grassland, vernal pools, esp in sandy loam or clay soil, in valleys; persists where disturbance has been superficial, 20-415 m.	Low. Suitable habitat on-site but plant not observed, although known from Nichols Road two miles east.	Covered, NE
Atriplex parishii Parish's Brittlescale	FE/None/1B (3-3-2)	Alkali meadows, vernal pools, chenopod scrub, playas. Usually on drying alkali flats w/fine soils. Collected only once in CA since 1974 (1993).	None. Alkaline soils absent	Covered, CA
Atriplex serenana var. *davidsonii* Davidson's Saltscale	None/None/1B (3-2-2)	Coastal bluff scrub, coastal scrub/alkaline, 10-200 m.	None. Alkaline soils absent	Covered, CA
Brodiaea filifolia Thread-leaved Brodiaea	FT/CE/1B (3-3-3)	Cismontane woodland, coastal scrub, playas, valley and foothill grassland, vernal pools, usu assoc w/annual grassland and vernal pools, oft surr by shrub habitats, clay soils, 35-855 m.	None. Clay soils absent	Covered, CA
Centromadia pungens ssp. *laevis* Smooth Tarplant	FSC/None/1B (2-3-2)	Valley & foothill grassland, chenopod scrub, meadows, playas, riparian woodland, esp. alkali meadow, alkali scrub; disturbed 0-480 m.	None. Alkaline soils absent	Covered, CA
Dodecahema leptoceras Slender-horned Spineflower	FE/CE/1B (3-3-3)	Chaparral, coastal scrub (alluvial fan scrub). Hist. from/LA, RIV, SBD Cos; extirp. fr/much of range. Flood-deposited terraces & washes; assoc. *Encelia, Dalea, Lepidospartum*, etc. 200-760 m.	None. Riverine bench conditions absent	Covered, NE
Dudleya multicaulis Many-stemmed Dudleya	FSC/None/1B (1-2-3)	Chaparral, coastal scrub, valley & foothill grassland, esp. in heavy, often clayey soils or grassy slopes, 0-790 m.	None. Clay soils absent	Covered, NE
California californica Round-leaved Filaree	None/None/2 (2-3-1)	Cismontane woodland, valley & foothill grassland. Clay soils, 15-1200 m.	None. Gypsum substrate absent	Covered, CA
Lasthenia glabrata ssp. *coulteri* Coulter's Goldfields	FSC/None/1B (2-3-2)	Coastal salt marshes, playas, valley & foothill grassland, vernal pools, usu in alkaline soils in playas, sinks, grassland, 1-1400 m.	None. Alkaline soils absent	Covered, CA

Myosurus minimus ssp. *apus* Little Mousetail	FSC/None/3 (2-3-2)	Vernal pools. This ssp. has taxonomic probs. Distinguishing betw this and *M. sessilis* is difficult. Hybrid? Alkaline soils, 20-640 m.	None. Absence of ephemeral ponding sites	Covered, CA
Navarretia fossalis Spreading Navarretia	FT/None/1B (2-3-2)	Vernal pools, chenopod scrub, marshes & swamps, playas, esp in SD hardpan & SD claypan vernal pools, in swales & vernal pools, often surr . by other habitat types, 30-1300 m.	None. Absence of ephemeral ponding sites	Covered, NE
Orcuttia californica California Orcutt Grass	FE/CE/1B (3-3-2)	Vernal pools, 15-660 m.	None. Absence of ephemral ponding sites	Covered, NE
Satureja chandleri San Miguel Savory	None/None/4 (1-2-2)	Chaparral, cismontane woodland, coastal scrub, riparian woodland, valley & foothill grassland, esp gabbroic or metavolcanic substrate, 120-1005 m.	None. Absence of gabbroic substrate	Covered, NE
Sibaropsis hammittii Hammitt's Clay-cress	None/None/1B (3-2-3)	Chaparral (openings), valley & foothill grassland/gabbroic-derived clays, 730-1065 m.	None. Clay soils absent	Covered, NE
Trichocoronis wrightii var. *wrightii* Wright's Trichocoronis	None/None/2 (3-3-1)	Marshes & swamps, riparian forest, meadows & seeps, vernal pools. Mud flats of vernal lakes, drying river beds, alkali meadows, 5-435 m.	None. Absence of mesic sites	Covered, NE

NE = Narrow Endemic Species
CA = Critical Area Species

ZOOLOGICAL RESOURCES

Burrowing Owl Survey Results

Habitat for the Burrowing Owl on and adjacent to the site is poor **due to active fire fuel abatement disking activities and the open, un-fenced nature of the project site. RCA comments of 2006 indicated that the project was consistent with MSHCP, i.e., Figure 4. Subsequent RCA mapping indicates that a “sliver” portion along the eastern project edge is an area requiring a Burrowing Owl protocol survey. A 2006 RCA determination did not make that distinction, despite this cartographic anomaly being part of all prior project assessments.** California Ground Squirrel (*Spermophilus beecheyi*) burrows that could serve as potential burrows for the Burrowing Owl are scarce **in all areas surveyed during the past 16 years.** There are a few piles of brush and debris scattered about the site that **could potentially** serve as Burrowing Owl habitat. There is a culvert under Mountain Road adjacent to the southwest corner of the site. **Both of these features are outside the required mapped survey area but, as was mentioned, all potential habitat in the original and present project area was assessed for Burrowing Owl habitat.** All potential areas and their close environs were examined for such evidence of Burrowing Owl presence as molted feathers, cast pellets, prey remains, eggshell fragments, and excrement. There are several piles of spoil in an adjacent vacant lot, overgrown with tall weeds, off-site to the west**. Other than this off-site area, no other evidence was observed on or within 500 feet of the site**. The Burrowing Owl was not observed on or near the property during the survey **or prior surveys since 2005. The significant time expended in the field on the project site in search of functional Burrowing**

Owl habitat would seem to adequately addressed the lack of Burrowing Owls on the project site. Since prior site projects have languished and there is a potential for occupancy during any post-assessment surveys, Recommendation #1 is given below to address this concern.

Eleven species of animals were observed during the survey. These included one reptile, seven birds, and three mammals (Appendix 2). All of these are common and widespread.

In accordance with Service protocol for a Phase II survey, Appendix 1, compiled by Mr. Beauchamp, also serves as a "partial plant list of primary vegetation" observed during the survey.

Location of Nearest Freshwater

At the time of the latest survey, the nearest freshwater was adjacent to the southwest corner of the property, where runoff from household use/watering off-site up Mountain Road to the west had collected in a small pool covering approximately eight square feet, near the culvert passing to the south under Mountain Road. Additional fresh water was visible coursing in a narrow rivulet down a concrete channel adjacent to Terra Cotta Middle School approximately 0.7 mile south of the site. The waters of Lake Elsinore lie approximately 2.5 miles southeast of the site. **Development of the project is engineered to involve Best Management Practices to control and treat surface runoff.**

MSHCP ISSUES DISCUSSION

General Requirements

The site lies within MSHCP Subunit 2: Alberhill of the Elsinore Area Plan. **The site parcels, -014, -015, -016, -017 & -018 are within Cells #4155** and **#4156** of the MSHCP, although these Cells are not within a Cell Group. Conservation within these Cells will contribute to assembly of Proposed Core 1, located approximately in the east-central region of the Plan Area, and consisting largely of private lands in the Alberhill area but also containing small pieces of Public/Quasi-Public Lands. Conservation within these cells will focus on Coastal Sage Scrub and Chaparral habitat. Areas conserved within these cells will be connected to Coastal Sage Scrub and Chaparral habitat in Cell Groups T and U to the north, and to similar habitat in Cell #4157 to the east. Conservation within **Cell #4155** will range from 20-30% of the Cell, focusing in the northeastern potion of the Cell. **The project site is located in the southeastern-most corner of that cell and is surrounded by development to the east and south and disturbed habitat on the west.** Conservation within **Cell #4156** will range from 65-75% of the Cell, focusing in the northeastern portion of the Cell. However, since the project site is occupied by Disturbed Habitat, existing residences and other structures, is devoid of any natural vegetation community, and is virtually surrounded by existing development and agriculture, these parcels do not contribute to the MSHCP conservation effort.

The site is not adjacent to the Multiple Species Habitat Conservation Plan Conservation Area, and is sufficiently distant from it that restrictions germane to the urban/wildlands interface are not relevant.

Within MSHCP Subunit 2: Alberhill, the Planning Species listed include the following:

Bell's Sage Sparrow	Yellow Warbler

Cactus Wren
Coastal California Gnatcatcher
Cooper's Hawk
Downy Woodpecker
Least Bell's Vireo
Southwestern Willow Flycatcher
Tree Swallow
Tricolored Blackbird
White-tailed Kite
Yellow-breasted Chat
Quino Checkerspot Butterfly
Riverside Fairy Shrimp
Bobcat
Mountain Lion
Stephens' Kangaroo Rat
Coulter's Golfields
Many-stemmed Dudleya
Munz' Onion
Vernal Barley

These plant species are listed in Table 1 of this report, indicating their conservation status, typical habitat requirements, and probability for occurrence on, or absence from, the project site. None of these species were observed on the property or are expected to occur, with the exceptions noted below, either because of an absence of appropriate habitat, the Disturbed and Urban/Developed character of the property, or a combination.

The Cooper's Hawk, White-tailed Kite, and Bobcat may occasionally forage through the site. None are expected to nest or breed on the property, and the site does not exhibit any high value for any of these species.

Section 6.1.2 Riverine / Riparian, Vernal Pools and Fairy Shrimp

The site has been assessed for riverine/riparian and vernal pools habitat and none were determined to be present on-site. Evidence for this conclusion was provided by the lack of riverine/riparian vegetation, vernal pools and in particular, clay soils. There was no change in the site conditions since the 2005 survey. **During all surveys on the site by Pacific Southwest staff, the entirety of the parcels, even those no longer part of the proposed project, df. Figure 4., were easily walked. Due to the open, sloping and disturbed nature of the site, it was determined that no possible areas of significant tire rut formation or natural, level areas with clay soils or associated hardpan soils occur on the project site.**

Section 6.1.3 Protection of Narrow Endemic Plant Species

The **current project site is not located within a Narrow Endemic Plant Species Survey Area. Nonetheless**, no plant species were found on the site nor does this project require protection of these species (see Appendix 1, Floral Checklist). There was no change in the site conditions since the 16 May 2008 survey.

Section 6.1.4 Urban / Wildlife Interface Guidelines

The proposed project is not located near any conserved Public/Quasi-Public lands; thus, the guidelines pertaining to the Urban/Wildlands Interface do not apply to the proposed project.

Section 6.3.2 Additional Survey Needs and Procedures

The MSHCP indicates that additional surveys may be needed for certain species in conjunction with Plan implementation in order to achieve coverage for these species. Surveys for the Burrowing Owl are required under this section for the project area in question; the surveys have been completed, indicating that the Burrowing Owl does not use the site. **In its**

November 2006 comment on the prior project at the site (Figure 4), RCA Joint Project Review indicated that the project complied with MSHCP and that CASSA #1 is not applicable.

BIOLOGICAL RESOURCES EVALUATION

The Urban/Developed, Disturbed Habitat, and Non-native Grassland that characterize the property do not provide optimal wildlife habitat. The site environs in general are Urban/Developed and recently disked agricultural fields, also suboptimal wildlife habitat. The property presents no long-term conservation value. No mitigation for impacts to the upland habitat is required.

The proposed project site contains no narrow endemic flora or fauna and is consistent with applicable Sections 6.1.2, 6.1.3, 6.1.4 and 6.3.2 of the MSHCP. The MSHCP proposed conservation areas are not proximal to the project site and no on-site conservation areas are warranted.

Off-site actions of the project are related to infrastructure, such as utility undergrounding and traffic lane modifications in area already disturbed or developed.

The site is subject to the MSHCP Habitat Conservation Mitigation Fee: Commercial /Industrial (Regional Conservation Authority 2006).

SITE RECOMMENDATIONS

1. No further Burrowing Owl Surveys are required, except that in compliance with MSHCP requirements, a pre-construction Burrowing Owl survey shall be conducted within 30 days prior to ground disturbance related to immediate site construction to avoid direct take of the Burrowing Owl.

2. Nesting/migratory birds are protected under the Migratory Bird Treaty Act of 1918 and the California Fish and Game Code. If clearing or construction takes place during the spring/summer months (1 February through 31 August), nesting birds may be impacted by direct impacts to nesting sites or indirectly by noise, causing abandonment of nesting sites. The project should be conditioned to require a pre-construction survey of the proposed project area for nesting birds, if construction occurs from 1 February through 31 August. Any active nests located would be flagged and that area protected from impacts until the birds have fledged.

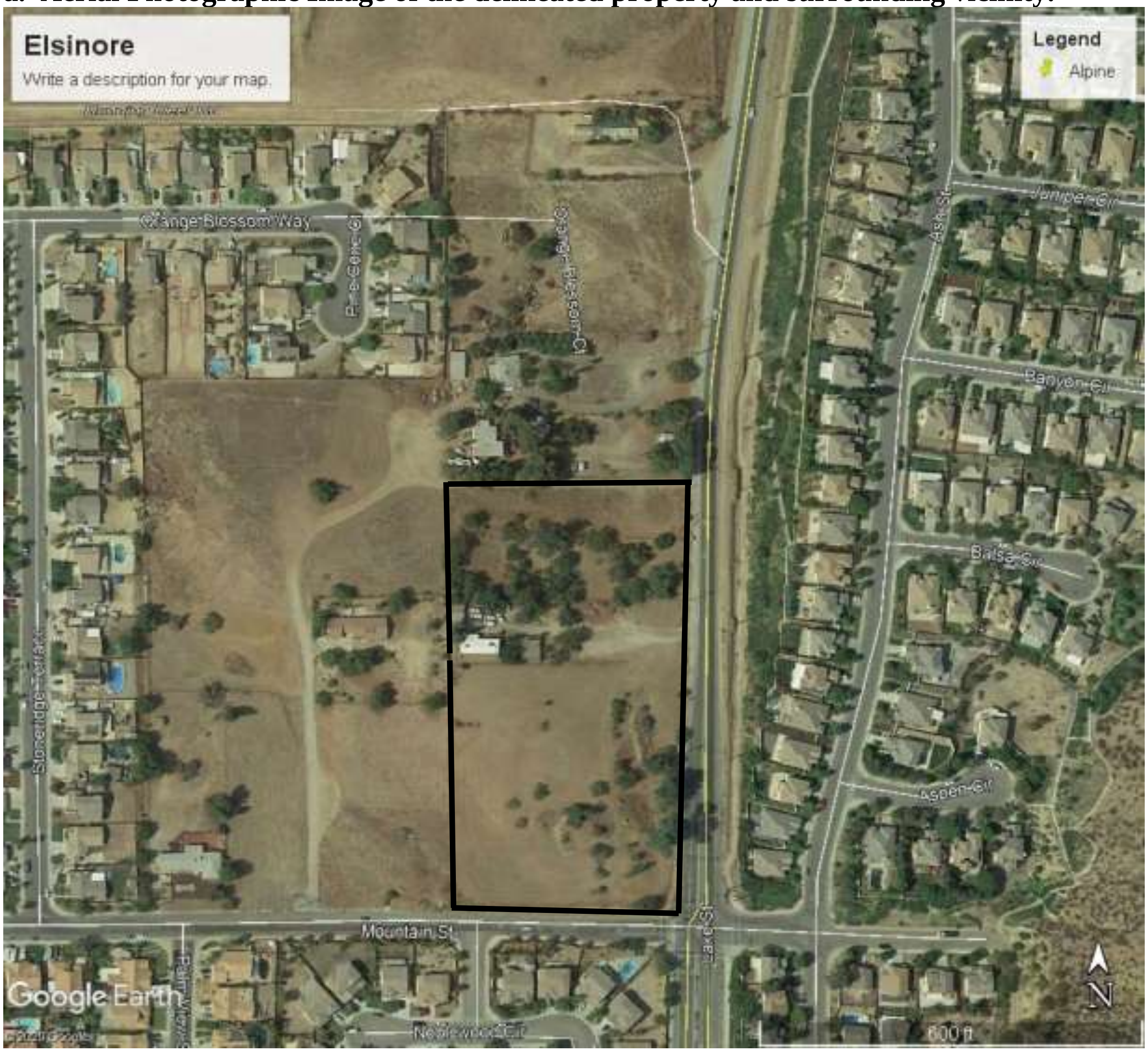
CONCLUSION

None of the Critical Area and Narrow Endemic plant species for which habitat assessments were conducted were observed on the site or have a meaningful potential for occurrence on the site. The Burrowing Owl does not occur on or near the property. Implementation of the proposed project would have no impact on any sensitive plant species or to the Burrowing Owl. **The 20-21 December 2005, 16 May 2008 and 23 August 2019 surveys concluded the same results.**

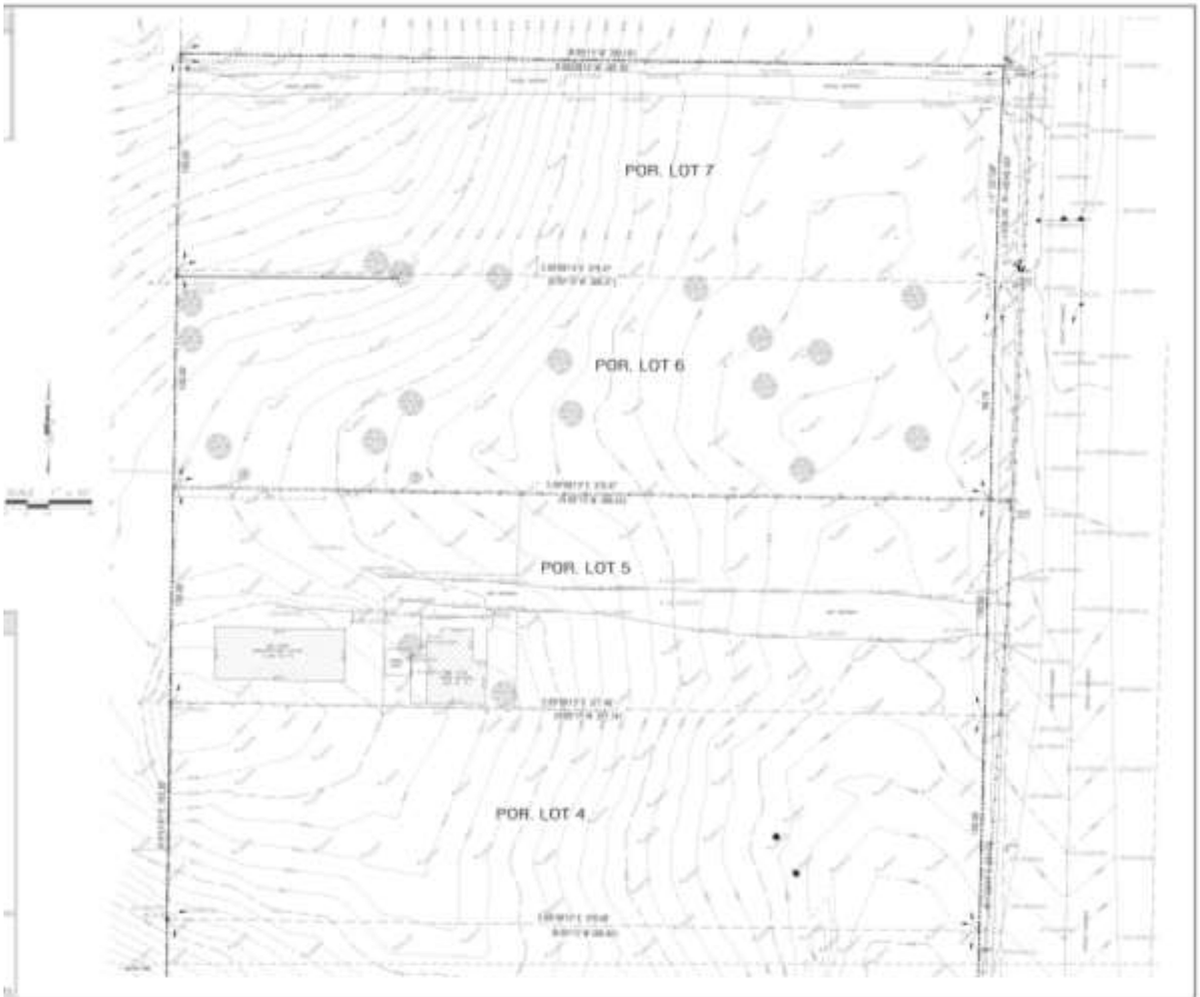
LEAP FORMAT RESPONSES

Below are listed the items in the LEAP application as submittal requirements. An asterisk (*) indicates those items submitted separately by project engineer, and planners. The Biology Report cover adjacent lands, to the north that were intended to be part of this project and the text has been revised to focus on the present limited site. The project was initiated in December 2005 and multiple visits have been made by several biologists in various seasons to the site and areas not now part of the project.

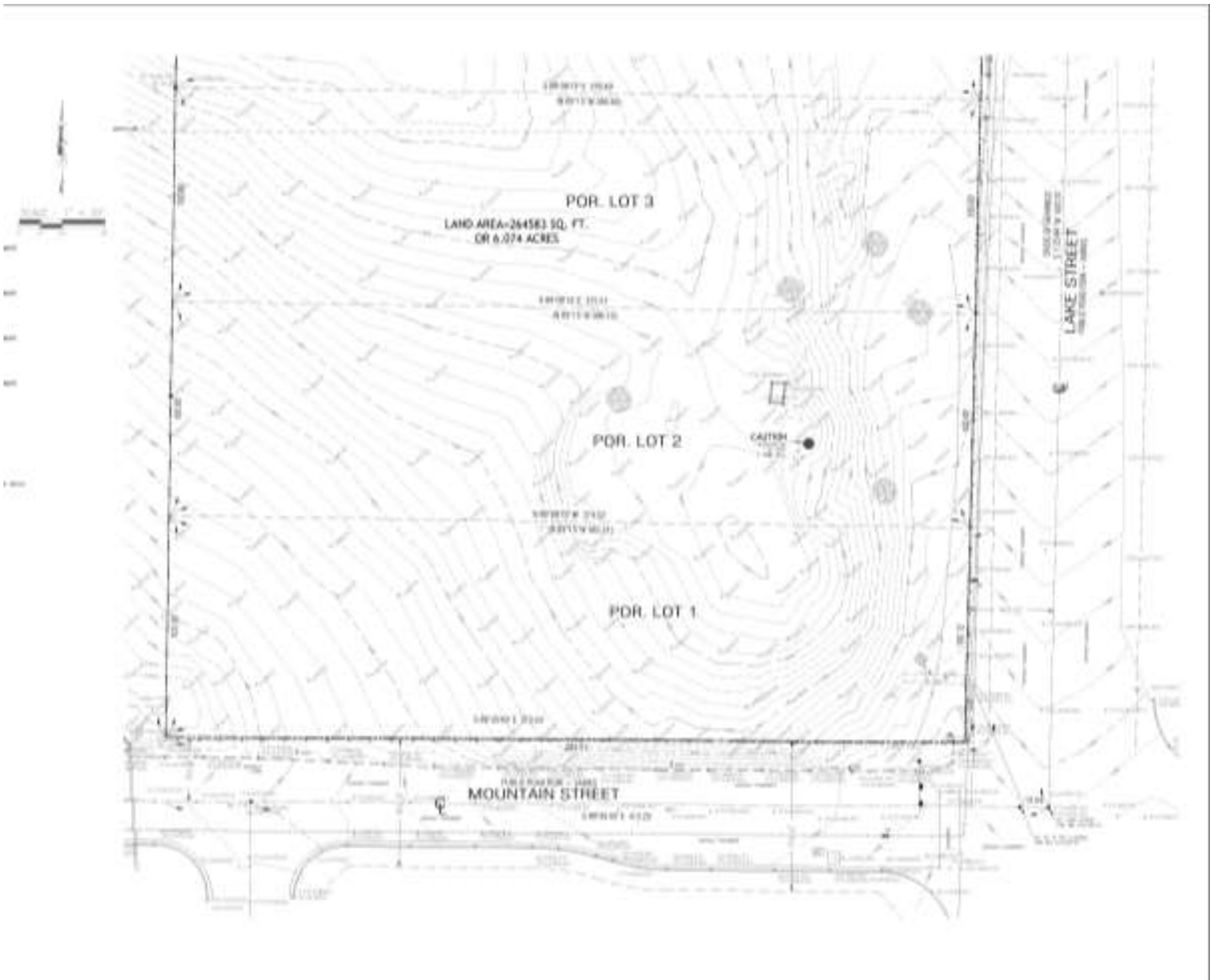
a. Aerial Photographic Image of the delineated property and surrounding vicinity.



b1. Northern Parcels Involved with Current Project



b2. Southern Parcels Involved with Current Project



b. Exhibits and associated photographs that clearly represent the project area are included in this Biology Report.
c. Site Plan is included in this Biology Report as Figure 3.
d. Conceptual grading plan is submitted separately*.
e. This Biology Report has been revised within one-year of this submittal and has involved field work over the past 16 year.
f. GIS Shapefiles are submitted separately*
g. Fees are submitted by the project proponent*.

2a. APN appears on Pages 1 & 2.
b. Criteria Cells are listed on Page 7.
c. Project description appears on Page 2.
d. No unique biological features occur on site as discussed on Pages 2, 3, 7, & 9.
e. Discussion of Cores and Linkages appears on Pages 7 & 8.
f. Conservation Criteria are discussed on Page 8.

g. No open space is proposed nor conservation of land for donation to MSHCP since nothing on the site is suitable for such action.
h. Covered Activity is addressed by siting and design issues by the project proponent*.
i. No Riverine/Riparian Ares and Vernal Pools habitat occurs on the site as indicated on Page 8.
j. No impacts to viable biotic resources occur and no mitigation is recommended as indicated on Pages 8 & 9.
k. The issue of Narrow Endemics is address on Pages 5, 6 & 8.
l. The site has been surveyed several times during the past 15 years and the plowing/disking to abate fire fuel build up has maintained the site in a disturbed condition as indicated on Page 8.
m. The site Vegetation Map occur as Figure 4.
n. The site is surrounded by developed areas, either modern subdivisions or derelict large lots. Page 9 address the Urban/Wildlands Interface issue.
o. The site is plowed/disked to eliminate fire fuel hazards annually and no natural areas with fuel loading potential occur adjacent to the site as indicated on Pages 3, 4, & 8.

END OF LEAP FORMAT RESPONSES

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APPENDIX 1. FLORAL CHECKLIST OF SPECIES OBSERVED – LAKE STREET/MOUNTAIN STREET SITE

GYMNOSPERMS
Cupressaceae - Cypress Family
* *Cupressus arizonica* E. Greene Blue Cypress
Pinaceae - Pine Family
**Pinus halapensis* Mill. Aleppo Pine
DICOTYLEDONS
Adoxaceae – Adoxus Family
Sambucus mexicana DC. Blue Elderberry
Amaranthaceae - Amaranth Family
**Amaranthus blitoides* S. Wats. Prostrate Amaranth
Anacardiaceae - Sumac Family
Malosma laurina (Torr. & Gray) Abrams Laurel-leaf Sumac
**Schinus molle* L. Peruvian Pepper Tree
Apocynaceae - Dogbane Family
**Nerium oleander* L. Oleander
Asteraceae - Sunflower Family
Ambrosia acanthicarpa Hook. Annual Bursage
Artemisia californica Less. California Sagebrush
**Centaurea melitensis* L. Tocalote
**Conyza canadensis* (L.) Cronq. Horseweed
Ericameria palmeri var. *pachylepis* (Hall)Nesom Box Springs Goldenbush
Gnaphalium californicum DC. California Everlasting
Heterotheca grandiflora Nutt. Telegraph Weed
Lessingia filaginifolia (Hook. & Arn.) M.A. Lane var. *filaginifolia* Cudweed Aster
Brassicaceae - Mustard Family
**Hirschfeldia incana* (L.) Lagr.-Fossat Short-pod Mustard
Cactaceae - Cactus Family
**Cereus peruvianus* (L.)Mill. Apple Cactus
**Opuntia ficus-indica* (L.) Miller Indian-fig
Chenopodiaceae - Goosefoot Family
**Salsola tragus* L. Russian Thistle
Cucurbitaceae - Gourd Family
Marah macrocarpus (Greene) Greene var. *macrocarpus* Cucamonga Man-root, Wild-cucumber
Euphorbiaceae - Spurge Family
Eremocarpus setigerus (Hook.) Benth. Doveweed
Fabaceae - Legume Family
Lotus scoparius ssp. *brevialatus* (Ottley) Munz Deerweed
**Parkinsonia aculeata* L. Mexican Palo Verde
Geraniaceae - Geranium Family
**Erodium moschatum* (L.) L'Hér. White-stem Filaree
Juglandaceae- Walnut Family
**Juglans regia* L. Walnut
Lamiaceae - Mint Family
**Marrubium vulgare* L. Horehound
Trichostema lanceolatum Benth. Vinegar Weed
Meliaceae – Mahogany Family
* *Melia azadarach* L. Chinaberry Tree
Myrtaceae - Myrtle Family
**Eucalyptus camaldulensis* Dehnhardt Murray Red Gum
Oleaceae - Olive Family
**Olea europaea* L. Mission Olive

APPENDIX 1. FLORAL CHECKLIST OF SPECIES OBSERVED – LAKE STREET/MOUNTAIN STREET SITE (CONTINUED)

Polygonaceae - Buckwheat Family
Eriogonum fasciculatum Benth. var. *fasciculatum* Flat-top Buckwheat
Punicaceae - Pomegranate Family
**Punica granatum* L. Pomegranate
Rosaceae - Rose Family
* *Prunus avium* (L.) L. Cherry
* *Prunus caroliniana* (Mill.) Ait. Cherry Laurel
Scrophulariaceae - Figwort Family
**Verbascum thapsus* L. Woolly Mullein
Simarubaceae -Quassia Family
**Ailanthus altissimus* L. Tree of Haven
Solanaceae - Nightshade Family
**Nicotiana glauca* Grah. Tree Tobacco
Ulmaceae – Elm Family
**Ulmus parviflora* Thunb. Chinese Elm
Zygophyllaceae- Caltrop family
**Tribulus terrestris* L. Goathead

MONOCOTYLEDONS
Arecaceae - Palm Family
**Washingtonia robusta* Wendle. Mexican Fan Palm, Thread Palm
Liliaceae - Lily Family
**Agave americana* L. American Agave
**Yucca aloifolia* L. Spanish Bayonet
Poaceae - Grass Family
**Arundo donax* L. Giant Reed
**Bromus madritensis* L. ssp. *rubens* (L.) Husnot Red Brome
**Hordeum murinum* ssp. *leporinum* (Link) Arcang. Hare Barley

* - Denotes non-native plant taxa

APPENDIX 2. ANIMALS OBSERVED DURING BURROWING OWL SURVEY–LAKE STREET/MOUNTAIN STREET SITE

COMMON NAME	SCIENTIFIC NAME
REPTILES	
Phrynosomatidae	
Western Fence Lizard	*Sceloporus occidentalis*
BIRDS	
Columbidae (Pigeons and Doves)	
Rock Pigeon	*Columba livia*
Mourning Dove	*Zenaida macroura*
Tyrannidae (Tyrant Flycatchers)	
Black Phoebe	*Sayornis nigricans*
Corvidae (Jays, Crows, Ravens, and Magpies)	
American Crow	*Corvus brachyrhynchos*
Mimidae (Mockingbirds and Thrashers)	
Northern Mockingbird	*Mimus polyglottos*
Sturnidae (Starlings)	
European Starling	*Sturnus vulgaris*
Emberizidae (Towhees and Sparrows)	
California Towhee	*Pipilo crissalis*
MAMMALS	
Leporidae (Rabbits and Hares)	
Desert Cottontail	*Sylvilagus audubonii*
Sciuridae (Squirrels, Chipmunks, and Marmots)	
California Ground Squirrel	*Spermophilus beecheyi*
Geomyidae (Pocket Gophers)	
Botta's Pocket Gopher	*Thomomys bottae*

Figure 1. Site Vicinity Map

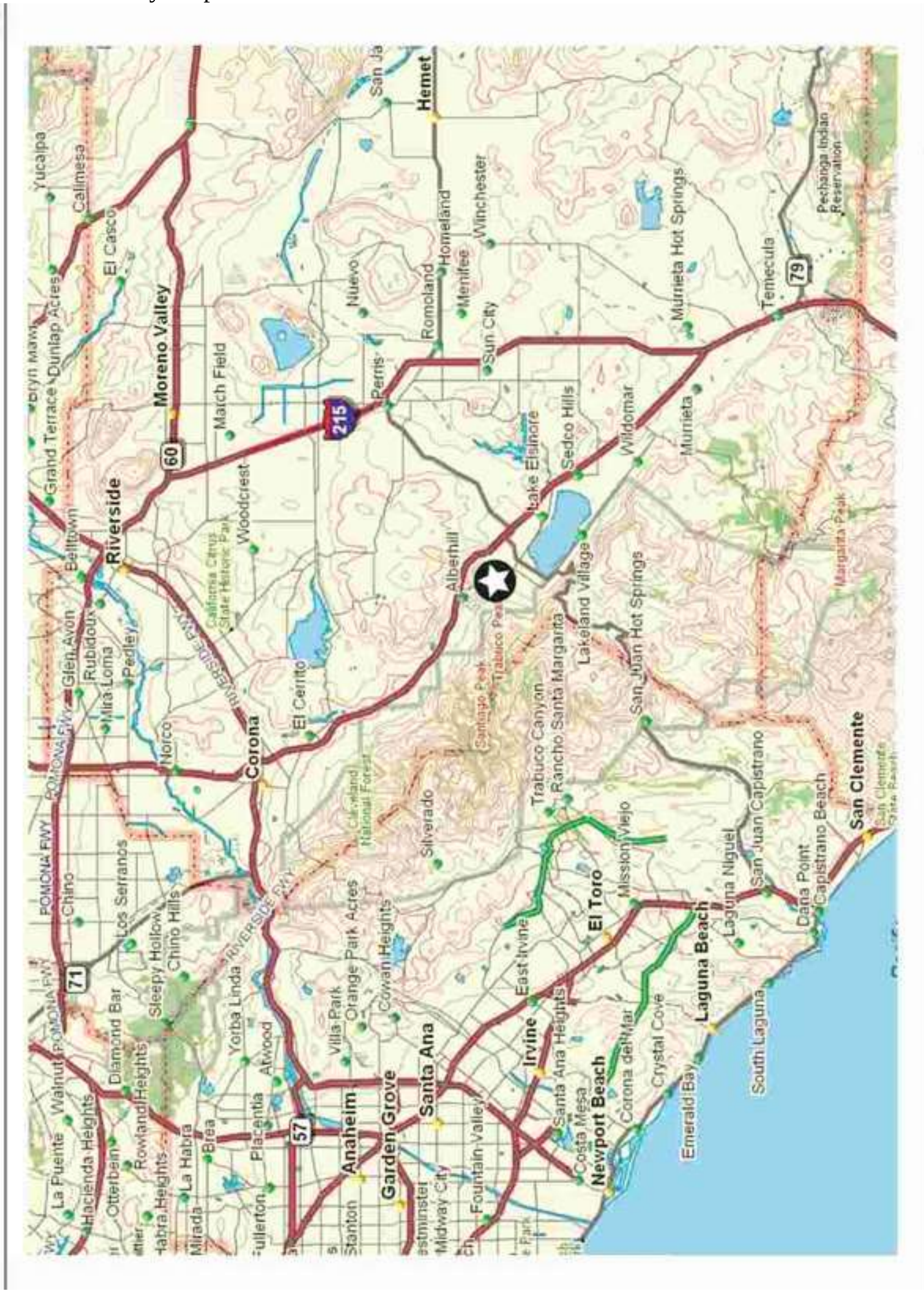


Figure 2. Project Location

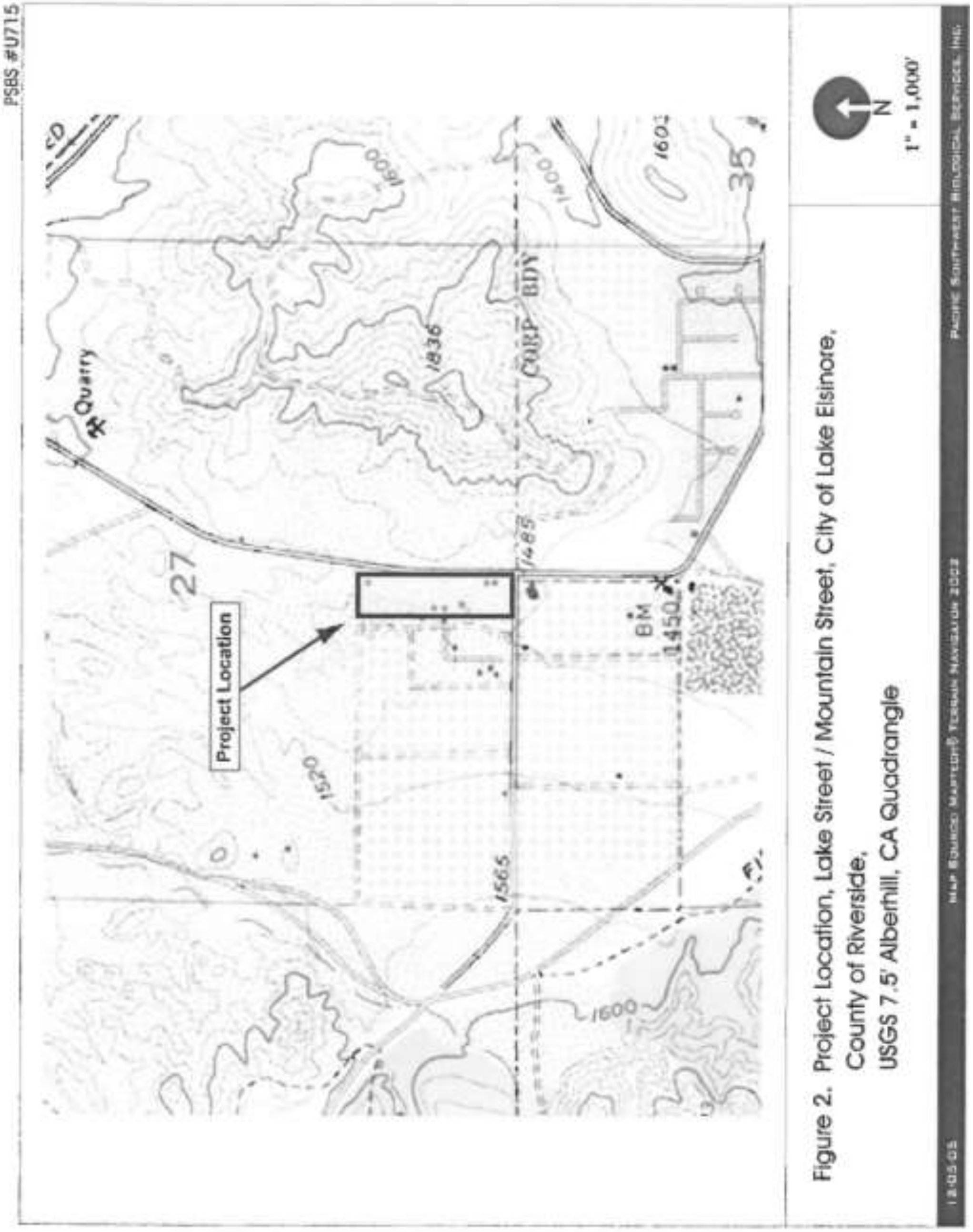


Figure 2. Project Location, Lake Street / Mountain Street, City of Lake Elsinore, County of Riverside, USGS 7.5' Alberhill, CA Quadrangle

Figure 3. Project Design of Site

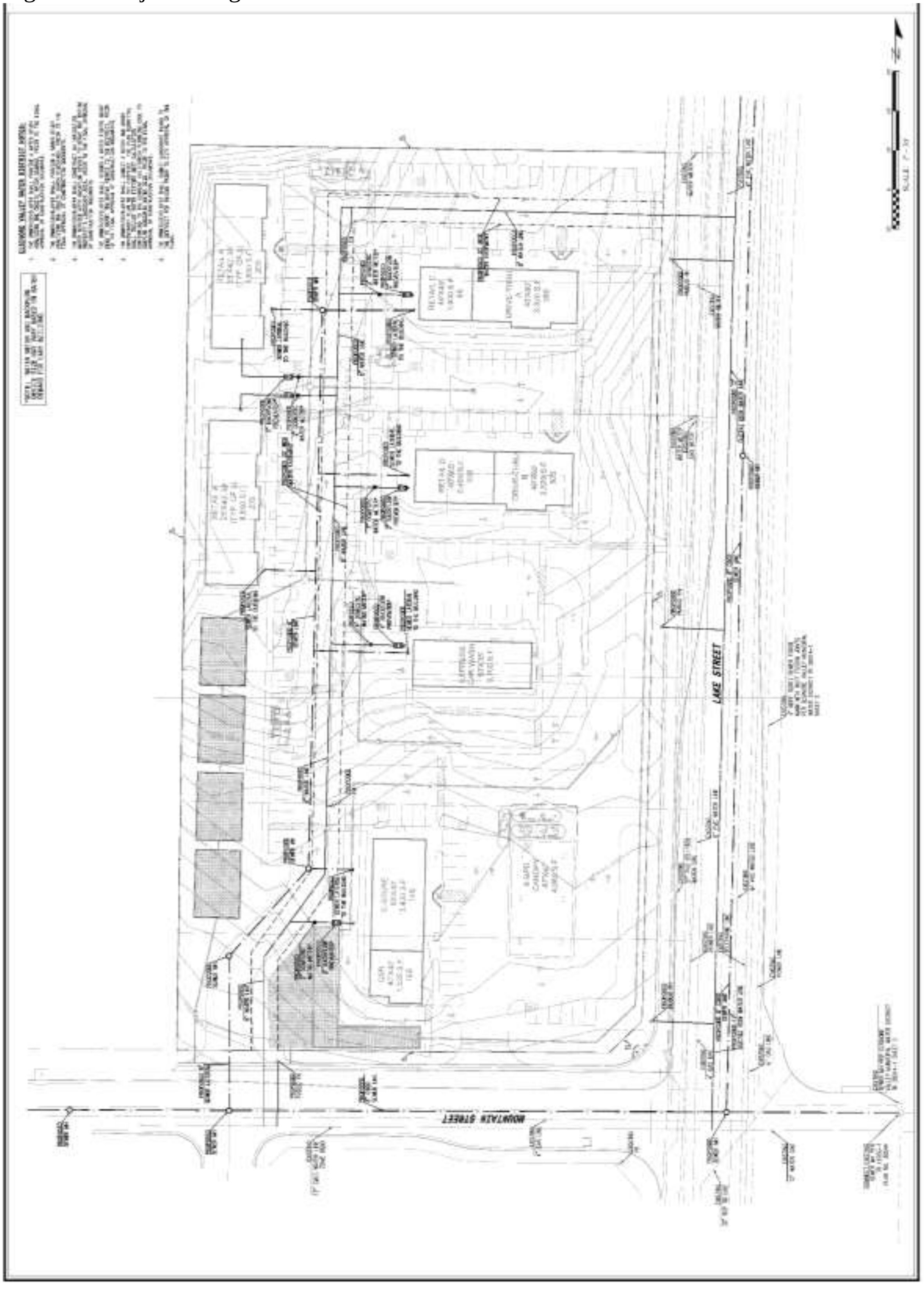


Figure 4. Prior Area Surveyed-2005

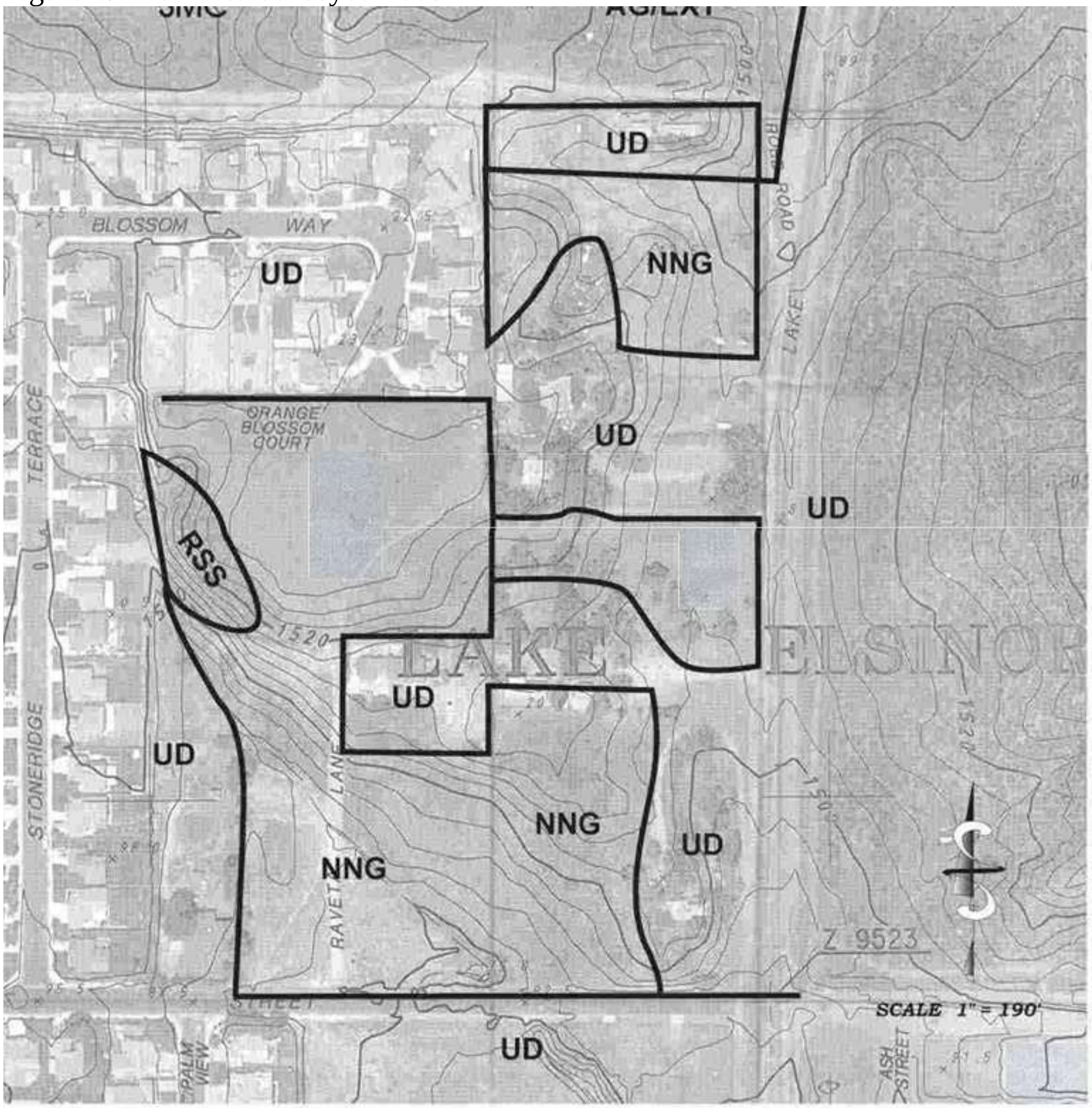


Figure 5. Vegetation Map

Figure 3. Vegetation Map

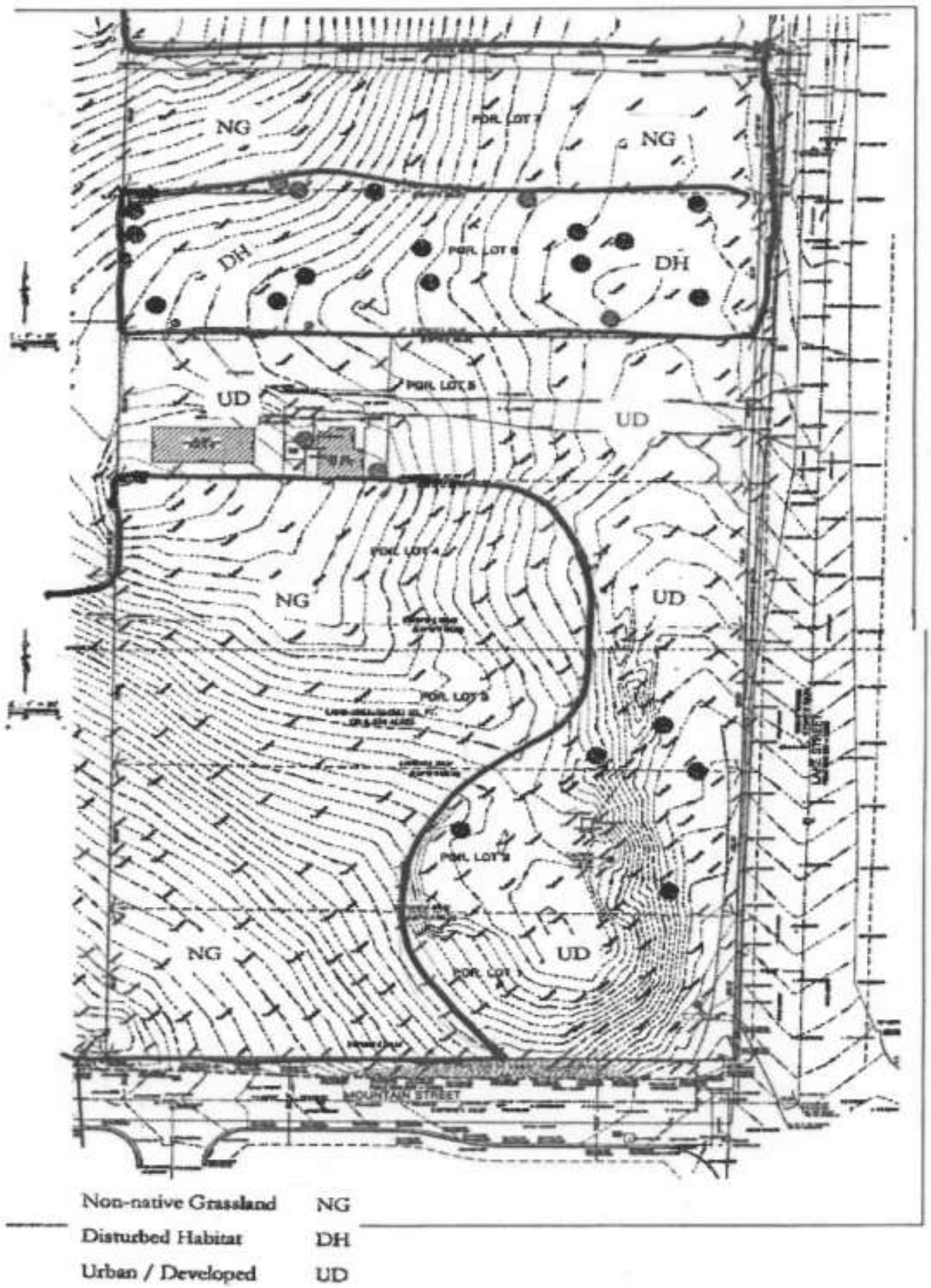


Figure 6. Site Photographs 23 August 2019

NE corner of site

NE corner of site

Squirrel hole without Burrowing Owls

Former residence area


Former residence area


View to SW of site


SE corner of site


Middle of site, along W side


Disking in middle of site


Residence in middle of site


View S from NW corner of site


View E from NW corner of site.

Appendix C1

Western Riverside County Regional Conservation Authority Joint Project Review Findings

RCA Joint Project Review (JPR) Findings

JPR #: 21-02-04-01
Date: 06/01/2021

Project Information

Permittee:	**City of Lake Elsinore**
Case Information:	**LEAP 2020-03/ Lake and Mountain Center Commercial Center**
Site Acreage:	**6.07 acres**
Portion of Site Proposed for MSHCP Conservation Area:	**0 acres**

Criteria Consistency Review

Consistency Conclusion: The project is consistent with both the Criteria and Other Plan requirements with implementation of the measures presented in these Findings (including any measures within the project information provided to the RCA by the Permittee for this JPR).

Six of the seven parcels addressed in these Findings (Assessor Parcel Numbers [APNs] 389-030-013, -014, -015, -016, -017, -018) were previously processed under JPR 08-08-20-01. The City will not abandon JPR 08-08-20-01 and the JPR addressed in these Findings is not related to or revises any portion of JPR 08-08-20-01.

Applicable Core/Linkage: Proposed Core 1
Area Plan: Elsinore

APN	Sub-Unit	Cell Group	Cell
389-030-012 389-030-013 389-030-014 389-030-015 389-030-016 389-030-017 389-030-018	SU-2. Alberhill	Not in a Cell Group	4155 4156

Project Information

a. Project information provided by the Permittee included the following: JPR Application (January 26, 2021) and LEAP 2020-01/Lake and Mountain Center MSHCP Consistency Findings (January 26, 2021; revised May 15, 2021), both prepared by the City of Lake Elsinore; and *Habitat Assessment For Critical Area And Narrow Endemic Plant Species and Burrowing Owl* Survey, *Phase I (Habitat Suitability) and Phase II (Burrow Survey)*, and *Discussion of Multiple Species Habitat Conservation Plan Issues* (*Analysis)* (October 6, 2021; revised April 14, 2021), all prepared by Pacific Southwest Biological Services, Inc (Pacific Southwest).

b. Project Location: The site is located in southwestern Riverside County in the City of Lake Elsinore. Access to the site from Interstate 15 is south on Lake Street approximately 2.5 miles to Mountain Street; the site is in the northwest quadrant of this intersection.

c. Project and Site Description: The proposed project will consist of a 3,400-square foot convenience store with an attached 1,525-square foot quick-serve restaurant, 4,089-square foot gas fueling canopy, a 3,150-square foot express car wash, two 4,850-square foot retail buildings, a 3,320-square foot drive-through restaurant with an attached 1,600-square foot retail building, and a 2,5200-square foot drive-through restaurant with an attached 2,400-square foot retail building. The total building area for the proposed project will consist of approximately 32,695 square feet of commercial and retail uses on an approximately 6.07-acre project site. The Tentative Tract Map proposes to subdivide the subject property into six parcels ranging in size from 0.66 acre to 1.22 acres.

   Vegetation on the site consists of developed/disturbed and ruderal non-native. Soils on the site consist of Gorgonio gravelly loamy fine sand, Greenfield sandy loam, Hanford coarse sandy loam, and Monserate sandy loam.

Relation to Reserve Assembly

a. As stated in Section 3.2.3 of the MSHCP, "Proposed Core 1 is located approximately in the east-central region of the Plan Area. This Core Area consists largely of private lands in the Alberhill area but also contains small pieces of Public/Quasi-Public Lands. The Core exists in two blocks, one east and one west of I-15. Connections are made from the Core to Proposed Linkage 1, Proposed Linkage 2 (Alberhill Creek), Proposed Linkage 3, and Existing Core C (Lake Mathews/Estelle Mountain). The Core provides Habitat for species and also provides for movement of species. Key populations of coastal California gnatcatcher, Munz's onion, many-stemmed dudleya, cactus wren, tricolored blackbird, and yellow warbler are supported in this Core Area. The Core likely provides for movement of common mammals such as bobcat. Since this Core is contiguous with Existing Core C (Lake Mathews/Estelle Mountain) via an approximately 10,000-foot connection, the functional area of the Core is much greater than 7,470 acres reported in the table below. Because a portion of the Core is surrounded by city (Lake Elsinore) and community Development planned land uses, and since this Core may be affected by the proposed Hemet to Corona/Lake Elsinore CETAP Corridor, management of edge conditions in these areas will be needed to maintain high quality Habitat within the Core. Guidelines Pertaining to Urban/Wildlands Interface for the management of edge factors such as lighting, urban runoff, toxics, and domestic predators are presented in Section 6.1 of this document [MSHCP]."

   A portion of the project site (5.79 acres) is located within Cell 4155. Conservation within this Cell will contribute to assembly of Proposed Core 1. Conservation within this Cell will focus on coastal sage scrub and chaparral habitat. Areas conserved within this Cell will be connected to coastal sage scrub habitat proposed for conservation in Cell Group T to the north and in Cell 4156 to the east. Conservation within this Cell will range from 20% to 30% of the Cell focusing in the northeastern portion of the Cell.

A portion of the project site (0.28-acre) is located within Cell 4156. Conservation within this Cell will contribute to assembly of Proposed Core 1. Conservation within this Cell will focus on coastal sage scrub and chaparral habitat. Areas conserved within this Cell will be connected to coastal sage scrub habitat proposed for conservation in Cell 4155 to the west and to coastal sage scrub and chaparral habitat proposed for conservation in Cell Group U to the north and in Cell 4157 to the east. Conservation within this Cell will range from 65% to 75% of the Cell focusing in the northeastern portion of the Cell.

Cell 4155 totals 160.25 acres. Using the mid-range goal (25%), approximately 40 acres are described for conservation within this Cell. To date, 84.44 acres have been developed or are approved for development in this Cell, which includes 5.79 acres of the proposed project acreage and 0 acres of covered roads acreage. There are 0 acres of Public-Quasi Public Lands. There are 0 acres in this Cell that have already been conserved or are proposed for conservation. There are 74.06 undeveloped acres available within the Cell, of which 63 undeveloped acres are potentially available within areas described for Conservation. In summary, with 63 undeveloped acres available for conservation that could also functionally contribute to PC-1, Cell 4155 could achieve the mid-range goal of 40 acres. In addition, the proposed project site is located within the southern portion of the Cell, outside of the area described for Conservation. Because of the location of the proposed project site outside of the area described for Conservation, and because the mid-range goal of Cell 4155 can be achieved, development of the proposed project would not impede the conservation goals for PC-1 nor result in issues relative to fragmentation.

Cell 4156 totals 160 acres. Using the mid-range goal (70%), approximately 112 acres are described for conservation within this Cell. To date, 107.17 acres have been developed or are approved for development in this Cell, which includes the 0.28-acre proposed project acreage and 10.93 acres of covered roads acreage. There are 0 acres of Public-Quasi Public Lands. There are 0 acres in this Cell that have already been conserved or are proposed for conservation. There are 52.83 undeveloped acres available within the Cell, of which 0 acres are available within areas described for Conservation. Cell 4156 cannot achieve the mid-range goal of 112 acres. This issue was created by the Castle and Cooke (Murdoch) 2004 Settlement Agreement by exempting lands described for conservation within Cell 4156 from the MSHCP, thereby allowing development to occur and leaving PC-1 unable to meet its conservation goals. The proposed project site is located within the southwestern portion of the Cell, outside of the area described for Conservation and separated from PC-1 by a large housing development (allowed by the 2004 Settlement Agreement) and covered roads. The 0.28-acre portion of proposed project that occurs in this Cell would not provide any functions and values to PC-1.

b. **Summary:** Because of the location of the proposed project site, outside of the area described for Conservation in Cells 4155 and 4156, development of the proposed project would not impede the conservation goals for PC-1. Furthermore, the proposed project would not result in habitat fragmentation of live in habitat for the target planning species for PC-1 which include Bell's sage sparrow, cactus wren, coastal California gnatcatcher, Cooper's hawk, downy woodpecker, least Bell's vireo, southwestern willow flycatcher, tree swallow, tricolored blackbird, white-tailed kite, yellow-breasted chat, yellow warbler, Quino checkerspot butterfly, Riverside fairy shrimp, bobcat, mountain lion, Stephens' kangaroo rat, Coulter's goldfields, many-stemmed dudleya, Munz's onion, San Diego ambrosia, and vernal barley.

c. Rough Step: The proposed project is within Rough Step Unit 8. According the MSHCP 2019 Annual report, "Rough Step Unit 8 encompasses 50,408 acres within the west-central region of western Riverside County and includes the cities of Lake Elsinore and Canyon Lake, the Alberhill Area, the San Jacinto River, Horsethief Canyon, and Temescal Wash (see Figure 3-9, Rough Step Unit 8). This Rough Step Unit is bound by the Santa Ana Mountains to the west, Interstate 215 to the east, Bundy Canyon Road to the south, and Rough Step Unit 7 to the north. In Rough Step Unit 8, there are 22,690 acres within the Criteria Area. Key vegetation communities within Rough Step Unit 8 include: coastal sage scrub; grasslands; riparian scrub, woodland, forest; and Riversidean alluvial fan sage scrub. Rough Step acreage goals are provided for each of these habitat types. Table 3-14, Rough Step Unit 8 Acreage Totals, also includes acres conserved for habitats for which Rough Step acreage goals do not exist. A total of 5,095 acres of conservation has been acquired within this Rough Step Unit. Losses to this unit total 1,734 acres, with remaining development allowance as follows: 588 acres of coastal sage scrub; 13 acres of riparian scrub, woodland, forest; and 7 acres of Riversidean alluvial fan sage scrub.

   At the end of 2019, the vegetation category of Grasslands remains "out of Rough Step." To bring the vegetation category back into Rough Step, a total of 150 acres are needed, an increase of 1 acre from last year. There are 448 acres of pending grassland conservation in Rough Step Unit 8 as follows: (1) completed JPR projects which have not yet been conveyed (211 ac), (2) Summerly Back Basin mitigation areas (139 ac), and (3) Cottonwood Canyon Conservation Area (97 ac). While the timing of conveyance of development-related conservation is unknown, both the Summerly Back Basin and Cottonwood Canyon conservation can be expected within 1-2 years. The RCA and Permittees continue to focus acquisition efforts when possible on grasslands, as well as working to acquire additional acres in the other vegetation categories, within this Rough Step Unit."

   The proposed project consists of developed/disturbed land as such it does not conflict with Rough Step goals.

Other Plan Requirements

Section 6.1.2 – Was Riparian/Riverine/Vernal Pool Mapping or Information Provided?

Yes. There are no Riparian/Riverine areas on the project site. There are no vernal pools on the project site, and the soils and topography present on the site do not support habitat considered suitable for fairy shrimp. There is no suitable riparian bird habitat on the project site.

Section 6.1.3 – Was Narrow Endemic Plant Species Survey Information Provided?

Yes. The project site is not located within a Narrow Endemic Plant Species Survey Area (NEPSSA).

Section 6.3.2 – Was Additional Survey Information Provided?

Yes. The Project site is not located in a Criteria Area Species Survey Area (CASSA) for plants. However, a portion of the project site is located in an Additional Survey Needs and Procedures Area for burrowing owl.

Section 6.1.4 – Was Information Pertaining to Urban/Wildland Interface Guidelines Provided?

Yes. The property is located adjacent to existing or proposed conservation areas.

Comments on Other Plan Requirements:

a. **MSHCP Volume I, Section 6.1.2.** The project site was assessed for riparian/riverine features. It was determined that no riparian/riverine features occur on site based on the absence of riparian/riverine vegetation and drainage patterns. Therefore, the proposed project will not result in impacts to Section 6.1.2 resources.

Vernal Pools/Fairy Shrimp: The project site lacks the appropriate soil and vegetation for vernal pools. The proposed project site does not contain evidence of vernal pools or other seasonally-inundated depressions such as cracked, hydric soils, or standing water. Furthermore, no clay soils or heavy soils were mapped, and no ponding or depression areas that could hold water for an extended period of time were detecteded on the project site. Due to the lack of vernal pools and/or other suitable fairy shrimp habitat, focused surveys for fairy shrimp were not conducted for this project.

Riparian Birds: Due to the lack of riparian habitat, riparian birds are considered absent from the project site. Therefore, no focused riparian bird surveys were conducted.

Based on the information provided in the *Analysis*, the project demonstrates consistency with Section 6.1.2 of the MSHCP.

b. **MSHCP Volume I, Section 6.1.3**: The project site is not located within a Narrow Endemic Plant Species Survey Area (NEPSSA).

Based on the information provided in the *Analysis*, the project demonstrates consistency with Section 6.1.3 of the MSHCP.

c. **MSHCP Volume I, Section 6.3.2**: The project site is not located in a Criteria Area Species Survey Area (CASSA) for plants.

A portion of the project site is located in an area requiring an assessment for burrowing owl. Although only a portion of the project site (0.28 acre) falls within the burrowing owl survey area, the entire project site, in addition to an associated 150-meter buffer, was subject to an initial burrowing owl habitat assessment (Step I of the Burrowing Owl Survey Instructions, 2006). The project site does contain suitable habitat for burrowing owl, however, none of this suitable habitat occurs within the burrowing owl survey area. Therefore, focused burrowing owl surveys were not conducted.

Based on the information provided in the *Analysis*, the project demonstrates consistency with Section 6.3.2 of the MSHCP.

d. **Section 6.1.4**: To preserve the integrity of areas adjacent to the project site which are proposed Conservation Areas, the guidelines contained in Section 6.1.4 related to controlling adverse effects for development adjacent to the MSHCP Conservation Area should be considered by the Permittee in their actions relative to the project.

SECTION 6.1.4 MEASURE. Although the proposed project is not adjacent to the MSHCP Conservation Area, the following Urban Wildlands Interface Guidelines (UWIG) may apply during project construction. Accordingly, the Permittee should include the following measures as Project conditions of approval when applicable:

i. Incorporate measures to control the quantity and quality of runoff from the site entering the MSHCP Conservation Area. In particular, measures shall be put in place to avoid discharge of untreated surface runoff from developed and paved areas into MSHCP Conservation Areas. Best Management Practices (BMPs) will be implemented to prevent the release of toxins, chemicals, petroleum products, exotic plant materials, or other elements that might degrade or harm downstream biological resources or ecosystems.

ii. Land uses proposed in proximity to the MSHCP Conservation Area that use chemicals or generate bioproducts, such as manure, that are potentially toxic or may adversely affect wildlife species, Habitat, or water quality shall incorporate measures to ensure that application of such chemicals does not result in discharge to the MSHCP Conservation Area. The greatest risk is from landscaping fertilization overspray and runoff.

iii. Night lighting shall be directed away from the MSHCP Conservation Area and the avoided area on site to protect species from direct night lighting.

iv. Proposed noise-generating land uses affecting the MSHCP Conservation Area, including designated avoidance areas, shall incorporate setbacks, berms, or walls to minimize the effects of noise on MSHCP Conservation Area resources pursuant to applicable rules, regulations, and guidelines related to land use noise standards.

v. Avoid use of invasive, non-native plant species listed in Table 6-2 of the MSHCP in approving landscape plans for the portions of the project that are adjacent to the MSHCP Conservation Area, including avoidance areas. Considerations in reviewing the applicability of this list shall include proximity of planting areas to the MSHCP Conservation Areas and designated avoidance areas, species considered in the planting plans, resources being protected within the MSHCP Conservation Area and their relative sensitivity to invasion, and barriers to plant and seed dispersal, such as walls, topography, and other features.

vi. Proposed land uses adjacent to the MSHCP Conservation Area shall incorporate barriers, where appropriate, in individual project designs to minimize unauthorized public access,

domestic animal predation, illegal trespass, or dumping into existing and future MSHCP Conservation Areas. Such barriers may include native landscaping, rocks/boulders, fencing, walls, signage, and/or other appropriate mechanisms.

vii. **Manufactured slopes associated with proposed site development shall not extend into the MSHCP Conservation Area.**

viii. **Weed abatement and fuel modification activities are not permitted in the Conservation Area, including designated avoidance areas.**

e. **Appendix C**: The following best management practices (BMPs), as applicable, shall be implemented for the duration of construction:

<u>**APPENDIX C MEASURE.**</u>

i. **A condition shall be placed on grading permits requiring a qualified biologist to conduct a training session for project personnel prior to grading. The training shall include a description of the species of concern and its habitats, the general provisions of the Endangered Species Act (Act) and the MSHCP, the need to adhere to the provisions of the Act and the MSHCP, the penalties associated with violating the provisions of the Act, the general measures that are being implemented to conserve the species of concern as they relate to the project, and the access routes to and project site boundaries within which the project activities must be accomplished.**

ii. **Water pollution and erosion control plans shall be developed and implemented in accordance with RWQCB requirements.**

iii. **The footprint of disturbance shall be minimized to the maximum extent feasible. Access to sites shall be via pre-existing access routes to the greatest extent possible.**

iv. **The upstream and downstream limits of projects disturbance plus lateral limits of disturbance on either side of the stream shall be clearly defined and marked in the field and reviewed by the biologist prior to initiation of work.**

v. **Projects should be designed to avoid the placement of equipment and personnel within the stream channel or on sand and gravel bars, banks, and adjacent upland habitats used by target species of concern.**

vi. **Projects that cannot be conducted without placing equipment or personnel in sensitive habitats should be timed to avoid the breeding season of riparian species identified in MSHCP Global Species Objective No. 7.**

vii. **When stream flows must be diverted, the diversions shall be conducted using sandbags or other methods requiring minimal instream impacts. Silt fencing of other sediment trapping materials shall be installed at the downstream end of construction activity to minimize the transport of sediments off site. Settling ponds where sediment is collected**

shall be cleaned out in a manner that prevents the sediment from reentering the stream. Care shall be exercised when removing silt fences, as feasible, to prevent debris or sediment from returning to the stream.

viii. **Equipment storage, fueling, and staging areas shall be located on upland sites with minimal risks of direct drainage into riparian areas or other sensitive habitats. These designated areas shall be located in such a manner as to prevent any runoff from entering sensitive habitat. Necessary precautions shall be taken to prevent the release of cement or other toxic substances into surface waters. Project related spills of hazardous materials shall be reported to appropriate entities including but not limited to applicable jurisdictional city, FWS, and CDFG, RWQCB and shall be cleaned up immediately and contaminated soils removed to approved disposal areas.**

ix. **Erodible fill material shall not be deposited into water courses. Brush, loose soils, or other similar debris material shall not be stockpiled within the stream channel or on its banks.**

x. **The qualified project biologist shall monitor construction activities for the duration of the project to ensure that practicable measures are being employed to avoid incidental disturbance of habitat and species of concern outside the project footprint.**

xi. **The removal of native vegetation shall be avoided and minimized to the maximum extent practicable. Temporary impacts shall be returned to pre-existing contours and revegetated with appropriate native species.**

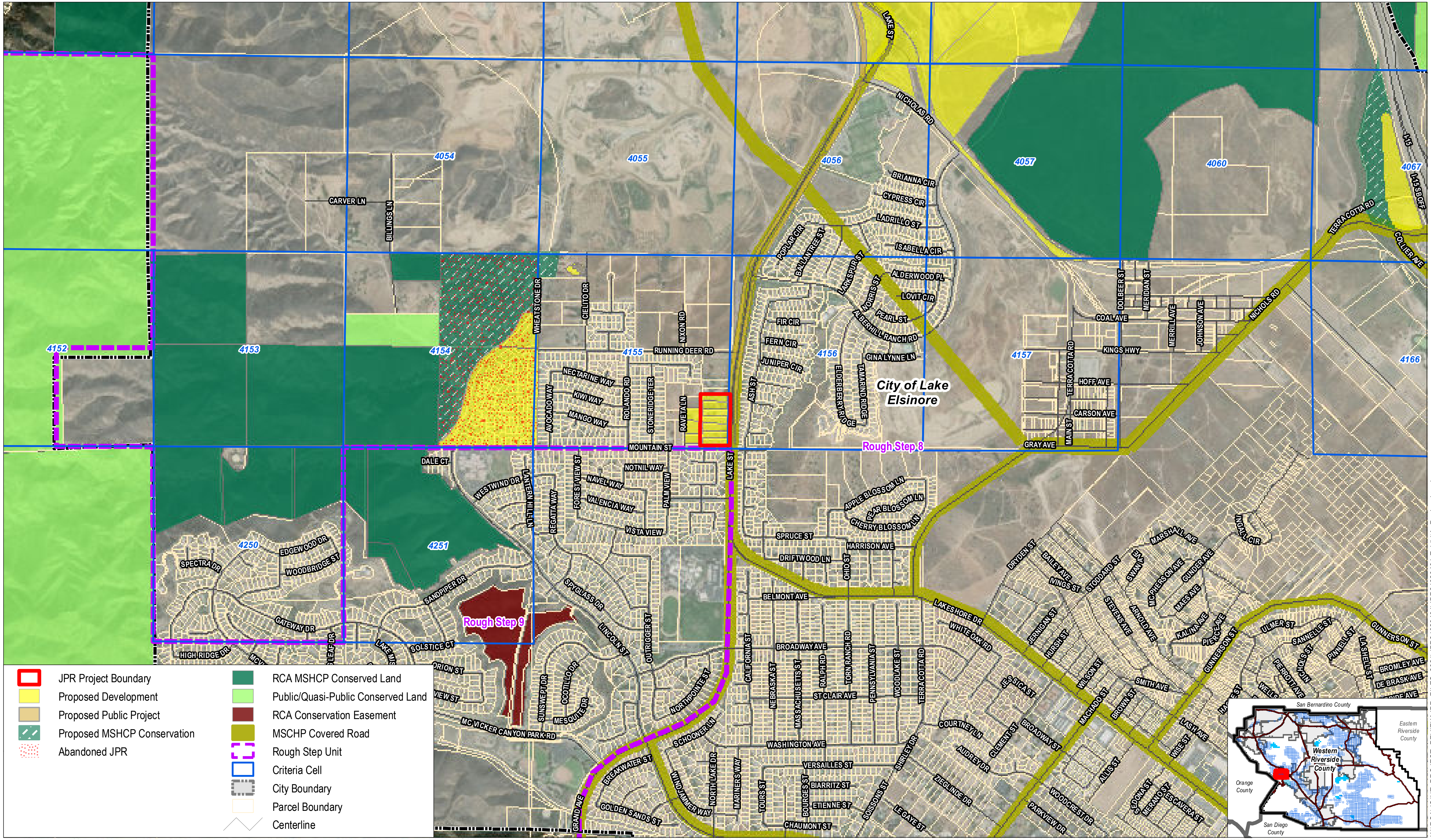
xii. **Exotic species that prey upon or displace target species of concern should be permanently removed from the site to the extent feasible.**

xiii. **To avoid attracting predators of the species of concern, the project site shall be kept as clean of debris as possible. All food related trash items shall be enclosed in sealed containers and regularly removed from the site(s).**

xiv. **Construction employees shall strictly limit their activities, vehicles, equipment, and construction materials to the proposed project footprint and designated staging areas and routes of travel. The construction area(s) shall be the minimal area necessary to complete the project and shall be specified in the construction plans. Construction limits will be fenced with orange snow screen. Exclusion fencing should be maintained until the completion of all construction activities. Employees shall be instructed that their activities are restricted to the construction areas.**

xv. **The Permittee shall have the right to access and inspect any sites of approved projects including any restoration/enhancement area for compliance with project approval conditions, including these BMPs.**

BD

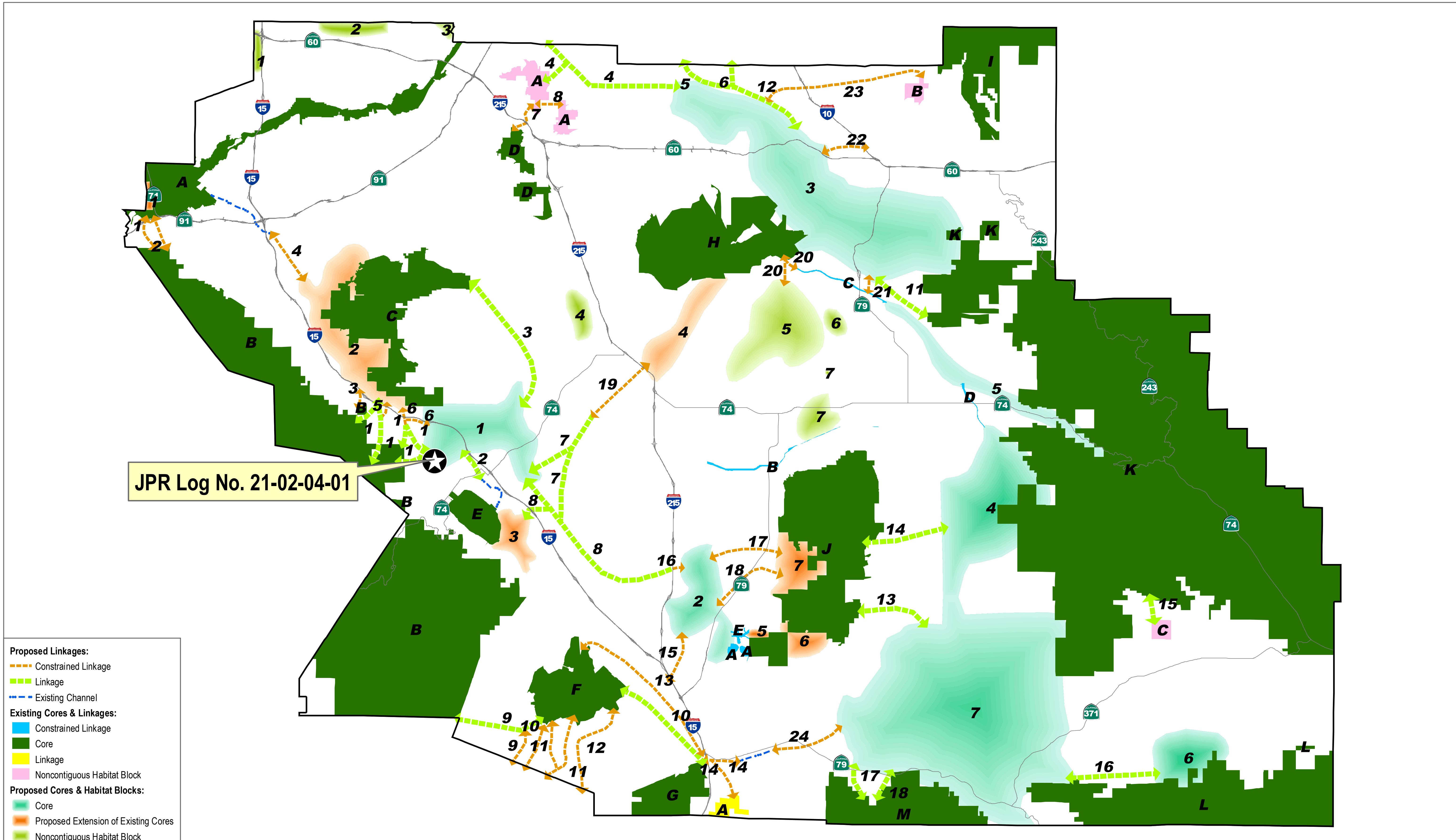


SOURCE: Western Riverside County Regional Conservation Authority 2020; County of Riverside 2020; Earthstar Geographics 2019 (Esri). Map created on 2/8/2021.

RCTC Regional Conservation Authority

r14468
Permittee: City of Lake Elsinore (LEAP 2020-03)
0 770 1,540 Feet

EXHIBIT A
JPR Log No. 21-02-04-01 - Regional



SOURCE: Western Riverside County Regional Conservation Authority (WRC-RCA). Map created on 2/8/2021

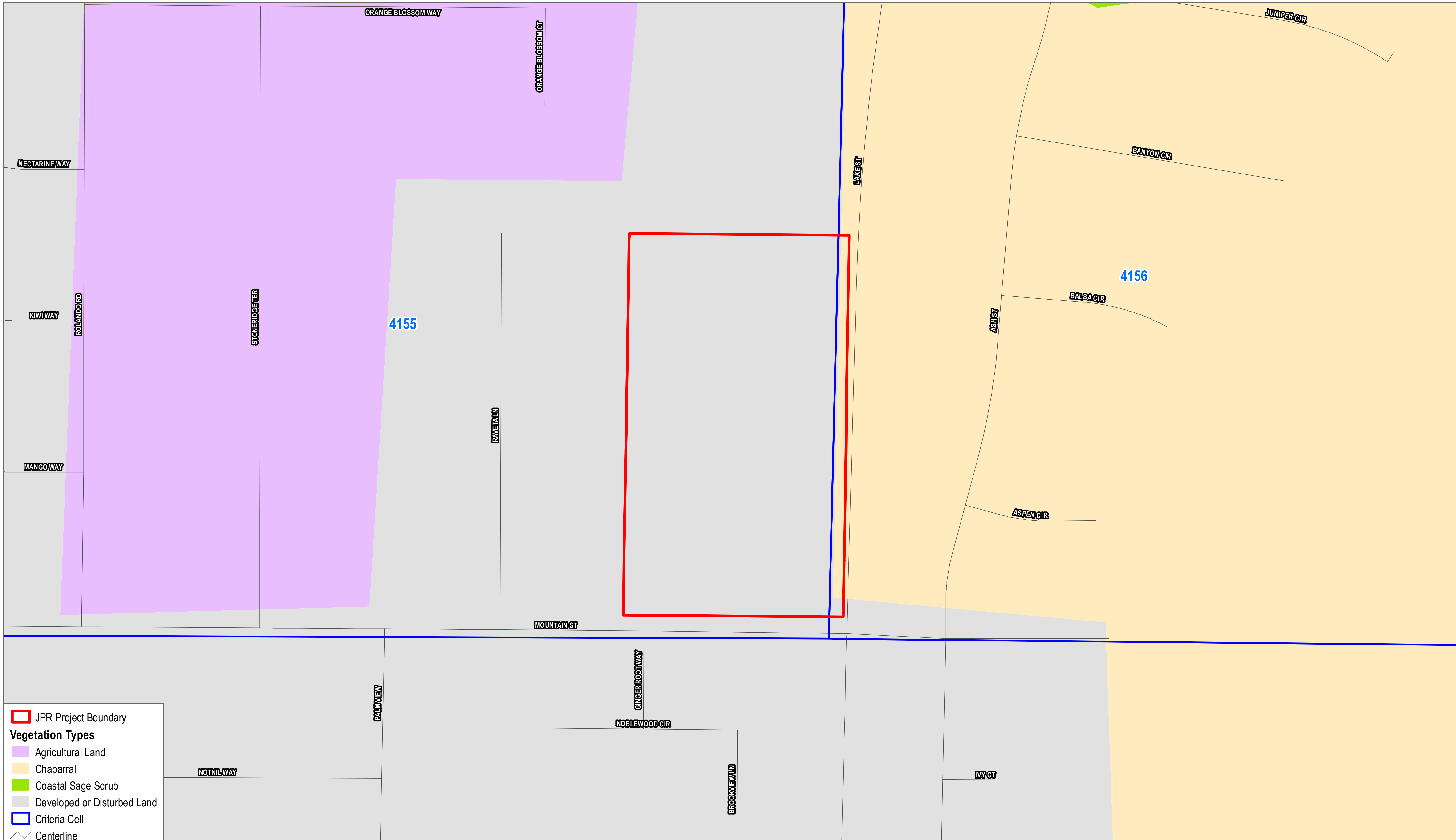
r14468
Permittee: City of Lake Elsinore (LEAP 2020-03)

0 2 4 Miles

W:\RCA\JOINT_PROJECT_REVIEW\JPR_FILES_2021\JPR21020401\JPR21020401-ExhibitB_MSHCP_SchematicCoresLinkages.mxd

EXHIBIT B

JPR Log No. 21-02-04-01 - Vicinity Map with MSHCP Schematic Cores and Linkages



W:\RCA\JOINT_PROJECT_REVIEW\JPR_FILES_2021\JPR21020401\JPR21020401-ExhibitC_Vegetation.mxd

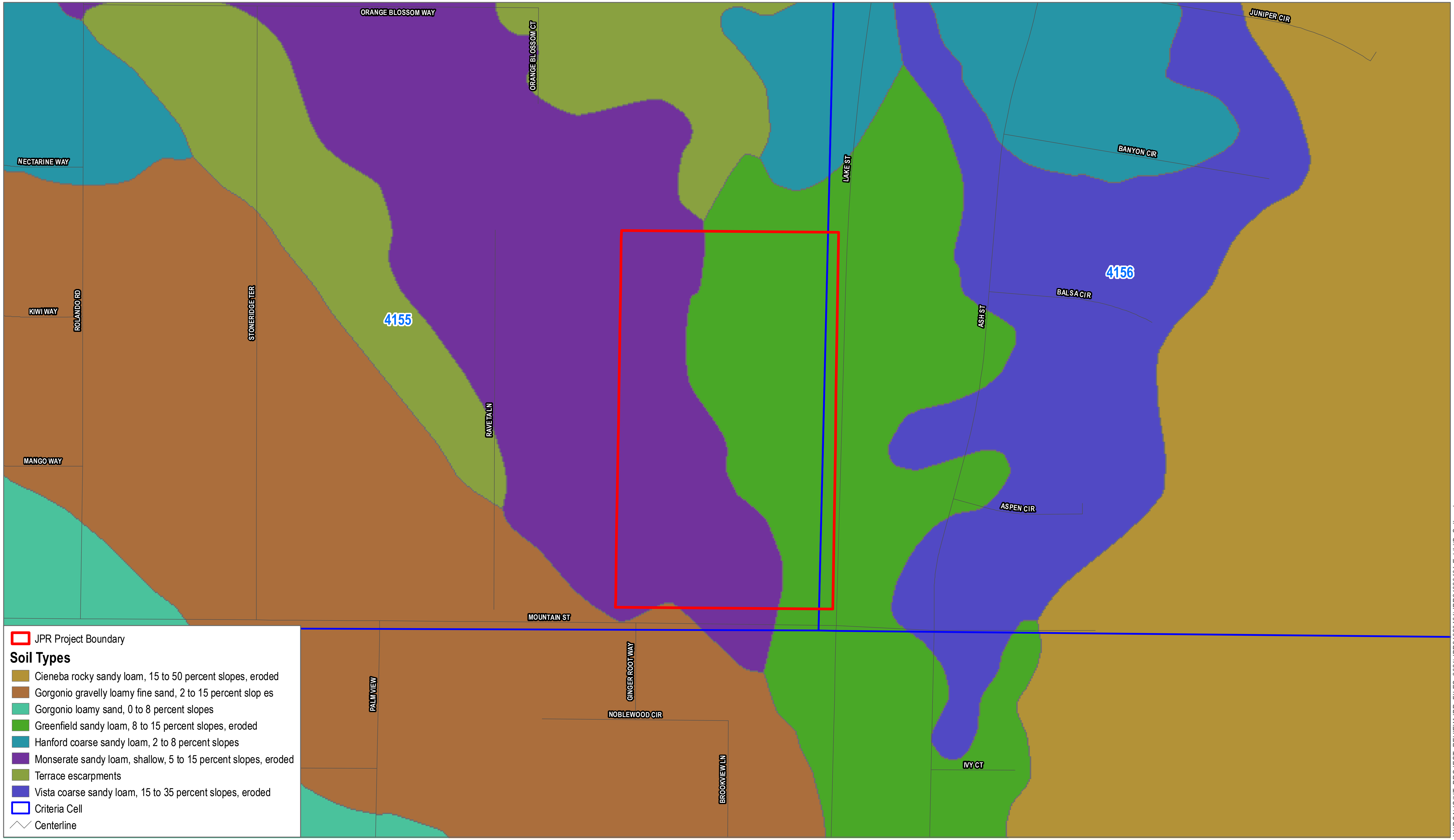
SOURCE: WRC-RCA MSHCP Baseline Vegetation (1994). Map created on 2/8/2021.

RCTC Regional Conservation Authority

r14468
Permittee: City of Lake Elsinore (LEAP 2020-03)
0 100 200 Feet

EXHIBIT C

JPR Log No. 21-02-04-01 - Vegetation



SOURCE: Western Riverside County Regional Conservation Authority 2020; County of Riverside 2020; USDA/NRCS Soils 2017

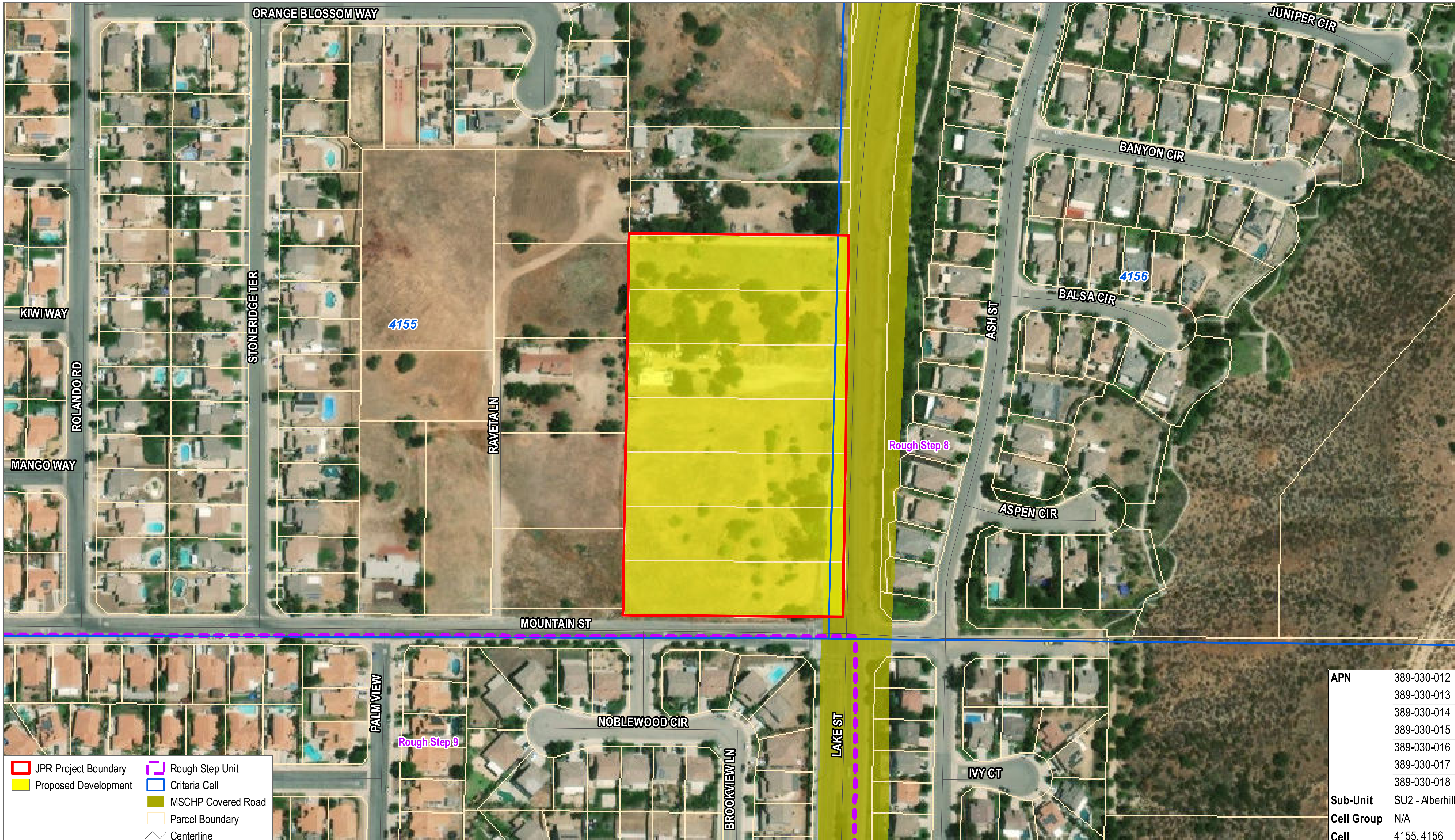
RCTC Regional Conservation Authority

r14468
Permittee: City of Lake Elsinore (LEAP 2020-03)

0 100 200 Feet

EXHIBIT D

JPR Log No. 21-02-04-01 - Soil



W:\RCA\JOINT_PROJECT_REVIEW\JPR_FILES_2021\JPR21020401\JPR21020401-ExhibitE_ConservationAvoidance.mxd

SOURCE: Western Riverside County Regional Conservation Authority 2020; County of Riverside 2020; Earthstar Geographics 2019 (Esri). Map created on 2/8/2021.

RCTC Regional Conservation Authority Western Riverside County

r14468
Permittee: City of Lake Elsinore (LEAP 2020-03)

0 100 200 Feet

EXHIBIT E

JPR Log No. 21-02-04-01 - Conservation and Avoidance Areas

Appendix C2

Wildlife Agencies Comments on Joint Project Review (21-02-04-01) for the Lake and Mountain Commerce Center Project

Damaris Abraham

From:	Richard J. MacHott, LEED Green Assoc.
Sent:	Monday, June 14, 2021 8:11 AM
To:	Gregory Hann; Damaris Abraham
Cc:	Alex Hann; Valerie Salampessy; Joe Kumar; Danny Singh
Subject:	FW: [External]MSHCP Joint Project Review 21-02-04-01 for LEAP 2020-03, the Lake & Mountain Commercial Center, City of Lake Elsinore

Good morning.

Here are the Wildlife Agencies comments regarding the Lake & Mountain Commercial project. They agree with RCA's finding that the project is consistent with the MSHCP. This concludes the City's processing of your LEAP application.

Richard J. MacHott, LEED Green Assoc.
Planning Manager
City of Lake Elsinore
PH:(951) 674-3124, 209

From: Thiede, James H <james_thiede@fws.gov>
Sent: Friday, June 11, 2021 10:27 PM
To: Richard J. MacHott, LEED Green Assoc. <rmachott@Lake-Elsinore.org>
Cc: Cleary-Rose, Karin <Karin_Cleary-Rose@fws.gov>; Heather Pert <heather.pert@wildlife.ca.gov>; Beck, Carly@Wildlife <Carly.Beck@wildlife.ca.gov>; Trey Dempsey <john.dempsey@wildlife.ca.gov>; Tricia Campbell <tcampbell@rctc.org>; Betsy Dionne <BDionne@RCTC.org>; Wendy Worthey <wworthey@dudek.com>
Subject: [External]MSHCP Joint Project Review 21-02-04-01 for LEAP 2020-03, the Lake & Mountain Commercial Center, City of Lake Elsinore

Dear Mr. MacHott,

The California Department of Fish and Wildlife and the United States Fish and Wildlife Service (collectively, The Wildlife Agencies) received Joint Project Review (JPR) 21-02-04-01 for the Lake and Mountain Center Commercial Center (LEAP 2020-03) from the City of Lake Elsinore (City) on June 1, 2021. Our review and comment period ends on June 14, 2021. The project is located in MSHCP Criteria Cells 4155 and 4156, within Proposed Core 1 of the Elsinore Plan Area. More specifically, the 6.07-acre project site is located south of Lake Street approximately 2.5 miles toward Mountain Street, and will consist of a convenience store, gas station, restaurants, car wash, and retail buildings.

The Wildlife Agencies agree with the RCA's findings that the project, as proposed, does not conflict with the Reserve Assembly goals of the MHSCP.

The Wildlife Agencies support the RCA's project conditions in item "d." (page 6) for the City's implementation of the Urban/Wildland Interface Guidelines (Section 6.1.4 of the MSHCP), and item "e" (page 7) Appendix C (Construction Best Management Practices), more specifically those that pertain to water quality and invasive species.

This concludes the Wildlife Agencies' review of JPR 21-02-04-01. The JPR is hereby approved.

Sincerely,

Carly Beck
Senior Environmental Scientist (Specialist)
Inland Deserts Region
California Department of Fish and Wildlife
3602 Inland Empire Blvd., Suite C-220
Ontario, CA 91764
951-218-2940

and

James Thiede
Senior Biologist
U.S. Fish & Wildlife Service
777 East Tahquitz Canyon Way, Suite 208
Palm Springs, CA 92262

Appendix D

Phase I Cultural Resources Survey Report

A PHASE I CULTURAL RESOURCES SURVEY REPORT FOR THE COMMERCIAL/ RETAIL NWC MOUNTAIN AND LAKE STREETS PROJECT

CITY OF LAKE ELSINORE, RIVERSIDE COUNTY, CALIFORNIA

APNs 389-030-012, -013, -014, -015, -016, -017, and -018

**Project Site Location: Section 27, Township 5 South,
Range 5 West of the *Alberhill* USGS Quadrangle Topographic Map**

<u>Prepared on Behalf of:</u>

**Empire Design Group, Inc.
24861 Washington Avenue
Murrieta, California 92562**

<u>Prepared for:</u>

**City of Lake Elsinore
130 South Main Street
Lake Elsinore, California 92530**

<u>Prepared by:</u>

**Andrew J. Garrison, M.A., RPA and
Brian F. Smith, M.A., Principal Investigator
Brian F. Smith and Associates, Inc.
14010 Poway Road, Suite A
Poway, California 92064**

October 2, 2019

***Fieldwork Performed: September 10, 2019
Key Words: Approximately six acres; positive survey; two previously evaluated historic properties; P-33-007208; P-33-017352; not eligible for the CRHR; monitoring recommended.***

Archaeological Report Summary Information

Authors:	Andrew J. Garrison, M.A. RPA and Brian F. Smith, M.A., Principal Investigator
Prepared by:	Brian F. Smith and Associates, Inc. 14010 Poway Road, Suite A Poway, California 92064 (858) 484-0915
Report Date:	October 2, 2019
Report Title:	A Phase I Cultural Resources Survey Report for the Commercial/Retail NWC Mountain and Lake Streets Project, City of Lake Elsinore, Riverside County, California
Prepared on Behalf of:	Empire Design Group, Inc. 24861 Washington Avenue Murrieta, California 92562
Prepared for:	City of Lake Elsinore 130 South Main Street Lake Elsinore, California 92530
Assessor's Parcel Numbers:	389-030-012, -013, -014, -015, -016, -017, and -018
USGS Quadrangle:	Section 27, Township 5 South, Range 5 West of the *Alberhill* USGS topographic quadrangle map
Study Area:	Approximately six acres
Key Words:	Archaeological survey; positive survey; two previously evaluated historic properties; P-33-007208; P-33-017352; not eligible for the CRHR; City of Lake Elsinore; Riverside County; approximately six acres; *Alberhill* USGS Quadrangle; no significant resources identified; mitigation monitoring recommended.

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Appendices

**Deleted for public review and bound separately in the Confidential Appendix*

List of Figures

List of Plates

List of Plates (continued)

List of Tables

1.0 MANAGEMENT SUMMARY/ABSTRACT

The following report describes the results of the cultural resources survey conducted by Brian F. Smith and Associates, Inc. (BFSA) for the Commercial/Retail NWC Mountain and Lane Streets Project. The study area consists of an approximately six-acre multi-parcel property located at the northwest corner of the intersection of Mountain Street and Lake Street in the city of Lake Elsinore in western Riverside County, California. The project is identified as Assessor's Parcel Numbers (APNs) 389-030-012, -013, -014, -015, -016, -017, and -018. Specifically, this project may be found in Section 27, Township 5 South, Range 5 West of the USGS 7.5-minute *Alberhill, California* topographic map. The proposed project consists of a commercial development including a gas station, car wash, and convenience store, as well as retail and restaurant space. The cultural resources study was conducted in compliance with the California Environmental Quality Act (CEQA) and the environmental guidelines of the City of Lake Elsinore.

The project area is partially developed and disturbed. One parcel (APN 389-030-014), situated within the relative center of the project, is partially developed, containing a residence and a prefabricated home. The parcels in the northern portion of the project (APNs 389-030-012 and -013) are not developed and vacant, while the remaining four parcels (APNs 389-030-015, -016, -017, and -018) in the southern portion of the project are characterized mainly as vacant cleared land that previously contained a rural residence. Vegetation within the project area mainly consists of non-native weeds and grasses. Pepper and eucalyptus trees are also found throughout the project, but mainly focused within the northern and southeastern portions of the subject property.

Two resources, P-33-007208 and P-33-017352, are located within the project, both of which have previously been determined ineligible for listing on the California Register of Historical Resources (CRHR) (Tang et al. 2008; Tang 2008). BFSA conducted the current archaeological study to survey the property, review the two previously evaluated resources, and assess any newly identified resources. The current survey resulted in the relocation of the two previously studied resources. Both P-33-007208 and P-33-017352 appeared in the same condition when previously studied; however, during the current survey, a previously unidentified cistern associated with P-33-007208 was located. The addition of this feature to P-33-07208 does not alter the previous evaluation of the site and both resources within the project remain not eligible for the CRHR and are therefore not considered Historical Resources under CEQA criteria (Section 15064.5).

1.1 Purpose of Investigation

The purpose of this investigation was to complete a records search of previously recorded archaeological sites on or near the property, survey the project acreage, identify any archaeological resources within the project, and evaluate any cultural resources that may be impacted by the proposed development. The project development map (see Figure 2.0–3) shows the configuration of the development proposed on this property.

1.2 Major Findings

The records search for the property from the Eastern Information Center (EIC) at the University of California at Riverside (UCR) reported that 25 cultural resource studies have been recorded within a one-mile radius of the project, four of which included the current project (Lerch and Gray 2006; Lerch et al. 2006; Tang et al. 2008; Tang 2008). Based on the previous reports and the EIC maps, two resources have previously been recorded within the subject property (P-33-007208 and P-33-017352) (Tang et al. 2008). CRM Tech conducted focused property history and evaluated both resources as not eligible for the CRHR in 2008 (Tang et al. 2008; Tang 2008).

Based on the results of the current survey, both P-33-007208 and P-33-017352 appeared in the same condition as when previously studied. However, an unrecorded cistern associated with P-33-007208 was identified. The ground surrounding the cistern was unstable, which limited access to the feature. Based on visual observation, the cistern appears to have been brick and stone lined and is approximately five to six feet in diameter. Two isolated bottles were observed within the eastern wall of the cistern; however, the cistern appears empty, indicating it is unlikely that any concentration of historic artifacts exists. The addition of this feature to P-33-07208 does not alter the previous evaluation of the site. The appropriate updated site forms were prepared and submitted to the EIC at UCR (Appendix B).

1.3 Recommendation Summary

Although P-33-007208 and P-33-017352 are not eligible for the CRHR, it is recommended that the project be conditioned for archaeological monitoring of all ground disturbing activities due to the potential to encounter buried historic features or archaeological deposits associated with the historic occupation of this property. A Mitigation Monitoring and Reporting Program (MMRP) is recommended to provide the protocols of archaeological monitoring and the treatment of any historic features or deposits that might be encountered. The scope of the MMRP is presented in Section 6.1. A copy of this report will be permanently filed with the EIC at UCR. All notes, photographs, and other materials related to this project will be curated at the archaeological laboratory of BFSA in Poway, California.

2.0 INTRODUCTION

BFSA was retained by the project applicant to conduct a cultural resources survey of the proposed project in the city of Lake Elsinore. The archaeological survey was conducted in order to comply with CEQA and City of Lake Elsinore guidelines with regards to development-generated impacts to cultural resources. The project is located in an area of moderate cultural resource sensitivity, as is suggested by known site density and predictive modeling.

The proposed project is an approximately six-acre multi-parcel property located in the city of Lake Elsinore in western Riverside County, California (Figure 2.0–1) and is identified as APNs 389-030-012, -013, -014, -015, -016, -017, and -018. Specifically, the project is situated at the northwest corner of the intersection of Mountain Street and Lake Street, in Section 27, Township 5 South, Range 5 West of the USGS 7.5-minute *Alberhill, California* topographic map (Figure 2.0–2). The project, as proposed by the applicant, consists of commercial development including a gas station, car wash, and convenience store, as well as retail and restaurant space (Figure 2.0–3).

Principal Investigator Brian F. Smith directed the cultural resources study for the project with assistance from Project Archaeologist Andrew Garrison. The technical report was prepared by Andrew Garrison and Brian Smith. Maureen Vaughan created the report graphics and Courtney Accardy conducted technical editing and report production. Qualifications of key personnel are provided in Appendix A.

2.1 Previous Work

The records search for the property from the EIC at UCR reported that 25 cultural resource studies have been recorded within a one-mile radius of the project, four of which included the current project (Lerch and Gray 2006; Lerch et al. 2006; Tang et al. 2008; Tang 2008). Based on the previous reports and the EIC maps, two resources have previously been recorded within the subject property (P-33-007208 and P-33-017352). CRM Tech conducted focused historic research of the property and evaluated both resources as ineligible for listing on the CRHR in 2008 (Tang et al. 2008; Tang 2008). In addition, the records search identified 18 other resources within one mile of the project. A discussion of the complete records search is provided in Section 4.1 of this report.

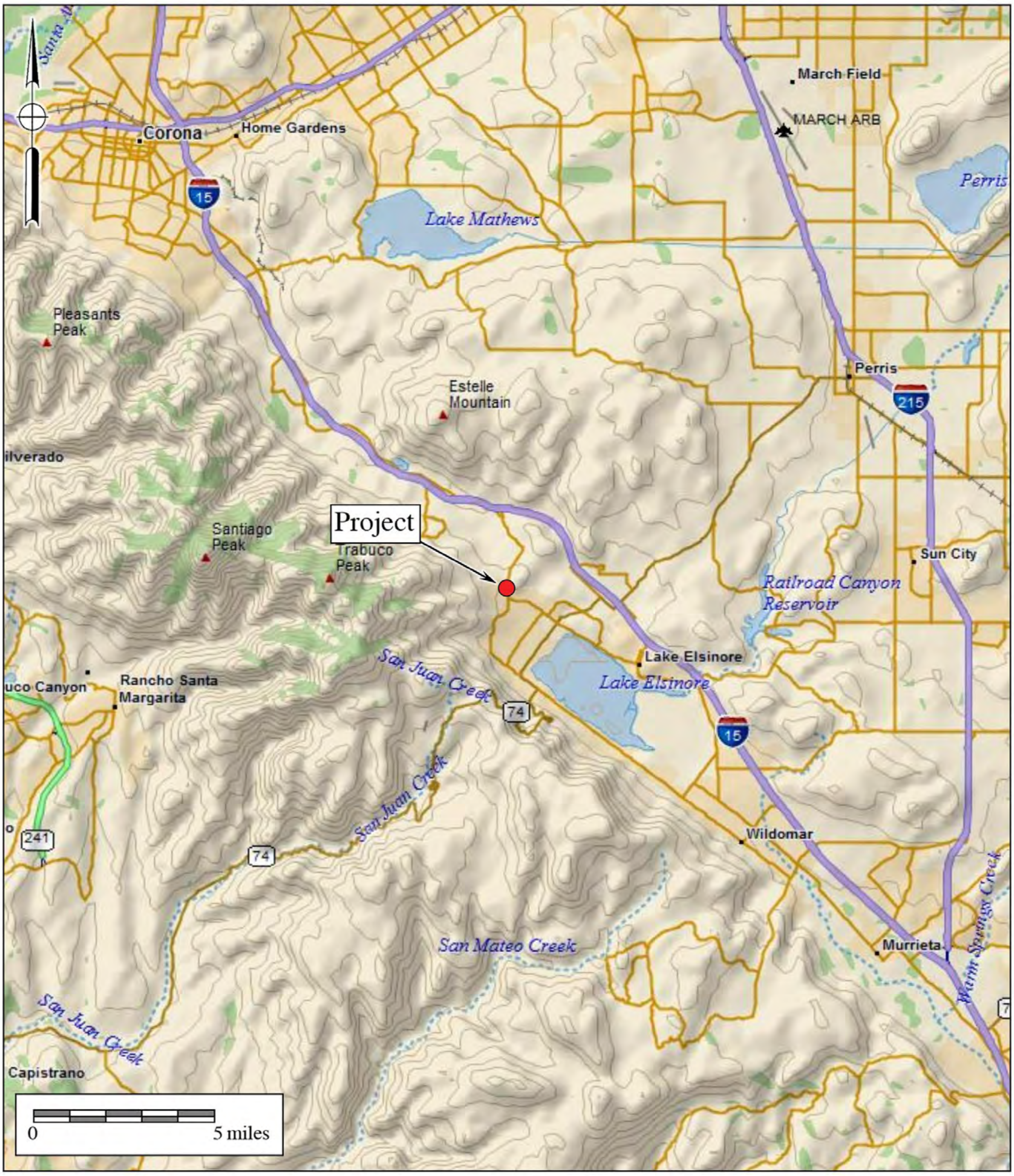

Figure 2.0–1

General Location Map

The Commercial/Retail NWC Mountain and Lake Streets Project

DeLorme (1:250,000)

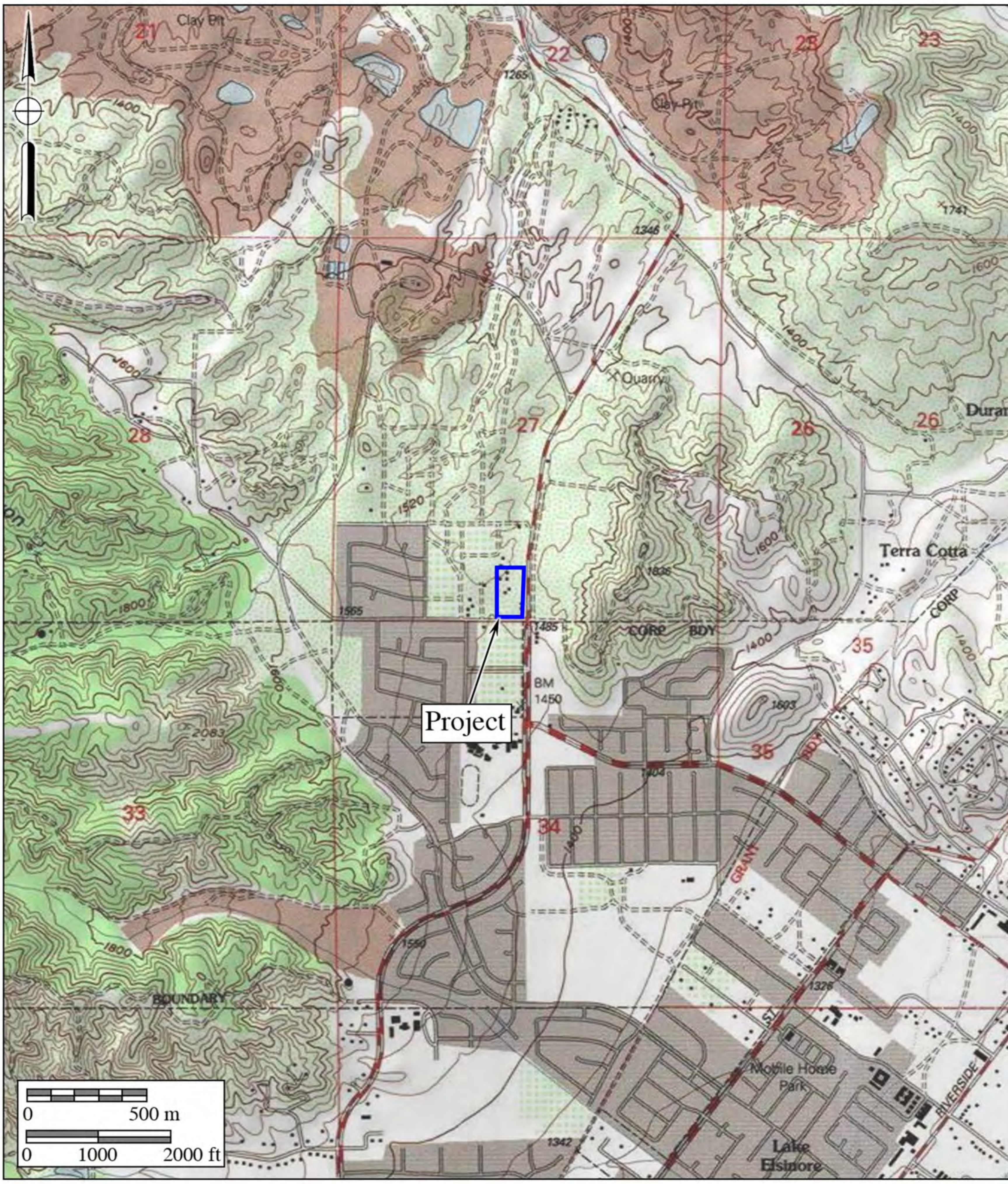

Figure 2.0–2

Project Location Map

The Commercial/Retail NWC Mountain and Lake Streets Project

USGS *Alberhill* Quadrangle (7.5-minute series)

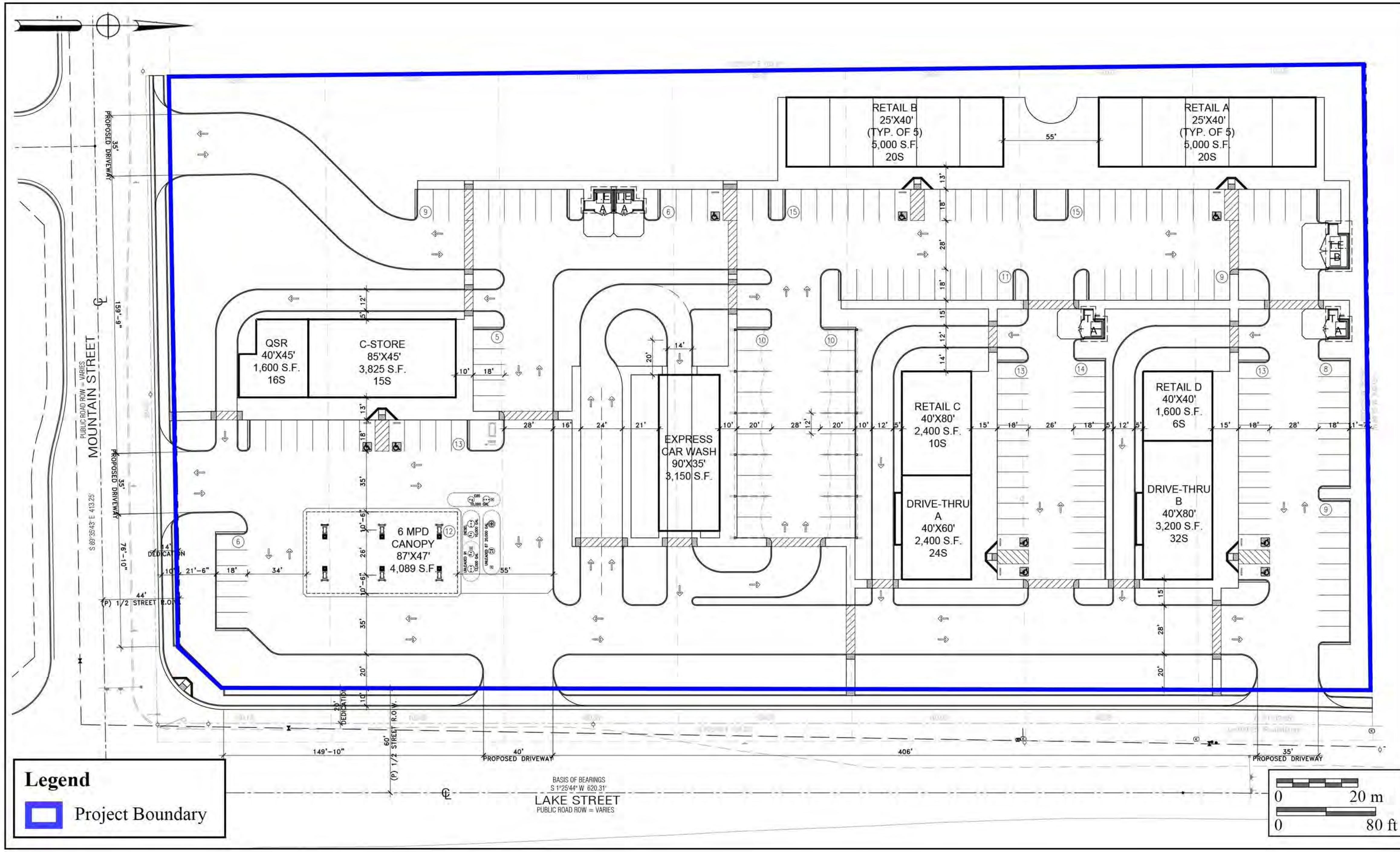

Figure 2.0–3

Conceptual Site Plan

The Commercial/Retail NWC Mountain and Lake Streets Project

2.2 Project Setting

Riverside County lies in the Peninsular Ranges Geologic Province of southern California. The range, which lies in a northwest to southeast trend through the county, extends some 1,000 miles from the Raymond-Malibu Fault Zone in western Los Angeles County to the southern tip of Baja California. The subject property is located just east of the foothill and the Santa Ana Mountains, west of Interstate 15, and between Alberhill and the city center of Lake Elsinore. Elevations within the project area range from approximately 1,485 to 1,520 feet above mean sea level (AMSL).

The subject property consists of seven parcels (APNs 389-030-012, -013, -014, -015, -016, -017, and -018). One parcel (APN 389-030-014), situated within the relative center of the project, is partially developed containing a residence and a prefabricated home. The parcels in the northern portion of the project (APNs 389-030-012 and -013) are not developed and vacant, while the remaining four parcels (APNs 389-030-015, -016, -017, and -018) in the southern portion of the project are characterized mainly as vacant cleared land that previously contained a rural residence. As such, vegetation within the project area mainly consists of non-native weeds and grasses. Pepper and eucalyptus trees are also found throughout the project, but mainly focused within the northern and southeastern portions of the subject property. Other introduced plants associated with the residential landscaping of APN 389-030-014 are also present. Approximately two thirds of the project has been disturbed.

Mammals within the region include mule deer (*Odocoileus hemionus*), coyote (*Canis latrans*), bobcat (*Lynx rufus*), mountain lion (*Puma concolor*), ground squirrel (*Otospermophilus beecheyi*), and quail (*Dipodomys*); birds include hawks and eagles (Falconidae), owls (Tytonidae), mourning dove (*Zenaida macroura*), mockingbird (*Mimus polyglottos*), jay (*Garrulus glandarius*), heron (*Ardeidae*), crow (*Corvus*), finch (*Fringillidae*), and sparrow (*Passer domesticus*).

During the prehistoric period, vegetation near the project provided sufficient food resources to support prehistoric human occupants. Animals that inhabited the project during prehistoric times included mammals such as rabbits, squirrels, gophers, mice, rats, deer, and coyotes, in addition to a variety of reptiles and amphibians. The natural setting of the project during the prehistoric occupation offered a rich nutritional resource base. Fresh water was likely obtainable from creeks located within nearby canyons, Temescal Wash, as well as Lake Elsinore. Historically, the property likely contained the same plant and animal species that are present today

2.3 Cultural Setting

Paleo Indian, Archaic Period Milling Stone Horizon, and the Late Prehistoric Takic groups are the three general cultural periods represented in Riverside County. The following discussion of the cultural history of Riverside County references the San Dieguito Complex, Encinitas Tradition, Milling Stone Horizon, La Jolla Complex, Pauma Complex, and San Luis Rey Complex, since these culture sequences have been used to describe archaeological manifestations in the region. The Late Prehistoric component present in the Riverside County area was represented by the Cahuilla, Gabrielino, and Luiseño Indians.

Absolute chronological information, where possible, will be incorporated into this discussion to examine the effectiveness of continuing to interchangeably use these terms. Reference will be made to the geological framework that divides the culture chronology of the area into four segments: the late Pleistocene (20,000 to 10,000 YBP [years before the present]), the early Holocene (10,000 to 6,650 YBP), the middle Holocene (6,650 to 3,350 YBP), and the late Holocene (3,350 to 200 YBP).

2.3.1 Paleo Indian Period (Late Pleistocene: 11,500 to circa 9,000 YBP)

The Paleo Indian Period is associated with the terminus of the late Pleistocene (12,000 to 10,000 YBP). The environment during the late Pleistocene was cool and moist, which allowed for glaciation in the mountains and the formation of deep, pluvial lakes in the deserts and basin lands (Moratto 1984). However, by the terminus of the late Pleistocene, the climate became warmer, which caused the glaciers to melt, sea levels to rise, greater coastal erosion, large lakes to recede and evaporate, extinction of Pleistocene megafauna, and major vegetation changes (Moratto 1984; Martin 1967, 1973; Fagan 1991). The coastal shoreline at 10,000 YBP, depending upon the particular area of the coast, was near the 30-meter isobath, or two to six kilometers further west than its present location (Masters 1983).

Paleo Indians were likely attracted to multiple habitat types, including mountains, marshlands, estuaries, and lakeshores. These people likely subsisted using a more generalized hunting, gathering, and collecting adaptation utilizing a variety of resources including birds, mollusks, and both large and small mammals (Erlandson and Colten 1991; Moratto 1984; Moss and Erlandson 1995).

2.3.2 Archaic Period (Early and Middle Holocene: circa 9,000 to 1,300 YBP)

Between 9,000 and 8,000 YBP, a widespread complex was established in the southern California region, primarily along the coast (Warren and True 1961). This complex is locally known as the La Jolla Complex (Rogers 1939; Moriarty 1966), which is regionally associated with the Encinitas Tradition (Warren 1968) and shares cultural components with the widespread Milling Stone Horizon (Wallace 1955). The coastal expression of this complex appeared in the southern California coastal areas and focused upon coastal resources and the development of deeply stratified shell middens that were primarily located around bays and lagoons. The older sites associated with this expression are located at Topanga Canyon, Newport Bay, Agua Hedionda Lagoon, and some of the Channel Islands. Radiocarbon dates from sites attributed to this complex span a period of over 7,000 years in this region, beginning over 9,000 YBP.

The Encinitas Tradition is best recognized for its pattern of large coastal sites characterized by shell middens, grinding tools that are closely associated with the marine resources of the area, cobble-based tools, and flexed human burials (Shumway et al. 1961; Smith and Moriarty 1985). While ground stone tools and scrapers are the most recognized tool types, coastal Encinitas

Tradition sites also contain numerous utilized flakes, which may have been used to pry open shellfish. Artifact assemblages at coastal sites indicate a subsistence pattern focused upon shellfish collection and nearshore fishing. This suggests an incipient maritime adaptation with regional similarities to more northern sites of the same period (Koerper et al. 1986). Other artifacts associated with Encinitas Tradition sites include stone bowls, doughnut stones, discoidals, stone balls, and stone, bone, and shell beads.

The coastal lagoons in southern California supported large Milling Stone Horizon populations circa 6,000 YBP, as is shown by numerous radiocarbon dates from the many sites adjacent to the lagoons. The ensuing millennia were not stable environmentally, and by 3,000 YBP, many of the coastal sites in central San Diego County had been abandoned (Gallegos 1987, 1992). The abandonment of the area is usually attributed to the sedimentation of coastal lagoons and the resulting deterioration of fish and mollusk habitat, which is a well-documented situation at Batiquitos Lagoon (Miller 1966; Gallegos 1987). Over a two-thousand-year period at Batiquitos Lagoon, dominant mollusk species occurring in archaeological middens shift from deep-water mollusks (*Argopecten* sp.) to species tolerant of tidal flat conditions (*Chione* sp.), indicating water depth and temperature changes (Miller 1966; Gallegos 1987).

This situation likely occurred for other small drainages (Buena Vista, Agua Hedionda, San Marcos, and Escondido creeks) along the central San Diego coast where low flow rates did not produce sufficient discharge to flush the lagoons they fed (Buena Vista, Agua Hedionda, Batiquitos, and San Elijo lagoons) (Byrd 1998). Drainages along the northern and southern San Diego coastline were larger and flushed the coastal hydrological features they fed, keeping them open to the ocean and allowing for continued human exploitation (Byrd 1998). Peñasquitos Lagoon exhibits dates as late as 2,355 YBP (Smith and Moriarty 1985) and San Diego Bay showed continuous occupation until the close of the Milling Stone Horizon (Gallegos and Kyle 1988). Additionally, data from several drainages in Camp Pendleton indicate a continued occupation of shell midden sites until the close of the period, indicating that coastal sites were not entirely abandoned during this time (Byrd 1998).

By 5,000 YBP, an inland expression of the La Jolla Complex is evident in the archaeological record, exhibiting influences from the Campbell Tradition from the north. These inland Milling Stone Horizon sites have been termed "Pauma Complex" (True 1958; Warren et al. 1961; Meighan 1954). By definition, Pauma Complex sites share a predominance of grinding implements (manos and metates), lack mollusk remains, have greater tool variety (including atlatl dart points, quarry-based tools, and crescentics), and seem to express a more sedentary lifestyle with a subsistence economy based upon the use of a broad variety of terrestrial resources. Although originally viewed as a separate culture from the coastal La Jolla Complex (True 1980), it appears that these inland sites may be part of a subsistence and settlement system utilized by the coastal peoples. Evidence from the 4S Project in inland San Diego County suggests that these inland sites may represent seasonal components within an annual subsistence round by La Jolla Complex populations (Raven-Jennings et al. 1996). Including both coastal and inland sites of this time period in discussions of the Encinitas Tradition, therefore, provides a more complete appraisal of the settlement and subsistence system exhibited by this cultural complex.

More recent work by Sutton has identified a more localized complex known as the Greven Knoll Complex. The Greven Knoll Complex is a redefined northern inland expression of the Encinitas Tradition first put forth by Mark Sutton and Jill Gardener (2010). Sutton and Gardener (2010:25) state that "[t]he early millingstone archaeological record in the northern portion of the interior southern California was not formally named but was often referred to as 'Inland Millingstone,' 'Encinitas,' or even 'Topanga.'" Therefore, they proposed that all expressions of the inland Milling Stone in southern California north of San Diego County be grouped together in the Greven Knoll Complex.

The Greven Knoll Complex, as postulated by Sutton and Gardener (2010), is broken into three phases and obtained its name from the type-site Greven Knoll located in Yucaipa, California. Presently, the Greven Knoll Site is part of the Yukaipa't Site (SBR-1000) and was combined with the adjacent Simpson Site. Excavations at Greven Knoll recovered manos, metates, projectile points, discoidal cogged stones, and a flexed inhumation with a possible cremation (Kowta 1969:39). It is believed that the Greven Knoll Site was occupied between 5,000 and 3,500 YBP. The Simpson Site contained mortars, pestles, side-notched points, and stone and shell beads. Based upon the data recovered at these sites, Kowta (1969:39) suggested that "coastal Milling Stone Complexes extended to and interdigitated with the desert Pinto Basin Complex in the vicinity of the Cajon Pass."

Phase I of the Greven Knoll Complex is generally dominated by the presence of manos and metates, core tools, hammerstones, large dart points, flexed inhumations, and occasional cremations. Mortars and pestles are absent from this early phase, and the subsistence economy emphasized hunting. Sutton and Gardener (2010:26) propose that the similarity of the material culture of Greven Knoll Phase I and that found in the Mojave Desert at Pinto Period sites indicates that the Greven Knoll Complex was influenced by neighbors to the north at that time. Accordingly, Sutton and Gardener (2010) believe that Greven Knoll Phase I may have appeared as early as 9,400 YBP and lasted until about 4,000 YBP.

Greven Knoll Phase II is associated with a period between 4,000 and 3,000 YBP. Artifacts common to Greven Knoll Phase II include manos and metates, Elko points, core tools, and discoidals. Pestles and mortars are present; however, they are only represented in small numbers. Finally, there is an emphasis upon hunting and gathering for subsistence (Sutton and Gardener 2010:8).

Greven Knoll Phase III includes manos, metates, Elko points, scraper planes, choppers, hammerstones, and discoidals. Again, small numbers of mortars and pestles are present. Greven Knoll Phase III spans from approximately 3,000 to 1,000 YBP and shows a reliance upon seeds and yucca. Hunting is still important, but bones seem to have been processed to obtain bone grease more often in this later phase (Sutton and Gardener 2010:8).

The shifts in food processing technologies during each of these phases indicate a change in subsistence strategies; although people were still hunting for large game, plant-based foods eventually became the primary dietary resource (Sutton 2011a). Sutton's (2011b) argument posits that the development of mortars and pestles during the middle Holocene can be attributed to the year-round exploitation of acorns as a main dietary provision. Additionally, the warmer and drier climate may have been responsible for groups from the east moving toward coastal populations, which is archaeologically represented by the interchange of coastal and eastern cultural traits (Sutton 2011a).

2.3.3 Late Prehistoric Period (Late Holocene: 1,300 YBP to 1790)

Many Luiseño hold the world view that as a population they were created in southern California; however, archaeological and anthropological data proposes a scientific perspective. Archaeological and anthropological evidence suggests that at approximately 1,350 YBP, Takic-speaking groups from the Great Basin region moved into Riverside County, marking the transition to the Late Prehistoric Period. An analysis of the Takic expansion by Sutton (2009) indicates that inland southern California was occupied by "proto-Yuman" populations before 1,000 YBP. The comprehensive, multi-phase model offered by Sutton (2009) employs linguistic, ethnographic, archaeological, and biological data to solidify a reasonable argument for population replacement of Takic groups to the north by Penutians (Laylander 1985). As a result, it is believed that Takic expansion occurred starting around 3,500 YBP moving toward southern California, with the Gabrielino language diffusing south into neighboring Yuman (Hokan) groups around 1,500 to 1,000 YBP, possibly resulting in the Luiseño dialect.

Based upon Sutton's model, the final Takic expansion would not have occurred until about 1,000 YBP, resulting in Vanyume, Serrano, Cahuilla, and Cupeño dialects. The model suggests that the Luiseño did not simply replace Hokan speakers, but were rather a northern San Diego County/southern Riverside County Yuman population who adopted the Takic language. This period is characterized by higher population densities and elaborations in social, political, and technological systems. Economic systems diversified and intensified during this period with the continued elaboration of trade networks, the use of shell-bead currency, and the appearance of more labor-intensive, yet effective, technological innovations. Technological developments during this period included the introduction of the bow and arrow between A.D. 400 and 600 and the introduction of ceramics. Atlatl darts were replaced by smaller arrow darts, including Cottonwood series points. Other hallmarks of the Late Prehistoric Period include extensive trade networks as far-reaching as the Colorado River Basin and cremation of the dead.

2.3.4 Protohistoric Period (Late Holocene: 1790 to Present)

Ethnohistoric and ethnographic evidence indicates that three Takic-speaking groups occupied portions of Riverside County: the Cahuilla, the Gabrielino, and the Luiseño. The geographic boundaries between these groups in pre- and proto-historic times are difficult to place, but the project is located well within the borders of ethnographic Luiseño territory. This group was a seasonal hunting and gathering people with cultural elements that were very distinct from Archaic Period peoples. These distinctions include cremation of the dead, the use of the bow and arrow, and exploitation of the acorn as a main food staple (Moratto 1984). Along the coast, the Luiseño made use of available marine resources by fishing and collecting mollusks for food. Seasonally available terrestrial resources, including acorns and game, were also sources of nourishment for Luiseño groups. Elaborate kinship and clan systems between the Luiseño and other groups facilitated a wide-reaching trade network that included trade of Obsidian Butte obsidian and other resources from the eastern deserts, as well as steatite from the Channel Islands.

According to Charles Handley (1967), the primary settlements of Late Prehistoric Luiseño Indians in the San Jacinto Plain were represented by Ivah and Soboba near Soboba Springs, Jusipah near the town of San Jacinto, Ararah in Webster's Canyon en route to Idyllwild, Pahsitha near Big Springs Ranch southeast of Hemet, and Corova in Castillo Canyon. These locations share features such as the availability of food and water resources. Features of this land use include petroglyphs and pictographs, as well as widespread milling, which is evident in bedrock and portable implements. Groups in the vicinity of the project, neighboring the Luiseño, include the Cahuilla and the Gabrielino. Ethnographic data for the three groups is presented below.

<u>*Luiseño*</u>

When contacted by the Spanish in the sixteenth century, the Luiseño occupied a territory bounded on the west by the Pacific Ocean, on the east by the Peninsular Ranges mountains at San Jacinto (including Palomar Mountain to the south and Santiago Peak to the north), on the south by Agua Hedionda Lagoon, and on the north by Aliso Creek in present-day San Juan Capistrano. The Luiseño were a Takic-speaking people more closely related linguistically and ethnographically to the Cahuilla, Gabrielino, and Cupeño to the north and east rather than the Kumeyaay who occupied territory to the south. The Luiseño differed from their neighboring Takic speakers in having an extensive proliferation of social statuses, a system of ruling families that provided ethnic cohesion within the territory, a distinct worldview that stemmed from the use of *datura* (a hallucinogen), and an elaborate religion that included the creation of sacred sand paintings depicting the deity *Chingichngish* (Bean and Shipek 1978; Kroeber 1976).

Subsistence and Settlement

The Luiseño occupied sedentary villages most often located in sheltered areas in valley bottoms, along streams, or along coastal strands near mountain ranges. Villages were located near water sources to facilitate acorn leaching and in areas that offered thermal and defensive protection. Villages were composed of areas that were publicly and privately (by family) owned. Publicly owned areas included trails, temporary campsites, hunting areas, and quarry sites. Inland groups had fishing and gathering sites along the coast that were used intensively from January to March when inland food resources were scarce. During October and November, most of the village would relocate to mountain oak groves to harvest acorns. The Luiseño remained at village sites for the remainder of the year, where food resources were within a day's travel (Bean and Shipek 1978; Kroeber 1976).

The most important food source for the Luiseño was the acorn, six different species of which were used (*Quercus californica, Quercus agrifolia, Quercus chrysolepis, Quercus dumosa, Quercus engelmannii,* and *Quercus wislizenii*). Seeds, particularly of grasses, composites, and mints, were also heavily exploited. Seed-bearing species were encouraged through controlled burns, which were conducted at least every third year. A variety of other stems, leaves, shoots, bulbs, roots, and fruits were also collected. Hunting augmented this vegetal diet. Animal species taken included deer, rabbit, hare, woodrat, ground squirrel, antelope, quail, duck, freshwater fish from mountain streams, marine mammals, and other sea creatures such as fish, crustaceans, and mollusks (particularly abalone, or *Haliotis* sp.). In addition, a variety of snakes, small birds, and rodents were eaten (Bean and Shipek 1978; Kroeber 1976).

Social Organization

Social groups within the Luiseño nation consisted of patrilinear families or clans, which were politically and economically autonomous. Several clans comprised a religious party, or *nota,* which was headed by a chief who organized ceremonies and controlled economics and warfare. The chief had assistants who specialized in particular aspects of ceremonial or environmental knowledge and who, with the chief, were part of a religion-based social group with special access to supernatural power, particularly that of *Chingichngish*. The positions of chief and assistants were hereditary, and the complexity and multiplicity of these specialists' roles likely increased in coastal and larger inland villages (Bean and Shipek 1978; Kroeber 1976; Strong 1929).

Marriages were arranged by the parents, often made to forge alliances between lineages. Useful alliances included those between groups of differing ecological niches and those that resulted in territorial expansion. Residence was patrilocal (Bean and Shipek 1978; Kroeber 1976). Women were primarily responsible for plant gathering, and men principally hunted, although at times, particularly during acorn and marine mollusk harvests, there was no division of labor. Elderly women cared for children and elderly men participated in rituals, ceremonies, and political affairs. They were also responsible for manufacturing hunting and ritual implements. Children were taught subsistence skills at the earliest age possible (Bean and Shipek 1978; Kroeber 1976).

Material Culture

House structures were conical, partially subterranean, and thatched with reeds, brush, or bark. Ramadas were rectangular, protected workplaces for domestic chores such as cooking. Ceremonial sweathouses were important in purification rituals; these were round and partially subterranean thatched structures covered with a layer of mud. Another ceremonial structure was the *wámkis* (located in the center of the village, serving as the place of rituals), where sand paintings and other rituals associated with the *Chingichngish* religious group were performed (Bean and Shipek 1978; Kroeber 1976).

Clothing was minimal; women wore a cedar-bark and netted twine double apron and men wore a waist cord. In cold weather, cloaks or robes of rabbit fur, deerskin, or sea otter fur were worn by both sexes. Footwear included deerskin moccasins and sandals fashioned from yucca fibers. Adornments included bead necklaces and pendants made of bone, clay, stone, shell, bear claw, mica, deer hooves, and abalone shell. Men wore ear and nose piercings made from cane or bone, which were sometimes decorated with beads. Other adornments were commonly decorated with semiprecious stones including quartz, topaz, garnet, opal, opalite, agate, and jasper (Bean and Shipek 1978; Kroeber 1976).

Hunting implements included the bow and arrow. Arrows were tipped with either a carved, fire-hardened wooden tip or a lithic point, usually fashioned from locally available metavolcanic material or quartz. Throwing sticks fashioned from wood were used in hunting small game, while deer head decoys were used during deer hunts. Coastal groups fashioned dugout canoes for nearshore fishing and harvested fish with seines, nets, traps, and hooks made of bone or abalone shell (Bean and Shipek 1978; Kroeber 1976).

The Luiseño had a well-developed basket industry. Baskets were used in resource gathering, food preparation, storage, and food serving. Ceramic containers were shaped by paddle and anvil and fired in shallow, open pits to be used for food storage, cooking, and serving. Other utensils included wood implements, steatite bowls, and ground stone manos, metates, mortars, and pestles (Bean and Shipek 1978; Kroeber 1976). Additional tools such as knives, scrapers, choppers, awls, and drills were also used. Shamanistic items include soapstone or clay smoking pipes and crystals made of quartz or tourmaline (Bean and Shipek 1978; Kroeber 1976).

<u>Cahuilla</u>

At the time of Spanish contact in the sixteenth century, the Cahuilla occupied territory that included the San Bernardino Mountains, Orocopia Mountain, and the Chocolate Mountains to the west, Salton Sea and Borrego Springs to the south, Palomar Mountain and Lake Mathews to the west, and the Santa Ana River to the north. The Cahuilla are a Takic-speaking people closely related to their Gabrielino and Luiseño neighbors, although relations with the Gabrielino were more intense than with the Luiseño. They differ from the Luiseño and Gabrielino in that their religion is more similar to the Mohave tribes of the eastern deserts than the *Chingichngish* religious group of the Luiseño and Gabrielino. The following is a summary of ethnographic data regarding this group (Bean 1978; Kroeber 1976).

Subsistence and Settlement

Cahuilla villages were typically permanent and located on low terraces within canyons in proximity to water sources. These locations proved to be rich in food resources and also afforded protection from prevailing winds. Villages had areas that were publicly owned and areas that were privately owned by clans, families, or individuals. Each village was associated with a particular lineage and series of sacred sites that included unique petroglyphs and pictographs. Villages were occupied throughout the year; however, during a several-week period in the fall, most of the village members relocated to mountain oak groves to take part in acorn harvesting (Bean 1978; Kroeber 1976).

The Cahuilla's use of plant resources is well documented. Plant foods harvested by the Cahuilla included valley oak acorns and single-leaf pinyon pine nuts. Other important plant species included bean and screw mesquite, agave, Mohave yucca, cacti, palm, chia, quail brush, yellowray goldfield, goosefoot, manzanita, catsclaw, desert lily, mariposa lily, and a number of other species such as grass seed. A number of agricultural domesticates were acquired from the Colorado River tribes including corn, bean, squash, and melon grown in limited amounts. Animal species taken included deer, bighorn sheep, pronghorn antelope, rabbit, hare, rat, quail, dove, duck, roadrunner, and a variety of rodents, reptiles, fish, and insects (Bean 1978; Kroeber 1976).

Social Organization

The Cahuilla was not a political nation, but rather a cultural nationality with a common language. Two non-political, non-territorial patrimoieties were recognized, the Wildcats (túktem) and the Coyotes (ʔístam). Lineage and kinship were memorized at a young age among the Cahuilla, providing a backdrop for political relationships. Clans were composed of three to 10 lineages; each lineage owned a village site and specific resource areas. Lineages within a clan cooperated in subsistence activities, defense, and rituals (Bean 1978; Kroeber 1976).

A system of ceremonial hierarchy operated within each lineage. The hierarchy included the lineage leader, who was responsible for leading subsistence activities, guarding the sacred bundle, and negotiating with other lineage leaders in matters concerning land use, boundary disputes, marriage arrangements, trade, warfare, and ceremonies. The ceremonial assistant to the lineage leader was responsible for organizing ceremonies. A ceremonial singer possessed and performed songs at rituals and trained assistant singers. The shaman cured illnesses through supernatural powers, controlled natural phenomena, and was the guardian of ceremonies, keeping evil spirits away. The diviner was responsible for finding lost objects, telling future events, and locating game and other food resources. Doctors were usually older women who cured various ailments and illnesses with their knowledge of medicinal herbs. Finally, certain Cahuilla specialized as traders, who ranged as far west as Santa Catalina and as far east as the Gila River (Bean 1978; Kroeber 1976).

Marriages were arranged by parents from opposite moieties. When a child was born, an alliance formed between the families, which included frequent reciprocal exchanges. The Cahuilla kinship system extended to relatives within five generations. Important economic decisions, primarily the distribution of goods, operated within this kinship system (Bean 1978; Kroeber 1976).

Material Culture

Cahuilla houses were dome-shaped or rectangular, thatched structures. The home of the lineage leader was the largest, located near the ceremonial house with the best access to water. Other structures within the village included the men's sweathouse and granaries (Bean 1978; Kroeber 1976).

Cahuilla clothing, like other groups in the area, was minimal. Men typically wore a loincloth and sandals; women wore skirts made from mesquite bark, animal skin, or tules. Babies wore mesquite bark diapers. Rabbit skin cloaks were worn in cold weather (Bean 1978; Kroeber 1976).

Hunting implements included the bow and arrow, throwing sticks, and clubs. Grinding tools used in food processing included manos, metates, and wooden mortars. The Cahuilla were known to use long, wood, grinding implements to process mesquite beans; the mortar was typically a hollowed wooden log buried in the ground. Other tools included steatite arrow shaft straighteners (Bean 1978; Kroeber 1976).

Baskets were made from rush, deer grass, and skunkbrush. Different species and leaves were chosen for different colors in the basket design. Coiled-ware baskets were either flat (for plates, trays, or winnowing), bowl-shaped (for food serving), deep, inverted, and cone-shaped (for transporting), or rounded and flat-bottomed for storing utensils and personal items (Bean 1978; Kroeber 1976).

Cahuilla pottery was made from a thin, red-colored ceramic ware that was often painted and incised. Four basic vessel types are known for the Cahuilla: small-mouthed jars, cooking pots, bowls, and dishes. Additionally, smoking pipes and flutes were fashioned from ceramic (Bean 1978; Kroeber 1976).

<u>Gabrielino</u>

The territory of the Gabrielino at the time of Spanish contact covers much of present-day Los Angeles and Orange counties. The southern extent of this culture area is bounded by Aliso Creek, the eastern extent is located east of present-day San Bernardino along the Santa Ana River, the northern extent includes the San Fernando Valley, and the western extent includes portions of the Santa Monica Mountains. The Gabrielino also occupied several Channel Islands including Santa Barbara Island, Santa Catalina Island, San Nicholas Island, and San Clemente Island. Because of their access to certain resources, including a steatite source from Santa Catalina Island, this group was among the wealthiest and most populous aboriginal groups in all of southern California. Trade of materials and resources controlled by the Gabrielino extended as far north as the San Joaquin Valley, as far east as the Colorado River, and as far south as Baja California (Bean and Smith 1978; Kroeber 1976).

Subsistence and Settlement

The Gabrielino lived in permanent villages and smaller resource-gathering camps occupied at various times of the year depending upon the seasonality of the resource. Larger villages were comprised of several families or clans, while smaller, seasonal camps typically housed smaller family units. The coastal area between San Pedro and Topanga Canyon was the location of primary subsistence villages, while secondary sites were located near inland sage stands, oak groves, and pine forests. Permanent villages were located along rivers and streams and in sheltered areas along the coast. As previously mentioned, the Channel Islands were also the locations of relatively large settlements (Bean and Smith 1978; Kroeber 1976).

Resources procured along the coast and on the islands were primarily marine in nature and included tuna, swordfish, ray and shark, California sea lion, Stellar sea lion, harbor seal, northern elephant seal, sea otter, dolphin and porpoise, various waterfowl species, numerous fish species, purple sea urchin, and mollusks, such as rock scallop, California mussel, and limpet. Inland resources included oak acorn, pine nut, Mohave yucca, cacti, sage, grass nut, deer, rabbit, hare, rodent, quail, duck, and a variety of reptiles such as western pond turtle and numerous snake species (Bean and Smith 1978; Kroeber 1976).

Social Organization

The social structure of the Gabrielino is little known; however, there appears to have been at least three social classes: 1) the elite, which included the rich, chiefs, and their immediate family; 2) a middle class, which included people of relatively high economic status or long-established lineages; and 3) a class of people that included most other individuals in the society. Villages were politically autonomous units comprised of several lineages. During times of the year when certain seasonal resources were available, the village would divide into lineage groups and move out to exploit them, returning to the village between forays (Bean and Smith 1978; Kroeber 1976).

Each lineage had its own leader, with the village chief coming from the dominant lineage. Several villages might be allied under a paramount chief. Chiefly positions were of an ascribed status, most often passed to the eldest son. Chiefly duties included providing village cohesion, leading warfare and peace negotiations with other groups, collecting tribute from the village(s) under his jurisdiction, and arbitrating disputes within the village(s). The status of the chief was legitimized by his safekeeping of the sacred bundle, a representation of the link between the material and spiritual realms and the embodiment of power (Bean and Smith 1978; Kroeber 1976).

Shamans were leaders in the spirit realm. The duties of the shaman included conducting healing and curing ceremonies, guarding the sacred bundle, locating lost items, identifying and collecting poisons for arrows, and making rain (Bean and Smith 1978; Kroeber 1976).

Marriages were made between individuals of equal social status and, in the case of powerful lineages, marriages were arranged to establish political ties between the lineages (Bean and Smith 1978; Kroeber 1976).

Men conducted the majority of the heavy labor, hunting, fishing, and trading with other groups. Women's duties included gathering and preparing plant and animal resources, and making baskets, pots, and clothing (Bean and Smith 1978; Kroeber 1976).

Material Culture

Gabrielino houses were domed, circular structures made of thatched vegetation. Houses varied in size and could house from one to several families. Sweathouses (semicircular, earth-covered buildings) were public structures used in male social ceremonies. Other structures included menstrual huts and a ceremonial structure called a *yuvar*, an open-air structure built near the chief's house (Bean and Smith 1978; Kroeber 1976).

Clothing was minimal; men and children most often went naked, while women wore deerskin or bark aprons. In cold weather, deerskin, rabbit fur, or bird skin (with feathers intact) cloaks were worn. Island and coastal groups used sea otter fur for cloaks. In areas of rough terrain, yucca fiber sandals were worn. Women often used red ochre on their faces and skin for adornment or protection from the sun. Adornment items included feathers, fur, shells, and beads (Bean and Smith 1978; Kroeber 1976).

Hunting implements included wooden clubs, sinew-backed bows, slings, and throwing clubs. Maritime implements included rafts, harpoons, spears, hook and line, and nets. A variety of other tools included deer scapulae saws, bone and shell needles, bone awls, scrapers, bone or shell flakers, wedges, stone knives and drills, metates, mullers, manos, shell spoons, bark platters, and wooden paddles and bowls. Baskets were made from rush, deer grass, and skunkbush. Baskets were fashioned for hoppers, plates, trays, and winnowers for leaching, straining, and gathering. Baskets were also used for storing, preparing, and serving food, and for keeping personal and ceremonial items (Bean and Smith 1978; Kroeber 1976).

The Gabrielino had exclusive access to soapstone, or steatite, procured from Santa Catalina Island quarries. This highly prized material was used for making pipes, animal carvings, ritual objects, ornaments, and cooking utensils. The Gabrielino profited well from trading steatite since it was valued so much by groups throughout southern California (Bean and Smith 1978; Kroeber 1976).

2.3.5 Ethnohistoric Period (1769 to Present)

European exploration along the California coast began in 1542 with the landing of Juan Rodriguez Cabrillo and his men at San Diego Bay. Sixty years after the Cabrillo expeditions, an expedition under Sebastian Viscaíno made an extensive and thorough exploration of the Pacific coast. Although the voyage did not extend beyond the northern limits of the Cabrillo track, Viscaíno had the most lasting effect on the nomenclature of the coast. Many of the names he gave to various locations have survived, whereas practically every one of the names given by Cabrillo has faded from use. For instance, Cabrillo gave the name "San Miguel" to the first port he stopped at in what is now the United States; 60 years later, Viscaíno changed it to "San Diego" (Rolle 1969). The early European voyages observed Native Americans living in villages along the coast but did not make any substantial, long-lasting impact. At the time of contact, the Luiseño population was estimated to have ranged from 4,000 to as many as 10,000 individuals (Bean and Shipek 1978; Kroeber 1976).

2.3.6 Historic Period

The historic background of the project area began with the Spanish colonization of Alta California. The first Spanish colonizing expedition reached southern California in 1769 with the intention of converting and civilizing the indigenous populations, as well as expanding the knowledge of and access to new resources in the region (Brigandi 1998). In the late eighteenth century, the San Gabriel (Los Angeles County), San Juan Capistrano (Orange County), and San Luis Rey (San Diego County) missions began colonizing southern California and gradually expanded their use of the interior valley (into what is now western Riverside County) for raising grain and cattle to support the missions (Riverside County n.d.). The San Gabriel Mission claimed lands in what is now Jurupa, Riverside, San Jacinto, and the San Gorgonio Pass, while the San Luis Rey Mission claimed land in what is now Lake Elsinore, Temecula, and Murrieta (American Local History Network: Riverside County, California 1998). The indigenous groups who occupied these lands were recruited by missionaries, converted, and put to work in the missions (Pourade 1964). Throughout this period, the Native American populations were decimated by introduced diseases, a drastic shift in diet resulting in poor nutrition, and social conflicts due to the introduction of an entirely new social order (Cook 1976).

In the mid- to late 1770s, Juan Bautista de Anza passed through much of Riverside County while searching for an overland route from Sonora, Mexico to San Gabriel and Los Angeles, describing fertile valleys, lakes, and sub-desert areas (American Local History Network: Riverside County, California 1998; Riverside County n.d.). In 1797, Father Presidente Lausen, Father Norberto de Santiago, and Corporal Pedro Lisalde led an expedition from Mission San Juan Capistrano through southwestern Riverside County in search of a new mission site before constructing Mission San Luis Rey in northern San Diego County (Brigandi 1998). While no missions were ever built in what would become Riverside County (American Local History Network: Riverside County, California 1998), many mission outposts, or *asistencias,* were established in the early years of the nineteenth century to extend the missions' influence to the backcountry (Brigandi 1998). Two outposts located in Riverside County include San Jacinto and Temecula.

Mexico gained independence in 1822 and desecularized the missions in 1832, signifying the end of the Mission Period (Brigandi 1998; Riverside County n.d.). By this time, the missions owned some of the best and most fertile land in southern California. In order for California to develop, the land would have to be made productive enough to turn a profit (Brigandi 1998). The new government began distributing the vast mission holdings to wealthy and politically connected Mexican citizens. The "grants" were called "ranchos," of which Jurupa, El Rincon, La Sierra, El Sobrante de San Jacinto, La Laguna (Lake Elsinore), Santa Rosa, Temecula, Pauba, San Jacinto Nuevo y Potrero, and San Jacinto Viejo were located in present-day Riverside County. Many of these ranchos have lent their names to modern-day locales (American Local History Network: Riverside County, California 1998). The first grant in present-day Riverside County, Rancho Jurupa, was given to Juan Bandini in 1838. These ranchos were all located in the valley environments typical of western Riverside County.

The treatment of Native Americans grew worse during the Rancho Period. Most of the Native Americans were forced off of their land or put to work on the now privately-owned ranchos, most often as slave labor. In light of the brutal ranchos, the degree to which Native Americans had become dependent upon the mission system is evident when, in 1838, a group of Native Americans from the San Luis Rey Mission petitioned government officials in San Diego to relieve suffering at the hands of the rancheros:

> We have suffered incalculable losses, for some of which we are in part to be blamed for because many of us have abandoned the Mission … We plead and beseech you … to grant us a Rev. Father for this place. We have been accustomed to the Rev. Fathers and to their manner of managing the duties. We labored under their intelligent directions, and we were obedient to the Fathers according to the regulations, because we considered it as good for us. (Brigandi 1998:21)

Native American culture had been disrupted to the point where they could no longer rely upon prehistoric subsistence and social patterns. Not only does this illustrate how dependent the Native Americans had become upon the missionaries, but it also indicates a marked contrast in the way the Spanish treated the Native Americans compared to the Mexican and United States ranchers. Spanish colonialism (missions) is based upon utilizing human resources while integrating them into their society. The Mexican and American ranchers did not accept Native Americans into their social order and used them specifically for the extraction of labor, resources, and profit. Rather than being incorporated, they were either subjugated or exterminated (Cook 1976).

In 1846, war erupted between Mexico and the United States. In 1848, with the signing of the Treaty of Guadalupe Hidalgo, the region was annexed as a territory of the United States, leading to California became a state in 1850. These events generated a steady flow of settlers into the area, including gold miners, entrepreneurs, health-seekers, speculators, politicians, adventurers, seekers of religious freedom, and individuals desiring to create utopian colonies.

In early 1852, the Native Americans of southern Riverside County, including the Luiseño and the Cahuilla, thought they had signed a treaty resulting in their ownership of all lands from Temecula to Aguanga east to the desert, including the San Jacinto Valley and the San Gorgonio Pass. The Temecula Treaty also included food and clothing provisions for the Native Americans. However, Congress never ratified the treaties, and the promise of one large reservation was rescinded (Brigandi 1998).

With the completion of the transcontinental railroad in 1869, land speculators, developers, and colonists began to invest in southern California. The first colony in what was to become Riverside County was Riverside itself. Judge John Wesley North, an abolitionist from Tennessee, brought a group of associates and co-investors out to southern California and founded Riverside on part of the Jurupa Rancho. A few years after, the navel orange was planted and found to be such a success that it quickly became the agricultural staple of the region (American Local History Network: Riverside County, California 1998).

By the late 1880s and early 1890s, there was growing discontent between Riverside and San Bernardino, its neighbor 10 miles to the north, due to differences in opinion concerning religion, morality, the Civil War, politics, and fierce competition to attract settlers. After a series of instances in which charges were claimed about unfair use of tax monies to the benefit of the city of only San Bernardino, several people from Riverside decided to investigate the possibility of a new county. In May 1893, voters living within portions of San Bernardino County (to the north) and San Diego County (to the south) approved the formation of Riverside County. Early business opportunities were linked to the agriculture industry, but commerce, construction, manufacturing, transportation, and tourism also provided a healthy local economy. By the time of Riverside County's formation, Riverside had grown to become the wealthiest city per capita in the country due to the successful cultivation of the navel orange (American Local History Network: Riverside County, California 1998; Riverside County n.d.).

History of the Lake Elsinore Area

The project is most influenced by the development of the Lake Elsinore region. The region's history is tied to travel, mining, and tourism. A branch of the Southern Emigrant Road or "Old Emigrant Road" is present just east of the project on the 1880 Bureau of Land Management (BLM) General Land Office (GLO) plat map of the region. The Old Emigrant Road and various branches have served as important routes throughout the twentieth century by a succession of modern transportation ways, including the Santa Fe Railroad, the old Highway 71, and Interstate 15 (Tang et al. 2008). The main branch of road was located about two miles north and was among one of the most traveled gateways through the region during the nineteenth century especially in the 1850s when it was selected by John Butterfield's Overland Mail Company as a stagecoach line. The branch of the trail near the project area became less utilized towards the end of the nineteenth century as a result of the Santa Fe Railroad's Alberhill spur along the main branch road to the north (Hudson 1978). As automobile travel became prevalent in twentieth century, the southern route was shifted a bit and labeled Highway 71 (now Lake Street). Highway 71 served as a major thoroughfare across the northern Elsinore Valley throughout the mid-twentieth century (Tang et al. 2008).

With the emergence of the railroad through the region in the 1880s, a steady stream of settlers, miners, and prospectors beagn to come into the area, thereby creating the community of Elsinore. By 1884, the developing town had a school and post office established, and in 1893, the town officially became recognized as the city of Elsinore. In the late nineteenth century, the region experienced a boom due to the mining of gold between Elsinore and nearby Perris. The most prosperous mine was Good Hope Mine, which produced over two-million dollars' worth of gold (Hudson 1978).

In addition to the mining of gold, the region is also known for the mining of tine ore, coal, clay, and asbestos. In 1887, the short-lived town of Lucerne was founded north of Elsinore and approximately one-half-mile southeast of the project (Gunther 1984). Lucerne was founded around the same time as another competing “town site” known as Terra Cotta City. Despite the name, Terra Cotta City was little more than a clay products manufacturing plant (Gunther 1984; Lerch et al. 2006). Both Lucerne and Terra Cotta City were founded by speculators hoping to develop the area as a result of the coal and slay mining industries beginning to take form during the late nineteenth century (Gunther 1984; Tang et al. 2008). However, the vision for the Lucerne town never materialized as the early twentieth century progressed.

In contrast to Lucerne, Alberhill to the north did experience boom with the construction of the Santa Fe Railroad spur through community in 1886 (Gunther 1984). In 1906, the California Fireproof Construction Company rebuilt and expanded the Terra Cotta City factory, but this endeavor only lasted about six years (Hudson 1978). In the 1915, Pacific Clay Products Company of Los Angeles acquired the Terra Cotta City factory as well as coal and clay properties in Alberhill (Gunther 1984). Terra Cotta City remained in operation until 1940 when all operations were consolidated to the Alberhill locations (Hudson 1978).

In addition to mining, the Lake Elsinore region began to bring in many tourists due to boat and auto racing and the lakefront resorts, and officially changed its name from Elsinore to Lake Elsinore in 1927 to better promote the destination. The earliest attraction of Lake Elsinore was the legendary Crescent Bathhouse, which was built in 1923. Historically, the Crescent Bathhouse attracted many Hollywood stars, such as Will Rodgers. The bathhouse was declared a National Historic Place on July 30, 1975 (Hudson 1978). In 1932, the Ortega Highway was opened, as well as the airport, continuing to bring people into the city. The Great Depression limited expansion, except for the completion of a new post office in 1932 (Hudson 1978).

2.4 Research Goals

The primary goal of the research design is to attempt to understand the way in which humans have used the land and resources within the project area through time, as well as to aid in the determination of resource significance. The scope of work for the archaeological program included the survey of approximately the project, review of two previously evaluated resources (P-33-007208 and P-33-017352) within the project, and assessment of any newly identified resources. Given the area involved and the narrow focus of the cultural resources study, the research design for this project was necessarily limited and general in nature. Since the main objective of the investigation was to identify the presence of cultural resources within the project, the research goal was not necessarily to answer wide-reaching theories regarding the development of early southern California, but to investigate the role and importance of the identified resource. Nevertheless, the assessment of the significance of a resource must take into consideration a variety of characteristics, as well as the ability of the resource to address regional research topics and issues.

Although initial site evaluation investigations are limited in terms of the amount of information available, several specific research questions were developed that could be used to guide the initial investigations of any observed cultural resources. The basic research effort employed for this project was focused upon the gathering of sufficient data regarding P-33-007208 and P-33-017352 to determine the boundaries of the resource and the overall integrity of the site. Recordation of the contents of the site would provide the basis to complete an analysis of spatial relationships of artifacts, features, and natural resources. This information ultimately forms the foundation to determine the period of use, site function, and potential to address more focused research questions. The following research questions take into account the size and location of the project area discussed above.

Research Questions:

- Can the historic artifacts provide data to determine the specific time period, population, or individual responsible for the historic scatter?
- Do the types of located cultural resources allow a site activity/function to be determined from a preliminary investigation?
- Is the historic site associated with any other historic sites in adjacent parcels?
- Do the artifacts from the site provide any information regarding the population who utilized the property?

Data Needs

At the survey level, the principle research objective is a generalized investigation of changing settlement patterns in both the prehistoric and historic periods within the study area. The overall goal is to understand settlement and resource procurement patterns of the project area occupants. Therefore, adequate information on site function, context, and chronology from an archaeological perspective is essential for the investigation. The fieldwork and archival research was undertaken with these primary research goals in mind:

1) To identify cultural resources occurring within the project area;
2) To determine, if possible, site type and function, context, and chronological placement of each cultural resource identified;
3) To place each cultural resource identified within a regional perspective; and
4) To provide recommendations for the treatment of each of the cultural resources identified.

3.0 METHODOLOGY

The cultural resources program for the project consisted of an institutional records search, an intensive pedestrian survey of the approximately six-acre project, review of two previously evaluated resources (P-33-007208 and P-33-017352) within the project, the assessment of any newly identified resources, and the preparation of a technical study. This archaeological study conformed to City of Lake Elsinore guidelines and the statutory requirements of CEQA and subsequent legislation (Section 15064.5). Specific definitions for archaeological resource type(s) used in this report are those established by the State Historic Preservation Office (SHPO March, 1995).

3.1 Archaeological Records Search

The records search conducted by the EIC at UCR was reviewed for an area of one mile surrounding the project in order to determine the presence of any previously recorded sites. Results of the records search are provided in Appendix C and discussed in Section 4.1. The EIC also provided the standard review of the National Register of Historic Places and the Office of Historic Preservation Historic Property Directory. Land patent records, held by the BLM and accessible through the BLM GLO website, were also reviewed for pertinent project information. In addition, the BFSA research library was consulted for any relevant historical information.

3.2 Field Methodology

In accordance with City of Lake Elsinore CEQA review requirements, an intensive pedestrian reconnaissance was conducted that employed a series of parallel survey transects spaced at five-meter intervals to locate any cultural resources within the project. The archaeological survey of the project was conducted on September 10, 2019. The entire project area was covered by the survey process. Photographs were taken to document project conditions during the survey (see Section 4.2). Ground visibility throughout the property ranged from good within the southern half of the project to poor, as dense non-native vegetation and prior development obscured the natural ground surface within the northern half of the project. The survey resulted in the relocation of two previously studied cultural resources (P-33-007208 and P-33-017352), both of which have previously been evaluated as not eligible for the CRHR (Tang et al. 2008; Tang 2008). In addition, a previously unidentified cistern associated with P-33-007208 was also located during the survey. All cultural resources located during the survey were recorded as necessary according to the Office of Historic Preservation's manual, *Instructions for Recording Historical Resources*, using DPR forms.

3.3 Report Preparation and Recordation

This report contains information regarding previous studies, statutory requirements for the project, a brief description of the setting, research methods employed, and the overall results of the survey. The report includes all appropriate illustrations and tabular information needed to make a complete and comprehensive presentation of these activities, including the methodologies employed and the personnel involved. A copy of this report will be placed at the EIC at UCR. Any newly recorded sites or sites requiring updated information will be recorded on the appropriate DPR site forms, which will be filed at the EIC.

3.4 Native American Consultation

BFSA requested a records search of the Sacred Lands File (SLF) by the Native American Heritage Commission (NAHC). The SLF search did not indicate the presence of any sacred sites or locations of religious or ceremonial importance within the search radius. Original correspondence is provided in Appendix D.

3.5 Applicable Regulations

Resource importance is assigned to districts, sites, buildings, structures, and objects that possess exceptional value or quality illustrating or interpreting the heritage of the Lake Elsinore area of Riverside County in history, architecture, archaeology, engineering, and culture. A number of criteria are used in demonstrating resource importance. Specifically, criteria outlined in CEQA provide the guidance for making such a determination. The following sections detail the CEQA criteria that a resource must meet in order to be determined important.

3.5.1 California Environmental Quality Act

According to CEQA (§15064.5a), the term "historical resource" includes the following:

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 (Public Resources 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 of 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 or 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 (Public Resources Code SS5024.1, Title 14, 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 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 Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code Section 5020.1(j) or 5024.1.

According to CEQA (§15064.5b), a project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. CEQA defines a substantial adverse change as:

1) Substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired.
2) The significance of an historical resource is materially impaired when a project:

a) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or
b) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, unless the public agency

reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or,

c) Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.

Section 15064.5(c) of CEQA applies to effects on archaeological sites and contains the following additional provisions regarding archaeological sites:

1) When a project will impact an archaeological site, a lead agency shall first determine whether the site is an historical resource, as defined in subsection (a).
2) If a lead agency determines that the archaeological site is an historical resource, it shall refer to the provisions of Section 21084.1 of the Public Resources Code, Section 15126.4 of the guidelines, and the limits contained in Section 21083.2 of the Public Resources Code do not apply.
3) If an archaeological site does not meet the criteria defined in subsection (a), but does meet the definition of a unique archaeological resource in Section 21083.2 of the Public Resources Code, the site shall be treated in accordance with the provisions of Section 21083.2. The time and cost limitations described in Public Resources Code Section 21083.2 (c-f) do not apply to surveys and site evaluation activities intended to determine whether the project location contains unique archaeological resources.
4) If an archaeological resource is neither a unique archaeological nor historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment. It shall be sufficient that both the resource and the effect on it are noted in the Initial Study or EIR, if one is prepared to address impacts on other resources, but they need not be considered further in the CEQA process.

Section 15064.5 (d) and (e) contain additional provisions regarding human remains. Regarding Native American human remains, paragraph (d) provides:

(d) When an initial study identifies the existence of, or the probable likelihood, of Native American human remains within the project, a lead agency shall work with the appropriate Native Americans as identified by the NAHC as provided in Public Resources Code SS5097.98. The applicant may develop an agreement for treating or disposing of, with appropriate dignity, the human remains and any items associated with Native American burials with the appropriate Native Americans as identified by the NAHC. Action implementing such an agreement is exempt from:

1) The general prohibition on disinterring, disturbing, or removing human remains from any location other than a dedicated cemetery (Health and Safety Code Section 7050.5).
2) The requirement of CEQA and the Coastal Act.

4.0 RESULTS

4.1 Records Search Results

An archaeological records search for the project and the surrounding area within a one-mile radius was conducted by the EIC at UCR. In total, the record search identified 20 resources within a mile of the project. Two of the previously recorded resources are located within the subject property (P-33-007208 and P-33-017352) (Tang et al. 2008; Tang 2008).

Site P-33-007208 was first recorded as a historic single-family residence (28993 Lake Street) in 1982 by Pat Meredith as part of a large county-wide inventory of historic structures. Meredith estimated a construction date of 1902 and only recorded the main residence within APN 389-030-018. At that time, the residence was in disrepair and was evaluated as not eligible for the CRHR (Meredith 2008). In 2006, a study conducted by Statistical Research, Inc. (SRI) for the construction of a new electrical substation briefly discussed the resource (Lerch et al 2006). SRI noted that they were unable to access the property, and therefore, they were unable to field check the presence of the structure during their study. As such, they recommended that if the resource was to be impacted in the future, a formal evaluation of the residence should be completed to determine whether it is eligible for either the CRHR or the National Register of Historic Places (NRHP) (Lerch et al. 2006).

In 2008, CRM Tech revisited the originally recorded location of P-33-007208 and noted that the residence had been demolished (Tang et al. 2008). Property-specific research revealed that a permit was issued by the City of Lake Elsinore in 2004 to demolish the residence at 28993 Lake Street (P-33-007208); as such, the residence had been demolished even before the SRI study (Tang et al. 2008; Tang 2008). However, during the CRM Tech study in 2008, three ancillary features described as two-story water tower, a concrete lined pit, and a brick outdoor chimney were identified (Tang et al. 2008). Both the chimney and pit were identified within in the southeast corner of the project (APN 389-030-018), generally within the location where the residence was located, while the water tower was noted approximately 350 feet to the northwest (APN 389-030-015) along the property line with the neighboring parcel (APN 389-030-014). Although the original 1902 residence had been demolished, CRM Tech researched the ownership of the property and evaluated all of the ancillary features, concluding that the site was not eligible for the CRHR (Tang et al. 2008; Tang 2008).

Site P-33-017352 is a 1931 residence (28915 Lake Street) located within the relative center of the project (APN 389-030-014). The residence was documented, researched, and evaluated by CRM Tech in 2008 and found ineligible for the CRHR (Tang et al. 2008; Tang 2008). CRM Tech also noted the presence of the modern (1976) prefabricated home at 28915 Lake Street, but did not evaluate the building further, as the residence does not meet the age threshold to be considered a historic resource (Tang et al. 2008).

Of the remaining 18 resources identified by the records search, 12 are prehistoric and six are historic. The prehistoric sites consist of four bedrock milling sites (two with associated midden soils and/or artifact scatters), one artifact scatter with an associated midden soil, five lithic scatters, and one isolate. The remaining historic resources consist of a railroad, a ranch complex, a trash scatter, a residence, a barn, and the potential Alberhill historic district. Brief descriptions of all 20 previously recorded resources located within one mile of the project area are provided in Table 4.1–1 and the complete records search results are provided in Appendix C.

Table 4.1–1

Cultural Resources Located Within One Mile of the
Commercial/Retail NWC Mountain and Lake Streets Project

Site(s)	Description
RIV-5306 and RIV-5307	Prehistoric bedrock milling site
RIV-4664	Prehistoric bedrock milling site with an associated artifact scatter and midden
RIV-5782	Prehistoric bedrock milling site with an associated artifact scatter
RIV-1311	Prehistoric artifact scatter with associated midden
RIV-3408, RIV-4665, RIV-4666 RIV-4667, and RIV-5783	Prehistoric lithic scatter
P-33-012335	Prehistoric isolate
RIV-3832H	Historic railroad
RIV-4320	Historic ranch complex
RIV-5785H	Historic trash scatter
P-33-007168 and P-33-017352*	Historic residence
P-33-007169	Historic barn
P-33-007208*	Historic residence and ancillary structures
P-33-012336	Historic isolate
P-33-017016	Historic Alberhill district (potential)

**Located within the current project*

The records search also indicated that there have been 25 cultural resource studies conducted within a one-mile radius of the proposed project (Table 4.1–2). The results from the records search indicated that four of these previous studies included the current project (Lerch and Gray 2006; Lerch et al. 2006; Tang et al. 2008; Tang 2008). The Lerch and Gray 2006 study consisted of a long linear transmission line study. As such, the study only included the eastern boundary of the subject property and does not specifically address the current project or resources within it.

The three remaining studies (Lerch et al. 2006; Tang et al. 2008; Tang 2008) do address resources within the current project. The SRI study consisted of a survey of 14 non-contiguous parcels in the Terra Cotta area of north Lake Elsinore for the siting efforts of an electrical substation (Lerch et al. 2006). Although the current project area is listed within the study as a candidate location, SRI did not survey the property due to access issues (Lerch et al. 2006). Therefore, SRI was never able to field check the status of Site P-33-007208, which is the reason the structure's demolishment in 2004 was not noted.

As noted above, CRM Tech conducted archival research for the project acreage and an evaluation of sites P-33-017352 and P-33-007208 in 2008 (Tang et al. 2008; Tang 2008). Both CRM Tech studies reference the same project, with the later report (Tang 2008) prepared as an addendum to clarify the noted discrepancies between the demolition of P-33-007208 in 2004 and ambiguous references to the structure still being present within the SRI study (Lerch et al. 2006). The findings of the CRM Tech study are briefly summarized below, and both studies can be found in Appendix E of this report.

Based on archival research, CRM Tech established that P-33-017352 was constructed on APN 389-030-018 in 1931. At that time, Anna Schuster owned the parcel. Schuster owned the parcel until Roderick and Esther DeMille acquired the parcel in 1956. CRM Tech found that the building was originally an 11x20-foot residence (Tang et al. 2006). CRM Tech identified multiple additions and modifications to the residence throughout the twentieth century. The original structure was mainly constructed out of 12x12-inch concrete blocks. However, the gable, as well as some of the additions, contained bricks stamped "Alberhill LABPC Co," which were manufactured locally by Pacific Clay Products Company (Tang et al. 2008). Due to the extensive modifications to the residence over time, the historic building sustained a general loss of integrity design, materials, workmanship, and feeling. CRM Tech found the residence not eligible for the CRHR as it was not associated with any significant historical event or individual, not architecturally significant, and archival research had exhausted the structures research potential.

In addition to P-33-017352, a modern prefabricated home and two wood sheds were also noted by CRM Tech within the same parcel. However, the County of Riverside Assessor's records indicated that all of the additional structures were constructed after 1976 and therefore were not old enough to qualify as a historical resource (Tang et al. 2008; Tang 2008).

Site P-33-007208 was expanded by CRM Tech through the discovery of three ancillary features (Tang et al. 2008; Tang 2008). The water tower was described as a dilapidated two-story wood frame building containing a modern metal water tank on the second level. The chimney feature was identified as a "crumbling" outdoor cooking facility with several bricks stamped "LAPB Co.," which were produced by the Los Angeles Pressed Brick Company's Alberhill Plant No. 4 between 1916 and 1925 (Tang et al. 2008). The concrete-lined pit located approximately 10 feet north of the chimney was described as a small foundation, possibly for a smoker or other associated structure.

Based on GLO records, the original owner of APNs 389-030-015, -016, -017, and -018 was Jared R. Mushrush, who acquired the property along with the entire southwest quarter of Section 27 through a homestead claim (GLO Doc Number 2555). CRM Tech noted that the County Assessor's records do not indicate any improvements to the parcels before 1932 when A.P.

Bergeron owned the parcels. Further, CRM Tech indicated that, although the 28993 Lake Street residence (P-33-007208) was recorded as a being constructed around 1902 (Meredith 1982), historic maps do not show any structures within the parcels until 1939 (Tang et al. 2008). However, a review of historic USGS maps by BFSA indicated that the residence can be seen on the 1901 *Elsinore* 60' USGS quadrangle map (Figure 4.1–1). Therefore, it is likely that the residence recorded as P-33-007208 was constructed in the late nineteenth century, as the 1901 *Elsinore* map was prepared through surveys conducted between 1897 and 1898. As such, the initial construction coincides with the time Mushrush acquired the parcels.

Bergeron owned the parcels until 1941, when they were sold to Anna and Sam Schuster, who also owned 28915 Lake Street (APN 389-030-018). The Schusters sold the parcels to R. Malazacher in 1944. Based on the archival research, the parcels were sold multiple times in the 1950s before Lillian Hemmitt acquired it in 1957. Hemmitt held onto the parcels until at least 1981, as she is listed as the owner on the original site form completed by Meredith. CRM Tech was unable to establish the construction of the ancillary features they identified in 2008 (Tang et al. 2008). However, CRM Tech did note the archival records indicated that between 1932 and 1950, the assessed value of improvements on the parcels rose from $180 to $1,450 (Tang et al 2008). CRM Tech concluded that with the demolition of the main residence in 2004, the ancillary features had lost most of their historic ties to the original complex, as well as any potential collective significance. Further, CRM Tech found P-33-007208 as ineligible for the CRHR, as the ancillary features were not associated with any significant historical event or individual and not architecturally significant, and archival research had exhausted the resource's research potential.

The EIC also reviewed the following historic sources:

- The NRHP Index
- The OHP, Archaeological Determinations of Eligibility (ADOE)
- The OHP, Directory of Properties in the Historic Property Data (HPD) File

Site P-33-007208 is listed within the HPD File as "7N: Needs to be reevaluated."

BFSA also requested a records search of the SLF by the NAHC. The NAHC SLF search was negative for the presence of Native American cultural resources within the project. Original correspondence is provided in Appendix D.

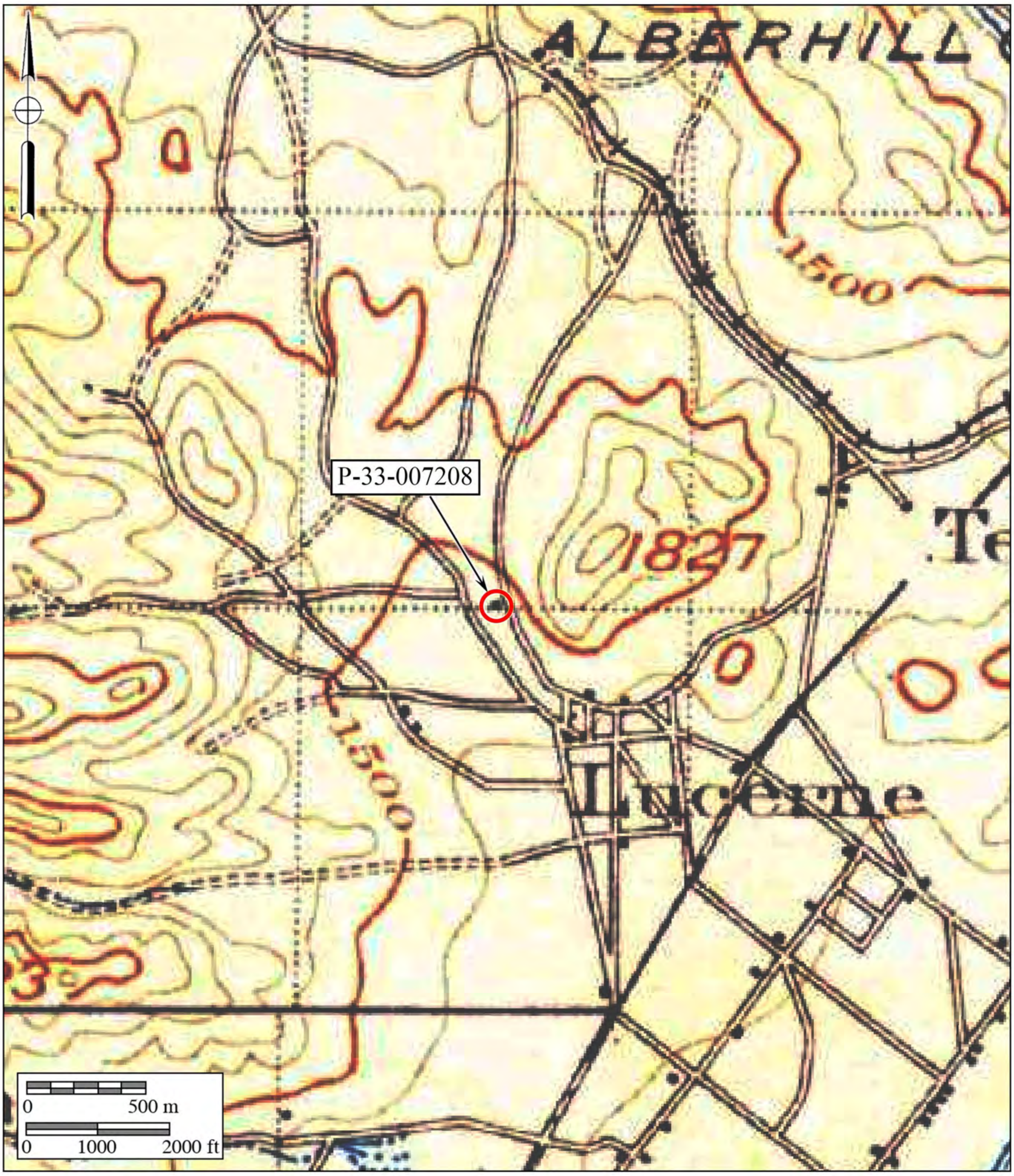

Figure 4.1–1

1901 USGS Map

The Commercial/Retail NWC Mountain and Lake Streets Project

USGS *Elsinore* Quadrangle (1:250,000 series)

4.2 Results of the Field Survey

The archaeological survey of the project was conducted on September 10, 2019. All elements of the survey were directed by Principal Investigator Brian F. Smith with assistance from Project Archaeologist Andrew Garrison. The archaeological survey of the property was an intensive reconnaissance consisting of a series of parallel survey transects spaced at approximately five-meter intervals. Recent aerial photographs available from Google Earth indicate the vacant portions of the project have repeatedly been cleared and disked. At the time of the survey, vegetation within the project mainly consisted of non-native weeds and grasses. Pepper and eucalyptus trees are also found throughout the project, but mainly focused within the northern and southeastern portions of the subject property. In general, the property can be separated into three sections – the northernmost two parcels (APNs 389-030-012 and -013), the center parcel (APN 389-030-014), and the southernmost four parcels (APNs 389-030-015, -016, -017, and -018). During the survey, both previously recorded resources (P-33-007208 and P-33-017352) were relocated (Figure 4.2–1).

In the northern portion of the project, APNs 389-030-012 and -013 are not developed and are currently vacant. The parcels are densely vegetated containing non-native weeds, grasses, and trees. Visibility of the natural ground surface was poor within this section as a result of the vegetation (Plates 4.2–1 and 4.2–2). Although currently vacant, historic aerial photographs show structures within this area during the mid- to late twentieth century. CRM Tech reported structures within this area as early as the 1950s. The 1967 aerial photograph shows three structures in this location; however, by the 1994 aerial photograph, all structures had been removed. No resources were identified within this northern section.

The center parcel, APN 389-030-014, is characterized as developed, containing the previously-studied 1931 single-family residence at 28915 Lake Street (P-33-017352), a modern prefabricated home, modern sheds, modern trash, and numerous trucks and autobmobiles (Plate 4.2–3 through 4.2–6). APN 389-030-014 is densely vegetated with non-native weeds and grasses, as well as some residential landscaping. Site P-33-017352 was relocated and appeared in a similar condition as described by CRM Tech (Tang et al. 2008). However, the 1931 residence has since been boarded up and is vacant (Plate 4.2–7 and 4.2–8). Due to dense vegetation, development, modern garbage, and the large number of automobiles parked within the parcel, visibility of the natural ground surface was poor. No new resources were identified within APN 389-030-014. As a result of the current study, an updated DPR form for the resource was completed and will be submitted to the EIC at UCR(Appendix B).

The four southern parcels, APNs 389-030-015 through -018, are currently vacant; however, APN 389-030-018 formerly contained the single-family residence originally recorded as Site P-33-007208 (Meredith 1982). Vegetation within this section consists primarily of non-native weeds and grasses throughout, as well as euclyptus and pepper trees mainly situated within the southeast corner of the project (Plates 4.2–9 and 4.2–10). Generally, visibility within this section was moderate to good as a result of recent clearing and disking of the property. All of the ancillary features were relocated and appeared in the same condition as previously described as CRM Tech (Plates 4.2–11 through 4.2–15).

During the survey, an unrecorded cistern was identified approximately 10 feet east of the outdoor chimney (Figure 4.2–2). Unfortunately, the ground surrounding the cistern was unstable, limiting access to the feature. Based on visual observation, the cistern appears to have been brick and stone lined and is approximately five to six feet in diameter. Currently, the cistern appeared to be cleared out, indicating it is unlikely that any concentration of artifacts is present. However, two isolated glass bottles were visible within the eastern side wall of the cistern alongside broken pieces of mortar (Plate 4.2–16). The bottles appear to be beer or alcohol bottles. As a result of the current study, an updated DPR form was completed and will be submitted to the EIC at UCR (Appendix B).

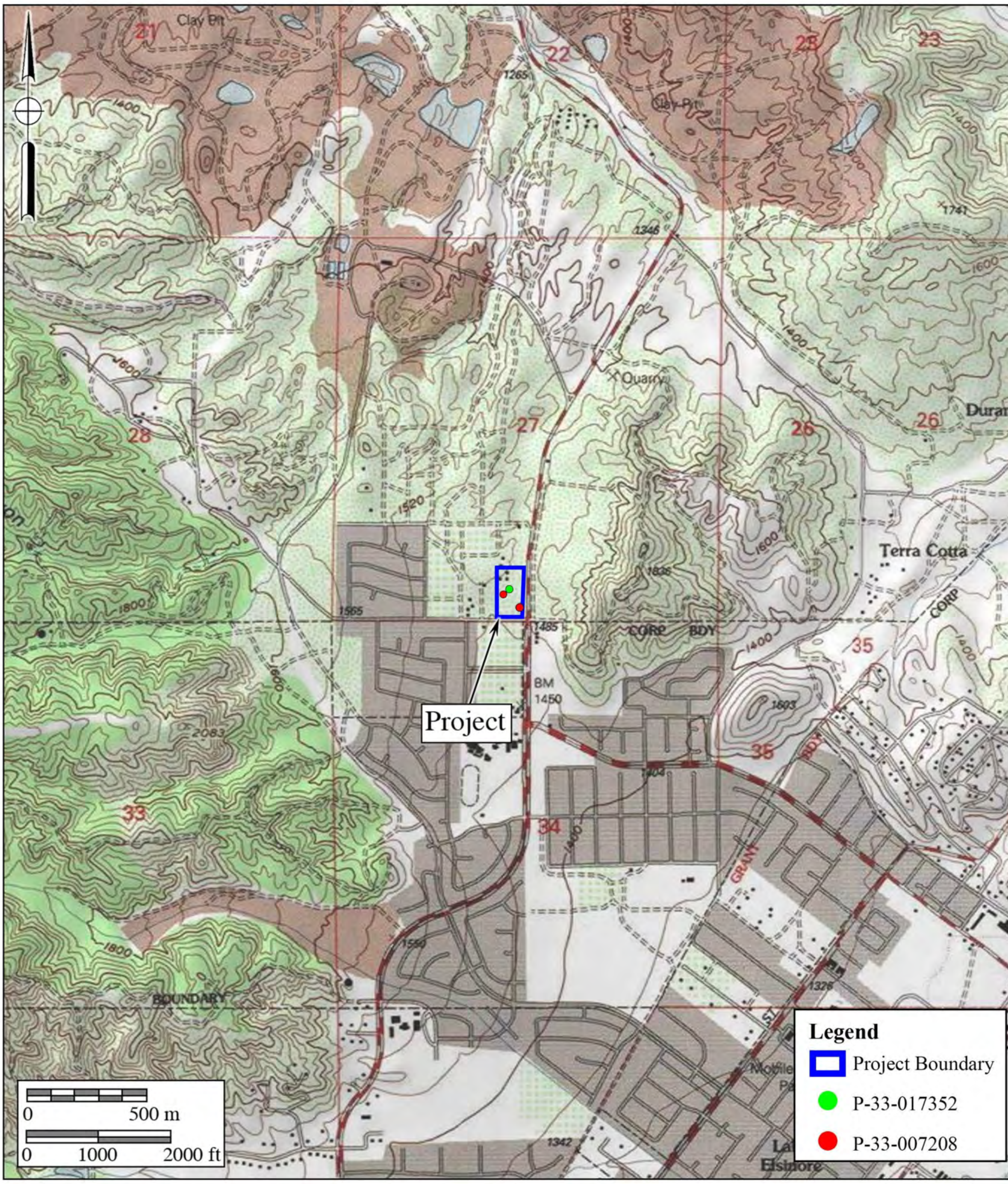

Figure 4.2–1

Cultural Resource Location Map

The Commercial/Retail NWC Mountain and Lake Streets Project

USGS *Alberhill* Quadrangle (7.5-minute series)

Plate 4.2–1

Overview of APN 389-030-012, Facing Southeast

The Commercial/Retail NWC Mountain and Lake Streets Project

Plate 4.2–2

Overview of APN 389-030-013, Facing Southeast

The Commercial/Retail NWC Mountain and Lake Streets Project

Plate 4.2–3

Overview of APN 389-030-014, Facing Northwest

The Commercial/Retail NWC Mountain and Lake Streets Project

Plate 4.2–4

Overview of APN 389-030-014, Facing North

The Commercial/Retail NWC Mountain and Lake Streets Project

Plate 4.2–5

Overview of a Modern Shed Within APN 389-030-014, Facing North

The Commercial/Retail NWC Mountain and Lake Streets Project

Plate 4.2–6

View of the 1976 Prefabricated Home Within APN 389-030-014, Facing West

The Commercial/Retail NWC Mountain and Lake Streets Project

Plate 4.2–7

View of the East Façade of the 1931
Single-Family Residence at Site P-33-017352, Facing West

The Commercial/Retail NWC Mountain and Lake Streets Project

Plate 4.2–8

Overview of the West Façade of the 1931 Single-Family Residence at Site P-33-0017352, Facing Southeast

The Commercial/Retail NWC Mountain and Lake Streets Project

Plate 4.2–9

Overview of APNs 389-030-015 through -018, Facing Northwest

The Commercial/Retail NWC Mountain and Lake Streets Project

Plate 4.2–10

Overview of APNs 389-030-015 through -018, Facing Southwest

The Commercial/Retail NWC Mountain and Lake Streets Project

Plate 4.2–11

View of the Chimney Feature at Site P-33-007208, Facing Southeast

The Commercial/Retail NWC Mountain and Lake Streets Project

Plate 4.2–12

View of the Chimney Feature at Site P-33-007208, Facing Northeast

The Commercial/Retail NWC Mountain and Lake Streets Project

Plate 4.2–13

Overview of the Concrete-Lined Pit Feature at Site P-33-007208, Facing Southeast

The Commercial/Retail NWC Mountain and Lake Streets Project

Plate 4.2–14

Overview of the East Façade of the Water Tower Feature at Site P-33-007208, Facing West

The Commercial/Retail NWC Mountain and Lake Streets Project

Plate 4.2–15

View of the Modern Water Tank in the Water Tower Feature at Site P-33-007208, Facing East

The Commercial/Retail NWC Mountain and Lake Streets Project

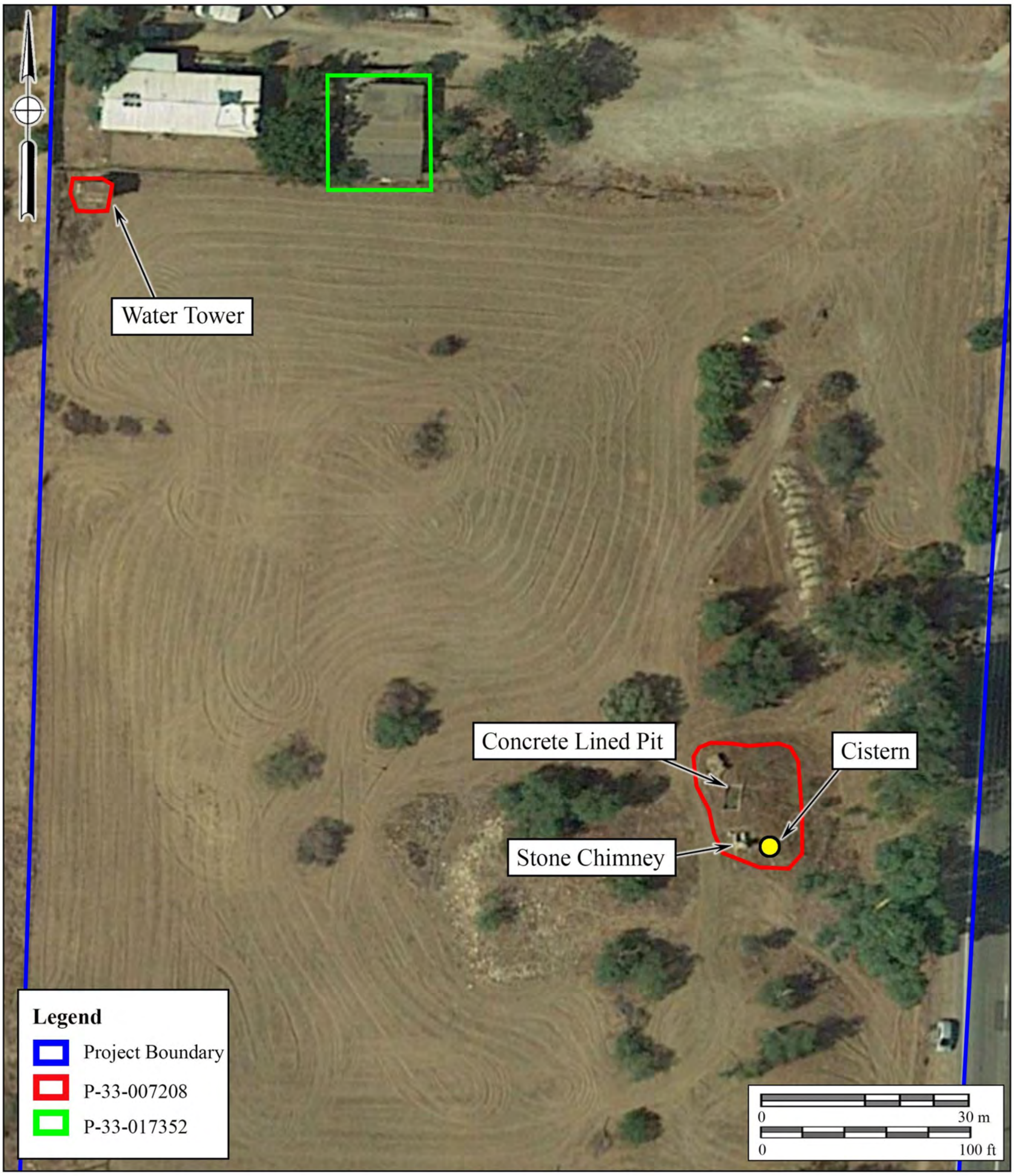

Figure 4.2–2

Feature Location Map

Site P-33-007208

The Commercial/Retail NWC Mountain and Lake Streets Project

Plate 4.2–16

View of the Cistern Feature at Site P-33-007208, Showing Bottles in the Eastern Side Wall

The Commercial/Retail NWC Mountain and Lake Streets Project

5.0 SIGNIFICANCE EVALUATION

The archaeological survey of the property and subsequent historic research has confirmed that the project contains elements of an early twentieth century rural homestead with various structures added to the compound over several decades. The historic structures were previously recorded and evaluated as not eligible to the CRHR. Although the current survey identified a cistern that had not been previously recorded, this addition did not affect the evaluation status of the historic sites. The two historic sites recorded within the project (P-33-007208 and P-33-017352) do not possess the level of integrity or association with historic events or locally important individuals to meet the significance criteria listed in CEQA. Therefore, no CEQA-significant or CRHR-eligible resources are present on this project. The recorded historic sites will be directly impacted by the approval of this project; however, these impacts will not be significant, as the affected resources are not significant.

6.0 RECOMMENDED MITIGATION

In accordance with CEQA and City of Lake Elsinore environmental guidelines, the potential impacts associated with the proposed development of the project were evaluated. No prehistoric resources were identified during the survey. However, the cultural resources study for the project was positive for the presence of historic cultural resources (P-33-007208 and P-33-017352). Both resources have previously been studied and evaluated as not eligible for the CRHR. No new information was discovered during the survey that would alter these previous evaluations. As such, both remain not eligible for the CRHR and are therefore not considered Historical Resources under CEQA criteria (Section 15064.5).

Although P-33-007208 and P-33-017352 are not be eligible for the CRHR, it is recommended that the project be conditioned with archaeological and Native American monitoring of all ground disturbing activities due to the potential to encounter buried historic features or archaeological deposits. Native American monitoring will not be necessary, because no prehistoric resources have been identified on or near the subject property. A cultural resources MMRP will be recommended as a condition of approval for this property. The scope of the MMRP is presented in Section 6.1.

6.1 Mitigation Monitoring

Monitoring during ground-disturbing activities, such as grading or trenching, by a qualified archaeologist is recommended to ensure that if buried historic features or deposits are present, they will be handled in a timely and proper manner. The scope of the monitoring program is provided below.

Mitigation Monitoring and Reporting Program

A MMRP to mitigate potential impacts to undiscovered, buried cultural resources within the project shall be implemented to the satisfaction of the lead agency. This program shall include, but not be limited to, the following actions:

1) Prior to issuance of a grading permit, the applicant shall provide written verification that a certified archaeologist has been retained to implement the monitoring program. This verification shall be presented in a letter from the project archaeologist to the lead agency.
2) The certified archaeologist shall attend the pre-grading meeting with the contractors to explain and coordinate the requirements of the monitoring program.
3) The historic cistern identified during the current archaeological survey shall be documented and removed under the direction of an archaeologist. Any associated artifacts exposed in association with the cistern shall be recorded and recovered. Information gathered through this process shall be presented within the final

monitoring report as outlined below.

4) During the original cutting of previously undisturbed deposits, the archaeological shall be on-site, as determined by the consulting archaeologist, to perform periodic inspections of the excavations. The frequency of inspections will depend upon the rate of excavation, the materials excavated, and the presence and abundance of artifacts and features. The consulting archaeologist shall have the authority to modify the monitoring program if the potential for cultural resources appears to be less than anticipated.
5) Isolates and clearly non-significant deposits will be minimally documented in the field so the monitored grading can proceed.
6) In the event that previously unidentified cultural resources are discovered, the archaeologist shall have the authority to divert or temporarily halt ground disturbance operation in the area of discovery to allow for the evaluation of potentially significant cultural resources. The archaeologist shall contact the lead agency at the time of discovery. The archaeologist, in consultation with the lead agency, shall determine the significance of the discovered resources. The lead agency must concur with the evaluation before construction activities will be allowed to resume in the affected area. For significant cultural resources, a Research Design and Data Recovery Program to mitigate impacts shall be prepared by the consulting archaeologist and approved by the lead agency before being carried out using professional archaeological methods.
7) Before construction activities are allowed to resume in the affected area, the artifacts shall be recovered and features recorded using professional archaeological methods. The project archaeologist shall determine the amount of material to be recovered for an adequate artifact sample for analysis.
8) All cultural material collected during the grading monitoring program shall be processed and curated according to the current professional repository standards. The collections and associated records shall be transferred, including title, to an appropriate curation facility, to be accompanied by payment of the fees necessary for permanent curation.
9) A report documenting the field and analysis results and interpreting the artifact and research data within the research context shall be completed and submitted to the satisfaction of the lead agency prior to the issuance of any building permits. The report will include DPR Primary and Archaeological Site Forms.
10) If any human remains are discovered, the county coroner and lead agency shall be contacted. In the event that the remains are determined to be of Native American origin, the Most Likely Descendant (MLD), as identified by the NAHC, shall be contacted in order to determine proper treatment and disposition of the remains.

7.0 CERTIFICATION

I hereby certify that the statements furnished above and in the attached exhibits present the data and information required for this archaeological report, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.

Brian F. Smith Principal Investigator	October 2, 2019 Date

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APPENDIX A

Qualifications of Key Personnel

Brian F. Smith, MA

Owner, Principal Investigator

Brian F. Smith and Associates, Inc.
14010 Poway Road • Suite A •
Phone: (858) 679-8218 • Fax: (858) 679-9896 • E-Mail: bsmith@bfsa-ca.com

Education

Master of Arts, History, University of San Diego, California **1982**

Bachelor of Arts, History, and Anthropology, University of San Diego, California **1975**

Professional Memberships

Society for California Archaeology

Experience

Principal Investigator **1977–Present**
Brian F. Smith and Associates, Inc. **Poway, California**

Brian F. Smith is the owner and principal historical and archaeological consultant for Brian F. Smith and Associates. Over the past 32 years, he has conducted over 2,500 cultural resource studies in California, Arizona, Nevada, Montana, and Texas. These studies include every possible aspect of archaeology from literature searches and large-scale surveys to intensive data recovery excavations. Reports prepared by Mr. Smith have been submitted to all facets of local, state, and federal review agencies, including the US Army Crops of Engineers, the Bureau of Land Management, the Bureau of Reclamation, the Department of Defense, and the Department of Homeland Security. In addition, Mr. Smith has conducted studies for utility companies (Sempra Energy) and state highway departments (CalTrans).

Professional Accomplishments

These selected major professional accomplishments represent research efforts that have added significantly to the body of knowledge concerning the prehistoric life ways of cultures once present in the Southern California area and historic settlement since the late 18th century. Mr. Smith has been principal investigator on the following select projects, except where noted.

Downtown San Diego Mitigation and Monitoring Reporting Programs: Large numbers of downtown San Diego mitigation and monitoring projects submitted to the Centre City Development Corporation, some of which included Strata (2008), Hotel Indigo (2008), Lofts at 707 10th Avenue Project (2007), Breeza (2007), Bayside at the Embarcadero (2007), Aria (2007), Icon (2007), Vantage Pointe (2007), Aperture (2007), Sapphire Tower (2007), Lofts at 655 Sixth Avenue (2007), Metrowork (2007), The Legend (2006), The Mark (2006), Smart Corner (2006), Lofts at 677 7th Avenue (2005), Aloft on Cortez Hill (2005), Front and

Beech Apartments (2003), Bella Via Condominiums (2003), Acqua Vista Residential Tower (2003), Northblock Lofts (2003), Westin Park Place Hotel (2001), Parkloft Apartment Complex (2001), Renaissance Park (2001), and Laurel Bay Apartments (2001).

Archaeology at the Padres Ballpark: Involved the analysis of historic resources within a seven-block area of the "East Village" area of San Diego, where occupation spanned a period from the 1870s to the 1940s. Over a period of two years, BFSA recovered over 200,000 artifacts and hundreds of pounds of metal, construction debris, unidentified broken glass, and wood. Collectively, the Ballpark Project and the other downtown mitigation and monitoring projects represent the largest historical archaeological program anywhere in the country in the past decade (2000-2007).

4S Ranch Archaeological and Historical Cultural Resources Study: Data recovery program consisted of the excavation of over 2,000 square meters of archaeological deposits that produced over one million artifacts, containing primarily prehistoric materials. The archaeological program at 4S Ranch is the largest archaeological study ever undertaken in the San Diego County area and has produced data that has exceeded expectations regarding the resolution of long-standing research questions and regional prehistoric settlement patterns.

Charles H. Brown Site: Attracted international attention to the discovery of evidence of the antiquity of man in North America. Site located in Mission Valley, in the city of San Diego.

Del Mar Man Site: Study of the now famous Early Man Site in Del Mar, California, for the San Diego Science Foundation and the San Diego Museum of Man, under the direction of Dr. Spencer Rogers and Dr. James R. Moriarty.

Old Town State Park Projects: Consulting Historical Archaeologist. Projects completed in the Old Town State Park involved development of individual lots for commercial enterprises. The projects completed in Old Town include Archaeological and Historical Site Assessment for the Great Wall Cafe (1992), Archaeological Study for the Old Town Commercial Project (1991), and Cultural Resources Site Survey at the Old San Diego Inn (1988).

Site W-20, Del Mar, California: A two-year-long investigation of a major prehistoric site in the Del Mar area of the city of San Diego. This research effort documented the earliest practice of religious/ceremonial activities in San Diego County (circa 6,000 years ago), facilitated the projection of major non-material aspects of the La Jolla Complex, and revealed the pattern of civilization at this site over a continuous period of 5,000 years. The report for the investigation included over 600 pages, with nearly 500,000 words of text, illustrations, maps, and photographs documenting this major study.

City of San Diego Reclaimed Water Distribution System: A cultural resource study of nearly 400 miles of pipeline in the city and county of San Diego.

Master Environmental Assessment Project, City of Poway: Conducted for the City of Poway to produce a complete inventory of all recorded historic and prehistoric properties within the city. The information was used in conjunction with the City's General Plan Update to produce a map matrix of the city showing areas of high, moderate, and low potential for the presence of cultural resources. The effort also included the development of the City's Cultural Resource Guidelines, which were adopted as City policy.

Draft of the City of Carlsbad Historical and Archaeological Guidelines: Contracted by the City of Carlsbad to produce the draft of the City's historical and archaeological guidelines for use by the Planning Department of the City.

The Mid-Bayfront Project for the City of Chula Vista: Involved a large expanse of undeveloped agricultural land situated between the railroad and San Diego Bay in the northwestern portion of the city. The study included the analysis of some potentially historic features and numerous prehistoric sites.

Cultural Resources Survey and Test of Sites Within the Proposed Development of the Audie Murphy Ranch, Riverside County, California: Project manager/director of the investigation of 1,113.4 acres and 43 sites, both prehistoric and historic—included project coordination; direction of field crews; evaluation of sites for significance based on County of Riverside and CEQA guidelines; assessment of cupule, pictograph, and rock shelter sites, co-authoring of cultural resources project report. February-September 2002.

Cultural Resources Evaluation of Sites Within the Proposed Development of the Otay Ranch Village 13 Project, San Diego County, California: Project manager/director of the investigation of 1,947 acres and 76 sites, both prehistoric and historic—included project coordination and budgeting; direction of field crews; assessment of sites for significance based on County of San Diego and CEQA guidelines; co-authoring of cultural resources project report. May-November 2002.

Cultural Resources Survey for the Remote Video Surveillance Project, El Centro Sector, Imperial County: Project manager/director for a survey of 29 individual sites near the U.S./Mexico Border for proposed video surveillance camera locations associated with the San Diego Border barrier Project—project coordination and budgeting; direction of field crews; site identification and recordation; assessment of potential impacts to cultural resources; meeting and coordinating with U.S. Army Corps of Engineers, U.S. Border Patrol, and other government agencies involved; co-authoring of cultural resources project report. January, February, and July 2002.

Cultural Resources Survey and Test of Sites Within the Proposed Development of the Menifee West GPA, Riverside County, California: Project manager/director of the investigation of nine sites, both prehistoric and historic—included project coordination and budgeting; direction of field crews; assessment of sites for significance based on County of Riverside and CEQA guidelines; historic research; co-authoring of cultural resources project report. January-March 2002.

Mitigation of An Archaic Cultural Resource for the Eastlake III Woods Project for the City of Chula Vista, California: Project archaeologist/ director—included direction of field crews; development and completion of data recovery program including collection of material for specialized faunal and botanical analyses; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; co-authoring of cultural resources project report, in prep. September 2001-March 2002.

Cultural Resources Survey and Test of Sites Within the Proposed French Valley Specific Plan/EIR, Riverside County, California: Project manager/director of the investigation of two prehistoric and three historic sites—included project coordination and budgeting; survey of project area; Native American consultation; direction of field crews; assessment of sites for significance based on CEQA guidelines; cultural resources project report in prep. July-August 2000.

Cultural Resources Survey and Test of Sites Within the Proposed Lawson Valley Project, San Diego County, California: Project manager/director of the investigation of 28 prehistoric and two historic sites—included project coordination; direction of field crews; assessment of sites for significance based on CEQA guidelines; cultural resources project report in prep. July-August 2000.

Cultural Resource Survey and Geotechnical Monitoring for the Mohyi Residence Project, La Jolla, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; field survey; assessment of parcel for potentially buried cultural deposits; monitoring of geotechnichal borings; authoring of cultural resources project report. Brian F. Smith and Associates, San Diego, California. June 2000.

Enhanced Cultural Resource Survey and Evaluation for the Prewitt/Schmucker/Cavadias Project, La Jolla, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; direction of field crews; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. June 2000.

Cultural Resources Survey and Test of Sites Within the Proposed Development of the Menifee Ranch, Riverside County, California: Project manager/director of the investigation of one prehistoric and five historic sites—included project coordination and budgeting; direction of field crews; feature recordation; historic structure assessments; assessment of sites for significance based on CEQA guidelines; historic research; co-authoring of cultural resources project report. February-June 2000.

Salvage Mitigation of a Portion of the San Diego Presidio Identified During Water Pipe Construction for the City of San Diego, California: Project archaeologist/director—included direction of field crews; development and completion of data recovery program; management of artifact collections cataloging and curation; data synthesis and authoring of cultural resources project report in prep. April 2000.

Enhanced Cultural Resource Survey and Evaluation for the Tyrian 3 Project, La Jolla, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. April 2000.

Enhanced Cultural Resource Survey and Evaluation for the Lamont 5 Project, Pacific Beach, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. April 2000.

Enhanced Cultural Resource Survey and Evaluation for the Reiss Residence Project, La Jolla, California: Project manager/director of the investigation of a single-dwelling parcel—included project coordination; assessment of parcel for potentially buried cultural deposits; authoring of cultural resources project report. March-April 2000.

Salvage Mitigation of a Portion of Site SDM-W-95 (CA-SDI-211) for the Poinsettia Shores Santalina Development Project and Caltrans, Carlsbad, California: Project achaeologist/ director—included direction of field crews; development and completion of data recovery program; management of artifact collections cataloging and curation; data synthesis and authoring of cultural resources project report in prep. December 1999-January 2000.

Survey and Testing of Two Prehistoric Cultural Resources for the Airway Truck Parking Project, Otay Mesa, California: Project archaeologist/director—included direction of field crews; development and completion of testing recovery program; assessment of site for significance based on CEQA guidelines; authoring of cultural resources project report, in prep. December 1999-January 2000.

Cultural Resources Phase I and II Investigations for the Tin Can Hill Segment of the Immigration and Naturalization Services Triple Fence Project Along the International Border, San Diego County, California: Project manager/director for a survey and testing of a prehistoric quarry site along the border—NRHP eligibility assessment; project coordination and budgeting; direction of field crews; feature recordation; meeting and coordinating with U.S. Army Corps of Engineers; co-authoring of cultural resources project report. December 1999-January 2000.

Mitigation of a Prehistoric Cultural Resource for the Westview High School Project for the City of San Diego, California: Project archaeologist/ director—included direction of field crews; development and completion of data recovery program including collection of material for specialized faunal and botanical analyses; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; co-authoring of cultural resources project report, in prep. October 1999-January 2000.

Mitigation of a Prehistoric Cultural Resource for the Otay Ranch SPA-One West Project for the City of Chula Vista, California: Project archaeologist/director—included direction of field crews; development of data recovery program; management of artifact collections cataloging and curation; assessment of site for significance based on CEQA guidelines; data synthesis; authoring of cultural resources project report, in prep. September 1999-January 2000.

Monitoring of Grading for the Herschel Place Project, La Jolla, California: Project archaeologist/ monitor—included monitoring of grading activities associated with the development of a single-dwelling parcel. September 1999.

Survey and Testing of a Historic Resource for the Osterkamp Development Project, Valley Center, California: Project archaeologist/ director—included direction of field crews; development and completion of data recovery program; budget development; assessment of site for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report. July-August 1999.

Survey and Testing of a Prehistoric Cultural Resource for the Proposed College Boulevard Alignment Project, Carlsbad, California: Project manager/director —included direction of field crews; development and completion of testing recovery program; assessment of site for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report, in prep. July-August 1999.

Survey and Evaluation of Cultural Resources for the Palomar Christian Conference Center Project, Palomar Mountain, California: Project archaeologist—included direction of field crews; assessment of sites for significance based on CEQA guidelines; management of artifact collections cataloging and curation; data synthesis; authoring of cultural resources project report. July-August 1999.

Survey and Evaluation of Cultural Resources at the Village 2 High School Site, Otay Ranch, City of Chula Vista, California: Project manager/director —management of artifact collections cataloging and curation; assessment of site for significance based on CEQA guidelines; data synthesis; authoring of cultural resources project report. July 1999.

Cultural Resources Phase I, II, and III Investigations for the Immigration and Naturalization Services Triple Fence Project Along the International Border, San Diego County, California: Project manager/director for the survey, testing, and mitigation of sites along border—supervision of multiple field crews, NRHP eligibility assessments, Native American consultation, contribution to Environmental Assessment document, lithic and marine shell analysis, authoring of cultural resources project report. August 1997-January 2000.

Phase I, II, and II Investigations for the Scripps Poway Parkway East Project, Poway California: Project archaeologist/project director—included recordation and assessment of multicomponent prehistoric and historic sites; direction of Phase II and III investigations; direction of laboratory analyses including prehistoric and historic collections; curation of collections; data synthesis; coauthorship of final cultural resources report. February 1994; March-September 1994; September-December 1995.

Archaeological Evaluation of Cultural Resources Within the Proposed Corridor for the San Elijo Water Reclamation System Project, San Elijo, California: Project manager/director —test excavations; direction of artifact identification and analysis; graphics production; coauthorship of final cultural resources report. December 1994-July 1995.

Evaluation of Cultural Resources for the Environmental Impact Report for the Rose Canyon Trunk Sewer Project, San Diego, California: Project manager/Director —direction of test excavations; identification and analysis of prehistoric and historic artifact collections; data synthesis; co-authorship of final cultural resources report, San Diego, California. June 1991-March 1992.

Reports/Papers

Author, coauthor, or contributor to over 2,500 cultural resources management publications, a selection of which are presented below.

2015 An Archaeological/Historical Study for the Safari Highlands Ranch Project, City of Escondido, County of San Diego.

2015 A Phase I and II Cultural Resources Assessment for the Decker Parcels II Project, Planning Case No. 36962, Riverside County, California.

2015 A Phase I and II Cultural Resources Assessment for the Decker Parcels I Project, Planning Case No. 36950, Riverside County, California.

2015 Cultural Resource Data Recovery and Mitigation Monitoring Program for Site SDI-10,237 Locus F, Everly Subdivision Project, El Cajon, California.

2015 Phase I Cultural Resource Survey for the Woodward Street Senior Housing Project, City of San Marcos, California (APN 218-120-31).

2015 An Updated Cultural Resource Survey for the Box Springs Project (TR 33410), APNs 255-230-010, 255-240-005, 255-240-006, and Portions of 257-180-004, 257-180-005, and 257-180-006.

2015 A Phase I and II Cultural Resource Report for the Lake Ranch Project, TR 36730, Riverside County, California.

2015 A Phase II Cultural Resource Assessment for the Munro Valley Solar Project, Inyo County, California.

2014 Cultural Resources Monitoring Report for the Diamond Valley Solar Project, Community of Winchester, County of Riverside.

2014 National Historic Preservation Act Section 106 Compliance for the Proposed Saddleback Estates Project, Riverside County, California.

2014 A Phase II Cultural Resource Evaluation Report for RIV-8137 at the Toscana Project, TR 36593, Riverside County, California.

2014 Cultural Resources Study for the Estates at Del Mar Project, City of Del Mar, San Diego, California (TTM 14-001).

2014 Cultural Resources Study for the Aliso Canyon Major Subdivision Project, Rancho Santa Fe, San Diego County, California.

2014 Cultural Resources Due Diligence Assessment of the Ocean Colony Project, City of Encinitas.

2014 A Phase I and Phase II Cultural Resource Assessment for the Citrus Heights II Project, TTM 36475, Riverside County, California.

2013 A Phase I Cultural Resource Assessment for the Modular Logistics Center, Moreno Valley, Riverside County, California.

2013 A Phase I Cultural Resources Survey of the Ivey Ranch Project, Thousand Palms, Riverside County, California.

2013 Cultural Resources Report for the Emerald Acres Project, Riverside County, California.

2013 A Cultural Resources Records Search and Review for the Pala Del Norte Conservation Bank Project, San Diego County, California.

2013 An Updated Phase I Cultural Resources Assessment for Tentative Tract Maps 36484 and 36485, Audie Murphy Ranch, City of Menifee, County of Riverside.

2013 El Centro Town Center Industrial Development Project (EDA Grant No. 07-01-06386); Result of Cultural Resource Monitoring.

2013 Cultural Resources Survey Report for the Renda Residence Project, 9521 La Jolla Farms Road, La Jolla, California.

2013 A Phase I Cultural Resource Study for the Ballpark Village Project, San Diego, California.

2013 Archaeological Monitoring and Mitigation Program, San Clemente Senior Housing Project, 2350 South El Camino Real, City of San Clemente, Orange County, California (CUP No. 06-065; APN-060-032-04).

2012 Mitigation Monitoring Report for the Los Peñasquitos Recycled Water Pipeline.

2012 Cultural Resources Report for Menifee Heights (Tract 32277).

2012 A Phase I Cultural Resource Study for the Altman Residence at 9696 La Jolla Farms Road, La Jolla, California 92037.

2012 Mission Ranch Project (TM 5290-1/MUP P87-036W3): Results of Cultural Resources Monitoring During Mass Grading.

2012 A Phase I Cultural Resource Study for the Payan Property Project, San Diego, California.

2012 Phase I Archaeological Survey of the Rieger Residence, 13707 Durango Drive, Del Mar, California 92014, APN 300-369-49.

2011 Mission Ranch Project (TM 5290-1/MUP P87-036W3): Results of Cultural Resources Monitoring During Mass Grading.

2011 Mitigation Monitoring Report for the 1887 Viking Way Project, La Jolla, California.

2011 Cultural Resource Monitoring Report for the Sewer Group 714 Project.

2011 Results of Archaeological Monitoring at the 10th Avenue Parking Lot Project, City of San Diego, California (APNs 534-194-02 and 03).

2011 Archaeological Survey of the Pelberg Residence for a Bulletin 560 Permit Application; 8335 Camino Del Oro; La Jolla, California 92037 APN 346-162-01-00 .

2011 A Cultural Resources Survey Update and Evaluation for the Robertson Ranch West Project and an Evaluation of National Register Eligibility of Archaeological sites for Sites for Section 106 Review (NHPA).

2011 Mitigation Monitoring Report for the 43rd and Logan Project.

2011 Mitigation Monitoring Report for the Sewer Group 682 M Project, City of San Diego Project #174116.

2011 A Phase I Cultural Resource Study for the Nooren Residence Project, 8001 Calle de la Plata, La Jolla, California, Project No. 226965.

2011 A Phase I Cultural Resource Study for the Keating Residence Project, 9633 La Jolla Farms Road, La Jolla, California 92037.

2010 Mitigation Monitoring Report for the 15th & Island Project, City of San Diego; APNs 535-365-01, 535-365-02 and 535-392-05 through 535-392-07.

2010 Archaeological Resource Report Form: Mitigation Monitoring of the Sewer and Water Group 772 Project, San Diego, California, W.O. Nos. 187861 and 178351.

2010 Pottery Canyon Site Archaeological Evaluation Project, City of San Diego, California, Contract No. H105126.

2010 Archaeological Resource Report Form: Mitigation Monitoring of the Racetrack View Drive Project, San Diego, California; Project No. 163216.

2010 A Historical Evaluation of Structures on the Butterfield Trails Property.

2010 Historic Archaeological Significance Evaluation of 1761 Haydn Drive, Encinitas, California (APN 260-276-07-00).

2010 Results of Archaeological Monitoring of the Heller/Nguyen Project, TPM 06-01, Poway, California.

2010 Cultural Resource Survey and Evaluation Program for the Sunday Drive Parcel Project, San Diego County, California, APN 189-281-14.

2010 Archaeological Resource Report Form: Mitigation Monitoring of the Emergency Garnet Avenue Storm Drain Replacement Project, San Diego, California, Project No. B10062

2010 An Archaeological Study for the 1912 Spindrift Drive Project

2009 Cultural Resource Assessment of the North Ocean Beach Gateway Project City of San Diego #64A-003A; Project #154116.

2009 Archaeological Constraints Study of the Morgan Valley Wind Assessment Project, Lake County, California.

2008 Results of an Archaeological Review of the Helen Park Lane 3.1-acre Property (APN 314-561-31), Poway, California.

2008 Archaeological Letter Report for a Phase I Archaeological Assessment of the Valley Park Condominium Project, Ramona, California; APN 282-262-75-00.

2007 Archaeology at the Ballpark. Brian F. Smith and Associates, San Diego, California. Submitted to the Centre City Development Corporation.

2007 Result of an Archaeological Survey for the Villages at Promenade Project (APNs 115-180-007-3,115-180-049-1, 115-180-042-4, 115-180-047-9) in the City of Corona, Riverside County.

2007 Monitoring Results for the Capping of Site CA-SDI-6038/SDM-W-5517 within the Katzer Jamul Center Project; P00-017.

2006 Archaeological Assessment for The Johnson Project (APN 322-011-10), Poway, California.

2005 Results of Archaeological Monitoring at the El Camino Del Teatro Accelerated Sewer Replacement Project (Bid No. K041364; WO # 177741; CIP # 46-610.6.

2005 Results of Archaeological Monitoring at the Baltazar Draper Avenue Project (Project No. 15857; APN: 351-040-09).

2004 TM 5325 ER #03-14-043 Cultural Resources.

2004 An Archaeological Survey and an Evaluation of Cultural Resources at the Salt Creek Project. Report on file at Brian F. Smith and Associates.

2003 An Archaeological Assessment for the Hidden Meadows Project, San Diego County, TM 5174, Log No. 99-08-033. Report on file at Brian F. Smith and Associates.

2003 An Archaeological Survey for the Manchester Estates Project, Coastal Development Permit #02-009, Encinitas, California. Report on file at Brian F. Smith and Associates.

2003 Archaeological Investigations at the Manchester Estates Project, Coastal Development Permit #02-009, Encinitas, California. Report on file at Brian F. Smith and Associates.

2003 Archaeological Monitoring of Geological Testing Cores at the Pacific Beach Christian Church Project. Report on file at Brian F. Smith and Associates.

2003 San Juan Creek Drilling Archaeological Monitoring. Report on file at Brian F. Smith and Associates.

2003 Evaluation of Archaeological Resources Within the Spring Canyon Biological Mitigation Area, Otay Mesa, San Diego County, California. Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for the Otay Ranch Village 13 Project (et al.). Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for the Audie Murphy Ranch Project (et al.). Brian F. Smith and Associates, San Diego, California.

2002 Results of an Archaeological Survey for the Remote Video Surveillance Project, El Centro Sector, Imperial County, California. Brian F. Smith and Associates, San Diego, California.

2002 A Cultural Resources Survey and Evaluation for the Proposed Robertson Ranch Project, City of Carlsbad. Brian F. Smith and Associates, San Diego, California.

2002 Archaeological Mitigation of Impacts to Prehistoric Site SDI-7976 for the Eastlake III Woods Project, Chula Vista, California. Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for Tract No. 29777, Menifee West GPA Project, Perris Valley, Riverside County. Brian F. Smith and Associates, San Diego, California.

2002 An Archaeological/Historical Study for Tract No. 29835, Menifee West GPA Project, Perris Valley, Riverside County. Brian F. Smith and Associates, San Diego, California.

2001 An Archaeological Survey and Evaluation of a Cultural Resource for the Moore Property, Poway. Brian F. Smith and Associates, San Diego, California.

2001 An Archaeological Report for the Mitigation, Monitoring, and Reporting Program at the Water and Sewer Group Job 530A, Old Town San Diego. Brian F. Smith and Associates, San Diego, California.

2001 A Cultural Resources Impact Survey for the High Desert Water District Recharge Site 6 Project, Yucca Valley. Brian F. Smith and Associates, San Diego, California.

2001 Archaeological Mitigation of Impacts to Prehistoric Site SDI-13,864 at the Otay Ranch SPA-One West Project. Brian F. Smith and Associates, San Diego, California.

2001 A Cultural Resources Survey and Site Evaluations at the Stewart Subdivision Project, Moreno Valley, County of San Diego. Brian F. Smith and Associates, San Diego, California.

2000 An Archaeological/Historical Study for the French Valley Specific Plan/EIR, French Valley, County of Riverside. Brian F. Smith and Associates, San Diego, California.

2000 Results of an Archaeological Survey and the Evaluation of Cultural Resources at The TPM#24003–Lawson Valley Project. Brian F. Smith and Associates, San Diego, California.

2000 Archaeological Mitigation of Impacts to Prehistoric Site SDI-5326 at the Westview High School Project for the Poway Unified School District. Brian F. Smith and Associates, San Diego, California.

2000 An Archaeological/Historical Study for the Menifee Ranch Project. Brian F. Smith and Associates, San Diego, California.

2000 An Archaeological Survey and Evaluation of Cultural Resources for the Bernardo Mountain Project, Escondido, California. Brian F. Smith and Associates, San Diego, California.

2000 A Cultural Resources Impact Survey for the Nextel Black Mountain Road Project, San Diego, California. Brian F. Smith and Associates, San Diego, California.

2000 A Cultural Resources Impact Survey for the Rancho Vista Project, 740 Hilltop Drive, Chula Vista, California. Brian F. Smith and Associates, San Diego, California.

2000 A Cultural Resources Impact Survey for the Poway Creek Project, Poway, California. Brian F. Smith and Associates, San Diego, California.

2000 Cultural Resource Survey and Geotechnical Monitoring for the Mohyi Residence Project. Brian F. Smith and Associates, San Diego, California.

2000 Enhanced Cultural Resource Survey and Evaluation for the Prewitt/Schmucker/ Cavadias Project. Brian F. Smith and Associates, San Diego, California.

2000 Enhanced Cultural Resource Survey and Evaluation for the Lamont 5 Project. Brian F. Smith and Associates, San Diego, California.

2000 Salvage Excavations at Site SDM-W-95 (CA-SDI-211) for the Poinsettia Shores Santalina Development Project, Carlsbad, California. Brian F. Smith and Associates, San Diego, California.

2000 Enhanced Cultural Resource Survey and Evaluation for the Reiss Residence Project, La Jolla, California. Brian F. Smith and Associates, San Diego, California.

2000 Enhanced Cultural Resource Survey and Evaluation for the Tyrian 3 Project, La Jolla, California. Brian F. Smith and Associates, San Diego, California.

2000 A Report for an Archaeological Evaluation of Cultural Resources at the Otay Ranch Village Two SPA, Chula Vista, California. Brian F. Smith and Associates, San Diego, California.

2000 An Archaeological Evaluation of Cultural Resources for the Airway Truck Parking Project, Otay Mesa, County of San Diego. Brian F. Smith and Associates, San Diego, California.

2000 Results of an Archaeological Survey and Evaluation of a Resource for the Tin Can Hill Segment of the Immigration and Naturalization and Immigration Service Border Road, Fence, and Lighting Project, San Diego County, California. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological Survey of the Home Creek Village Project, 4600 Block of Home Avenue, San Diego, California. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological Survey for the Sgobassi Lot Split, San Diego County, California. Brian F. Smith and Associates, San Diego, California.

1999 An Evaluation of Cultural Resources at the Otay Ranch Village 11 Project. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological/Historical Survey and Evaluation of a Cultural Resource for The Osterkamp Development Project, Valley Center, California. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological Survey and Evaluation of Cultural Resources for the Palomar Christian Conference Center Project, Palomar Mountain, California. Brian F. Smith and Associates, San Diego, California.

1999 An Archaeological Survey and Evaluation of a Cultural Resource for the Proposed College Boulevard Alignment Project. Brian F. Smith and Associates, San Diego, California.

1999 Results of an Archaeological Evaluation for the Anthony's Pizza Acquisition Project in Ocean Beach, City of San Diego (with L. Pierson and B. Smith). Brian F. Smith and Associates, San Diego, California.

1996 An Archaeological Testing Program for the Scripps Poway Parkway East Project. Brian F. Smith and Associates, San Diego, California.

1995 Results of a Cultural Resources Study for the 4S Ranch. Brian F. Smith and Associates, San Diego, California.

1995 Results of an Archaeological Evaluation of Cultural Resources Within the Proposed Corridor for the San Elijo Water Reclamation System. Brian F. Smith and Associates, San Diego, California.

1994 Results of the Cultural Resources Mitigation Programs at Sites SDI-11,044/H and SDI-12,038 at the Salt Creek Ranch Project . Brian F. Smith and Associates, San Diego, California.

1993 Results of an Archaeological Survey and Evaluation of Cultural Resources at the Stallion Oaks Ranch Project. Brian F. Smith and Associates, San Diego, California.

1992 Results of an Archaeological Survey and the Evaluation of Cultural Resources at the Ely Lot Split Project. Brian F. Smith and Associates, San Diego, California.

1991 The Results of an Archaeological Study for the Walton Development Group Project. Brian F. Smith and Associates, San Diego, California.

Andrew J. Garrison, M.A., RPA

Senior Project Archaeologist

Brian F. Smith and Associates, Inc.
14010 Poway Road • Suite A •
Phone: (858) 679-8218 • Fax: (858) 679-9896 • E-Mail: agarrison@bfsa-ca.com

Education

Master of Arts, Public History, University of California, Riverside **2009**

Bachelor of Science, Anthropology, University of California, Riverside **2005**

Bachelor of Arts, History, University of California, Riverside **2005**

Professional Memberships

Register of Professional Archaeologists
Society for California Archaeology
Society for American Archaeology
California Council for the Promotion of History
Society of Primitive Technology
Lithic Studies Society
California Preservation Foundation
Pacific Coast Archaeological Society

Experience

Senior Project Archaeologist **June 2017–Present**
Brian F. Smith and Associates, Inc. **Poway, California**

Project management of all phases of archaeological investigations for local, state, and federal agencies including National Register of Historic Places (NRHP) and California Environmental Quality Act (CEQA) level projects interacting with clients, sub-consultants, and lead agencies. Supervise and perform fieldwork including archaeological survey, monitoring, site testing, comprehensive site records checks, and historic building assessments. Perform and oversee technological analysis of prehistoric lithic assemblages. Author or co-author cultural resource management reports submitted to private clients and lead agencies.

Senior Archaeologist and GIS Specialist **2009–2017**
Scientific Resource Surveys, Inc. **Orange, California**

Served as Project Archaeologist or Principal Investigator on multiple projects, including archaeological monitoring, cultural resource surveys, test excavations, and historic building assessments. Directed projects from start to finish, including budget and personnel hours proposals, field and laboratory direction, report writing, technical editing, Native American consultation, and final report submittal. Oversaw all GIS projects including data collection, spatial analysis, and map creation.

Preservation Researcher **2009**
City of Riverside Modernism Survey **Riverside, California**

Completed DPR Primary, District, and Building, Structure and Object Forms for five sites for a grant-funded project to survey designated modern architectural resources within the City of Riverside.

Information Officer **2005, 2008–2009**
Eastern Information Center (EIC), University of California, Riverside **Riverside, California**

Processed and catalogued restricted and unrestricted archaeological and historical site record forms. Conducted research projects and records searches for government agencies and private cultural resource firms.

Reports/Papers

2017 A Phase I Cultural Resources Assessment for the Marbella Villa Project, City of Desert Hot Springs, Riverside County, California. Brian F. Smith and Associates, Inc.

2017 Phase I Cultural Resources Survey for TTM 37109, City of Jurupa Valley, County of Riverside. Brian F. Smith and Associates, Inc.

2017 A Phase I Cultural Resources Survey for the Jefferson & Ivy Project, City of Murrieta, California. Brian F. Smith and Associates, Inc.

2017 A Phase I Cultural Resources Assessment for the Nuevo Dollar General Store Project, Riverside County, California. Brian F. Smith and Associates, Inc.

2017 A Phase I Cultural Resource Study for the Westmont Project, Encinitas, California. Brian F. Smith and Associates, Inc.

2017 A Phase I Cultural Resources Assessment for the Winchester Dollar General Store Project, Riverside County, California. Brian F. Smith and Associates, Inc.

2017 Phase I Cultural Resource Assessment for TTM 31810 (42.42 acres) Predico Properties Olive Grove Project. Scientific Resource Surveys, Inc.

2016 John Wayne Airport Jet Fuel Pipeline and Tank Farm Archaeological Monitoring Plan. Scientific Resource Surveys, Inc. On file at the County of Orange, California.

2016 Phase I Cultural Resources Assessment: All Star Super Storage City of Menifee Project, 2015-156. Scientific Resource Surveys, Inc. On file at the Eastern Information Center, University of California, Riverside.

2016 Historic Resource Assessment for 220 South Batavia Street, Orange, CA 92868 Assessor's Parcel Number 041-064-4. Scientific Resource Surveys, Inc. Submitted to the City of Orange as part of Mills Act application.

2015 Historic Resource Report: 807-813 Harvard Boulevard, Los Angeles. Scientific Resource Surveys, Inc. On file at the South Central Coastal Information Center, California State University, Fullerton.

2015 Exploring a Traditional Rock Cairn: Test Excavation at CA-SDI-13/RBLI-26: The Rincon Indian Reservation, San Diego County, California. Scientific Resource Surveys, Inc.

2015 Class III Scientific Resource Surveys, Inc. Survey for The Lynx Cat Granite Quarry and Water Valley Road Widening Project County of San Bernardino, California, Near the Community of Hinkley. Scientific Resource Surveys, Inc. On file at the South Central Coastal Information Center, California State University, Fullerton.

2014 Archaeological Phase I: Cultural Resource Survey of the South West Quadrant of Fairview Park, Costa Mesa. Scientific Resource Surveys, Inc. On file at the South Central Coastal Information Center, California State University, Fullerton.

2014 Archaeological Monitoring Results: The New Los Angeles Federal Courthouse. Scientific Resource Surveys, Inc. On file at the South Central Coastal Information Center, California State University, Fullerton.

2012 Bolsa Chica Archaeological Project Volume 7, Technological Analysis of Stone Tools, Lithic Technology at Bolsa Chica: Reduction Maintenance and Experimentation. Scientific Resource Surveys, Inc.

2010 Phase II Cultural Resources Report Site CA=RIV-2160 PM No. 35164. Scientific Resource Surveys, Inc. On file at the Eastern Information Center, University of California, Riverside.

2009 Riverside Modernism Context Survey, contributing author. Available online at the City of Riverside.

Presentations

2017 "Repair and Replace: Lithic Production Behavior as Indicated by the Debitage Assemblage from CA-MRP-283 the Hackney Site." Presented at the Society for California Archaeology Annual Meeting, Fish Camp, California.

2016 "Bones, Stones, and Shell at Bolsa Chica: A Ceremonial Relationship?" Presented at the Society for California Archaeology Annual Meeting, Ontario, California.

2016 "Markers of Time: Exploring Transitions in the Bolsa Chica Assemblage." Presented at the Society for California Archaeology Annual Meeting, Ontario, California.

2016 "Dating Duress: Understanding Prehistoric Climate Change at Bolsa Chica." Presented at the Society for California Archaeology Annual Meeting, Ontario, California.

2015 "Successive Cultural Phasing Of Prehistoric Northern Orange County, California." Presented at the Society for California Archaeology Annual Meeting, Redding, California.

2015 "Southern California Cogged Stone Replication: Experimentation and Results." Presented at the Society for California Archaeology Annual Meeting, Redding, California.

2015 "Prehistoric House Keeping: Lithic Analysis of an Intermediate Horizon House Pit." Presented at the Society for California Archaeology Annual Meeting, Redding, California.

2015 "Pits and Privies: The Use and Disposal of Artifacts from Historic Los Angeles." Presented at the Society for California Archaeology Annual Meeting, Redding, California.

2015 "Grooving in the Past: A Demonstration of the Manufacturing of OGR beads and a look at Past SRS, Inc. Replicative Studies." Demonstration of experimental manufacturing techniques at the January meeting of The Pacific Coast Archaeological Society, Irvine, California.

2014 “From Artifact to Replication: Examining *Olivella* Grooved Bead Manufacturing.” Presented at the Society for California Archaeology Annual Meeting, Visalia, California.

2014 “New Discoveries from an Old Collection: Comparing Recently Identified OGR Beads to Those Previously Analyzed from the Encino Village Site.” Presented at the Society for California Archaeology Annual Meeting, Visalia, California.

2012 Bolsa Chica Archaeology: Part Seven: Culture and Chronology. Lithic demonstration of experimental manufacturing techniques at the April meeting of The Pacific Coast Archaeological Society, Irvine, California.

2012 “Expedient Flaked Tools from Bolsa Chica: Exploring the Lithic Technological Organization.” Presented at the Society for California Archaeology Annual Meeting, San Diego, California.

2012 “Utilitarian and Ceremonial Ground Stone Production at Bolsa Chica Identified Through Production Tools.” Presented at the Society for California Archaeology Annual Meeting, San Diego, California.

2012 “Connecting Production Industries at Bolsa Chica: Lithic Reduction and Bead Manufacturing.” Presented at the Society for California Archaeology Annual Meeting, San Diego, California.

2011 Bolsa Chica Archaeology: Part Four: Mesa Production Industries. Co-presenter at the April meeting of The Pacific Coast Archaeological Society, Irvine, California.

2011 “Hammerstones from Bolsa Chica and Their Relationship towards Site Interpretation.” Presented at the Society for California Archaeology Annual Meeting, Rohnert Park, California.

2011 “Exploring Bipolar Reduction at Bolsa Chica: Debitage Analysis and Replication.“ Presented at the Society for California Archaeology Annual Meeting, Rohnert Park, California.

APPENDIX B

Site Record Form Updates

(Deleted for Public Review; Bound Separately)

APPENDIX C

Archaeological Records Search Results

(Deleted for Public Review; Bound Separately)

APPENDIX D

NAHC Sacred Lands File Search Results

(Deleted for Public Review; Bound Separately)

APPENDIX E

Previous Survey Report and Addendum Letter

(Prepared by CRM Tech, 2008)

HISTORICAL/ARCHAEOLOGICAL RESOURCES SURVEY REPORT

LAKE STREET MARKETPLACE

City of Lake Elsinore
Riverside County, California

For Submittal to:

Community Development Department
Planning Division
City of Lake Elsinore
130 South Main Street
Lake Elsinore, CA 92530

Prepared for:

Pacific Southwest Biological Services, Inc.
P.O. Box 985
National City, CA 91951-0985

Prepared by:

CRM TECH
1016 East Cooley Drive, Suite A/B
Colton, CA 92324

Bai "Tom" Tang, Principal Investigator
Michael Hogan, Principal Investigator

CRM TECH

July 1, 2008
CRM TECH Contract No. 2250

NATIONAL ARCHAEOLOGICAL DATABASE INFORMATION

Author(s): Bai "Tom" Tang, Principal Investigator
Terri Jacquemain, Historian/Architectural Historian
Thomas Melzer, Project Archaeologist

Consulting Firm: CRM TECH
1016 East Cooley Drive, Suite A/B
Colton, CA 92324
(909) 824-6400

Date: July 1, 2008

Title: Historical/Archaeological Resources Survey Report: Lake Street Marketplace, City of Lake Elsinore, Riverside County, California

For Submittal to: Community Development Department
Planning Division
City of Lake Elsinore
130 South Main Street
Lake Elsinore, CA 92530
(951) 674-3124

Prepared for: Ruth L. Prado
Pacific Southwest Biological Services, Inc.
P.O. Box 985
National City, CA 91951-0985
(619) 477-5333

USGS Quadrangle: Alberhill, Calif., 7.5' quadrangle (Section 27, T5S R5W, San Bernardino Base Meridian)

Project Size: Approximately 7.5 acres

Keywords: Elsinore Valley area, Riverside County; historical/archaeological resources survey; Assessor's Parcel Nos. 389-030-013 through -018 and 389-030-020 through -022; pre-WWII residence and ancillary features (1900-early 1930s); no "historical resources" under CEQA

MANAGEMENT SUMMARY

In May and June, 2008, at the request of the Pacific Southwest Biological Services, Inc., CRM TECH performed a cultural resources study on approximately 7.5 acres of rural land in the City of Lake Elsinore, Riverside County, California. The subject property of the study consists of five existing parcels, Assessor's Parcel Nos. (APNs) 389-030-014 through -018, and portions of four adjacent parcels, APNs 389-030-013 and 389-030-020 through -022. It encompasses the project site designated for a proposed neighborhood shopping center known as Lake Street Marketplace as well as off-site improvements and construction staging areas. The parcels are located on the northwestern corner of Mountain Street and Lake Street, in the southeast quarter of the southwest quarter of Section 27, T5S R5W, San Bernardino Base Meridian.

The present study is a part of the environmental review process for the proposed project. The City of Lake Elsinore, as Lead Agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA). The purpose of the study is to provide the City with the necessary information and analysis to determine whether the proposed project would cause substantial adverse changes to any historical/ archaeological resources that may exist in or near the project area, as mandated by CEQA. In order to identify and evaluate such resources, CRM TECH conducted a historical/archaeological resources records search, pursued historical background research, contacted Native American representatives, and carried out an intensive-level field survey.

The results of the records search indicate that a residence of historical origin was previously recorded within the project area at 28993 Robb Road (now Lake Street) and was designated Site 33-7208 in the California Historical Resources Inventory. The field survey, however, reveals that the residence has been removed, leaving only a few secondary features, such as a water tower and a brick chimney associated with an outdoor cooking area, present at its former site. In addition, a residence at 28915 Lake Street, also from the historic period, was recorded during the survey. None of these features, however, appears to meet the definition of a "historical resource," as provided in CEQA.

Based on the study results summarized above, CRM TECH concludes that no "historical resources" exist within the project area, and accordingly recommends to the City of Lake Elsinore a finding of *No Impact* regarding cultural resources. No further cultural resources investigation will be necessary for the proposed project unless development plans undergo such changes as to include areas not covered by this study. However, if buried cultural materials are encountered during future construction activities, all work in that area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

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INTRODUCTION

In May and June, 2008, at the request of the Pacific Southwest Biological Services, Inc., CRM TECH performed a cultural resources study on approximately 7.5 acres of rural land in the City of Lake Elsinore, Riverside County, California (Fig. 1). The subject property of the study consists of five existing parcels, Assessor's Parcel Nos. (APNs) 389-030-014 through -018, and portions of four adjacent parcels, APNs 389-030-013 and 389-030-020 through -022. It encompasses the project site designated for a proposed neighborhood shopping center known as Lake Street Marketplace as well as off-site improvements and construction staging areas. The parcels are located on the northwestern corner of Mountain Street and Lake Street, in the southeast quarter of the southwest quarter of Section 27, T5S R5W, San Bernardino Base Meridian (Fig. 2).

The present study is a part of the environmental review process for the proposed project. The City of Lake Elsinore, as Lead Agency for the project, required the study in compliance with the California Environmental Quality Act (CEQA; PRC §21000, et seq.). The purpose of the study is to provide the City with the necessary information and analysis to determine whether the proposed project would cause substantial adverse changes to any historical/ archaeological resources that may exist in or near the project area, as mandated by CEQA. In order to identify and evaluate such resources, CRM TECH conducted a historical/archaeological resources records search, pursued historical background research, contacted Native American representatives, and carried out an intensive-level field survey. The following report is a complete account of the methods, results, and final conclusion of the study.

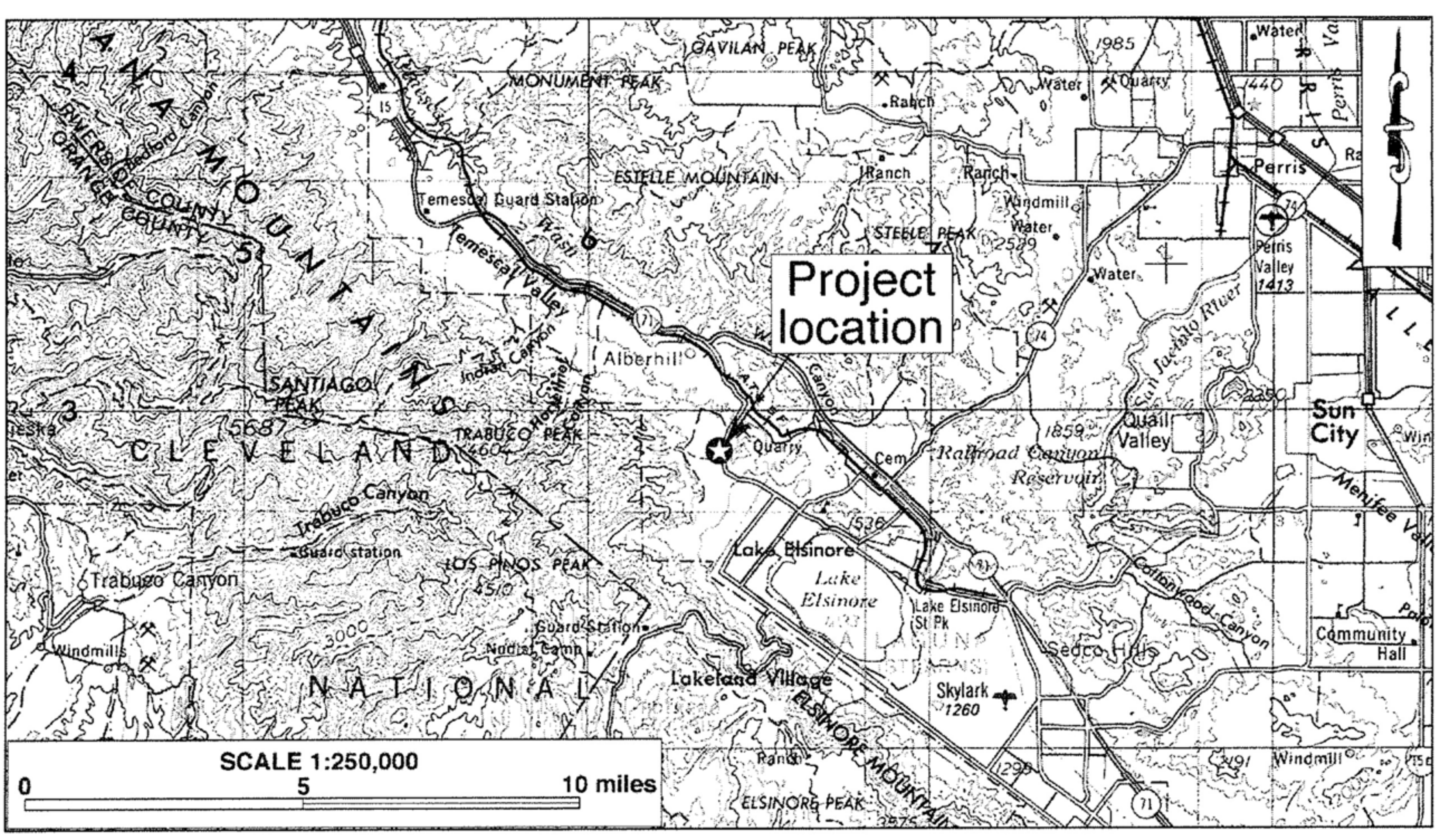

Figure 1. Project vicinity. (Based on USGS San Bernardino and Santa Ana, Calif., 1:250,000 quadrangles [USGS 1969; 1979])

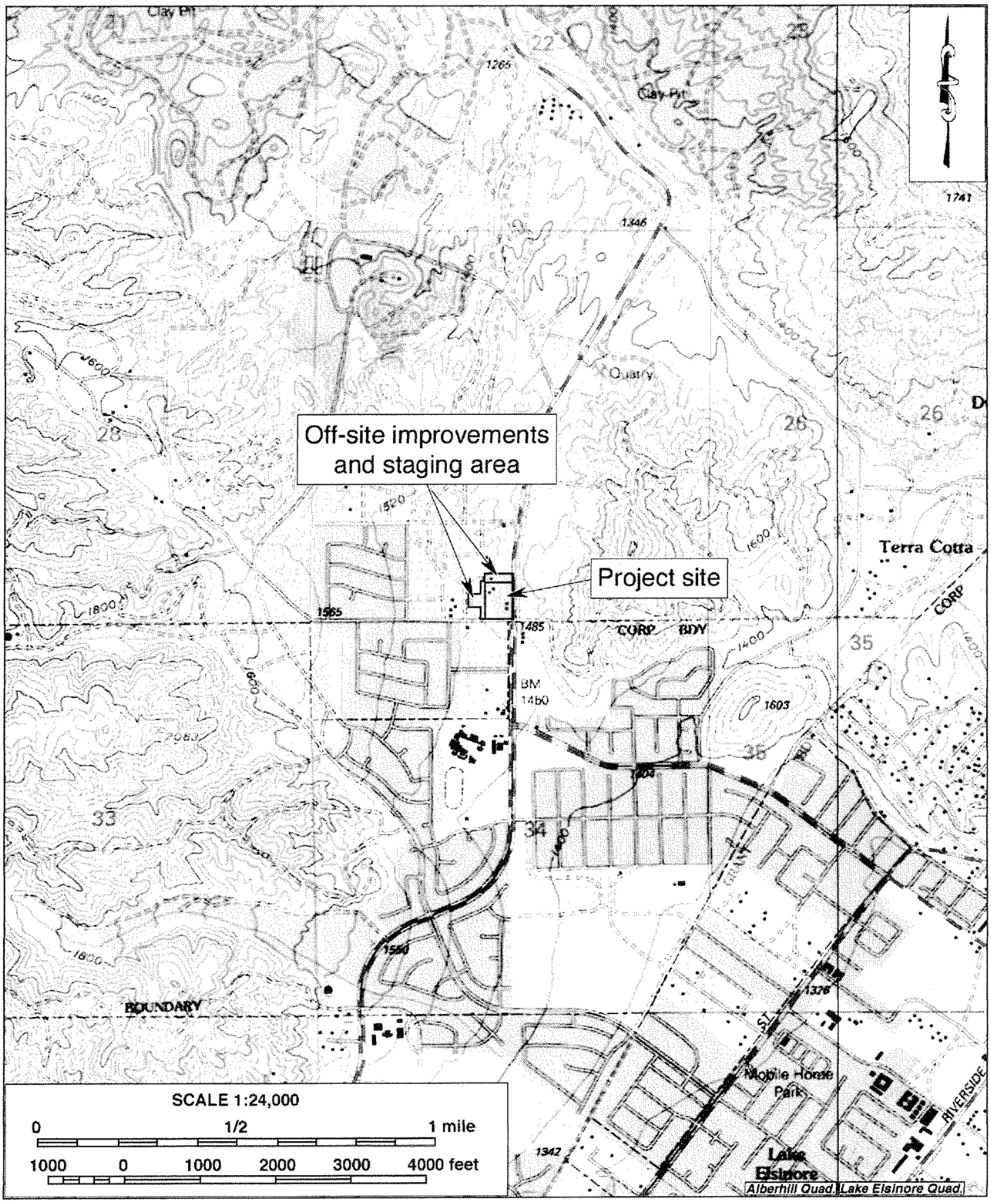

Figure 2. Project area. (Based on USGS Alberhill and Lake Elsinore, Calif., 1:24,000 quadrangles [USGS 1988; 1997])

SETTING

CURRENT NATURAL SETTING

The irregularly shaped project area is located in a recently developed residential area, but it lies mostly vacant, hosting only an older residence, a mobile home, and several ancillary features, such as a two-story water tower and the remains of an outdoor stove. The residences are located at 28915 Lake Street, in the northwest portion of the project area, and the water tank stands in the same general vicinity. The remains of the outdoor stove, represented by a large brick chimney, are found in the southeastern portion, along with a shallow, concrete-lined pit.

The terrain in the project area is uneven, with elevations ranging from approximately 1,485 to 1,520 feet above mean sea level. The central portion of the property was recently disked, while other areas, particularly in the southwestern portion, are covered with dense vegetation, including cypress trees, wild mustard, buckwheat, tumbleweeds, foxtails, datura, cactus, and small grasses and shrubs (Fig. 3).

CULTURAL SETTING

Prehistoric Context

The present-day Lake Elsinore area has long been the homeland of the Luiseño Indians, a Takic-speaking people whose territory extended from present-day Riverside to Escondido and Oceanside. The name of the group derived from Mission San Luis Rey, which held jurisdiction over most of the traditional Luiseño territory during the mission period. Luiseño history, as recorded in traditional songs, tells the creation story from the birth of the first people, the *kaamalam*, to the sickness, death, and cremation of *Wiyoot*, the most powerful and wise one, at Lake Elsinore. In modern anthropological literature, the leading sources on Luiseño culture and history are Kroeber (1925), Strong (1929), and Bean and Shipek (1978).

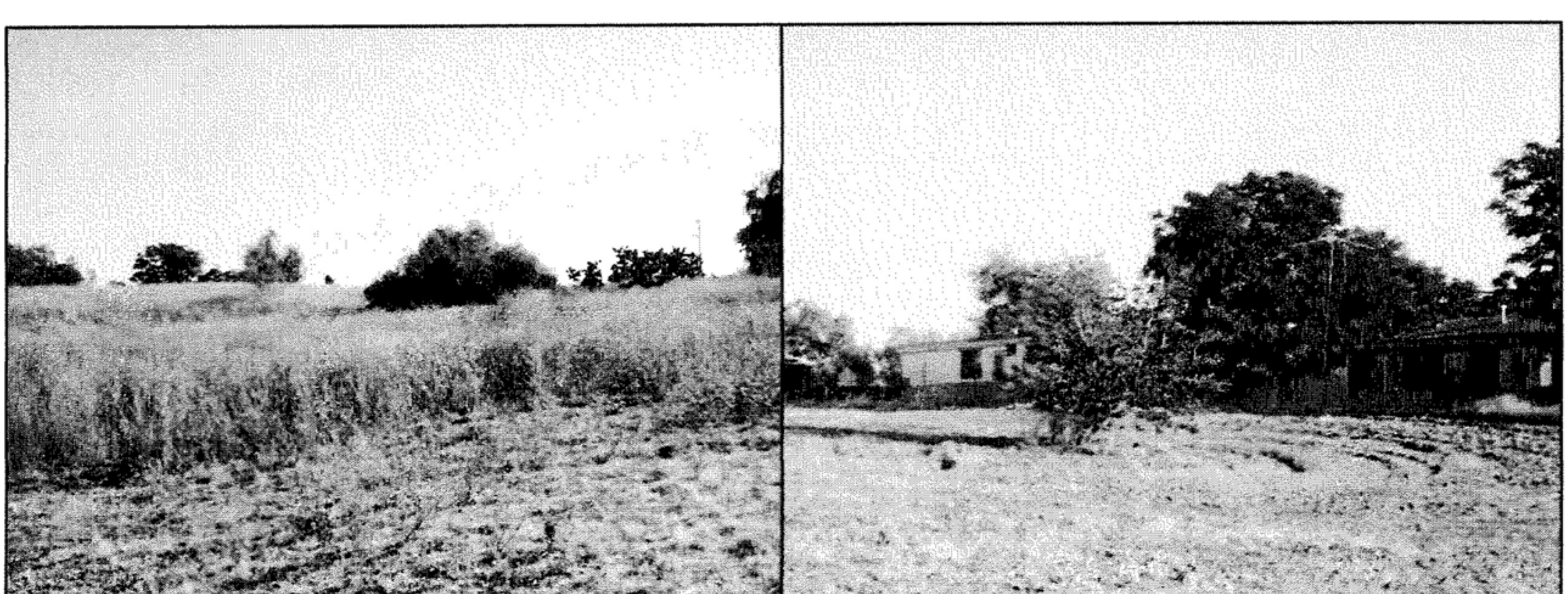

Figure 3. Overview of the current natural setting of the project area. *Left*: view to the northwest across the project area; *right*: view to the northwest across a disked area toward the residence at 28915 Lake Street. (Photos taken on June 9, 2008)

Anthropologists have divided the Luiseño into several autonomous lineages or kin groups, which represented the basic political unit among most southern California Indians. According to Bean and Shipek (1978:551), each Luiseño lineage possessed a permanent base camp, or village, on the valley floor and another in the mountain regions for acorn collection. Luiseño villages were made up of family members and relatives, where chiefs of the village inherited their rank and each village owned its own land. Villages were usually located in sheltered canyons or near year-round sources of freshwater, always near subsistence resources.

Nearly all resources of the environment were exploited by the Luiseño in a highly developed seasonal mobility system. The Luiseño people were primarily hunters and gatherers. They collected seeds, roots, wild berries, acorns, wild grapes, strawberries, wild onions, and prickly pear cacti, and hunted deer, elks, antelopes, rabbits, wood rats, and a variety of insects. Bows and arrows, atlatls or spear throwers, rabbit sticks, traps, nets, clubs, and slings were the main hunting tools. Each lineage had exclusive hunting and gathering rights in their procurement ranges. These boundaries were respected and only crossed with permission (Bean and Shipek 1978:551).

It is estimated that when Spanish colonization of Alta California began in 1769, the Luiseño had approximately 50 active villages with an average population of 200 each, although other estimates place the total Luiseño population at 4,000-5,000 (Bean and Shipek 1978:557). Some of the villages were forcefully moved to the Spanish missions, while others were largely left intact (*ibid.*:558). Ultimately, Luiseño population declined rapidly after European contact because of diseases such as smallpox and harsh living conditions at the missions and, later, on the Mexican ranchos, where the Native people often worked as seasonal ranch hands.

After the American annexation of Alta California, the large number of non-Native settlers further eroded the foundation of the traditional Luiseño society. During the latter half of the 19th century, almost all of the remaining Luiseño villages were displaced, their occupants eventually removed to the various reservations. Today, the nearest Native American groups of Luiseño heritage live on the Soboba, Pechanga, and Pala Indian Reservations.

Historic Context

After the beginning of Spanish colonization of Alta California, what is today the southwestern portion of Riverside County, consisting of Temescal, Elsinore, and Temecula Valleys, became the first region in the county to be settled by non-Indians. In 1818-1819, Leandro José Serrano, a Spanish soldier from San Diego, established a cattle ranch in the Temescal Valley under a temporary occupancy and grazing permit issued by Mission San Luis Rey (Jennings et al. 1993:91). Around the same time, with the Temecula Valley growing into Mission San Luis Rey's principal grain producer, the mission fathers established a granary, a chapel, and a residence for the *majordomo* at the Luiseño village of *Temeeku*, near present-day Temecula (Hudson 1989:19).

Beginning in 1834, during secularization of the mission system, former mission ranchos throughout Alta California were surrendered to the Mexican government, and subsequently divided and granted to various prominent citizens in the province. The nearest one among these land grants to the project location was Rancho La Laguna, lying less than a mile to the southeast. It was granted to Julian Manriquez in 1844, but is best remembered today in association with its second and third owners, Abel Stearns and the Augustin Machado family, who held the rancho between 1852 and 1873 (Gunther 1984:281). As elsewhere in Alta California, cattle raising was the most prevalent economic activity on this and other nearby ranchos, until the influx of American settlers eventually brought an end to this now-romanticized lifestyle in the second half of the 19th century.

In 1883, at the height of the great southern California land boom of the 1880s, Franklin H. Heald, Donald M. Graham, and William Collier purchased 12,832 acres of Rancho La Laguna land, on which they laid out the townsite of Elsinore (Gunther 1984:178). Three years later, the town's founders began advertising the healing properties of "medicine water" from the abundant hot sulphur springs in the area (*ibid.*:143). With bath houses and related businesses springing up in and around the new colony, Elsinore soon became known as a resort town, a reputation that fueled the growth of the community for much of the 20th century.

The town was incorporated in 1888. By the mid-20th century, due to the changing trend in American life style, the mineral bath industry gradually went into decline. Since the early 1980s, the City of Lake Elsinore has experienced rapid growth in residential development and, like many other communities in southwestern Riverside County, has begun to take on more and more the characteristics of a "bedroom community" in support of the fast-growing industries in nearby Orange County and the Temecula area.

RESEARCH METHODS

RECORDS SEARCH

On May 16, 2008, CRM TECH archaeologist Nina Gallardo (see App. 1 for qualifications) conducted the historical/archaeological resources records search at the Eastern Information Center (EIC), University of California, Riverside. During the records search, Gallardo examined maps and records on file at the EIC for previously identified cultural resources in or near the project area, and existing cultural resources reports pertaining to the vicinity. Previously identified cultural resources include properties designated as California Historical Landmarks, Points of Historical Interest, or Riverside County Landmarks, as well as those listed in the National Register of Historic Places, the California Register of Historical Resources, or the California Historical Resources Inventory.

NATIVE AMERICAN PARTICIPATION

As part of the research procedures, CRM TECH contacted the State of California's Native American Heritage Commission on May 15, 2008, to request a records search in the commission's sacred lands file. Meanwhile, CRM TECH notified Anna Hoover, Cultural Analyst for the Temecula (Pechanga) Band of Luiseño Mission Indians, of the upcoming archaeological field survey. Following the commission's recommendations, CRM TECH contacted 13 additional Native American representatives in the region in writing on May 20. The correspondences between CRM TECH and the Native American representatives are attached to this report in Appendix 2.

FIELD SURVEY

On June 9, 2008, CRM TECH archaeologist Thomas Melzer (see App. 1 for qualifications) carried out the intensive-level, on-foot field survey of the project area. During the survey, Melzer walked across the entire project area along parallel north-south transects spaced 15 meters (approx. 50 feet) apart, except where the transects were blocked by the existing buildings. In this way, the ground surface in the project area was systematically and carefully examined for any evidence of human activities dating to the prehistoric or historic periods (i.e., 50 years ago or older). Visibility of the native ground surface ranged from poor (nearly 0%) to good (80%), depending on the density of vegetative growth.

After the completion of the archaeological survey, on June 24, 2008, CRM TECH architectural historian Terri Jacquemain (see App. 1 for qualifications) carried out a field inspection of all buildings and built-environment features in the project area, and performed field recording procedures on those that appeared to be more than 45 years old. In order to facilitate the proper recordation and evaluation of the historic-period buildings and features, Jacquemain made detailed notations and preliminary photo-documentation of their structural and architectural characteristics and current conditions. Jacquemain's field observations form the basis of the building descriptions and integrity evaluation presented below.

HISTORICAL RESEARCH

Historical research for this study was completed in two phases. The preliminary background research was conducted by Jacquemain on the basis of published literature in local and regional history and historic maps of the Lake Elsinore area. Among maps consulted were the U.S. General Land Office's (GLO) land survey plat map dated 1880-1890 and the U.S. Geological Survey's (USGS) topographic maps dated 1901-1954. These maps are collected at the Science Library of the University of California, Riverside, and the California Desert District of the U.S. Bureau of Land Management (BLM), located in Moreno Valley.

After the identification of a historic-era building and other features in the project area, Jacquemain pursued more focused research on the pertinent parcels. Sources examined during this phase of the research included the archival records of the BLM, the City of Lake Elsinore, and the County of Riverside; materials on file at the Local History Collection of the Riverside Public Library, Central Branch; and various online genealogical databases. To supplement these sources, Jacquemain also interviewed Ruth Atkins, president of the Lake Elsinore Historical Society, for supplementary information on the history of the project area. Findings from these sources are summarized in the sections to follow.

RESULTS AND FINDINGS

PREVIOUS CULTURAL RESOURCE STUDIES IN THE VICINITY

According to EIC records, a residence of historical origin was recorded in the southeastern portion of the project area during a countywide historic building reconnaissance completed in the early 1980s, and was designated Site 33-7208 in the California Historical Resources

Inventory (Meredith 1982). Located at 28993 Robb Road (now Lake Street), the residence was described as a two-story, Colonial Revival-style building of mixed concrete and wood-frame construction (*ibid.*:1). Although in deteriorated condition in 1982 (*ibid.*:2), the residence was still present in 2006, when most of the project area was included in a cultural resources survey for a proposed substation (Lerch et al. 2006; #6866 in Fig. 4). The 1982 survey concluded that the building was not eligible for listing in the National Register of Historic Places (Meredith 1982:1), while the 2006 survey stated that the residence might qualify for the National Register and/or California Register of Historical Resources listing, but did not offer a formal evaluation of its potential significance (Lerch et al. 2006:33).

No other cultural resources were previously recorded within or adjacent to the project area. Outside the project boundaries but within a one-mile radius, EIC records show more than 20 other cultural resources studies covering various tracts of land and linear features (Fig. 4). As a result of these and other similar studies in the vicinity, 18 additional historical/archaeological sites and one isolate—i.e., a locality with fewer than three artifacts—were recorded within the scope of the records search, as listed in Table 1. Except 33-7208, none of the sites was located in the immediate vicinity of the project area, nor was the isolate. Therefore, none of them requires further consideration during this study.

Table 1. Previously Recorded Cultural Resources within the Scope of the Records Search

Site No.	Recorded by/Date	Description
33-1311	J. Baldwin 1978	Small prehistoric campsite, midden, artifact scatter
33-3408	C. Drover, E. Jackson, Jr., 1987	Lithic flaking station
33-3832	D. McCarthy 1990; B. Love, B. Tang 1996	Santa Fe Railroad grade through the Temescal Valley
33-4320	R. Hathaway 1989	Torn Walnut Ranch, ca. 1924
33-4664	B. McManis 1991	Two bedrock milling features and artifact scatters
33-4665	B. McManis 1991	Lithic scatter with cores and flakes
33-4666	B. McManis 1991	Lithic scatter with biface fragment
33-4667	B. McManis 1991	Lithic scatter with basalt core and three modified flakes
33-5306	B. McManis 1991	Six bedrock milling features
33-5307	B. McManis 1991	Bedrock milling feature
33-6880	B. Love, B. Tang 1995	Lithic scatter, bedrock milling feature
33-6881	B. Love, B. Tang 1995	Lithic scatter with metate, hammerstone, mano, and basalt flake
33-6882	B. Love, B. Tang 1995	Building remains, ca. 1924-1957
33-6883	J. Goodman, D. Cogan, W. Jones 2006	Historic-period trash scatter
33-7208*	P. Meredith 1982	Colonial Revival-style residence, ca. 1902
33-7168	J. Warner 1982	Bungalow-style single-family residence ca. 1914
33-7169	J. Warner 1982	Mission Revival-style single-family residence, ca. 1914
33-12335	? Sundberg 1991	Isolate: hammer-grinder
33-12336	? Sundberg 1991	Historic-period ceramics and two bottles
33-17016	A. Craft 2007	Historical community of Alberhill

* Recorded within the current project boundaries.

NATIVE AMERICAN INPUT

In response to CRM TECH's inquiry, the Native American Heritage Commission reported that the sacred lands record search identified no Native American cultural resources in the immediate project area. However, noting that "the absence of specific site information in the Sacred Lands File does not guarantee the absence of cultural resources," the

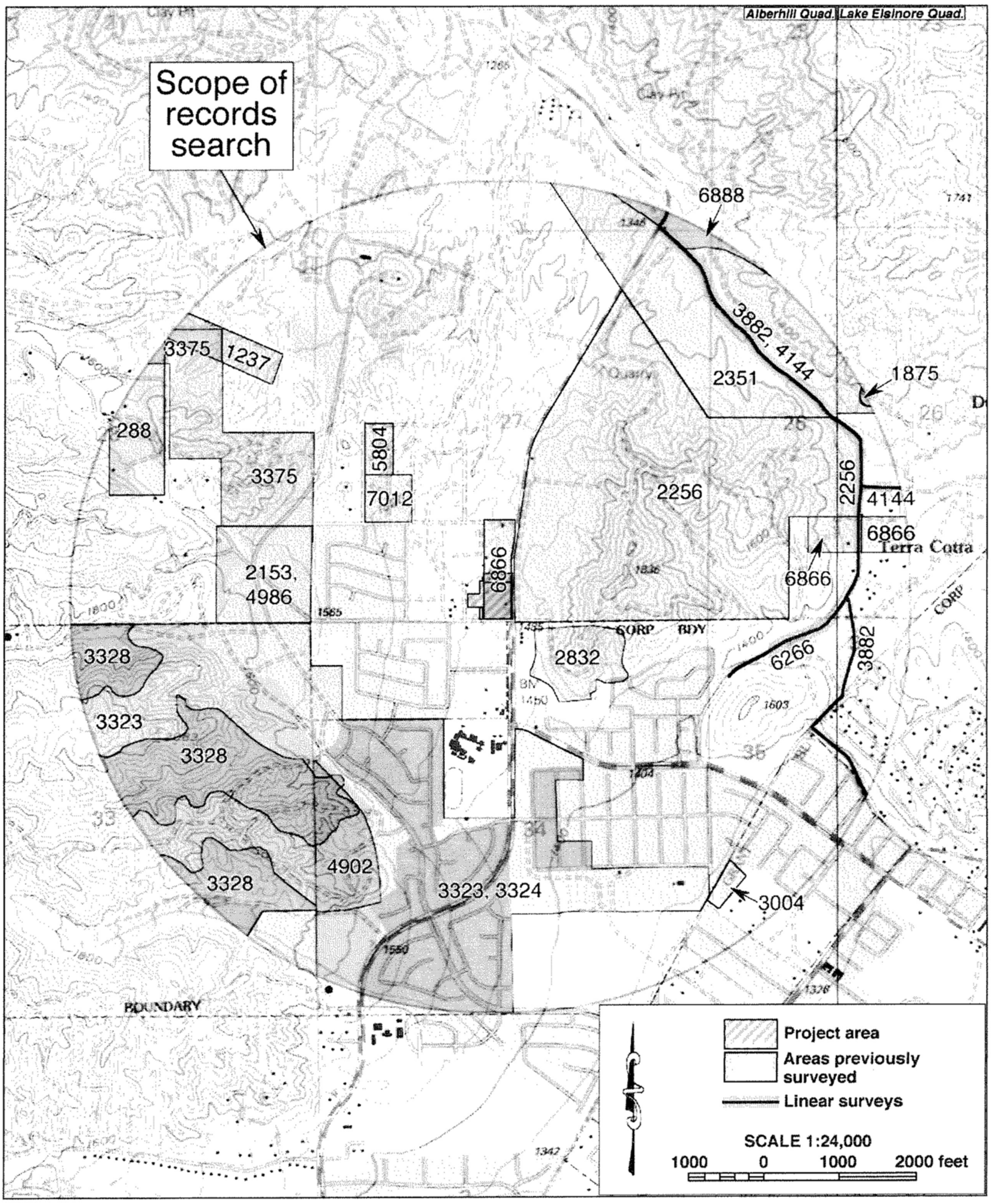

Figure 4. Previous cultural resources studies in the vicinity of the project area, listed by EIC file number. Locations of historical/archaeological sites are not shown as a protective measure.

commission suggested that local Native American representatives be contacted for additional information, and provided a list of potential contacts in the region (see App. 2).

Upon receiving the commission's response, CRM TECH initiated correspondence with all 11 individuals on the referral list and the organizations they represent. In addition, John Gomez, Jr., Cultural Resources Coordinator for the Ramona Band of Cahuilla Indians, Evelyn Duro, Tribal Administrator for the Los Coyotes Band of Mission Indians, and Anna Hoover of the Temecula Band of Luiseño Mission Indians were also contacted. As of this date, Mr. Gomez and Ms. Hoover have replied in writing (see App. 2), but none of the other local Native American representatives has responded.

In a letter dated June 20, 2008, Mr. Gomez states that the project area lies within the Ramona Band's ancestral land, where "unique and irreplaceable cultural resources" may exist and/or are at risk of being disturbed. Therefore, he requests a copy of the completed cultural resources report, and reserves the right to comment further after reviewing the report. In her letter of June 17, Ms. Hoover also identifies the project area as a part of the Temecula Band's ancestral lands, and thus requests further consultation with the project proponent and the Lead Agency, as well as copies of all cultural resource documentations pertaining to the project.

HISTORICAL OVERVIEW

Historical sources consulted for this study indicate that the project vicinity showed clear signs of human activities at least by the mid-19th century, but the project area likely remained vacant until the 1930s (Figs. 5-8). In the mid-19th century, a branch of the historic

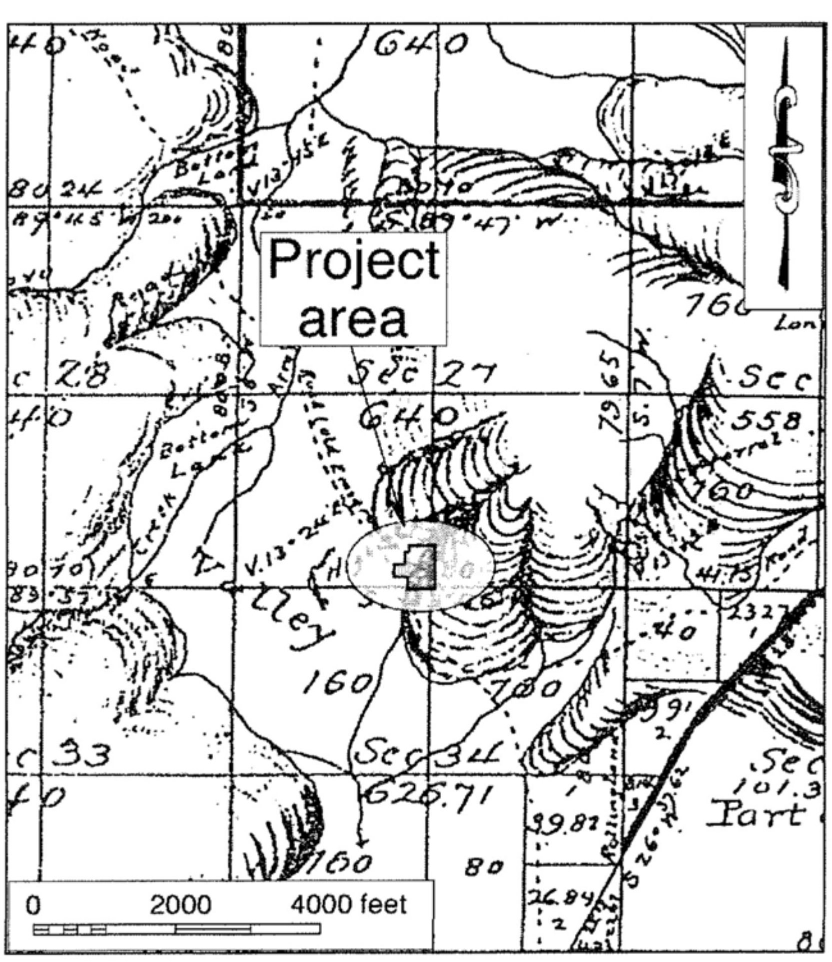

Figure 5. The project area and vicinity in 1854-1880. (Source: GLO 1880)

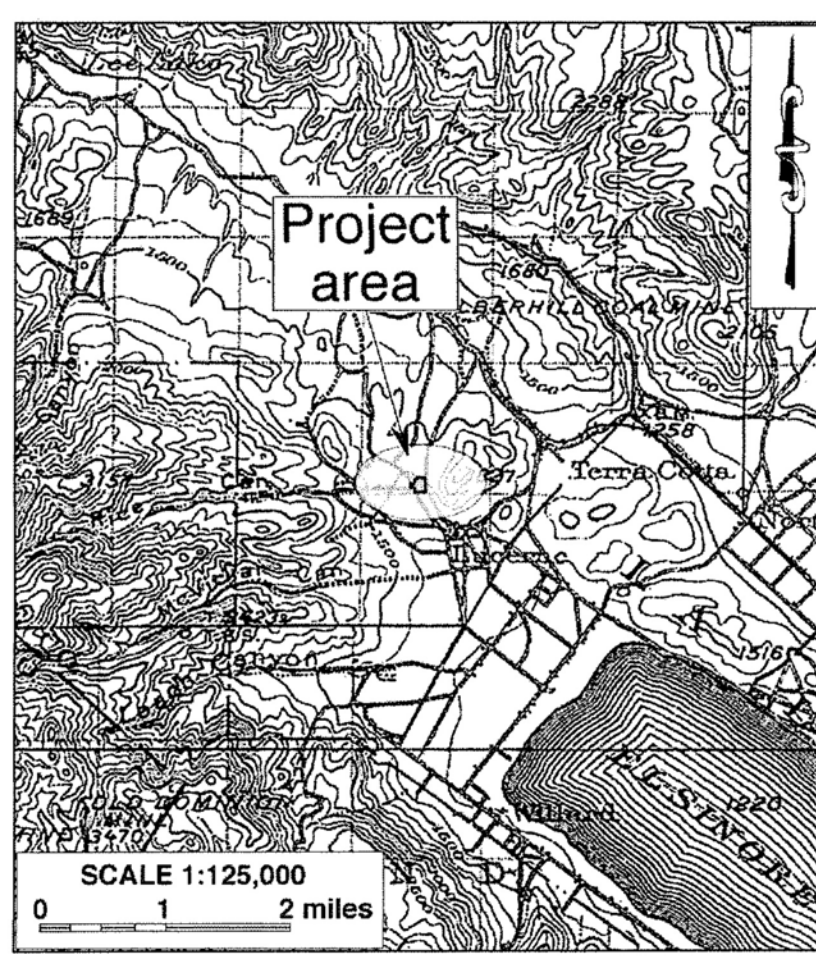

Figure 6. The project area and vicinity in 1897-1898. (Source: USGS 1901)

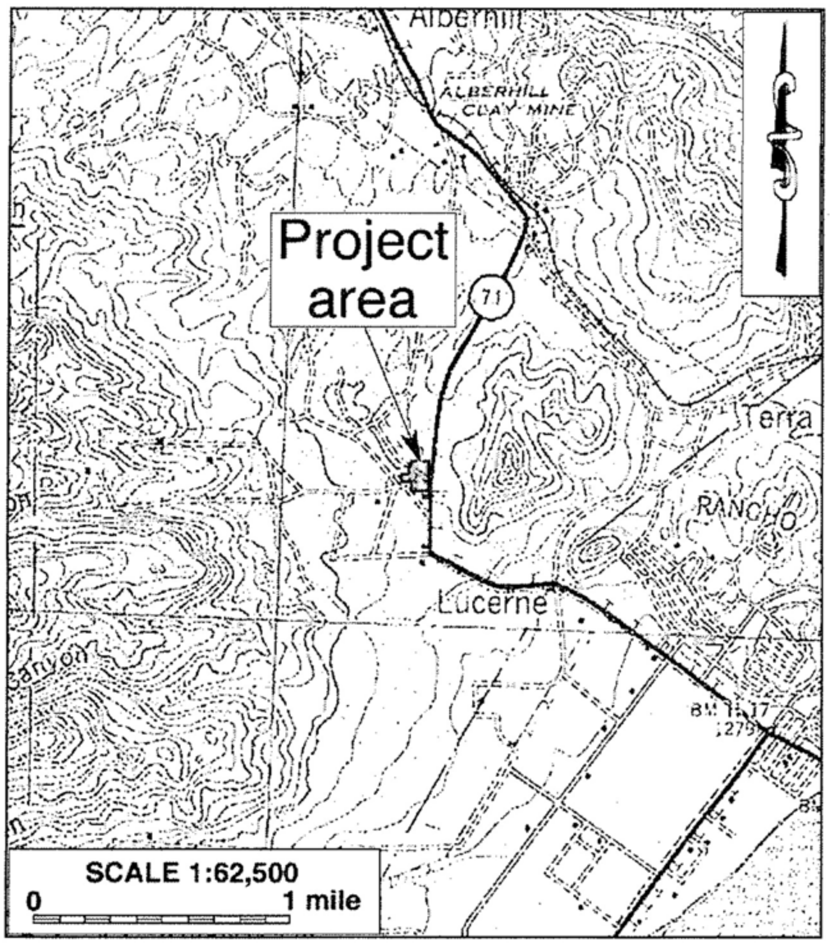

Figure 7. The project area and vicinity in 1939. (Source: USGS 1942)

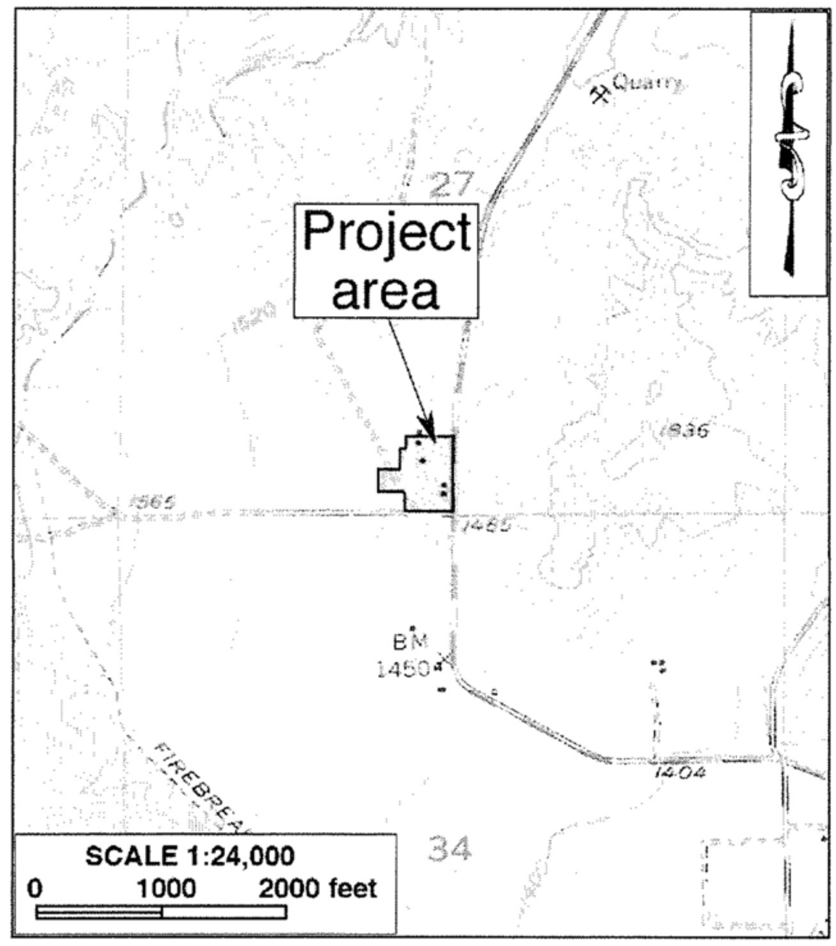

Figure 8. The project area and vicinity in 1951-1954. (Source: USGS 1954)

Southern Emigrant Road, identified as "Old Emigrant Road," was observed traversing just to the west of the project area (Fig. 5). The main branch of the road, lying some two miles to the north (GLO 1880; 1890), was among the most traveled gateways for the legendary wagon trains streaming into California after the American annexation in 1848. Ten years later, the route gained further prestige when it was selected by John Butterfield's Overland Mail Company for its famed stagecoach line between San Francisco and St. Louis, Missouri.

Since then, the rich heritage of the Southern Emigrant Road has been carried to the present time by a succession of modern transportation arteries, including the now-abandoned Santa Fe Railroad, the old Highway 71, and finally today's Interstate 15. The branch of the trail near the project area apparently became less favored as the 19th century drew to a close, especially as the Santa Fe Railroad's Alberhill spur, built in 1896 (Hudson 1978:33), opted for the northerly route (Fig. 6). With the advent of the automobile age in the early 20th century, however, this southerly route again became the main thoroughfare across the northern Elsinore Valley in the form of Highway 71, the direct forerunner of present-day Lake Street (Figs. 7, 8).

Archival records indicate that in 1896, Jared R. Mushrush acquired the entire southwest quarter of Section 27, including the project area, from the U.S. government through a homestead claim (BLM n.d.). U.S. census data list a 35-year-old farmer with the same unique name living in Iowa in 1870 (Ancestry.com n.d.), but no other information was found on Mushrush.

In 1887, four years after the establishment of the town of Elsinore, a rival townsite—albeit a short-lived one—named Lucerne was founded (Gunther 1984:301), its core reportedly centered at the project location but shown slightly to the south in historic maps (Atkins 2008; Figs. 6, 7). The townsite was conceived as a development scheme predicated on the coal and clay mining industries based in Alberhill to the north and Terra Cotta City to the east, but it failed to materialize (*ibid.*).

Coal was first discovered at Alberhill in 1883 and, a few years later, coal and clay deposits were also found at Terra Cotta City (Gunther 1984:9, 539). Soon afterwards, the Southern California Coal and Clay Company established its headquarters at Terra Cotta City, and the Elsinore Coal and Clay Company at Alberhill (*ibid.*). Together, the two companies began the only coal mining operation in California (*ibid.*:10, 541). Terra Cotta City prospered for a few years, but a lack of efficient transportation and the poor quality of local coal and clay deposits forced the Southern California Coal and Clay Company out of business in the early 1890s (*ibid.*:540).

At Alberhill, in contrast, the construction of the Santa Fe Railroad's Alberhill spur helped sustain operations there. In 1906, the newly formed California Fireproof Construction Company rebuilt and expanded the factory at Terra Cotta City, but that venture lasted only six years (Hudson 1978:33-34). Then in 1915, the Pacific Clay Products Company of Los Angeles purchased the coal and clay properties at both Alberhill and Terra Cotta City (Gunther 1984:541). The clay mine at Terra Cotta City remained in operation until 1940, when the company finally abandoned this location in favor of Alberhill (*ibid.*; Hudson 1978:34).

In the late 1930s, only a few scattered buildings were present in the area around the "town" of Lucerne, none of them within the project area (Fig. 7). Between 1939 and 1951, four buildings appeared within the project area, which was situated just outside the northern tip of an extensive citrus-growing area that had developed near Lake Elsinore (Fig. 8). The northernmost building shown in the 1950s map corresponds to APN 389-030-013, a parcel that is currently vacant. The older residence at 28915 Lake Street, within APN 389-030-014, is apparently represented in the map, while the two buildings shown in the southeastern portion of the project area likely represent those associated with Site 33-7208*.

POTENTIAL HISTORICAL RESOURCES WITHIN THE PROJECT AREA

During the field survey, no sites, features, or artifacts of prehistoric origin were discovered within or adjacent to the project area. At Site 33-7208, the residence recorded in 1982 is no longer in existence, leaving only a few ancillary features, such as the two-story water tower, the brick chimney, and the concrete-lined pit, on the property it once occupied.

Meanwhile, as stated above, two other residences were found in the northern portion of the project area, at 28915 Lake Street. One of these, a prefabricated mobile home, was placed at this location in 1976 (County of Riverside 1976). Modern in origin and demonstrating no special architectural, artistic, or aesthetic qualities, the mobile home requires no further consideration as a potential historical resource. The other house and the ancillary features in the project area all appear to date originally to the historic period, and are discussed further below.

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* It should be noted that the appearance of the buildings as shown in the historic maps does not reconcile with the chronology of building events as recorded in archival records, as detailed in the following section.

Residence at 28915 Lake Street (APN 389-030-014)

This one-story single-family residence, facing east toward Lake Street, is generally square in plan and rests on mostly concrete block perimeter footings, except for approximately 11 feet of stone masonry footing at the middle portion of the primary façade (Fig. 9). It is surmounted by a medium-pitched front gable roof of dark-brown composite sheeting that has been extended on either side to cover later additions to the original main mass.

Inspection from the interior reveals that the original portion of the building consists of an approximately 11x20-foot structure built of 12x12-inch concrete blocks except the gable peaks, which are built of bricks. With the except of the rear wall, the original structure has been completely encased by later additions, most notably a 15x15-foot addition to the north side of the building made of 12x8-inch scored blocks inscribed "Alberhill LABCP Co" (Fig 9). The entrance to a concrete cellar is located at the rear of the house.

Other later additions include an approximately 6x11-foot plywood-clad lean-to near the northwest corner; a 10x25-foot addition clad with a mixture of horizontal boards and vertical boards, the latter covering the entire south side of the building; and a five-foot-wide addition clad with horizontal boards, which constitutes the southern two-thirds of the primary façade and features a shallow bay with aluminum-framed windows.

Figure 9. Historic-period residence at 28915 Lake Street. *Clockwise from top*: primary façade, view to the west; detail of "Alberhill LABCP Co" blocks; stone footing at the middle of the primary façade.

The remaining one-third of the primary facade consists of a concrete porch with a metal railing. The porch provides access to a north-facing front entrance and is sheltered by an extension of the main roof, supported by a square wood post and two thin steel posts. There are two wood-framed double-hung windows on the front and side of the northern addition, while all others windows are aluminum-framed sliders. Some of the window openings have been sealed with plywood panel. The exterior of the house is painted white with blue trim, except the south-facing façade, which is brown. The residence is situated near the top of a slope, some 150-200 feet from Lake Street. It stands vacant and is in a neglected and poor condition, as is the surrounding landscaping.

According to archival records, the first improvement was assessed on APN 389-030-014 around 1931, about the same time when Anna Schuster became owner of the parcel (County Assessor 1926-1932). Schuster remained owner until around 1956, when Roderick T. and Esther T. DeMille acquired the parcel (County Assessor 1954-1958). Despite the extensive structural modifications outlined above, no documentation of any alterations were found on file in the City's or the County's building safety records.

The "Alberhill LABCP Co" marking on some of the bricks in the building represents the Alberhill plant of the Los Angeles Brick Company, also known as the Los Angeles Brick and Clay Products Company, whose history is related by its parent company, the Pacific Clay Products Company:

> The Los Angeles Brick Company, which started in 1895 here at Alberhill, produced face brick, paving brick, sewer pipe, and roofing tile. Many of the original buildings in Los Angeles were built using these products. UCLA's Royce Hall and Powell Library, both built in the 1920s, used brick from this company... The Los Angeles Brick Company was purchased by Pacific Clay Products in 1963. (Pacific Clay Products n.d.)

Additionally, Dan Mosier of California Bricks, a website devoted to the history of the brick industry in the state, suggests that the 12x8-inch "Alberhill LABCP Co" blocks appear "to be a hollow clay partition tile block made...sometime between 1925 and 1942 or even later" (Mosier 2008). He was unfamiliar with the original 12x12-inch blocks but offered that it seemed probable that "this company could have made those as well" (*ibid.*). The production dates for the 12x8-inch "Alberhill LABCP Co" blocks provide further evidence that the building was in place before 1939, despite the lack of any indication in the historic map from that year (Fig. 7).

Ancillary Features at Site 33-7208 (APNs 389-030-015 through -018)

These parcels, historically held by the same owners, were collectively the site of the Colonial Revival-style residence at 28993 Lake Street, recorded in 1982 as Site 33-7208. The original site record offers an estimated construction date of 1902 for the residence (Meredith 1982:1), but archival records indicate that no buildings were present on these parcels prior to 1932 (County Assessor 1927-1933), nor were any shown at this location in the historic map dating to 1939 (Fig. 7).

In any case, A. P. Bergeron was identified as the owner of these parcels when the first improvement of $180, a relatively small amount, was assessed on the property in 1932

(County Assessor 1927-1933). A significant increase in that amount to $1,450 by 1950 indicates that additional construction had occurred on the property at that time (County Assessor 1949-1953). After Bergeron, the property passed through the hands of many different owners during the remainder of the historic period, as shown in Table 2 below.

Table 2. Owners of APNs 389-030-015 through -018, 1926-1981*

Name	Ownership Period
A.P. Bergeron	Pre-1926 to ca. 1941
Sam and Anna Schuster	Ca. 1942-1943
R. Malazacher	Ca. 1944-1949
Ottowa Lewis	Ca. 1950-1952
William and Bertha Wilkes	Ca. 1953-1956
Lillian J. Hemmitt	Ca. 1957 to at least 1981

* Sources: Riverside County Assessor 1926-1964; Meredith 1981.

According to City records, the residence was demolished in 2004 (City of Lake Elsinore 2004). Today, only the water tower, the brick chimney, and the concrete-lined pit are found within APNs 389-030-015 through -018 (Fig. 10). The water tower is located in the northwest corner the property, near the residences on the adjacent parcel at 28915 Lake Street, while the brick chimney and the concrete-lined pit are found in the southeastern portion of the property, near the former location of the demolished residence.

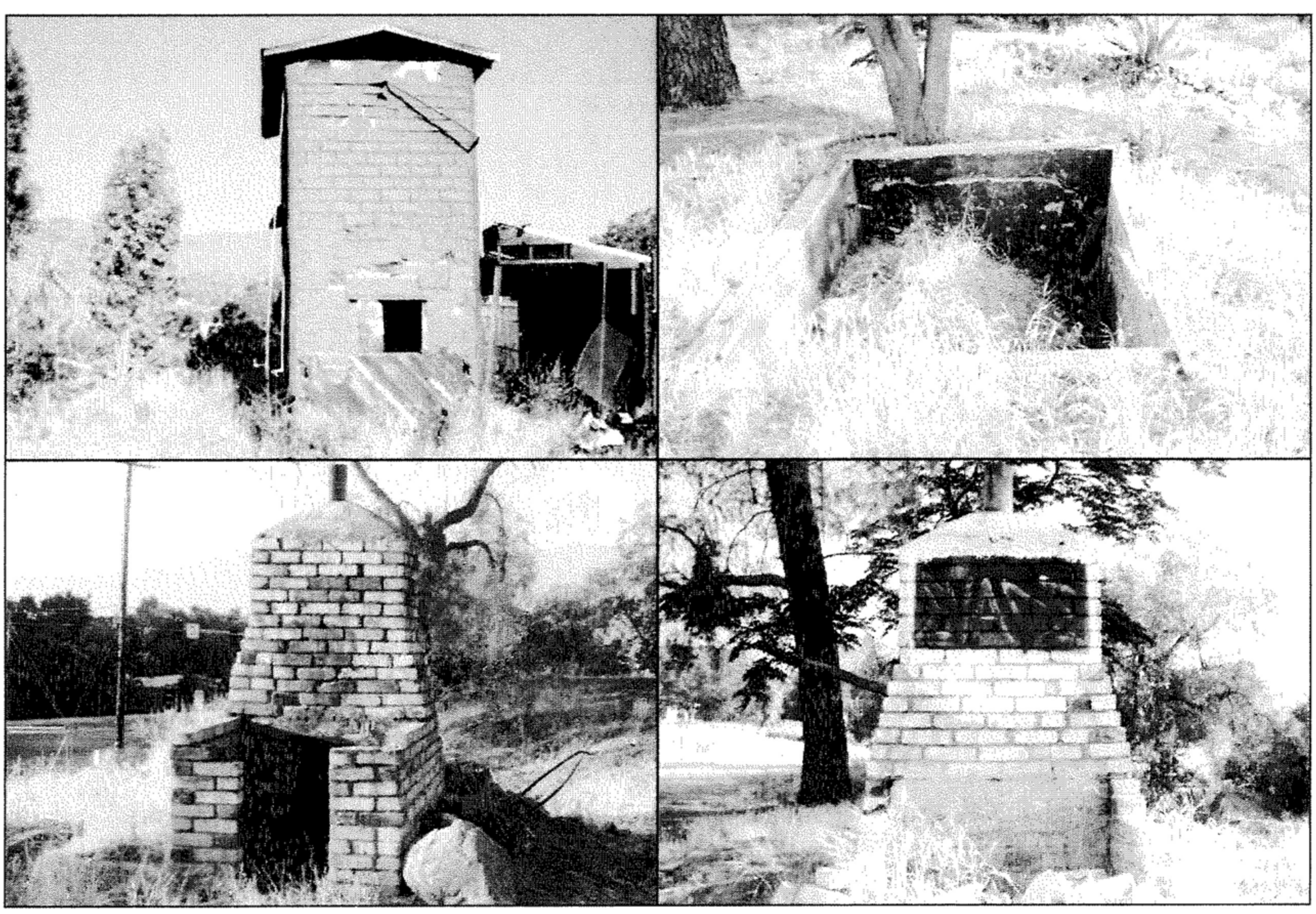

Figure 10. Ancillary features at Site 33-7208. *Clockwise from top left*: water tower; concrete-lined pit; south side of the brick chimney; north side of the chimney.

The water tower is a two-story wood-frame structure built of narrow, diagonally placed wood slats on a nearly square plan (Fig. 10). It is surmounted by a low-pitched gable roof with wide eaves and rests on a concrete slab foundation. The second floor houses a metal water tank that appears modern in origin. On the first floor, a doorway with a triangular arch opens in the west-facing façade, and a window opening is set in the opposite side. Once sheathed in gray composite shingles, the exterior walls of the structure have been painted green, and many of the shingles are missing, particularly on the lower level.

The chimney features a metal exhaust pipe venting from the top, indicating it served an outdoor cooking facility rather than an indoor fireplace (Fig. 10). It appears to have been double-sided with cooking surfaces on both the northern and the southern ends, but is now crumbling and incomplete in some areas, particularly the southern side. Curiously, a water spigot protrudes from the interior on the northern side, possibly indicating that its use and function changed over time.

Several of the bricks, but not all, are stamped "LAPB Co" with a three-star logo below the letters. This represents the Los Angeles Pressed Brick Company, with the stars identifying this particular product as a fire brick made at the company's Alberhill Plant No. 4 between 1916 and 1925 (California Bricks n.d.). It could not be confirmed, however, whether these bricks signify the construction date of this feature or were incorporated into the chimney at a later date. The concrete-lined pit is located nearly adjacent to the northern end of the chimney, and appears to have served as the foundation for a small structure, possible a smoker or some other feature associated with the chimney (Fig. 10). Due to a lack of available documentation, the exact dates of construction could not be ascertained for these features.

DISCUSSION

The purpose of this study is to identify any cultural resources within or adjacent to the project area, and to assist the City of Lake Elsinore in determining whether such resources meet the official definition of "historical resources," as provided in the California Public Resources Code, in particular CEQA.

DEFINITION

According to PRC §5020.1(j), "'historical resource' includes, but is not limited to, any object, building, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of California." More specifically, CEQA guidelines state that the term "historical resources" applies to any such resources listed in or determined to be eligible for listing in the California Register of Historical Resources, included in a local register of historical resources, or determined to be historically significant by the Lead Agency (Title 14 CCR §15064.5(a)(1)-(3)).

Regarding the proper criteria for the evaluation of historical significance, CEQA guidelines mandate that "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" (Title 14 CCR §15064.5(a)(3)). A resource may be listed in the California Register if it meets any of the following criteria:

(1) Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
(2) Is associated with the lives of persons important in our past.
(3) 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.
(4) Has yielded, or may be likely to yield, information important in prehistory or history. (PRC §5024.1(c))

EVALUATION

Residence at 28915 Lake Street (APN 389-030-014)

As discussed above, the residence at 28915 Lake Street was evidently first constructed around 1931 but added on repeatedly in later years. Both the original construction and the later additions utilized building materials manufactured at nearby Alberhill by the Pacific Clay Products Company, a local business and industry that played an important role in the development and cultural heritage of the Lake Elsinore area. The significance of this distinction, however, is reduced considerably by the fact that these materials were produced by the company for nearly 70 years and were widely used in many construction projects in the local area as well as throughout southern California.

Despite its pre-WWII origins, the house has been significantly altered from its original appearance. As a result, it retains poor historic integrity in terms of design, materials, workmanship, and feeling to relate to its period of origin. Throughout the course of this study, no persons or specific events of recognized significance in national, state, or local history, nor any prominent architects, designers, or builders were identified in association with this residence. In terms of architectural or aesthetic merits, the residence is not known to be an important example of any particular style, type, period, region, or method of construction, nor does it express any architectural ideals or design concepts more fully than the many other surviving buildings of similar nature and vintage in the Lake Elsinore area.

Based on these considerations, the present study concludes that the residence at 28915 does not appear eligible for listing in the California Register of Historical Resources, and does not qualify as a "historical resource," as defined above.

Ancillary Features at Site 33-7208 (APNs 389-030-015 through -018)

The water tower, brick chimney, and concrete-lined pit located on APNs 389-030-015 through -018 are evidently ancillary features that were once associated with the Colonial Revival-style residence previously recorded at 28993 Lake Street as Site 33-7208. With the removal of the residence in 2004, these secondary features, all of them in deteriorated conditions themselves, retain little potential to embody and manifest what historic significance that the residence—and thereby Site 33-7208—may have once had. Furthermore, neither the residence nor any of the ancillary features is known to have been closely associated with any persons or events of recognized historic significance, and none of the surviving features demonstrates any particular architectural, aesthetic, or technological merits. Therefore, these features do not qualify as "historical resources," either individually or collectively.

CONCLUSION AND RECOMMENDATIONS

CEQA establishes 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" (PRC §21084.1). "Substantial adverse change," according to PRC §5020.1(q), "means demolition, destruction, relocation, or alteration such that the significance of a historical resource would be impaired."

In summary of the information and analysis presented above, neither the historic-period residence at 28915 Lake Street nor any of the surviving features at Site 33-7208 meets the definition of a "historical resource," as provided in CEQA, and no other potential "historical resources" were encountered during the course of this study. Based on these findings, CRM TECH presents the following recommendations to the City of Lake Elsinore:

- No historical resources exist within or adjacent to the project area, and thus the project as currently proposed will not cause a substantial adverse change to any known historical resources.
- No further cultural resources investigation is necessary for the proposed project unless development plans undergo such changes as to include areas not covered by this study.
- If buried cultural materials are discovered during any earth-moving operations associated with the project, all work in that area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

REFERENCES

Ancestry.com
n.d. Genealogical data on Jared R. Mushrush. Http://www.ancestry.com.

Atkins, Ruth (President, Lake Elsinore Historical Society)
2008 Personal communication. Interviewed via telephone on June 24.

BLM (Bureau of Land Management, U.S. Department of the Interior)
n.d. Online database of U.S. land patents. Http://www.glorecords.blm.gov.

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County of Riverside
1926-1964 Real property tax assessment records, Book 18, Map 8. Microfiches on file, Riverside County Assessor's Office, Riverside.
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GLO (General Land Office, U.S. Department of the Interior)
1880 Plat Map: Township No. 5 South Range No. 5 West, San Bernardino Meridian; surveyed in 1854-1880.
1890 Plat Map: Township No. 5 South Range No. 5 West, San Bernardino Meridian; surveyed in 1889.

Gunther, Jane Davies
1984 *Riverside County, California, Place Names: Their Origins and Their Stories*. Jane Davies Gunther, Riverside.

Hudson, Tom
1978 *Lake Elsinore Valley: Its Story, 1776-1977*. Lake Elsinore Downtown Business Association and City of Lake Elsinore Centennial, Lake Elsinore.
1989 *A Thousand Years in Temecula Valley*. Reprinted by Old Town Temecula Museum, Temecula.

Jennings, Bill, Ron Baker, Tom Patterson, and Diana Seider (ed.)
1993 *Guide to the Historic Landmarks of Riverside County, California*. Riverside County Historical Commission Press, Riverside.

Kroeber, Alfred L.
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Lerch, Michael K., Anne Q. Stoll and Patrick B. Stanton
2006 Cultural Resource Assessment of the Fogarty Substation, Lake Elsinore Area, Riverside County, California. On file, Eastern Information Center, University of California, Riverside.

Meredith, Pat
1982 California Historical Resources Inventory site record forms, 33-7208. On file, Eastern Information Center, University of California, Riverside.

Mosier, Dan (creator and host, California Bricks [www.calbricks.netfirms.com])
2008 Personal communication. Interviewed via e-mail on June 27-30.

Pacific Clay Products, Inc.
n.d. Alberhill, CA, Produces World-Class Clay. Http://www.pacificclay.com/v2/main/default.asp?init=true&flash=on&browser=NS.

Strong, William Duncan
1929 *Aboriginal Society in Southern California.* University of California Publications in American Archaeology and Ethnology No. 26. Reprinted by Malki Museum Press, Banning, California, 1972.

USGS (United States Geological Survey, U.S. Department of the Interior)
1901 Map: Elsinore, Calif. (30', 1:125,000); surveyed in 1897-1898.
1942 Map: Lake Elsinore, Calif. (15', 1:62,500); aerial photographs taken in 1939.
1954 Map: Alberhill, Calif. (7.5', 1:24,000); aerial photographs taken in 1951, field checked in 1954.
1979 Map: Santa Ana, Calif. (1:250,000); 1959 edition revised.
1988 Map: Lake Elsinore, Calif. (7.5', 1:24,000); 1953 edition photorevised in 1985.
1997 Map: Alberhill, Calif. (7.5', 1:24,000); 1988 edition revised in 1997.

APPENDIX 1:
PERSONNEL QUALIFICATIONS

PRINCIPAL INVESTIGATOR/HISTORIAN
Bai "Tom" Tang, M.A.

Education

1988-1993	Graduate Program in Public History/Historic Preservation, U.C. Riverside.
1987	M.A., American History, Yale University, New Haven, Connecticut.
1982	B.A., History, Northwestern University, Xi'an, China.
2000	"Introduction to Section 106 Review," presented by the Advisory Council on Historic Preservation and the University of Nevada, Reno.
1994	"Assessing the Significance of Historic Archaeological Sites," presented by the Historic Preservation Program, University of Nevada, Reno.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1993-2002	Project Historian/Architectural Historian, CRM TECH, Riverside, California.
1993-1997	Project Historian, Greenwood and Associates, Pacific Palisades, California.
1991-1993	Project Historian, Archaeological Research Unit, U.C. Riverside.
1990	Intern Researcher, California State Office of Historic Preservation, Sacramento.
1990-1992	Teaching Assistant, History of Modern World, U.C. Riverside.
1988-1993	Research Assistant, American Social History, U.C. Riverside.
1985-1988	Research Assistant, Modern Chinese History, Yale University.
1985-1986	Teaching Assistant, Modern Chinese History, Yale University.
1982-1985	Lecturer, History, Xi'an Foreign Languages Institute, Xi'an, China.

Honors and Awards

1988-1990	University of California Graduate Fellowship, U.C. Riverside.
1985-1987	Yale University Fellowship, Yale University Graduate School.
1980, 1981	President's Honor List, Northwestern University, Xi'an, China.

Cultural Resources Management Reports

Preliminary Analyses and Recommendations Regarding California's Cultural Resources Inventory System (With Special Reference to Condition 14 of NPS 1990 Program Review Report). California State Office of Historic Preservation working paper, Sacramento, September 1990.

Numerous cultural resources management reports with the Archaeological Research Unit, Greenwood and Associates, and CRM TECH, since October 1991.

Membership

California Preservation Foundation.

PRINCIPAL INVESTIGATOR/ARCHAEOLOGIST
Michael Hogan, Ph.D., RPA*

Education

1991	Ph.D., Anthropology, University of California, Riverside.
1981	B.S., Anthropology, University of California, Riverside; with honors.
1980-1981	Education Abroad Program, Lima, Peru.
2002	Section 106—National Historic Preservation Act: Federal Law at the Local Level. UCLA Extension Course #888.
2002	"Recognizing Historic Artifacts," workshop presented by Richard Norwood, Historical Archaeologist.
2002	"Wending Your Way through the Regulatory Maze," symposium presented by the Association of Environmental Professionals.
1992	"Southern California Ceramics Workshop," presented by Jerry Schaefer.
1992	"Historic Artifact Workshop," presented by Anne Duffield-Stoll.

Professional Experience

2002-	Principal Investigator, CRM TECH, Riverside/Colton, California.
1999-2002	Project Archaeologist/Field Director, CRM TECH, Riverside.
1996-1998	Project Director and Ethnographer, Statistical Research, Inc., Redlands.
1992-1998	Assistant Research Anthropologist, University of California, Riverside
1992-1995	Project Director, Archaeological Research Unit, U.C. Riverside.
1993-1994	Adjunct Professor, Riverside Community College, Mt. San Jacinto College, U.C. Riverside, Chapman University, and San Bernardino Valley College.
1991-1992	Crew Chief, Archaeological Research Unit, U.C. Riverside.
1984-1998	Archaeological Technician, Field Director, and Project Director for various southern California cultural resources management firms.

Research Interests

Cultural Resource Management, Southern Californian Archaeology, Settlement and Exchange Patterns, Specialization and Stratification, Culture Change, Native American Culture, Cultural Diversity.

Cultural Resources Management Reports

Author and co-author of, contributor to, and principal investigator for numerous cultural resources management study reports since 1986.

Memberships

* Register of Professional Archaeologists.
Society for American Archaeology.
Society for California Archaeology.
Pacific Coast Archaeological Society.
Coachella Valley Archaeological Society.

HISTORIAN/ ARCHITECTURAL HISTORIAN
Terri Jacquemain, M.A.

Education

2004	M.A., Public History and Historic Resource Management, University of California, Riverside.
2002	B.S., Anthropology, University of California, Riverside.

Professional Experience

2003- Historian/Report Writer, CRM TECH, Riverside/Colton, California.
- Writer/co-author of cultural resources reports for CEQA and NHPA Section 106 compliance;
- Historic context development, historical/archival research, oral historical interviews, consultation with local historical societies;
- Historic building surveys and recordation, research in architectural history.

2002-2003 Teaching Assistant, Religious Studies Department, University of California, Riverside.

1997-1999 Reporter, *Inland Valley Daily Bulletin*, Ontario, California.

1991-1997 Reporter, *The Press-Enterprise*, Riverside, California.

Memberships

California Council for the Promotion of History.
Friends of Public History, University of California, Riverside.

PROJECT ARCHAEOLOGIST
Thomas J. Melzer, B.A.

Education

2004	B.A., Anthropology/Cultural Resources Management, California State Polytechnic University, Pomona.

Professional Experience

2004- Project Archaeologist, CRM TECH, Riverside/Colton, California.

2002 Archaeological Field Technician, Death Valley National Park Archaeological Site Resources Condition Assessment Project, California State Polytechnic University, Pomona, Foundation; directed by Dr. Mark W. Allen.
- Survey and assessment of previously recorded sites; co-author of final report.

2001-2002 Archaeological Field Technician, Red Mountain Archaeological Project, California State Polytechnic University, Pomona; directed by Dr. Mark W. Allen.
- Survey, test excavation, laboratory analysis of artifacts.

PROJECT ARCHAEOLOGIST
Nina Gallardo, B.A.

Education

2004 B.A., Anthropology/Law and Society, University of California, Riverside.

Professional Experience

2004- Project Archaeologist, CRM TECH, Riverside/Colton, California.
- Surveys, excavations, mapping, and records searches.

Honors and Awards

2000-2002 Dean's Honors List, University of California, Riverside.

APPENDIX 2

CORRESPONDENCE WITH NATIVE AMERICAN REPRESENTATIVES*

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* A total of 14 local Native American representatives were contacted; a sample letter is included in this report.

CRM TECH

FAX COVER SHEET

1016 E. Cooley Drive
Suite B
Colton, CA 92324
909·824·6400·Tel
909·824·6405·Fax

To:
Native American Heritage Commission

Fax:
(916) 657-5390

From:
Nina Gallardo

Date:
May 15, 2008

Number of pages (including this cover sheet):
2

HARDCOPY:

______ will follow by mail

√ will not follow unless requested

RE: Sacred Land records search

This is to request a Sacred Lands records search

Name of project:
Lake Street Marketplace
APNs 389-030-014 through -018
CRM TECH #2250

Project size:
4.15 acres

Location:
In the City of Lake Elsinore
Riverside County

USGS 7.5' quad sheet data:
Alberhill & Lake Elsinore, Calif.
Section 27, T5S R5W, SBBM

Please call if you need more information or have any questions. Results may be faxed to the number above. I appreciate your assistance in this matter.

Map included

From: lshaker@crmtech.us
To: "Anna Hoover" <ahoover@pechanga-nsn.gov>
Subject: CRM TECH #2250
Date: Fri, 16 May 2008 13:53:49 -0400

Ms. Hoover:

CRM TECH will be conducting archaeological fieldwork in the near future for the project referenced below, and is seeking consultation from the Pechanga Band of Luiseño Indians in hopes of gaining knowledge regarding cultural resources within or in the immediate vicinity of the property. Tribal members who have specific knowledge of sacred/religious sites or other sites of Native American traditional cultural significance within or near the project area are encouraged to contact us with recommendations on how to proceed with the project.

Name of project:
Lake Street Marketplace
APNs 389-030-014 through -018
CRM TECH #2250

Project size:
4.15 acres

Location:
In the City of Lake Elsinore
Riverside County

USGS 7.5' quad sheet data:
Alberhill & Lake Elsinore, Calif.
Section 27, T5S R5W, SBBM

If the tribe would like to have a monitor present during the survey, please contact me for additional details.

Thank you,

Laura Shaker
CRM TECH
909-376-7844
lshaker@crmtech.us

STATE OF CALIFORNIA Arnold Schwarzenegger, Governor

NATIVE AMERICAN HERITAGE COMMISSION
915 CAPITOL MALL, ROOM 364
SACRAMENTO, CA 95814
(916) 653-6251
Fax (916) 657-5390
Web Site www.nahc.ca.gov
e-mail: ds_nahc@pacbell.net

May 15, 2008

Ms. Nina Gallardo
CRM TECH
1016 E. Cooley Drive, Suite B
Colton, CA 92324

Sent by FAX to: (909) 824-6405
Number of Pages: 3

Re: Request for a Sacred Lands File records search for the proposed **Lake Street Maketplace Project**; located in the City of Lake Elsinore; Riverside County, California

Dear Ms. Gallardo:

The Native American Heritage Commission was able to perform a record search of its Sacred Lands File (SLF) for the affected project area. The SLF failed to indicate the presence of Native American cultural resources in the immediate project area. The absence of specific site information in the Sacred Lands File does not guarantee the absence of cultural resources in any project area. This project site is in close proximity to previously discovered prehistoric burial sites and is believed to hold numerous cultural resources.

Early consultation with Native American tribes in your area is the best way to avoid unanticipated discoveries once a project is underway. Enclosed is the name of the nearest tribes that may have knowledge of cultural resources in the project area. A list of Native American contacts is attached to assist you. It is advisable to contact the persons listed; if they cannot supply you with specific information about the impact on cultural resources, they may be able to refer you to another tribe or person knowledgeable of the cultural resources in or near the affected project area.

Lack of surface evidence of archeological resources does not preclude the existence of archeological resources. Lead agencies should consider avoidance, as defined in Section 15370 of the California Environmental Quality Act (CEQA) when significant cultural resources could be affected by a project. Also, Public Resources Code Section 15064.5(f) and Section 15097.98 and Health & Safety Code Section 7050.5 provide for provisions for accidentally discovered archeological resources during construction and mandate the processes to be followed in the event of an accidental discovery of any human remains in a project location other than a 'dedicated cemetery. Discussion of these should be included in your environmental documents, as appropriate.

If you have any questions about this response to your request, please do not hesitate to contact me at (916) 653-6251.

Sincerely,

Dave Singleton, Program Analyst

Attachment: Native American Contact List

Native American Contacts
Riverside County
May 15, 2008

Cahuilla Band of Indians
Anthony Madrigal, Jr., Chairperson
P.O. Box 391760 Cahuilla
Anza , CA 92539
tribalcouncil@cahuilla.net
(951) 763-2631

(951) 763-2632 Fax

Soboba Band of Mission Indians
Chairperson
P.O. Box 487 Luiseno
San Jacinto , CA 92581
dhill@soboba-nsn.gov
(951) 654-2765
(951) 654-4198 - Fax

Los Coyotes Band of Mission Indians
Katherine Saubel, Spokesperson
P.O. Box 189 Cahuilla
Warner , CA 92086
loscoyotes@earthlink.net
(760) 782-0711
(760) 782-2701 - FAX

Santa Rosa Band of Mission Indians
John Marcus, Chairman
P.O. Box 609 Cahuilla
Hemet , CA 92546
srtribaloffice@aol.com
(951) 658-5311
(951) 658-6733 Fax

Pechanga Band of Mission Indians
Paul Macarro, Cultural Resource Center
P.O. Box 1477 Luiseno
Temecula , CA 92593
(951) 308-9295 Ext 8106
(951) 676-2768
(951) 506-9491 Fax

Juaneno Band of Mission Indians Acjachemen Nation
Anthony Rivera, Chairman
31411-A La Matanza Street Juaneno
San Juan Capistrano , CA 92675-2674
arivera@juaneno.com
949-488-3484
949-488-3294 Fax

Ramona Band of Cahuilla Mission Indians
Joseph Hamilton, vice chairman
P.O. Box 391670 Cahuilla
Anza , CA 92539
admin@ramonatribe.com
(951) 763-4105
(951) 763-4325 Fax

Morongo Band of Mission Indians
Michael Contreras, Cultural Resources-Project
49750 Seminole Drive Cahuilla
Cabazon , CA 92230 Serrano
(951) 755-5206

(951) 922-8146 Fax

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Lake Street Marketplace (CRM TECH #2250) located in the City of Lake Elsinore; Riverside County, California for with a Sacred Lands File search and Native American Contacts list were requested.

Native American Contacts
Riverside County
May 15, 2008

Pechanga Band of Mission Indians
Mark Macarro, Chairperson
P.O. Box 1477 Luiseno
Temecula , CA 92593
tbrown@pechanga-nsn.gov
(951) 676-2768
(951) 695-1778 Fax

Willie Pink
48310 Pechanga Road Luiseno
Temecula , CA 92592
wjpink@hotmail.com
(909) 936-1216
Prefers e-mail contact

Soboba Band of Luiseno Indians
Erica Helms, Cultural Resources Manager
P.O. Box 487 Luiseno
San Jacinto , CA 92581
dhill@soboba-nsn.gov
(951) 654-2765
FAX: (951) 654-4198

This list is current only as of the date of this document.

Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code.

This list is only applicable for contacting local Native Americans with regard to cultural resources for the proposed Lake Street Marketplace (CRM TECH #2250) located in the City of Lake Elsinore; Riverside County, California for with a Sacred Lands File search and Native American Contacts list were requested.

May 20, 2008

Anthony Rivera, Chairman
Juaneño Band of Mission Indians Acjachemen Nation
31411-A La Mantanza Street
San Juan Capistrano, CA 92675-2674

RE: Lake Street Marketplace Shopping Center
4.15 Acres in Assessor's Parcel Nos. 389-030-014 to 389-030-018
In the City of Lake Elsinore, Riverside County
CRM TECH Contract #2250

Dear Mr. Rivera:

As part of a cultural resources study for the project referenced above, I am writing to request your input on potential Native American cultural resources in or near the project area. Please respond at your earliest convenience if you have any specific knowledge of sacred/religious sites or other sites of Native American traditional cultural value within or near the project area. The lead agency for this project is the City of Lake Elsinore for CEQA-compliance purposes.

The proposed project is located on the northwest corner of Lake Street and Mountain Street, in the City of Lake Elsinore, Riverside County. The accompanying map, based on the USGS Alberhill, Calif., 7.5' quadrangle, depicts the location of the project area in the southwest quarter of Section 27, T5S R5W, SBBM.

Any information, concerns or recommendations regarding cultural resources in the vicinity of the project area may be forwarded to CRM TECH by telephone, e-mail, facsimile or standard mail. Thank you for the time and effort in addressing this important matter.

Respectfully,

Laura Hensley Shaker
CRM TECH

Encl.: Project location map

PECHANGA CULTURAL RESOURCES
Temecula Band of Luiseño Mission Indians

Post Office. Box 2183 • Temecula, CA 92593
Telephone (951) 308-9295 • Fax (951) 506-9491

June 17, 2008

VIA E-Mail and USPS

RE: Request for Information for the Lake Street Marketplace Shopping Center, APNs 389-030-014 to -018, CRM Tech #2250 (CRM Tech)

Dear Ms. Shaker;

The Tribe appreciates your request for information regarding the above referenced project. After reviewing the provided maps and internal documents, we have determined that the project area is not within reservation lands although it is within our ancestral territory. At this time, we have no additional comments in regards to the project as provided. If the project should change in any way, the Tribe requests updated information and opportunity to comment on the revisions.

However, the Tribe requests the following:

1) Copies of all applicable archaeological reports and site records; and
2) In the event that subsurface cultural resources are identified, the Tribe requests consultation with the project proponent and Lead Agency regarding the treatment and disposition of all artifacts.

As a sovereign governmental entity, the Tribe is entitled to appropriate and adequate government-to-government consultation regarding the proposed project. We would like you and your client to know that the Tribe does not consider initial inquiry letters from project consultants to constitute appropriate government-to-government consultation, but rather tools to obtain further information about the project area. Therefore, the Tribe reserves its rights to participate in the formal environmental review process, including government-to-government consultation with the Lead Agency, and requests to be included in all correspondence regarding this project.

Please note that we are interested in participating in surveys within Luiseño ancestral territory. Prior to conducting any surveys, please contact the Cultural Department to schedule specifics. If you have any additional questions or comments, please contact me at ahoover@pechanga-nsn.gov or 951-308-9295.

Sincerely,

Anna M. Hoover
Cultural Analyst

RAMONA BAND OF CAHUILLA

56310 Highway 371, Suite B
Post Office Box 391670
Anza, California 92539

Tel: (951) 763-4105
Fax: (951) 763-4325
E-mail: admin@ramonatribe.com

"A SOVEREIGN NATION"

June 20, 2008

CRM Tech
C/o Laura Hensley Shaker
1016 E. Cooley Dr., Suites A/B
Colton, CA 92324

Re: Lake Street Marketplace Shopping Center
Lake Elsinore, Riverside County
CRM Tech Contract #2250

Dear Ms. Shaker:

The Ramona Band of Cahuilla Indians is in receipt of a notice regarding the above proposed project and submits this letter as its official response.

While the proposed project is not within the Reservation boundaries, the project site lies within the traditional territory of the Cahuilla People, and the Ramona Band of Cahuilla Indians is concerned about the protection of unique and irreplaceable cultural resources, such as Cahuilla village and burial sites and archaeological items that may be displaced by ground-disturbing work associated with any project within the aboriginal homelands of the Cahuilla people.

At this time, the Ramona Band of Cahuilla Indians can not provide any additional information regarding cultural resources within the proposed project area. However, we reserve the right to review the cultural resource report for the proposed project and provide comments regarding any concerns we may have. Please forward a copy of the cultural resources report to the address listed above.

The Ramona Band of Cahuilla Indians appreciates the opportunity to consult regarding the proposed project, and we look forward to working with the City of Lake Elsinore to protect and preserve the invaluable resources of the Cahuilla people.

Please feel free to contact me at the address above or via telephone at (951)941-4943 or (951)763-4105.

Sincerely,

John Gomez, Jr.
Cultural Resources
Ramona Band of Cahuilla Indians

RECEIVED JUN 26 2008

RI-8175

CRM TECH
1016 E. Cooley Drive, Suite A/B
Colton, CA 92324

August 21, 2008

RECEIVED IN
AUG 29 2008
EIC

David Hogan
David Hogan Consulting Services
40595 Windsor Road,
Temecula, CA 92591

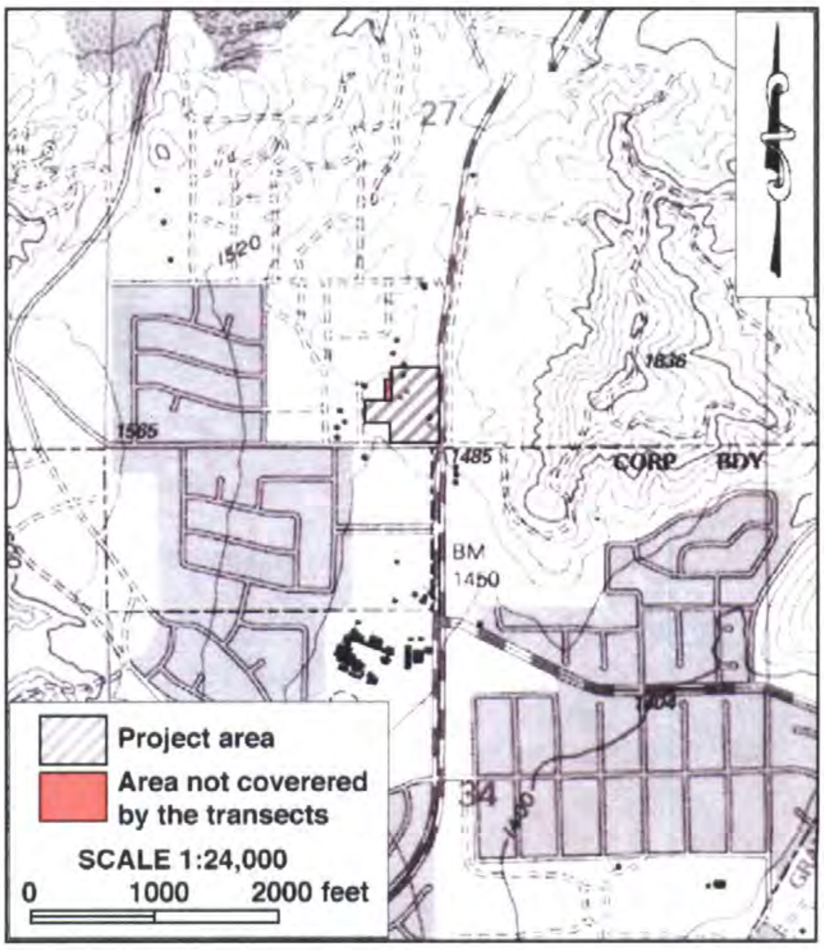
Re: Addendum to Historical/Archaeological Resources Survey Report
Lake Street Marketplace, City of Lake Elsinore, Riverside County, California
CRM TECH Contract No. 2250

Dear Mr. Hogan:

In response to your questions, I am writing to clarify some information contained in our recently submitted report for the project referenced above (Tang et al. 2008), particularly regarding the field survey coverage and the house formerly located at 28993 Lake Street.

Field Survey of the Project Area

In our report, the "project area" is defined to encompass both the five parcels slated for development (APNs 389-030-014 to -018) and portions of four adjacent parcels to be used for off-site improvement and construction staging (APNs 389-030-013 and 389-030-020 to -022). The 50-foot transects walked during the field survey on May 7, 2008, covered all of these areas with the exception of the portion of APN 389-030-020, which was fenced off and could not be accessed (see map to the right). That portion of the project area, measuring roughly 175x50 feet in size, was inspected from the parameters only. Like the rest of the project area, that portion of APN 389-030-020 appears to have been extensively disturbed by past agricultural and/or development activities, and is relatively low in sensitivity for archaeological resources.



Coverage of the intensive-level field survey

House at 28993 Lake Street

The point of clarification regarding the historic-period residence once located at 28993 Lake Street (formerly Robb Road) pivots around its presence or absence at the time of the 2006 study.

A closer review of the 2006 study reveals that at that time Lerch et al. (2006:32) could not ascertain the condition of the house, which had previously been recorded as Site 33-7208, due to a lack of access and dense vegetation that "obstructed a view of the house from the road." As a result, that study based its conclusion and recommendation regarding the house on information contained in the original site record (Meredith 1982:1), finding it "likely to be eligible" for listing in the California Register of Historic Resources and possibly the National Register of Historic Places (Lerch et al. 2006:34).

As mentioned in our report (Tang et al. 2008:14), the City of Lake Elsinore's building safety records indicate that a permit was issued in 2004 to demolish a single-family dwelling at 28993 Lake Street. Further review of the City records reveals that the permit was finalized on January 20, 2005. Based on this information, the Colonial Revival-style residence recorded in 1982 as Site 33-7208 was evidently no longer present at the time of the 2006 study.

If you have any further questions, please do not hesitate to contact us at (909) 824-6400. Thank you for this opportunity to be of service.

Sincerely,

Bai "Tom" Tang, M.A., Principal
CRM TECH

References:

Lerch, Michael K., Anne Q. Stoll, and Patrick B. Stanton
2006 Cultural Resource Assessment of the Fogarty Substation, Lake Elsinore Area, Riverside County, California. On file, Eastern Information Center, University of California, Riverside.

Meredith, Pat
1982 California Historical Resources Inventory site record forms, 33-7208. On file, Eastern Information Center, University of California, Riverside.

Tang, Bai "Tom," Terri Jacquemain, and Thomas Melzer
2008 Historical/Archaeological Resources Survey Report: Lake Street Markeplace, City of Lake Elsinore, Riverside County, California. On file, Eastern Information Center, University of Riverside, California.

Appendix E

Energy Analysis

Lake and Mountain Shopping Center

ENERGY ANALYSIS
CITY OF LAKE ELSINORE

PREPARED BY:

Haseeb Qureshi
hqureshi@urbanxroads.com

Maxwell Utter
mutter@urbanxroads.com

AUGUST 7, 2020

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APPENDICES

LIST OF EXHIBITS

LIST OF TABLES

LIST OF ABBREVIATED TERMS

(1)	Reference
AQIA	Air Quality Impact Analysis
ARB	Air Resources Board
BACM	Best Available Control Measures
BTU	British Thermal Units
CalEEMod	California Emissions Estimator Model
CARB	California Air Resources Board
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CITY	City of Lake Elsinore
CPUC	California Public Utilities Commission
DMV	Department of Motor Vehicles
EIR	Environmental Impact Report
EMFAC	Emissions Factor
EVs	Electric Vehicles
FERC	Federal Energy Regulatory Commission
GHG	Greenhouse Gas
GPA	General Plan Amendment
GWh	Gigawatt Hour
HHDT	Heavy Heavy Duty Truck
IEPR	Integrative Energy Policy Report
ISO	Independent Service Operator
ISTEA	Intermodal Surface Transportation Efficiency Act
ITE	Institute of Transportation Engineers
kBTU	Thousand British Thermal Units
MHDT	Medium Heavy Duty Truck
LDA	Light Duty Auto
LDT1	Light Duty Truck 1
LDT2	Light Duty Truck 2
MCY	Motorcycles
MPG	Miles Per Gallon
MPO	Metropolitan Planning Organization
PG&E	Pacific Gas and Electric
Project	Lake and Mountain Shopping Center
RV	Recreational Vehicles
SCAB	South Coast Air Basin

SCAG	Southern California Association of Governments
SCE	Southern California Edison
SDG&E	San Diego Gas and Electric
sf	Square Feet
SoCalGas	Southern California Gas
TAC	Toxic Air Contaminants
TEA-21	Transportation Equity Act for the 21st Century
TIA	Traffic Impact Analysis
VMT	Vehicle Miles Traveled

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EXECUTIVE SUMMARY

ES.1 SUMMARY OF FINDINGS

The results of this *Lake and Mountain Shopping Center Energy Analysis* is summarized below based on the significance criteria in Section 3 of this report consistent with Appendix G of the California Environmental Quality Act (CEQA) Guidelines (1). Table ES-1 shows the findings of significance for potential energy impacts under CEQA.

TABLE ES-1: SUMMARY OF CEQA SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
Energy Impact #1: Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.	5.0	*Less Than Significant*	*n/a*
Energy Impact #2: Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.	5.0	*Less Than Significant*	*n/a*
Energy Impact #3: • Decreasing overall per capita energy consumption. • Decreasing reliance on fossil fuels such as coal, natural gas and oil. • Increasing reliance on renewable energy sources	5.0	*Less Than Significant*	*n/a*

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1 INTRODUCTION

This report presents the results of the energy analysis prepared by Urban Crossroads, Inc., for the proposed Lake and Mountain Shopping Center (Project). The purpose of this report is to ensure that energy implication is considered by the City of Lake Elsinore, as the lead agency, and to quantify anticipated energy usage associated with construction and operation of the proposed Project, determine if the usage amounts are efficient, typical, or wasteful for the land use type, and to emphasize avoiding or reducing inefficient, wasteful, and unnecessary consumption of energy.

1.1 SITE LOCATION

The proposed Lake and Mountain Shopping Center Project is located on the northwest corner of Lake Street and Mountain Street in the City of Lake Elsinore as shown on Exhibit 1-A. The Project site is currently vacant. Nearby existing residential tract homes are located east of the Project site across Lake Street and south across Mountain Street. Individual large lot single-family residential homes are located west and north of the Project site.

1.2 PROJECT DESCRIPTION

The Project is proposed to consist of 13,200 square feet of shopping center use, a gasoline service station with a 3,400 square foot convenience market, 7,365 square feet of fast-food restaurant with drive-through window use, and an automated car wash tunnel, as shown on Exhibit 1-B. It is anticipated that the Project would be developed in a single phase with an anticipated Opening Year of 2021.

EXHIBIT 1-A: LOCATION MAP

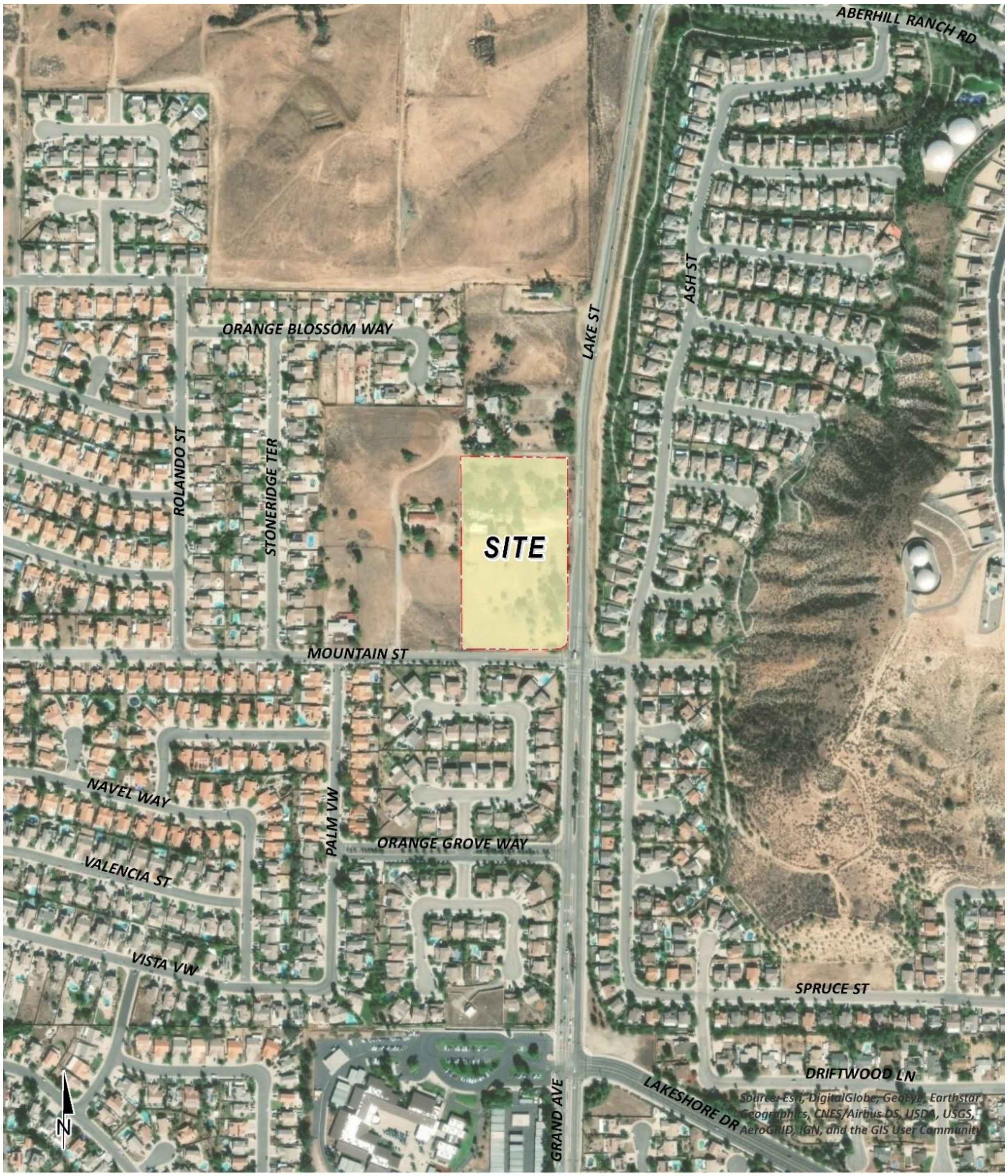
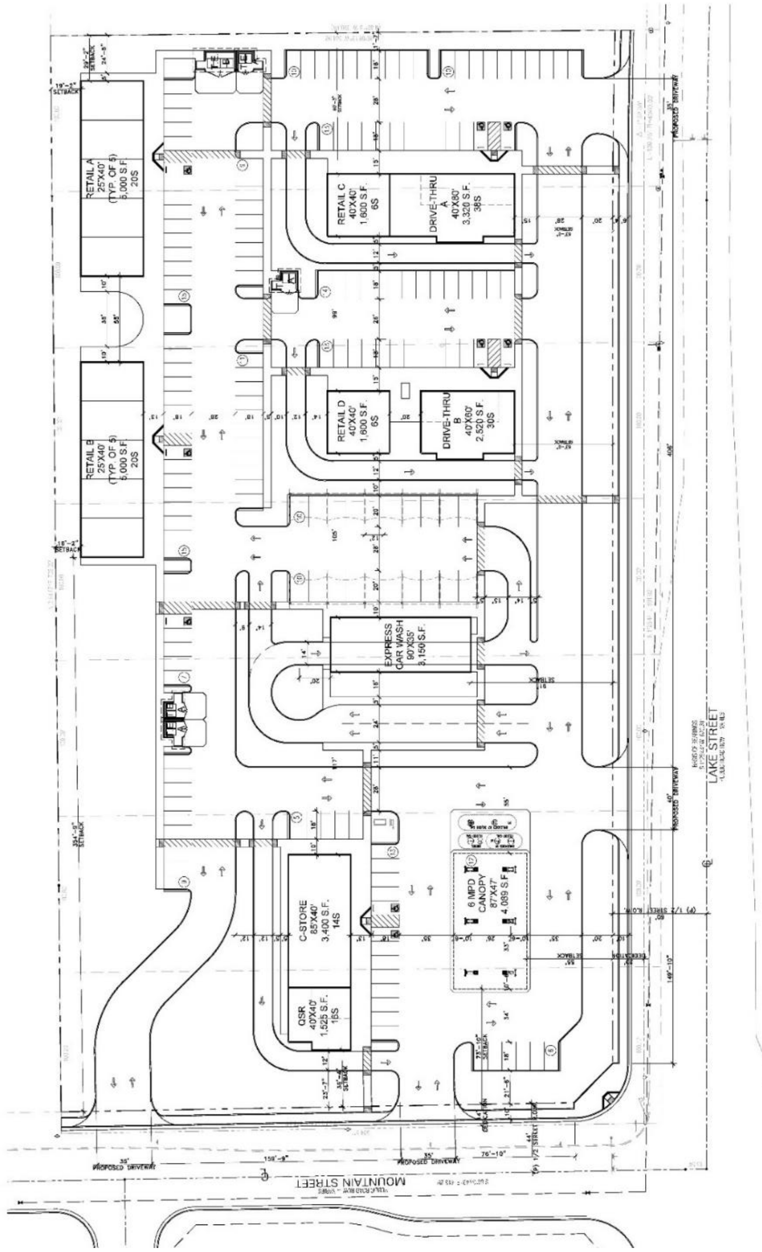


EXHIBIT 1-B: SITE PLAN



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2 EXISTING CONDITIONS

This section provides an overview of the existing energy conditions in the Project region.

2.1 OVERVIEW

The most recent data for California's estimated total energy consumption is from 2017 and natural gas consumption is from 2018, released by the United States (U.S.) Energy Information Administration's (EIA) California State Profile and Energy Estimates in 2020 and include:

- Approximately 7,881 trillion British Thermal Unit (BTU) of energy was consumed;
- Approximately 683 million barrels of petroleum;
- Approximately 2,137 billion cubic feet of natural gas;
- Approximately 1 million short tons of coal (2)

The California Energy Commission's (CEC) Transportation Energy Demand Forecast 2018-2030 was released in order to support the 2017 Integrated Energy Policy Report. The Transportation energy Demand Forecast 2018-2030 lays out graphs and data supporting their projections of California's future transportation energy demand. The projected inputs consider expected variable changes in fuel prices, income, population, and other variables. Predictions regarding fuel demand included:

- Gasoline demand in the transportation sector is expected to decline from approximately 15.8 billion gallons in 2017 to between 12.3 billion and 12.7 billion gallons in 2030 (3)
- Diesel demand in the transportation sector is expected to rise, increasing from approximately 3.7 billion diesel gallons in 2015 to approximately 4.7 billion in 2030 (3)
    - Data from the Department of Energy states that approximately 3.9 billion gallons of diesel fuel were consumed in 2017 (4)

The most recent data provided by the EIA for energy use in California by demand sector is from 2017 and is reported as follows:

- Approximately 40.3% transportation;
- Approximately 23.1% industrial;
- Approximately 18.0% residential; and
- Approximately 18.7% commercial (5)

In 2018, total system electric generation for California was 285,488 gigawatt hours (GWh). California's massive electricity in-state generation system generated approximately 194,842 GWh which accounted for approximately 68% of the electricity it uses; the rest was imported from the Pacific Northwest (14%) and the U.S. Southwest (18%) (6). Natural gas is the main source for electricity generation at 47% of the total in-state electric generation system power as shown in Table 2-1.

TABLE 2-1: TOTAL ELECTRICITY SYSTEM POWER (CALIFORNIA 2018)

Fuel Type	California In-State Generation	Percent of California In-State	Northwest Imports (GWh)	Southwest Imports (GWh)	California Power Mix (GWh)	Percent California Power Mix
Coal	294	0.15%	399	8,740	9,433	3.30%
Large Hydro	22,096	11.34%	7,418	985	30,499	10.68%
Natural Gas	90,691	46.54%	49	8,904	99,644	34.91%
Nuclear	18,268	9.38%	0	7,573	25,841	9.05%
Oil	35	0.02%	0	0	35	0.01%
Other	430	0.22%	0	9	439	0.15%
Renewables	63,028	32.35%	14,074	12,400	89,502	31.36%
Biomass	5,909	3.03%	772	26	6,707	2.35%
Geothermal	11,528	5.92%	171	1,269	12,968	4.54%
Small Hydro	4,248	2.18%	334	1	4,583	1.61%
Solar	27,265	13.99%	174	5,094	32,533	11.40%
Wind	14,078	7.23%	12,623	6,010	32,711	11.46%
Unspecified Sources of Power	N/A	N/A	17,576	12,519	30,095	10.54%
Total	**194,842**	**100%**	**39,517**	**51,130**	**285,488**	**100%**

Source: https://www.energy.ca.gov/almanac/electricity_data/total_system_power.html

An updated summary of, and context for energy consumption and energy demands within the State is presented in "U.S. Energy Information Administration, California State Profile and Energy Estimates, Quick Facts" excerpted below:

- California was the seventh-largest producer of crude oil among the 50 states in 2018, and, as of January 2019, it ranked third in oil refining capacity.
- California is the largest consumer of jet fuel among the 50 states and accounted for one-fifth of the nation's jet fuel consumption in 2018. (7)
- California's total energy consumption is second highest in the nation, but, in 2018, the state's per capita energy consumption was the fourth-lowest, due in part to its mild climate and its energy efficiency programs. (8)
- In 2018, California ranked first in the nation as a producer of electricity from solar, geothermal, and biomass resources and fourth in the nation in conventional hydroelectric power generation.
- In 2018, large- and small-scale solar photovoltaic (PV) and solar thermal installations provided 19% of California's net electricity generation (9).

As indicated above, California is one of the nation's leading energy-producing states, and California's per capita energy use is among the nation's most efficient. Given the nature of the Project, the remainder of this discussion will focus on the three sources of energy that are most relevant to the project—namely, electricity, natural gas, and transportation fuel for vehicle trips associated with the uses planned for the Project.

2.2 ELECTRICITY

The Southern California region's electricity reliability has been of concern for the past several years due to the planned retirement of aging facilities that depend upon once-through cooling technologies, as well as the June 2013 retirement of the San Onofre Nuclear Generating Station. While the once-through cooling phase-out has been ongoing since the May 2010 adoption of the State Water Resources Control Board's once-through cooling policy, the retirement of San Onofre complicated the situation. California ISO studies had revealed the extent to which the Southern California Air Basin (SCAB) region was vulnerable to low-voltage and post-transient voltage instability concerns. A preliminary plan to address these issues was detailed in the 2013 Integrative Energy Policy Report (2013 IEPR) after a collaborative process with other energy agencies, utilities, and air districts (10). If the resource development outlined in the preliminary plan continues as detailed, reliability in Southern California would likely be assured; however, tight resource margins have led energy agencies and the ARB to develop a contingency plan. This contingency plan was discussed at a public workshop in Los Angeles on August 20, 2014 and is detailed within this Section (11). Similarly, the 2018 and 2019 IEPR's identify broad strategies that are aimed at maintaining electricity system reliability.

California's electricity industry is an organization of traditional utilities, private generating companies, and state agencies, each with a variety of roles and responsibilities to ensure that electrical power is provided to consumers. The California Independent Service Operator (ISO) is a nonprofit public benefit corporation and is the impartial operator of the State's wholesale power grid and is charged with maintaining grid reliability, and to direct uninterrupted electrical energy supplies to California's homes and communities. While utilities still own transmission assets, the ISO routes electrical power along these assets, maximizing the use of the transmission system and its power generation resources. The ISO matches buyers and sellers of electricity to ensure that sufficient power is available to meet demand. To these ends, every five minutes the ISO forecasts electrical demands, accounts for operating reserves, and assigns the lowest cost power plant unit to meet demands while ensuring adequate system transmission capacities and capabilities (12).

Part of the ISO's charge is to plan and coordinate grid enhancements to ensure that electrical power is provided to California consumers. To this end, transmission owners (investor-owned utilities such as RPU) file annual transmission expansion/modification plans to accommodate the State's growing electrical needs. The ISO reviews and either approves or denies the proposed additions. In addition, and perhaps most importantly, the ISO works with other areas in the western United States electrical grid to ensure that adequate power supplies are available to the State. In this manner, continuing reliable and affordable electrical power is assured to existing and new consumers throughout the State.

Electricity is provided to the Project by Southern California Edison (SCE). SCE derives electricity from varied sources including natural gas, coal, nuclear, biomass, geothermal, solar, wind, and hydroelectric. Table 2-2 identifies SCE's specific proportional shares of electricity sources in 2018. As indicated in Table 2-2, the 2018 SCE Power Mix lists renewable energy as 36% of the overall energy resources (13). Power content mixes are generally released in July each year, though 2019 data is not available at this time.

TABLE 2-2: SCE 2018 POWER CONTENT MIX

Energy Resources	2018 SCE Power Mix
Eligible Renewable	**36%**
Biomass & waste	1%
Geothermal	8%
Eligible Hydroelectric	1%
Solar	13%
Wind	13%
Coal	**0%**
Large Hydroelectric	**4%**
Natural Gas	**17%**
Nuclear	**6%**
Other	**0%**
Unspecified Sources of power*	37%
Total	**100%**

* "Unspecified sources of power" means electricity from transactions that are not traceable to specific generation sources

2.3 NATURAL GAS

The usage associated with natural gas use were calculated using the California Emissions Estimator Model (CalEEMod). The following summary of natural gas resources and service providers, delivery systems, and associated regulation is excerpted from information provided by the California Public Utilities Commission (CPUC).

> *"The CPUC regulates natural gas utility service for approximately 10.8 million customers that receive natural gas from Pacific Gas and Electric (PG&E), Southern California Gas (SoCalGas), San Diego Gas & Electric (SDG&E), Southwest Gas, and several smaller natural gas utilities. The CPUC also regulates independent storage operators: Lodi Gas Storage, Wild Goose Storage, Central Valley Storage and Gill Ranch Storage.*
>
> *The vast majority of California's natural gas customers are residential and small commercial customers, referred to as "core" customers, who accounted for approximately 32% of the natural gas delivered by California utilities in 2012. Large consumers, like electric generators and industrial customers, referred to as "noncore" customers,*

accounted for approximately 68% of the natural gas delivered by California utilities in 2012.

The CPUC regulates the California utilities' natural gas rates and natural gas services, including in-state transportation over the utilities' transmission and distribution pipeline systems, storage, procurement, metering and billing. Most of the natural gas used in California comes from out-of-state natural gas basins. In 2012, California customers received 35% of their natural gas supply from basins located in the Southwest, 16% from Canada, 40% from the Rocky Mountains, and 9% from basins located within California. California gas utilities may soon also begin receiving biogas into their pipeline systems.

Natural gas from out-of-state production basins is delivered into California via the interstate natural gas pipeline system. The major interstate pipelines that deliver out-of-state natural gas to California consumers are the Gas Transmission Northwest Pipeline, Kern River Pipeline, Transwestern Pipeline, El Paso Pipeline, Ruby Pipeline, Questar Southern Trails and Mojave Pipeline. Another pipeline, the North Baja – Baja Norte Pipeline, takes gas off the El Paso Pipeline at the California/Arizona border, and delivers that gas through California into Mexico. While the Federal Energy Regulatory Commission (FERC) regulates the transportation of natural gas on the interstate pipelines, the CPUC often participates in FERC regulatory proceedings to represent the interests of California natural gas consumers.

Most of the natural gas transported via the interstate pipelines, as well as some of the California-produced natural gas, is delivered into the PG&E and SoCalGas intrastate natural gas transmission pipeline systems (commonly referred to as California's "backbone" natural gas pipeline system). Natural gas on the utilities' backbone pipeline systems is then delivered into the local transmission and distribution pipeline systems, or to natural gas storage fields. Some large noncore customers take natural gas directly off the high-pressure backbone pipeline systems, while core customers and other noncore customers take natural gas off the utilities' distribution pipeline systems. The CPUC has regulatory jurisdiction over 150,000 miles of utility-owned natural gas pipelines, which transported 82% of the total amount of natural gas delivered to California's gas consumers in 2012.

SDG&E and Southwest Gas' southern division are wholesale customers of SoCalGas, and currently receive all of their natural gas from the SoCalGas system (Southwest Gas also provides natural gas distribution service in the Lake Tahoe area). Some other municipal wholesale customers are the cities of Palo Alto, Long Beach, and Vernon, which are not regulated by the CPUC.

Some of the natural gas delivered to California customers may be delivered directly to them without being transported over the regulated utility systems. For example, the Kern River/Mojave pipeline system can deliver natural gas directly to some large customers, "bypassing" the utilities' systems. Much of California-produced natural gas is also delivered directly to large consumers.

> *RPU and SoCalGas own and operate several natural gas storage fields that are located in northern and southern California. These storage fields, and four independently owned storage utilities – Lodi Gas Storage, Wild Goose Storage, Central Valley Storage, and Gill Ranch Storage – help meet peak seasonal natural gas demand and allow California natural gas customers to secure natural gas supplies more efficiently.*
>
> *California's regulated utilities do not own any natural gas production facilities. All of the natural gas sold by these utilities must be purchased from suppliers and/or marketers. The price of natural gas sold by suppliers and marketers was deregulated by the FERC in the mid-1980's and is determined by "market forces." However, the CPUC decides whether California ' s utilities have taken reasonable steps in order to minimize the cost of natural gas purchased on behalf of their core customers."* (14)

As indicated in the preceding discussions, natural gas is available from a variety of in-state and out-of-state sources and is provided throughout the state in response to market supply and demand. Complementing available natural gas resources, biogas may soon be available via existing delivery systems, thereby increasing the availability and reliability of resources in total. The CPUC oversees utility purchases and transmission of natural gas to ensure reliable and affordable natural gas deliveries to existing and new consumers throughout the State.

2.4 TRANSPORTATION ENERGY RESOURCES

The Project would generate additional vehicle trips with resulting consumption of energy resources, predominantly gasoline and diesel fuel. In March 2019, the Department of Motor Vehicles (DMV) identified 36.4 million registered vehicles in California (15), and those vehicles consume an estimated 17.8 billion gallons of fuel each year[1]. Gasoline (and other vehicle fuels) are commercially provided commodities and would be available to the Project patrons and employees via commercial outlets.

California's on-road transportation system includes 394,383 land miles, more than 27.5 million passenger vehicles and light trucks, and almost 8.1 million medium- and heavy-duty vehicles (15). While gasoline consumption has been declining since 2008 it is still by far the dominant fuel. Petroleum comprises about 91% of all transportation energy use, excluding fuel consumed for aviation and most marine vessels (16). Nearly 17.8 billion gallons of on-highway fuel are burned each year, including 14.6 billion gallons of gasoline (including ethanol) and 3.2 billion gallons of diesel fuel (including biodiesel and renewable diesel). In 2019, Californians also used 194 million cubic feet of natural gas as a transportation fuel (17), or the equivalent of 183 billion gallons of gasoline.

[1] Fuel consumptions estimated utilizing information from EMFAC2017.

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3 REGULATORY BACKGROUND

Federal and state agencies regulate energy use and consumption through various means and programs. On the federal level, the United States Department of Transportation, the United States Department of Energy, and the United States Environmental Protection Agency are three federal agencies with substantial influence over energy policies and programs. On the state level, the CPUC and the California Energy Commission (CEC) are two agencies with authority over different aspects of energy. Relevant federal and state energy-related laws and plans are summarized below.

3.1 FEDERAL REGULATIONS

3.1.1 INTERMODAL SURFACE TRANSPORTATION EFFICIENCY ACT OF 1991 (ISTEA)

The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) promoted the development of inter-modal transportation systems to maximize mobility as well as address national and local interests in air quality and energy. ISTEA contained factors that Metropolitan Planning Organizations (MPOs) were to address in developing transportation plans and programs, including some energy-related factors. To meet the new ISTEA requirements, MPOs adopted explicit policies defining the social, economic, energy, and environmental values guiding transportation decisions.

3.1.2 THE TRANSPORTATION EQUITY ACT FOR THE 21ST CENTURY (TEA-21)

The Transportation Equity Act for the 21st Century (TEA-21) was signed into law in 1998 and builds upon the initiatives established in the ISTEA legislation, discussed above. TEA-21 authorizes highway, highway safety, transit, and other efficient surface transportation programs. TEA-21 continues the program structure established for highways and transit under ISTEA, such as flexibility in the use of funds, emphasis on measures to improve the environment, and focus on a strong planning process as the foundation of good transportation decisions. TEA-21 also provides for investment in research and its application to maximize the performance of the transportation system through, for example, deployment of Intelligent Transportation Systems, to help improve operations and management of transportation systems and vehicle safety.

3.2 CALIFORNIA REGULATIONS

3.2.1 INTEGRATED ENERGY POLICY REPORT

Senate Bill 1389 (Bowen, Chapter 568, Statutes of 2002) requires the CEC to prepare a biennial integrated energy policy report that assesses major energy trends and issues facing the state's electricity, natural gas, and transportation fuel sectors and provides policy recommendations to conserve resources; protect the environment; ensure reliable, secure, and diverse energy supplies; enhance the state's economy; and protect public health and safety (Public Resources Code § 25301a]). The Energy Commission prepares these assessments and associated policy recommendations every two years, with updates in alternate years, as part of the Integrated Energy Policy Report.

The 2019 IEPR was adopted January 31, 2020, and continues to work towards improving electricity, natural gas, and transportation fuel energy use in California. The 2019 IEPR focuses on a variety of topics such as the environmental performance of the electricity generation system, landscape-scale planning, the response to the gas leak at the Aliso Canyon natural gas storage facility, transportation fuel supply reliability issues, updates on Southern California electricity reliability, methane leakage, climate adaptation activities for the energy sector, climate and sea level rise scenarios, and the California Energy Demand Forecast. (18) The 2020 IEPR Update is currently in progress but is not anticipated to be adopted until February 2021. (19).

3.2.2 State of California Energy Plan

The CEC is responsible for preparing the State Energy Plan, which identifies emerging trends related to energy supply, demand, conservation, public health and safety, and the maintenance of a healthy economy. The Plan calls for the state to assist in the transformation of the transportation system to improve air quality, reduce congestion, and increase the efficient use of fuel supplies with the least environmental and energy costs. To further this policy, the plan identifies a number of strategies, including assistance to public agencies and fleet operators and encouragement of urban designs that reduce Vehicle Miles Traveled (VMT) and accommodate pedestrian and bicycle access.

3.2.3 California Code Title 24, Part 6, Energy Efficiency Standards

California Code of Regulations (CCR) Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases greenhouse gas (GHG) emissions. The 2019 version of Title 24 was adopted by the CEC and became effective on January 1, 2020 and as such is applicable to building permit applications submitted on or after that date. The 2019 Title 24 standards require solar PV systems for new homes, establish requirements for newly constructed healthcare facilities, encourage demand responsive technologies for residential buildings, and update indoor and outdoor lighting for nonresidential buildings. The CEC anticipates that single-family homes built with the 2019 standards will use approximately 7% less energy compared to the residential homes built under the 2016 standards. Additionally, after implementation of solar PV systems, homes built under the 2019 standards will about 53% less energy than homes built under the 2016 standards. Nonresidential buildings will use approximately 30% less energy due to lighting upgrades (20).

3.2.4 California's Renewable Portfolio Standard (RPS).

First established in 2002 under Senate Bill (SB) 1078, California's Renewable Portfolio Standards (RPS) requires retail sellers of electric services to increase procurement from eligible renewable resources to 33 percent of total retail sales by 2020 (21).

3.2.5 AB 1493 Pavley Regulations and Fuel Efficiency Standards

California AB 1493, enacted on July 22, 2002, required CARB to develop and adopt regulations that reduce GHGs emitted by passenger vehicles and light duty trucks. Under this legislation, CARB adopted regulations to reduce GHG emissions from non-commercial passenger vehicles (cars and light-duty trucks). Although aimed at reducing GHG emissions specifically, a co-benefit of the Pavley standards is an improvement in fuel efficiency and consequently a reduction in fuel consumption.

3.2.6 SB 350— Clean Energy and Pollution Reduction Act of 2015.

In October 2015, the legislature approved, and the Governor signed, SB 350, which reaffirms California's commitment to reducing its GHG emissions and addressing climate change. Key provisions include an increase in the renewables portfolio standard (RPS), higher energy efficiency requirements for buildings, initial strategies towards a regional electricity grid, and improved infrastructure for electric vehicle charging stations. Specifically, SB 350 requires the following to reduce statewide GHG emissions:

- Increase the amount of electricity procured from renewable energy sources from 33 percent to 50 percent by 2030, with interim targets of 40 percent by 2024, and 45 percent by 2027.
- Double the energy efficiency in existing buildings by 2030. This target will be achieved through the California Public Utility Commission (CPUC), the CEC, and local publicly owned utilities.
- Reorganize the Independent System Operator (ISO) to develop more regional electricity transmission markets and to improve accessibility in these markets, which will facilitate the growth of renewable energy markets in the western United States (California Leginfo 2015).

3.2.7 City of Lake Elsinore Climate Action Plan

The City of Lake Elsinore developed their climate action plan in 2011. The City of Lake Elsinore Climate Action Plan (CAP) sets service level based GHG emission reductions targets and provides the City GHG reduction goals beyond 2020 to 2030.

Chapter 5 of the CAP contains measures that promote energy efficiency and renewable energy for municipal operations and the community. (22)

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4 PROJECT ENERGY DEMANDS AND ENERGY EFFICIENCY MEASURES

4.1 EVALUATION CRITERIA

In compliance with Appendix G of the *State CEQA Guidelines* (1), this report analyzes the project's anticipated energy use to determine if the Project would:

- Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation; or
- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency

In addition, Appendix F of the *State CEQA Guidelines* (23), states that the means of achieving the goal of energy conservation includes the following:

- Decreasing overall per capita energy consumption;
- Decreasing reliance on fossil fuels such as coal, natural gas and oil; and
- Increasing reliance on renewable energy sources.

4.2 METHODOLOGY

Information from the CalEEMod 2016.3.2 outputs for the *Lake and Mountain Shopping Center Air Quality Impact Analysis* (Urban Crossroads, Inc.) (AQIA) was utilized in this analysis, detailing Project related construction equipment, transportation energy demands, and facility energy demands (24).

4.2.1 CALIFORNIA EMISSIONS ESTIMATOR MODEL

On October 17, 2017, the SCAQMD, in conjunction with the California Air Pollution Control Officers Association (CAPCOA) and other California air districts, released the latest version of the California Emissions Estimator Model (CalEEMod) v2016.3.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (VOCs, NO_X, SO_X, CO, PM_{10}, and $PM_{2.5}$) and GHG emissions from direct and indirect sources as well as energy usage. (25). Accordingly, the latest version of CalEEMod has been used to determine the proposed Project's anticipated transportation and facility energy demands. Output from the model runs for construction and operational activity are provided in Appendix 4.1.

4.2.2 EMISSION FACTORS MODEL

On August 19, 2019, the EPA approved the 2017 version of the Emission Factor model (EMFAC) web database for use in State Implementation Plan and transportation conformity analyses. EMFAC2017 is a mathematical model that was developed to calculate emission rates, fuel consumption, and VMT from motor vehicles that operate on highways, freeways, and local roads in California and is commonly used by the CARB to project changes in future emissions from on-road mobile sources (26). This study utilizes summer, winter, and annual EMFAC2017 emission factors in order to derive vehicle emissions associated with Project operational activities, which vary by season.

4.2.3 LAND USES MODELED IN CALEEMOD

The Project is located on 5.63 acres. The total development is proposed to consist of 13,200 square feet of shopping center use, a gasoline service station with a 3,400 square foot convenience market, 7,365 square feet of fast-food restaurant with drive-through window use, and an automated car wash tunnel.

CalEEMod does not provide an extensive selection of land use subtype categories, land uses that most closely fit the Project will be utilized (27). For purposes of analysis, the following land uses were modeled consistent with the *Lake and Mountain Shopping Center Traffic Impact Analysis* (Urban Crossroads, Inc.) (TIA) (28):

- 7,365 sf Fast Food Restaurant with Drive Through[2]
- 3,400 sf Convenience Market[3]
- 13,200 sf of Regional Shopping Center
- 3,150 sf of User Defined Retail
- 5.01 acres of Other-Non-Asphalt Surfaces

4.2.4 CONSTRUCTION ACTIVITIES

Construction related energy usage is expected from the following construction activities:

- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating

<u>Construction Vehicle Trips</u>

Construction worker vehicles traveling to and from the Project site, as well as vendor trips (construction materials delivered to the Project site) were estimated based on information from CalEEMod defaults. The number of workers, hauling, and vendor trips are presented below in Table 4-1.

[2] The User's Guide defines Apartments Low Rise as apartment units located in rental buildings that have 1 to 2 levels. As the building or unit area has not been provided, the CalEEMod default lot acreage and floor surface area of 4.69 acres and 75,000 square feet will be used.

[3] Apartments Mid Rise are defined in the User's Guide as apartments in rental buildings that have between 3 and 10 levels. As the building or unit area has not been provided, the CalEEMod default lot acreage and floor surface area of 4.26 acres and 162,000 square feet will be used.

TABLE 4-1: CONSTRUCTION TRIP ASSUMPTIONS

Phase Name	Worker (Trips/Day)	Vendor (Trips/Day)	Trip Length Worker	Trip Length Vendor
Site Preparation	18	0	14.7	6.9
Grading	101	40	14.7	6.9
Building Construction	15	0	14.7	6.9
Paving	20	0	14.7	6.9
Architectural Coating	18	0	14.7	6.9

4.2.5 CONSTRUCTION DURATION

Based on the previously prepared AQIA for the Project, construction was expected to commence in May 2020 and will last through July 2021. The duration of construction activity represents a reasonable approximation as required per *CEQA Guidelines*. Although the construction activity would commence after the dates identified in the AQIA report, vehicle fuel and energy efficiency is continually increasing over time, therefore using a schedule with earlier dates provides a conservative (i.e. overstates) estimate of fuel consumption and energy use. The number of days of each subphase of construction are summarized on Table 4-2 and are consistent with the previously prepared AQIA.

TABLE 4-2: CONSTRUCTION DURATION

Phase Name	Days
Site Preparation	10
Grading	20
Building Construction	230
Paving	20
Architectural Coating	20

4.2.6 CONSTRUCTION EQUIPMENT

Site specific construction fleet may vary due to specific project needs at the time of construction. The associated construction equipment by phase is detailed in Table 4-3. The associated equipment represents a reasonable approximation of the expected construction fleet as required per *CEQA Guidelines*.

TABLE 4-3: CONSTRUCTION EQUIPMENT ASSUMPTIONS

Phase Name	Equipment	Amount	Hours Per Day
Site Preparation	Crawler Tractors	4	8
	Graders	1	8
	Rubber Tired Dozers	3	8
Grading	Crawler Tractors	3	8
	Excavators	1	8
	Graders	1	8
	Rubber Tired Dozers	1	8
Building Construction	Cranes	1	8
	Forklifts	3	8
	Generator Sets	1	8
	Tractors/Loaders/Backhoes	3	8
	Welders	1	8
Paving	Pavers	2	8
	Paving Equipment	2	8
	Rollers	2	8
Architectural Coating	Air Compressors	1	8

Source: CalEEMod model output, See Appendix 4.1 detailed model outputs. Engine ratings were based on CalEEMod default parameters.

4.3 CONSTRUCTION ENERGY DEMANDS

4.3.1 CONSTRUCTION EQUIPMENT ELECTRICITY USAGE ESTIMATES

The focus within this section is the energy implications of the construction process, specifically the power cost from on-site electricity consumption during construction of the proposed Project. Based on the 2019 National Construction Estimator, Richard Pray (2019) (29), the typical power cost per 1,000 square feet (sf) of building construction per month is estimated to be $2.38. For the Lake and Mountain Shopping Center development, the Project plans to develop 13,200 square feet of shopping center use, a gasoline service station with a 3,400 square foot convenience market, 7,365 square feet of fast-food restaurant with drive-through window use, and an automated car wash tunnel which will be constructed within a 14-month period. Based on Table 4-4, the total power cost of the on-site electricity usage during the construction of the proposed Project is estimated to be approximately $8,175.06. Additionally, as of April 13, 2020, SCE's general service rate schedule for is $0.09 per kWh of electricity. (30). As shown on Table 4-5, the total electricity usage from on-site Project construction related activities are estimated to be approximately 90,834 kWh.

TABLE 4-4: PROJECT CONSTRUCTION POWER COST

Land Use	**Power Cost** (per 1,000 sf of building per month of construction)	**Total Building Size** (1,000 sf)	**Construction Duration** (months)	**Project Construction Power Cost**
Fast Food with Drive Through	$2.38	7.365	14	$245.40
Convenience Market with Gas Pumps	$2.38	3.400	14	$113.29
Regional Shopping Center	$2.38	13.200	14	$439.82
User Defined Retail	$2.38	3.150	14	$104.96
Other Non-Asphalt Surfaces	$2.38	218.235	14	$7,271.59
TOTAL PROJECT CONSTRUCTION POWER COST				***$8,175.06***

TABLE 4-5: PROJECT CONSTRUCTION ELECTRICITY USAGE

Land Use	Cost per kWh	Project Construction Electricity Usage (kWh)
Fast Food with Drive Through	$0.09	2,727
Convenience Market with Gas Pumps	$0.09	1,259
Regional Shopping Center	$0.09	4,887
User Defined Retail	$0.09	1,166
Other Non-Asphalt Surfaces	$0.09	80,795
TOTAL PROJECT CONSTRUCTION ELECTRICITY USAGE (kWh)		***90,834***

[1]Assumes the Project will be under the general service non-demand rate under SCE

4.3.2 CONSTRUCTION EQUIPMENT FUEL ESTIMATES

Fuel consumed by construction equipment would be the primary energy resource expended over the course of Project construction. Project construction activity timeline estimates, construction equipment schedules, equipment power ratings, load factors, and associated fuel consumption estimates are presented in Table 4-6. Eight-hour daily use of all equipment is assumed. The aggregate fuel consumption rate for all equipment is estimated at 18.5 hp-hr-gal., obtained from California Air Resources Board (CARB) 2018 Emissions Factors Tables and cited fuel consumption rate factors as presented in Table D-24 of the Moyer guidelines (31). For the purposes of this analysis, the calculations are based on all construction equipment being diesel-powered which is standard practice consistent with industry standards. Diesel fuel would be supplied by existing commercial fuel providers serving the City and region.

As presented in Table 4-6, Project construction activities would consume an estimated 41,132 gallons of diesel fuel. Project construction would represent a "single-event" diesel fuel demand and would not require on-going or permanent commitment of diesel fuel resources for this purpose.

TABLE 4-6: CONSTRUCTION EQUIPMENT FUEL CONSUMPTION ESTIMATES

Phase Name	Equipment	HP Rating	Quantity	Usage Hours	Load Factor	HP-hrs/day	Total Fuel Consumption (gal. diesel fuel)
Site Preparation	Crawler Tractors	212	4	8	0.43	2,917	1,577
	Rubber Tired Dozers	247	3	8	0.40	2,371	1,282
Grading	Crawler Tractors	3	8	212	0.43	2,188	2,365
	Excavators	1	8	158	0.38	480	519
	Graders	1	8	187	0.41	613	663
	Rubber Tired Dozers	1	8	247	0.4	790	854
Building Construction	Cranes	1	8	231	0.29	536	6,663
	Forklifts	3	8	89	0.2	427	5,311
	Generator Sets	1	8	84	0.74	497	6,182
	Tractors/Loaders/Backhoes	3	8	97	0.37	861	10,709
	Welders	1	8	46	0.45	166	2,059
Paving	Pavers	2	8	130	0.42	874	944
	Paving Equipment	2	8	132	0.36	760	822
	Rollers	2	8	80	0.38	486	526
Architectural Coating	Air Compressors	1	8	78	0.48	300	324
CONSTRUCTION FUEL DEMAND (GALLONS DIESEL FUEL)							***41,132***

4.3.3 CONSTRUCTION WORKER FUEL ESTIMATES

It is assumed that all construction worker trips are from light duty autos (LDA) along area roadways. With respect to estimated VMT, the construction worker trips would generate an estimated 358,827 VMT (24). Data regarding Project related construction worker trips were based on CalEEMod 2016.3.2 model defaults utilized within the AQIA. Output from the model runs for construction activity are provided in Appendix 4.1.

As previously stated, vehicle fuel efficiencies for LDAs were estimated using information generated within the 2017 version of the EMFAC developed by the CARB. EMFAC2017 was run for the LDA vehicle class within the California sub-area for a 2020 calendar year. Data from EMFAC2017 is shown in Appendix 4.2.

As generated by EMFAC2017, the aggregated fuel economy of LDAs ranging from model year 1974 to model year 2020 is estimated to be 31.03 miles per gallon (mpg). Table 4-7 provides an estimated annual fuel consumption resulting from the Project generated by LDAs related to construction worker trips. Based on Table 4-7, it is estimated that 11,563 gallons of fuel will be consumed related to construction worker trips during full construction of the proposed Project. Project construction worker trips would represent a “single-event” gasoline fuel demand and would not require on-going or permanent commitment of fuel resources for this purpose.

TABLE 4-7: CONSTRUCTION WORKER FUEL CONSUMPTION ESTIMATES

Phase Name	Worker Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Site Preparation	18	14.7	2,646	31.03	85
Grading	101	14.7	341,481	31.03	11,004
Building Construction	15	14.7	4,410	31.03	142
Paving	20	14.7	5,880	31.03	189
Architectural Coating	18	14.7	2,646	31.03	85
TOTAL CONSTRUCTION WORKER FUEL CONSUMPTION					***11,563***

4.3.4 CONSTRUCTION VENDOR/HAULING FUEL ESTIMATES

With respect to estimated VMT, the construction vendor and hauling trips would generate an estimated 7,899 and 165,248 VMT along area roadways respectively (24). It is assumed that 50% of all vendor trips are from Medium-Heavy-Duty-Trucks (MHDT), 50% are from Heavy-Heavy-Duty Trucks (HHDT), and 100% of hauling trips are from HHDT. These assumptions are consistent with the 2016.3.2 CalEEMod defaults utilized within the within the AQIA (24). Vehicle fuel efficiencies for MHDTs and HHDTs were estimated using information generated within EMFAC2017. For purposes of this analysis, EMFAC2017 was run for the MHDT and HHDT vehicle class within the California sub-area for a 2020 calendar year. While construction will occur in both 2020 and 2021, vehicles are understood to be less efficient overall in in earlier years. As such, calculating fuel use based on 2020 fuel efficiencies presents a more conservative approach than calculating by year. Data from EMFAC2017 is shown in Appendix 4.2.

As generated by EMFAC2017, an aggregated fuel economy of MHDTs ranging from model year 1974 to model year 2022 are estimated to have a fuel efficiency of 9.86 mpg. Additionally, HHDTs are estimated to have a fuel efficiency of 6.78 mpg. Based on Table 4-8, it is estimated that 3,220 gallons of fuel will be consumed related to construction vendor trips (MHDTs) during full construction of the proposed Project. Table 4-9 shows the estimated fuel economy of HHDTs accessing the Project site. Based on Table 4-9, fuel consumption from construction vendor and hauling trips (HHDTs) will be approximately 4,680 and 165,248 gallons respectively and 169,927 gallons overall. Project construction vendor and hauling trips would represent a "single-event" diesel fuel demands and would not require on-going or permanent commitment of diesel fuel resources for this purpose.

TABLE 4-8: CONSTRUCTION VENDOR FUEL CONSUMPTION ESTIMATES (MHDT)

Phase Name	Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Vendor					
Building Construction	20	6.9	31,740	9.86	3,220
				PROJECT MHDT TOTAL	***3,220***

TABLE 4-9: CONSTRUCTION VENDOR/HAULING FUEL CONSUMPTION ESTIMATES (HHDT)

Phase Name	Trips / Day	Trip Length (miles)	Vehicle Miles Traveled	Average Vehicle Fuel Economy (mpg)	Estimated Fuel Consumption (gallons)
Vendor					
Building Construction	20	6.9	31,740	6.78	4,680
Hauling					
Grading	2802	20	1,120,800	6.78	165,248
				PROJECT HHDT TOTAL	***169,927***

4.3.5 CONSTRUCTION ENERGY EFFICIENCY/CONSERVATION MEASURES

The equipment used for Project construction would conform to CARB regulations and California emissions standards. There are no unusual Project characteristics or construction processes that would require the use of equipment that would be more energy intensive than is used for comparable activities; or equipment that would not conform to current emissions standards (and related fuel efficiencies). Equipment employed in construction of the Project would therefore not result in inefficient wasteful, or unnecessary consumption of fuel.

The Project would utilize construction contractors which practice compliance with applicable CARB regulations regarding retrofitting, repowering, or replacement of diesel off-road construction equipment. Additionally, CARB has adopted the Airborne Toxic Control Measure to limit heavy-duty diesel motor vehicle idling in order to reduce public exposure to diesel particulate matter and other Toxic Air Contaminants (TAC). Compliance with anti-idling and emissions regulations would result in a more efficient use of construction-related energy and the minimization or elimination of wasteful or unnecessary consumption of energy. Idling restrictions and the use of newer engines and equipment would result in less fuel combustion and energy consumption.

Additionally, certain incidental construction-source energy efficiencies would likely accrue through implementation of California regulations and best available control measures (BACM). More specifically, California Code of Regulations Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than five minutes, thereby precluding unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. To this end, “grading plans shall reference the requirement that a sign shall be posted on-site stating that construction workers need to shut off engines at or before five minutes of idling.” In this manner, construction equipment operators are informed that engines are to be turned off at or prior to five minutes of idling. Enforcement of idling limitations is realized through periodic site inspections conducted by City building officials, and/or in response to citizen complaints.

Indirectly, construction energy efficiencies and energy conservation would be achieved for the proposed development through energy efficiencies realized from bulk purchase, transport and use of construction materials.

A full analysis related to the energy needed to form construction materials is not included in this analysis due to a lack of detailed Project-specific information on construction materials. At this time, an analysis of the energy needed to create Project-related construction materials would be extremely speculative and thus has not been prepared.

In general, the construction processes promote conservation and efficient use of energy by reducing raw materials demands, with related reduction in energy demands associated with raw materials extraction, transportation, processing and refinement. Use of materials in bulk reduces energy demands associated with preparation and transport of construction materials as well as the transport and disposal of construction waste and solid waste in general, with corollary reduced demands on area landfill capacities and energy consumed by waste transport and landfill operations.

4.4 OPERATIONAL ENERGY DEMANDS

Energy consumption in support of or related to Project operations would include transportation energy demands (energy consumed by employee and patron vehicles accessing the Project site) and facilities energy demands (energy consumed by building operations and site maintenance activities).

4.4.1 TRANSPORTATION ENERGY DEMANDS

Energy that would be consumed by Proposed Project-generated traffic is a function of total VMT and the estimated vehicle fuel economies of vehicles accessing the Project site. The following vehicle subcategories included in this analysis are consistent with CalEEMod, EMFAC, and the Caltrans ITS Transportation Project-Level Carbon Monoxide Protocol. (32)

LIGHT-DUTY AUTOS

With respect to estimated VMT, and based on the trip frequency and trip length methodologies cited in the Project's AQIA, the Project would generate an estimated 3,007,407 annual VMT along area roadways for all LDAs with full build-out of the Project (24). Table 4-10 provides an estimated range of annual fuel consumption resulting from Project generated LDAs. Based on Table 4-10, it is estimated that 94,480 gallons of fuel will be consumed from Project generated LDA trips.

TABLE 4-10: PROJECT-GENERATED LDA VEHICLE TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
3,007,407	31.83	94,480

LIGHT-DUTY TRUCKS

With respect to estimated VMT, and based on the trip frequency and trip length methodologies cited in the Project's AQIA, the Project would generate an estimated 422,780 annual VMT along area roadways for all Light-Duty Trucks (LDT1)[4] vehicles with full build-out of the Project (24). Table 4-11 provides an estimated range of annual fuel consumption resulting from Project generated LDT1s. Based on Table 4-11, it is estimated that 15,790 gallons of fuel will be consumed from Project generated LDT1 trips.

TABLE 4-11: PROJECT-GENERATED LDT1 VEHICLE TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
422,780	26.78	15,790

Additionally, the Project would generate an estimated 422,780 annual VMT along area roadways for all LDT2[5] vehicles with full build-out of the Project (24). Table 4-12 provides an estimated range of annual fuel consumption resulting from Project generated LDT2s. Based on Table 4-12, it is estimated that 16,852 gallons of fuel will be consumed from Project generated LDT2 trips.

[4] Vehicles under the LDT1 category have a gross vehicle weight rating (GVWR) of less than 6,000 lbs. and equivalent test weight (ETW) of less than or equal to 3,750 lbs.
[5] Vehicles under the LDT2 category have a GVWR of less than 6,000 lbs. and ETW between 3,751 lbs. and 5,750 lbs.

TABLE 4-12: PROJECT-GENERATED LDT2 VEHICLE TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
422,780	25.09	16,852

MEDIUM-DUTY VEHICLES

With respect to estimated VMT, and based on the trip frequency and trip length methodologies cited in the Project's AQIA, the Project would generate an estimated 278,948 annual VMT along area roadways for all MDVs with full build-out of the Project (24). Table 4-13 provides an estimated range of annual fuel consumption resulting from Project generated MDvs. Based on Table 4-13, it is estimated that 27,753 gallons of fuel will be consumed from Project generated MHDT trips.

TABLE 4-13: PROJECT-GENERATED MDV TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
278,948	20.08	13,894

HEAVY-HEAVY DUTY TRUCKS

With respect to estimated VMT, and based on the trip frequency and trip length methodologies cited in the Project's AQIA, the Project would generate an estimated 204,852 annual VMT along area roadways for all HHDTs with full build-out of the Project (24). Table 4-14 provides an estimated range of annual fuel consumption resulting from Project generated HHDTs. Based on Table 4-14, it is estimated that 29,749 gallons of fuel will be consumed from Project generated HHDT trips.

TABLE 4-14: PROJECT-GENERATED HHDT TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
204,852	6.89	29,749

MOTORCYCLES

With respect to estimated VMT, and based on the trip frequency and trip length methodologies cited in the Project's AQIA, the Project would generate an estimated 21,793 annual VMT along area roadways for all Motorcycles (MCY) with full build-out of the Project (24). Table 4-15 provides an estimated range of annual fuel consumption resulting from Project generated MCY vehicles. Based on Table 4-15, it is estimated that 574 gallons of fuel will be consumed from Project generated MCY trips.

TABLE 4-15: PROJECT-GENERATED MCY TRAFFIC ANNUAL FUEL CONSUMPTION

Annual VMT	Average Vehicle Fuel Economy (mpg)	Estimated Annual Fuel Consumption (gallons)
21,793	37.97	574

As summarized on Table 4-16 the Project will result in 4,358,561 annual VMT and an estimated annual fuel consumption of 171,341 gallons of fuel.

TABLE 4-16: TOTAL PROJECT-GENERATED TRAFFIC ANNUAL FUEL CONSUMPTION (ALL VEHICLES)

Vehicle Type	Annual VMT	Estimated Annual Fuel Consumption (gallons)
LDA	3,007,407	94,480
LDT1	422,780	15,790
LDT2	422,780	16,852
MDV	278,948	13,894
HHDT	204,852	29,749
MCY	21,793	574
TOTAL (ALL VEHICLES)	***4,358,561***	**171,341**

4.4.2 Facility Energy Demands

Project building operations and Project site maintenance activities would result in the consumption of natural gas and electricity. Natural gas would be supplied to the Project by SoCalGas; electricity would be supplied to the Project by SCE. Annual natural gas and electricity demands of the Project are summarized in Table 4-17.

TABLE 4-17: PROJECT ANNUAL OPERATIONAL ENERGY DEMAND SUMMARY

Natural Gas Demand	kBTU/year
Convenience Market with Gas Pumps	7,548
Fast Food Restaurant with Drive Through	2,013,890
Regional Shopping Center	29,304
User Defined Retail	6,993
TOTAL PROJECT NATURAL GAS DEMAND	***2,021,438***
Electricity Demand	**kWh/year**
Convenience Market with Gas Pumps	42,942
Fast Food Restaurant with Drive Through	349,690
Regional Shopping Center	166,716
User Defined Retail	39,785

TOTAL PROJECT ELECTRICITY DEMAND	***392,632***

4.4.3 OPERATIONAL ENERGY EFFICIENCY/CONSERVATION MEASURES

Energy efficiency/energy conservation attributes of the Project would be complemented by increasingly stringent state and federal regulatory actions addressing vehicle fuel economies and vehicle emissions standards; and enhanced building/utilities energy efficiencies mandated under California building codes (e.g., Title 24, California Green Building Standards Code).

It should also be noted that the Project would not result in a substantial increase in demand or transmission service, resulting in the need for new or expanded sources of energy supply or new or expanded energy delivery systems or infrastructure because it would be served by the existing electric utility lines in the Project vicinity.

Enhanced Vehicle Fuel Efficiencies

Project annual fuel consumption estimates presented previously in Table 4-16 represent likely potential maximums that would occur for the Project. Under subsequent future conditions, average fuel economies of vehicles accessing the Project site can be expected to improve as older, less fuel-efficient vehicles are removed from circulation, and in response to fuel economy and emissions standards imposed on newer vehicles entering the circulation system.

4.5 SUMMARY

4.5.1 CONSTRUCTION ENERGY DEMANDS

The estimated power cost of on-site electricity usage during the construction of the proposed Project is assumed to be approximately $8,175.06. Additionally, based on the assumed power cost, it is estimated that the total electricity usage during construction, after full Project build-out, will be approximately 90,834 kWh.

Construction equipment used by the Project would result in single event consumption of approximately 41,132 gallons of diesel fuel. Construction equipment use of fuel would not be atypical for the type of construction proposed because there are no aspects of the Project's proposed construction process that are unusual or energy-intensive, and Project construction equipment would conform to the applicable CARB emissions standards, acting to promote equipment fuel efficiencies.

CCR Title 13, Title 13, Motor Vehicles, section 2449(d)(3) Idling, limits idling times of construction vehicles to no more than 5 minutes, thereby precluding unnecessary and wasteful consumption of fuel due to unproductive idling of construction equipment. Best available control measures inform construction equipment operators of this requirement. Enforcement of idling limitations is realized through periodic site inspections conducted by City building officials, and/or in response to citizen complaints.

Construction worker trips for full construction of the proposed Project would result in the estimated fuel consumption of 11,563 gallons of fuel. Additionally, fuel consumption from construction vendor trips (MHDTs) will total approximately 3,220 gallons. Fuel consumption from vendor and hauling trips (HHDTs) would total 4,680 and 165,248 gallons respectively. As such, fuel consumption from all vendor and hauling trips would total 173,147 gallons. Diesel fuel would be supplied by City and regional commercial vendors. Indirectly, construction energy efficiencies and energy conservation would be achieved through the use of bulk purchases, transport and use of construction materials. The 2019 IEPR released by the CEC has shown that fuel efficiencies are getting better within on and off-road vehicle engines due to more stringent government requirements (19). As supported by the preceding discussions, Project construction energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

4.5.2 OPERATIONAL ENERGY DEMANDS

TRANSPORTATION ENERGY DEMANDS

Annual vehicular trips and related VMT generated by the operational of the Project would result in an estimated 171,341 gallons of fuel consumption per year for LDAs for the year 2021.

Fuel would be provided by current and future commercial vendors. Trip generation and VMT generated by the Project are consistent with other residential uses of similar scale and configuration, as reflected respectively in the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Ed., 2017); and CalEEMod. That is, the Project does not propose uses or operations that would inherently result in excessive and wasteful vehicle trips and VMT, nor associated excess and wasteful vehicle energy consumption.

Enhanced fuel economies realized pursuant to federal and state regulatory actions, and related transition of LDAs to alternative energy sources (e.g., electricity, natural gas, biofuels, hydrogen cells) would likely decrease future gasoline fuel demands per VMT. Location of the Project proximate to regional and local roadway systems tends to reduce VMT within the region, acting to reduce regional vehicle energy demands. The Project would implement sidewalks, facilitating and encouraging pedestrian access. Facilitating pedestrian and bicycle access would reduce VMT and associated energy consumption. In compliance with the California Green Building Standards Code, the Project would promote the use of bicycles as an alternative mean of transportation by providing short-term and/or long-term bicycle parking accommodations. As supported by the preceding discussions, Project transportation energy consumption would not be considered inefficient, wasteful, or otherwise unnecessary.

FACILITY ENERGY DEMANDS

Project facility operational energy demands are estimated at: 2,021,438 kBTU/year of natural gas; and 392,632 kWh/year of electricity. Natural gas would be supplied to the Project by SoCalGas; electricity would be supplied by SCE. The Project proposes conventional commercial uses reflecting contemporary energy efficient/energy conserving designs and operational programs. Uses proposed by the Project are not inherently energy intensive, and the Project energy demands in total would be comparable to, or less than, other commercial projects of similar scale and configuration.

Implementation of these project design features, including required Title 24 standards will ensure that the Project energy demands would not be considered inefficient, wasteful, or otherwise unnecessary.

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5 CONCLUSIONS

5.1.1 ENERGY IMPACT 1

Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation.

As supported by the preceding analyses, Project operations would not result in the inefficient, wasteful or unnecessary consumption of energy. Further, the energy demands of the Project can be accommodated within the context of available resources and energy delivery systems. The Project would therefore not cause or result in the need for additional energy producing or transmission facilities. The Project would not engage in wasteful or inefficient uses of energy and therefore would not inhibit aims to achieve energy conservations goals within the State of California.

5.1.2 ENERGY IMPACT 2

Energy Impact- Conflict with or obstruct a state or local plan for renewable energy or energy efficiency.

The Project's consistency with the applicable state and local plans is discussed below.

CONSISTENCY WITH IEPR

Electricity would be provided to the Project by SCE and natural gas is provided by SoCalGas. SCE's Clean Power and Electrification Pathway (CPEP) white paper and SoCalGas 2018 Corporate Sustainability Report builds on existing state programs and policies. As such, the Project is consistent with, and would not otherwise interfere with, nor obstruct implementation the goals presented in the 2019 IEPR.

Additionally, the Project will comply with the applicable Title 24 standards which would ensure that the Project energy demands would not be inefficient, wasteful, or otherwise unnecessary. As such, development of the proposed Project would support the goals presented in the 2019 IEPR.

CONSISTENCY WITH STATE OF CALIFORNIA ENERGY PLAN

The Project site is located along major transportation corridors with proximate access to the Interstate freeway system which would serve to reduce VMT in the project's service area. Additionally, the Project site is consistent with the existing retail/commercial land use and general commercial zoning designation. Therefore, the Project is consistent with, and would not otherwise interfere with, nor obstruct implementation of the State of California Energy Plan.

CONSISTENCY WITH CALIFORNIA CODE TITLE 24, PART 6, ENERGY EFFICIENCY STANDARDS

The 2019 version of Title 24 was adopted by the CEC and became effective on January 1, 2020. The analysis herein assumes compliance with the 2019 Title 24 Standards.

CONSISTENCY WITH RPS

California's Renewable Portfolio Standard is not applicable to the Project as it is a statewide measure that establishes a renewable energy mix. No feature of the Project would interfere with implementation of the requirements under RPS.

CONSISTENCY WITH AB 1493

AB 1493 is not applicable to the Project as it is a statewide measure establishing vehicle emissions standards. No feature of the Project would interfere with implementation of the requirements under AB 1493.

CONSISTENCY WITH SB 350

This measure is not directly applicable to development projects, but the proposed Project would use energy from Southern California Edison, which has committed to diversify its portfolio of energy sources by increasing energy from wind and solar sources. No feature of the Project would interfere with implementation of SB 350. Refer to Tables 3-2 and 3.3 in the Greenhouse Gas Analysis Report for an analysis of the Project's consistency with SB 350.

CONSISTENCY WITH CITY OF LAKE ELSINORE CAP

The Project would implement energy-saving features and operational programs, consistent with the reduction measures set forth in the City of Lake Elsinore CAP.

5.1.3 ENERGY IMPACT 3

- ***Decreasing overall per capita energy consumption.***
- ***Decreasing reliance on fossil fuels such as coal, natural gas and oil.***
- ***Increasing reliance on renewable energy sources.***

As previously stated, the proposed Project is subject to California Building Code requirements. New buildings must achieve compliance with 2019 Building and Energy Efficiency Standards and the 2019 California Green Building Standards requirements.

The CEC anticipates that non-residential buildings will use approximately 30% less energy due to lighting upgrades compared to the prior code (20). As such, energy consumed by the Project's operation is calculated to be comparable to, or less than, energy consumed by other older residential, commercial, and recreational uses of similar scale and intensity that are constructed and operating in California. Additionally, the Project's proximity to the Interstate freeway system would reduce VMT and therefore decrease reliance on fossil fuels. On this basis, the Project would not result in the inefficient, wasteful, or unnecessary consumption of energy. Further, the Project would not cause or result in the need for additional energy producing facilities or energy delivery systems and would reduce mobile based fossil fuel reliance.

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7 CERTIFICATIONS

The contents of this energy report represent an accurate depiction of the environmental impacts associated with the proposed Lake and Mountain Shopping Center Project. The information contained in this energy report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at hqureshi@urbanxroads.com .

Haseeb Qureshi
Associate Principal
URBAN CROSSROADS, INC.
hqureshi@urbanxroads.com

EDUCATION

Master of Science in Environmental Studies
California State University, Fullerton • May 2010

Bachelor of Arts in Environmental Analysis and Design
University of California, Irvine • June 2006

PROFESSIONAL AFFILIATIONS

AEP – Association of Environmental Planners
AWMA – Air and Waste Management Association
ASTM – American Society for Testing and Materials

PROFESSIONAL CERTIFICATIONS

Environmental Site Assessment – American Society for Testing and Materials • June 2013
Planned Communities and Urban Infill – Urban Land Institute • June 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August 2007
AB2588 Regulatory Standards – Trinity Consultants • November 2006
Air Dispersion Modeling – Lakes Environmental • June 2006

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APPENDIX 4.1:

CALEEMOD ANNUAL EMISSIONS MODEL OUTPUTS

12769 - Lake and Mountain

Riverside-South Coast County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Non-Asphalt Surfaces	5.01	Acre	5.01	218,235.60	0
Fast Food Restaurant with Drive Thru	7.37	1000sqft	0.17	7,365.00	0
Convenience Market With Gas Pumps	3.40	1000sqft	0.08	3,400.00	0
Regional Shopping Center	13.20	1000sqft	0.30	13,200.00	0
User Defined Retail	1.00	User Defined Unit	0.07	3,150.00	0

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.4	**Precipitation Freq (Days)**	28
Climate Zone	10			**Operational Year**	2021
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot acerage = information from site plan

Construction Phase -

Off-road Equipment - Hours are based on an 8-hour workday.

Off-road Equipment - Hours are based on an 8-hour workday.

Off-road Equipment - Crawler Tractors Utilized in Lieu of T/L/B

Off-road Equipment -

Off-road Equipment - Crawler Tractors Utilized in Lieu of T/L/B

Trips and VMT -

Grading -

Vehicle Trips - TG based on ITE 10th edition

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Vehicle Emission Factors - EMFAC2017

Energy Use - User Defined Retail Rates Consistent with Convenience Market With Gas Pump.

Water And Wastewater - Water Usage from Car Wash estimated as 30 gallons/vehicle washed

Solid Waste - Car Wash Solid Waste assumed to be equivalent to Convenience Market With Gas Pumps

Construction Off-road Equipment Mitigation -

Energy Mitigation -

Water Mitigation -

Fleet Mix -

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tblVehicleEF	LDA	4.5900e-003	2.8100e-003
tblVehicleEF	LDA	4.7470e-003	0.05
tblVehicleEF	LDA	0.71	0.81
tblVehicleEF	LDA	1.02	1.87
tblVehicleEF	LDA	278.73	289.14
tblVehicleEF	LDA	58.81	54.24
tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	1.6140e-003	1.4470e-003

tblVehicleEF	LDA	2.2650e-003	1.9190e-003
tblVehicleEF	LDA	1.4880e-003	1.3330e-003
tblVehicleEF	LDA	2.0830e-003	1.7640e-003
tblVehicleEF	LDA	0.10	0.14
tblVehicleEF	LDA	0.12	0.12
tblVehicleEF	LDA	0.07	0.10
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.21
tblVehicleEF	LDA	0.06	0.20
tblVehicleEF	LDA	2.7930e-003	2.8600e-003
tblVehicleEF	LDA	6.0500e-004	5.3700e-004
tblVehicleEF	LDA	0.10	0.14
tblVehicleEF	LDA	0.12	0.12
tblVehicleEF	LDA	0.07	0.10
tblVehicleEF	LDA	0.02	0.02
tblVehicleEF	LDA	0.04	0.21
tblVehicleEF	LDA	0.07	0.22
tblVehicleEF	LDA	3.8980e-003	2.3810e-003
tblVehicleEF	LDA	5.6140e-003	0.05
tblVehicleEF	LDA	0.54	0.62
tblVehicleEF	LDA	1.19	2.17
tblVehicleEF	LDA	249.57	259.47
tblVehicleEF	LDA	58.81	54.82
tblVehicleEF	LDA	0.05	0.04
tblVehicleEF	LDA	1.6140e-003	1.4470e-003
tblVehicleEF	LDA	2.2650e-003	1.9190e-003
tblVehicleEF	LDA	1.4880e-003	1.3330e-003

tblVehicleEF	LDA	2.0830e-003	1.7640e-003
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	9.8140e-003	9.1880e-003
tblVehicleEF	LDA	0.04	0.24
tblVehicleEF	LDA	0.08	0.23
tblVehicleEF	LDA	2.4990e-003	2.5670e-003
tblVehicleEF	LDA	6.0800e-004	5.4200e-004
tblVehicleEF	LDA	0.04	0.06
tblVehicleEF	LDA	0.11	0.11
tblVehicleEF	LDA	0.03	0.05
tblVehicleEF	LDA	0.01	0.01
tblVehicleEF	LDA	0.04	0.24
tblVehicleEF	LDA	0.08	0.26
tblVehicleEF	LDT1	0.01	8.0140e-003
tblVehicleEF	LDT1	0.02	0.09
tblVehicleEF	LDT1	1.46	1.62
tblVehicleEF	LDT1	3.40	2.43
tblVehicleEF	LDT1	315.98	317.00
tblVehicleEF	LDT1	72.28	66.64
tblVehicleEF	LDT1	0.14	0.14
tblVehicleEF	LDT1	2.5300e-003	2.2930e-003
tblVehicleEF	LDT1	3.6970e-003	2.9510e-003
tblVehicleEF	LDT1	2.3290e-003	2.1110e-003
tblVehicleEF	LDT1	3.4000e-003	2.7140e-003
tblVehicleEF	LDT1	0.21	0.23

tblVehicleEF	LDT1	0.35	0.27
tblVehicleEF	LDT1	0.14	0.15
tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.20	0.87
tblVehicleEF	LDT1	0.24	0.44
tblVehicleEF	LDT1	3.1780e-003	3.1370e-003
tblVehicleEF	LDT1	7.8300e-004	6.5900e-004
tblVehicleEF	LDT1	0.21	0.23
tblVehicleEF	LDT1	0.35	0.27
tblVehicleEF	LDT1	0.14	0.15
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.20	0.87
tblVehicleEF	LDT1	0.26	0.48
tblVehicleEF	LDT1	0.01	9.0560e-003
tblVehicleEF	LDT1	0.02	0.08
tblVehicleEF	LDT1	1.76	1.96
tblVehicleEF	LDT1	2.99	2.15
tblVehicleEF	LDT1	343.19	341.79
tblVehicleEF	LDT1	72.28	66.01
tblVehicleEF	LDT1	0.13	0.13
tblVehicleEF	LDT1	2.5300e-003	2.2930e-003
tblVehicleEF	LDT1	3.6970e-003	2.9510e-003
tblVehicleEF	LDT1	2.3290e-003	2.1110e-003
tblVehicleEF	LDT1	3.4000e-003	2.7140e-003
tblVehicleEF	LDT1	0.41	0.44
tblVehicleEF	LDT1	0.43	0.34
tblVehicleEF	LDT1	0.27	0.29

tblVehicleEF	LDT1	0.03	0.04
tblVehicleEF	LDT1	0.20	0.88
tblVehicleEF	LDT1	0.21	0.38
tblVehicleEF	LDT1	3.4550e-003	3.3820e-003
tblVehicleEF	LDT1	7.7500e-004	6.5300e-004
tblVehicleEF	LDT1	0.41	0.44
tblVehicleEF	LDT1	0.43	0.34
tblVehicleEF	LDT1	0.27	0.29
tblVehicleEF	LDT1	0.05	0.06
tblVehicleEF	LDT1	0.20	0.88
tblVehicleEF	LDT1	0.23	0.42
tblVehicleEF	LDT1	0.01	7.7080e-003
tblVehicleEF	LDT1	0.02	0.09
tblVehicleEF	LDT1	1.37	1.51
tblVehicleEF	LDT1	3.46	2.48
tblVehicleEF	LDT1	307.88	309.49
tblVehicleEF	LDT1	72.28	66.77
tblVehicleEF	LDT1	0.14	0.14
tblVehicleEF	LDT1	2.5300e-003	2.2930e-003
tblVehicleEF	LDT1	3.6970e-003	2.9510e-003
tblVehicleEF	LDT1	2.3290e-003	2.1110e-003
tblVehicleEF	LDT1	3.4000e-003	2.7140e-003
tblVehicleEF	LDT1	0.18	0.19
tblVehicleEF	LDT1	0.39	0.30
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.03	0.03
tblVehicleEF	LDT1	0.23	1.01

tblVehicleEF	LDT1	0.25	0.45
tblVehicleEF	LDT1	3.0960e-003	3.0630e-003
tblVehicleEF	LDT1	7.8400e-004	6.6100e-004
tblVehicleEF	LDT1	0.18	0.19
tblVehicleEF	LDT1	0.39	0.30
tblVehicleEF	LDT1	0.12	0.13
tblVehicleEF	LDT1	0.04	0.05
tblVehicleEF	LDT1	0.23	1.01
tblVehicleEF	LDT1	0.27	0.50
tblVehicleEF	LDT2	5.6080e-003	4.2470e-003
tblVehicleEF	LDT2	7.2840e-003	0.07
tblVehicleEF	LDT2	0.76	0.98
tblVehicleEF	LDT2	1.53	2.73
tblVehicleEF	LDT2	355.02	338.79
tblVehicleEF	LDT2	81.24	71.51
tblVehicleEF	LDT2	0.08	0.09
tblVehicleEF	LDT2	1.6030e-003	1.4980e-003
tblVehicleEF	LDT2	2.3320e-003	1.9580e-003
tblVehicleEF	LDT2	1.4740e-003	1.3790e-003
tblVehicleEF	LDT2	2.1450e-003	1.8010e-003
tblVehicleEF	LDT2	0.07	0.11
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.01	0.02
tblVehicleEF	LDT2	0.06	0.44
tblVehicleEF	LDT2	0.10	0.33
tblVehicleEF	LDT2	3.5560e-003	3.3520e-003

tblVehicleEF	LDT2	8.3800e-004	7.0800e-004
tblVehicleEF	LDT2	0.07	0.11
tblVehicleEF	LDT2	0.12	0.14
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.06	0.44
tblVehicleEF	LDT2	0.11	0.37
tblVehicleEF	LDT2	6.3630e-003	4.8280e-003
tblVehicleEF	LDT2	6.3270e-003	0.06
tblVehicleEF	LDT2	0.93	1.20
tblVehicleEF	LDT2	1.35	2.42
tblVehicleEF	LDT2	386.34	362.86
tblVehicleEF	LDT2	81.24	70.86
tblVehicleEF	LDT2	0.07	0.08
tblVehicleEF	LDT2	1.6030e-003	1.4980e-003
tblVehicleEF	LDT2	2.3320e-003	1.9580e-003
tblVehicleEF	LDT2	1.4740e-003	1.3790e-003
tblVehicleEF	LDT2	2.1450e-003	1.8010e-003
tblVehicleEF	LDT2	0.14	0.22
tblVehicleEF	LDT2	0.14	0.17
tblVehicleEF	LDT2	0.10	0.17
tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.06	0.44
tblVehicleEF	LDT2	0.09	0.29
tblVehicleEF	LDT2	3.8710e-003	3.5900e-003
tblVehicleEF	LDT2	8.3500e-004	7.0100e-004
tblVehicleEF	LDT2	0.14	0.22

tblVehicleEF	LDT2	0.14	0.17
tblVehicleEF	LDT2	0.10	0.17
tblVehicleEF	LDT2	0.02	0.03
tblVehicleEF	LDT2	0.06	0.44
tblVehicleEF	LDT2	0.09	0.32
tblVehicleEF	LDT2	5.3900e-003	4.0760e-003
tblVehicleEF	LDT2	7.4940e-003	0.07
tblVehicleEF	LDT2	0.71	0.91
tblVehicleEF	LDT2	1.57	2.80
tblVehicleEF	LDT2	345.65	331.49
tblVehicleEF	LDT2	81.24	71.65
tblVehicleEF	LDT2	0.08	0.09
tblVehicleEF	LDT2	1.6030e-003	1.4980e-003
tblVehicleEF	LDT2	2.3320e-003	1.9580e-003
tblVehicleEF	LDT2	1.4740e-003	1.3790e-003
tblVehicleEF	LDT2	2.1450e-003	1.8010e-003
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.13	0.15
tblVehicleEF	LDT2	0.05	0.07
tblVehicleEF	LDT2	0.01	0.02
tblVehicleEF	LDT2	0.07	0.51
tblVehicleEF	LDT2	0.10	0.34
tblVehicleEF	LDT2	3.4620e-003	3.2800e-003
tblVehicleEF	LDT2	8.3900e-004	7.0900e-004
tblVehicleEF	LDT2	0.06	0.09
tblVehicleEF	LDT2	0.13	0.15
tblVehicleEF	LDT2	0.05	0.07

tblVehicleEF	LDT2	0.02	0.02
tblVehicleEF	LDT2	0.07	0.51
tblVehicleEF	LDT2	0.11	0.38
tblVehicleEF	LHD1	5.4460e-003	4.8820e-003
tblVehicleEF	LHD1	0.01	5.3310e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	0.96	0.72
tblVehicleEF	LHD1	2.41	0.96
tblVehicleEF	LHD1	9.26	9.44
tblVehicleEF	LHD1	607.95	639.95
tblVehicleEF	LHD1	30.36	10.54
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	2.21	1.60
tblVehicleEF	LHD1	9.7200e-004	9.7000e-004
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.7100e-004	2.3300e-004
tblVehicleEF	LHD1	9.3000e-004	9.2800e-004
tblVehicleEF	LHD1	2.5390e-003	2.5010e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.0100e-004	2.1400e-004
tblVehicleEF	LHD1	3.8710e-003	3.1780e-003
tblVehicleEF	LHD1	0.10	0.08
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.9010e-003	1.5570e-003
tblVehicleEF	LHD1	0.08	0.06

tblVehicleEF	LHD1	0.31	0.50
tblVehicleEF	LHD1	0.26	0.08
tblVehicleEF	LHD1	9.3000e-005	9.1000e-005
tblVehicleEF	LHD1	5.9620e-003	6.2250e-003
tblVehicleEF	LHD1	3.4900e-004	1.0400e-004
tblVehicleEF	LHD1	3.8710e-003	3.1780e-003
tblVehicleEF	LHD1	0.10	0.08
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.9010e-003	1.5570e-003
tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.31	0.50
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD1	5.4460e-003	4.8940e-003
tblVehicleEF	LHD1	0.01	5.4200e-003
tblVehicleEF	LHD1	0.02	0.01
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	0.97	0.73
tblVehicleEF	LHD1	2.29	0.92
tblVehicleEF	LHD1	9.26	9.44
tblVehicleEF	LHD1	607.95	639.97
tblVehicleEF	LHD1	30.36	10.46
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	2.08	1.51
tblVehicleEF	LHD1	9.7200e-004	9.7000e-004
tblVehicleEF	LHD1	0.01	0.01
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tblVehicleEF	LHD1	8.7100e-004	2.3300e-004

tblVehicleEF	LHD1	9.3000e-004	9.2800e-004
tblVehicleEF	LHD1	2.5390e-003	2.5010e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.0100e-004	2.1400e-004
tblVehicleEF	LHD1	7.2450e-003	5.9530e-003
tblVehicleEF	LHD1	0.12	0.09
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	3.6380e-003	2.9980e-003
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	0.32	0.50
tblVehicleEF	LHD1	0.25	0.07
tblVehicleEF	LHD1	9.3000e-005	9.1000e-005
tblVehicleEF	LHD1	5.9620e-003	6.2250e-003
tblVehicleEF	LHD1	3.4700e-004	1.0300e-004
tblVehicleEF	LHD1	7.2450e-003	5.9530e-003
tblVehicleEF	LHD1	0.12	0.09
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	3.6380e-003	2.9980e-003
tblVehicleEF	LHD1	0.10	0.08
tblVehicleEF	LHD1	0.32	0.50
tblVehicleEF	LHD1	0.27	0.08
tblVehicleEF	LHD1	5.4460e-003	4.8810e-003
tblVehicleEF	LHD1	0.01	5.3180e-003
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	0.15	0.17
tblVehicleEF	LHD1	0.96	0.72
tblVehicleEF	LHD1	2.41	0.96

tblVehicleEF	LHD1	9.26	9.44
tblVehicleEF	LHD1	607.95	639.95
tblVehicleEF	LHD1	30.36	10.54
tblVehicleEF	LHD1	0.09	0.08
tblVehicleEF	LHD1	2.18	1.59
tblVehicleEF	LHD1	9.7200e-004	9.7000e-004
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.7100e-004	2.3300e-004
tblVehicleEF	LHD1	9.3000e-004	9.2800e-004
tblVehicleEF	LHD1	2.5390e-003	2.5010e-003
tblVehicleEF	LHD1	0.01	0.01
tblVehicleEF	LHD1	8.0100e-004	2.1400e-004
tblVehicleEF	LHD1	3.4570e-003	2.8250e-003
tblVehicleEF	LHD1	0.11	0.09
tblVehicleEF	LHD1	0.02	0.02
tblVehicleEF	LHD1	1.7350e-003	1.4150e-003
tblVehicleEF	LHD1	0.08	0.06
tblVehicleEF	LHD1	0.33	0.53
tblVehicleEF	LHD1	0.26	0.08
tblVehicleEF	LHD1	9.3000e-005	9.1000e-005
tblVehicleEF	LHD1	5.9620e-003	6.2250e-003
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tblVehicleEF	LHD1	3.4570e-003	2.8250e-003
tblVehicleEF	LHD1	0.11	0.09
tblVehicleEF	LHD1	0.02	0.03
tblVehicleEF	LHD1	1.7350e-003	1.4150e-003

tblVehicleEF	LHD1	0.10	0.07
tblVehicleEF	LHD1	0.33	0.53
tblVehicleEF	LHD1	0.28	0.08
tblVehicleEF	LHD2	3.6660e-003	3.1720e-003
tblVehicleEF	LHD2	4.5290e-003	3.8570e-003
tblVehicleEF	LHD2	8.3110e-003	9.0280e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.50	0.53
tblVehicleEF	LHD2	1.15	0.56
tblVehicleEF	LHD2	14.48	14.86
tblVehicleEF	LHD2	604.20	638.83
tblVehicleEF	LHD2	23.56	7.29
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	1.71	1.77
tblVehicleEF	LHD2	1.3360e-003	1.4390e-003
tblVehicleEF	LHD2	0.01	0.01
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tblVehicleEF	LHD2	3.8700e-004	1.1400e-004
tblVehicleEF	LHD2	1.2780e-003	1.3770e-003
tblVehicleEF	LHD2	2.6970e-003	2.7110e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.5600e-004	1.0500e-004
tblVehicleEF	LHD2	1.4980e-003	1.6870e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	7.7800e-004	8.4200e-004
tblVehicleEF	LHD2	0.06	0.06

tblVehicleEF	LHD2	0.09	0.25
tblVehicleEF	LHD2	0.11	0.04
tblVehicleEF	LHD2	1.4100e-004	1.4200e-004
tblVehicleEF	LHD2	5.8740e-003	6.1550e-003
tblVehicleEF	LHD2	2.5700e-004	7.2000e-005
tblVehicleEF	LHD2	1.4980e-003	1.6870e-003
tblVehicleEF	LHD2	0.04	0.04
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	7.7800e-004	8.4200e-004
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.09	0.25
tblVehicleEF	LHD2	0.12	0.05
tblVehicleEF	LHD2	3.6660e-003	3.1790e-003
tblVehicleEF	LHD2	4.5800e-003	3.8860e-003
tblVehicleEF	LHD2	8.0210e-003	8.7250e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.51	0.53
tblVehicleEF	LHD2	1.10	0.53
tblVehicleEF	LHD2	14.48	14.86
tblVehicleEF	LHD2	604.20	638.83
tblVehicleEF	LHD2	23.56	7.25
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	1.62	1.67
tblVehicleEF	LHD2	1.3360e-003	1.4390e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.8700e-004	1.1400e-004

tblVehicleEF	LHD2	1.2780e-003	1.3770e-003
tblVehicleEF	LHD2	2.6970e-003	2.7110e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.5600e-004	1.0500e-004
tblVehicleEF	LHD2	2.8320e-003	3.1830e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	1.4720e-003	1.6130e-003
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.09	0.25
tblVehicleEF	LHD2	0.11	0.04
tblVehicleEF	LHD2	1.4100e-004	1.4200e-004
tblVehicleEF	LHD2	5.8740e-003	6.1560e-003
tblVehicleEF	LHD2	2.5600e-004	7.2000e-005
tblVehicleEF	LHD2	2.8320e-003	3.1830e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	1.4720e-003	1.6130e-003
tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.09	0.25
tblVehicleEF	LHD2	0.12	0.05
tblVehicleEF	LHD2	3.6660e-003	3.1700e-003
tblVehicleEF	LHD2	4.5170e-003	3.8490e-003
tblVehicleEF	LHD2	8.3600e-003	9.0930e-003
tblVehicleEF	LHD2	0.12	0.13
tblVehicleEF	LHD2	0.50	0.53
tblVehicleEF	LHD2	1.16	0.56

tblVehicleEF	LHD2	14.48	14.86
tblVehicleEF	LHD2	604.20	638.83
tblVehicleEF	LHD2	23.56	7.30
tblVehicleEF	LHD2	0.12	0.12
tblVehicleEF	LHD2	1.70	1.75
tblVehicleEF	LHD2	1.3360e-003	1.4390e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.8700e-004	1.1400e-004
tblVehicleEF	LHD2	1.2780e-003	1.3770e-003
tblVehicleEF	LHD2	2.6970e-003	2.7110e-003
tblVehicleEF	LHD2	0.01	0.01
tblVehicleEF	LHD2	3.5600e-004	1.0500e-004
tblVehicleEF	LHD2	1.1910e-003	1.3290e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.01	0.02
tblVehicleEF	LHD2	6.6000e-004	7.0100e-004
tblVehicleEF	LHD2	0.06	0.06
tblVehicleEF	LHD2	0.09	0.27
tblVehicleEF	LHD2	0.11	0.04
tblVehicleEF	LHD2	1.4100e-004	1.4200e-004
tblVehicleEF	LHD2	5.8740e-003	6.1550e-003
tblVehicleEF	LHD2	2.5700e-004	7.2000e-005
tblVehicleEF	LHD2	1.1910e-003	1.3290e-003
tblVehicleEF	LHD2	0.04	0.05
tblVehicleEF	LHD2	0.02	0.02
tblVehicleEF	LHD2	6.6000e-004	7.0100e-004

tblVehicleEF	LHD2	0.07	0.07
tblVehicleEF	LHD2	0.09	0.27
tblVehicleEF	LHD2	0.12	0.05
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	19.52	19.61
tblVehicleEF	MCY	9.67	8.55
tblVehicleEF	MCY	165.74	208.30
tblVehicleEF	MCY	46.23	60.73
tblVehicleEF	MCY	1.13	1.13
tblVehicleEF	MCY	1.7750e-003	1.7570e-003
tblVehicleEF	MCY	3.4010e-003	2.8660e-003
tblVehicleEF	MCY	1.6600e-003	1.6440e-003
tblVehicleEF	MCY	3.2060e-003	2.7000e-003
tblVehicleEF	MCY	1.69	1.66
tblVehicleEF	MCY	0.85	0.84
tblVehicleEF	MCY	0.92	0.90
tblVehicleEF	MCY	2.15	2.16
tblVehicleEF	MCY	0.57	1.87
tblVehicleEF	MCY	2.08	1.83
tblVehicleEF	MCY	2.0380e-003	2.0610e-003
tblVehicleEF	MCY	6.8100e-004	6.0100e-004
tblVehicleEF	MCY	1.69	1.66
tblVehicleEF	MCY	0.85	0.84
tblVehicleEF	MCY	0.92	0.90
tblVehicleEF	MCY	2.65	2.65
tblVehicleEF	MCY	0.57	1.87

tblVehicleEF	MCY	2.26	1.99
tblVehicleEF	MCY	0.42	0.32
tblVehicleEF	MCY	0.14	0.22
tblVehicleEF	MCY	20.23	20.27
tblVehicleEF	MCY	9.11	8.00
tblVehicleEF	MCY	165.74	209.26
tblVehicleEF	MCY	46.23	59.19
tblVehicleEF	MCY	0.98	0.98
tblVehicleEF	MCY	1.7750e-003	1.7570e-003
tblVehicleEF	MCY	3.4010e-003	2.8660e-003
tblVehicleEF	MCY	1.6600e-003	1.6440e-003
tblVehicleEF	MCY	3.2060e-003	2.7000e-003
tblVehicleEF	MCY	3.35	3.28
tblVehicleEF	MCY	1.24	1.23
tblVehicleEF	MCY	2.10	2.05
tblVehicleEF	MCY	2.13	2.13
tblVehicleEF	MCY	0.57	1.86
tblVehicleEF	MCY	1.86	1.63
tblVehicleEF	MCY	2.0490e-003	2.0710e-003
tblVehicleEF	MCY	6.6500e-004	5.8600e-004
tblVehicleEF	MCY	3.35	3.28
tblVehicleEF	MCY	1.24	1.23
tblVehicleEF	MCY	2.10	2.05
tblVehicleEF	MCY	2.62	2.63
tblVehicleEF	MCY	0.57	1.86
tblVehicleEF	MCY	2.02	1.77
tblVehicleEF	MCY	0.42	0.32

tblVehicleEF	MCY	0.15	0.24
tblVehicleEF	MCY	19.04	19.14
tblVehicleEF	MCY	9.62	8.49
tblVehicleEF	MCY	165.74	207.52
tblVehicleEF	MCY	46.23	60.64
tblVehicleEF	MCY	1.12	1.12
tblVehicleEF	MCY	1.7750e-003	1.7570e-003
tblVehicleEF	MCY	3.4010e-003	2.8660e-003
tblVehicleEF	MCY	1.6600e-003	1.6440e-003
tblVehicleEF	MCY	3.2060e-003	2.7000e-003
tblVehicleEF	MCY	1.60	1.59
tblVehicleEF	MCY	1.05	1.04
tblVehicleEF	MCY	0.74	0.73
tblVehicleEF	MCY	2.15	2.15
tblVehicleEF	MCY	0.65	2.12
tblVehicleEF	MCY	2.08	1.83
tblVehicleEF	MCY	2.0310e-003	2.0540e-003
tblVehicleEF	MCY	6.8100e-004	6.0000e-004
tblVehicleEF	MCY	1.60	1.59
tblVehicleEF	MCY	1.05	1.04
tblVehicleEF	MCY	0.74	0.73
tblVehicleEF	MCY	2.64	2.65
tblVehicleEF	MCY	0.65	2.12
tblVehicleEF	MCY	2.27	1.99
tblVehicleEF	MDV	0.01	5.7580e-003
tblVehicleEF	MDV	0.02	0.09
tblVehicleEF	MDV	1.42	1.20

tblVehicleEF	MDV	3.18	3.27
tblVehicleEF	MDV	488.89	421.49
tblVehicleEF	MDV	110.15	88.73
tblVehicleEF	MDV	0.17	0.12
tblVehicleEF	MDV	1.7110e-003	1.5730e-003
tblVehicleEF	MDV	2.4630e-003	2.0550e-003
tblVehicleEF	MDV	1.5780e-003	1.4510e-003
tblVehicleEF	MDV	2.2660e-003	1.8910e-003
tblVehicleEF	MDV	0.11	0.13
tblVehicleEF	MDV	0.20	0.17
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.03	0.03
tblVehicleEF	MDV	0.11	0.50
tblVehicleEF	MDV	0.25	0.45
tblVehicleEF	MDV	4.9000e-003	4.1680e-003
tblVehicleEF	MDV	1.1570e-003	8.7800e-004
tblVehicleEF	MDV	0.11	0.13
tblVehicleEF	MDV	0.20	0.17
tblVehicleEF	MDV	0.09	0.11
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.50
tblVehicleEF	MDV	0.27	0.49
tblVehicleEF	MDV	0.01	6.5120e-003
tblVehicleEF	MDV	0.02	0.08
tblVehicleEF	MDV	1.73	1.46
tblVehicleEF	MDV	2.81	2.88
tblVehicleEF	MDV	530.71	447.07

tblVehicleEF	MDV	110.15	87.92
tblVehicleEF	MDV	0.16	0.11
tblVehicleEF	MDV	1.7110e-003	1.5730e-003
tblVehicleEF	MDV	2.4630e-003	2.0550e-003
tblVehicleEF	MDV	1.5780e-003	1.4510e-003
tblVehicleEF	MDV	2.2660e-003	1.8910e-003
tblVehicleEF	MDV	0.22	0.26
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.17	0.21
tblVehicleEF	MDV	0.04	0.03
tblVehicleEF	MDV	0.11	0.50
tblVehicleEF	MDV	0.21	0.39
tblVehicleEF	MDV	5.3230e-003	4.4210e-003
tblVehicleEF	MDV	1.1510e-003	8.7000e-004
tblVehicleEF	MDV	0.22	0.26
tblVehicleEF	MDV	0.23	0.20
tblVehicleEF	MDV	0.17	0.21
tblVehicleEF	MDV	0.05	0.04
tblVehicleEF	MDV	0.11	0.50
tblVehicleEF	MDV	0.23	0.43
tblVehicleEF	MDV	0.01	5.5370e-003
tblVehicleEF	MDV	0.02	0.09
tblVehicleEF	MDV	1.33	1.12
tblVehicleEF	MDV	3.24	3.34
tblVehicleEF	MDV	476.42	413.84
tblVehicleEF	MDV	110.15	88.88
tblVehicleEF	MDV	0.16	0.12

tblVehicleEF	MDV	1.7110e-003	1.5730e-003
tblVehicleEF	MDV	2.4630e-003	2.0550e-003
tblVehicleEF	MDV	1.5780e-003	1.4510e-003
tblVehicleEF	MDV	2.2660e-003	1.8910e-003
tblVehicleEF	MDV	0.09	0.10
tblVehicleEF	MDV	0.21	0.18
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.03	0.02
tblVehicleEF	MDV	0.13	0.57
tblVehicleEF	MDV	0.25	0.46
tblVehicleEF	MDV	4.7750e-003	4.0920e-003
tblVehicleEF	MDV	1.1590e-003	8.8000e-004
tblVehicleEF	MDV	0.09	0.10
tblVehicleEF	MDV	0.21	0.18
tblVehicleEF	MDV	0.08	0.10
tblVehicleEF	MDV	0.05	0.03
tblVehicleEF	MDV	0.13	0.57
tblVehicleEF	MDV	0.28	0.50
tblVehicleEF	MH	0.03	3.3370e-003
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tblVehicleEF	MH	2.70	0.34
tblVehicleEF	MH	5.98	0.00
tblVehicleEF	MH	1,002.10	941.76
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tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.14

tblVehicleEF	MH	1.0860e-003	0.00
tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.14
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tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.08	0.00
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tblVehicleEF	MH	0.09	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.35	0.00
tblVehicleEF	MH	9.9460e-003	8.9030e-003
tblVehicleEF	MH	6.8100e-004	0.00
tblVehicleEF	MH	1.56	0.00
tblVehicleEF	MH	0.08	0.00
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tblVehicleEF	MH	0.13	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.39	0.00
tblVehicleEF	MH	0.03	3.3370e-003
tblVehicleEF	MH	0.02	0.00
tblVehicleEF	MH	2.78	0.34
tblVehicleEF	MH	5.56	0.00
tblVehicleEF	MH	1,002.10	941.76
tblVehicleEF	MH	57.67	0.00
tblVehicleEF	MH	1.55	4.18
tblVehicleEF	MH	0.01	0.02
tblVehicleEF	MH	0.04	0.14

tblVehicleEF	MH	1.0860e-003	0.00
tblVehicleEF	MH	3.2460e-003	4.0000e-003
tblVehicleEF	MH	0.04	0.14
tblVehicleEF	MH	9.9800e-004	0.00
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tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.34	0.00
tblVehicleEF	MH	9.9470e-003	8.9030e-003
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tblVehicleEF	MH	0.13	0.08
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.37	0.00
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tblVehicleEF	MH	0.04	0.14

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tblVehicleEF	MH	0.53	0.00
tblVehicleEF	MH	0.09	0.07
tblVehicleEF	MH	0.03	0.00
tblVehicleEF	MH	0.35	0.00
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tblVehicleEF	MH	0.53	0.00
tblVehicleEF	MH	0.13	0.08
tblVehicleEF	MH	0.03	0.00
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tblVehicleEF	MHD	1,066.63	1,001.03
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tblVehicleEF	MHD	1.0680e-003	2.4180e-003
tblVehicleEF	MHD	6.4490e-003	0.08
tblVehicleEF	MHD	7.8800e-004	9.6000e-005
tblVehicleEF	MHD	1.0220e-003	2.3130e-003
tblVehicleEF	MHD	6.1670e-003	0.08
tblVehicleEF	MHD	7.2400e-004	8.8000e-005
tblVehicleEF	MHD	1.7450e-003	7.1900e-004
tblVehicleEF	MHD	0.05	0.02
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tblVehicleEF	MHD	8.5800e-004	3.5500e-004
tblVehicleEF	MHD	0.03	0.11
tblVehicleEF	MHD	0.02	0.10
tblVehicleEF	MHD	0.37	0.05
tblVehicleEF	MHD	1.4610e-003	7.1000e-004
tblVehicleEF	MHD	0.01	9.5290e-003
tblVehicleEF	MHD	6.6100e-004	8.1000e-005
tblVehicleEF	MHD	1.7450e-003	7.1900e-004
tblVehicleEF	MHD	0.05	0.02
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tblVehicleEF	MHD	8.5800e-004	3.5500e-004
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tblVehicleEF	MHD	0.02	0.10
tblVehicleEF	MHD	0.40	0.05
tblVehicleEF	MHD	0.02	2.9880e-003
tblVehicleEF	MHD	3.7740e-003	6.0080e-003

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tblVehicleEF	MHD	0.26	0.28
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tblVehicleEF	MHD	1,066.63	1,001.04
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tblVehicleEF	MHD	0.67	0.70
tblVehicleEF	MHD	0.93	2.23
tblVehicleEF	MHD	9.0000e-004	2.0410e-003
tblVehicleEF	MHD	6.4490e-003	0.08
tblVehicleEF	MHD	7.8800e-004	9.6000e-005
tblVehicleEF	MHD	8.6100e-004	1.9530e-003
tblVehicleEF	MHD	6.1670e-003	0.08
tblVehicleEF	MHD	7.2400e-004	8.8000e-005
tblVehicleEF	MHD	3.3760e-003	1.3770e-003
tblVehicleEF	MHD	0.06	0.02
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	1.6840e-003	7.0100e-004
tblVehicleEF	MHD	0.03	0.11
tblVehicleEF	MHD	0.02	0.11
tblVehicleEF	MHD	0.36	0.04
tblVehicleEF	MHD	1.5460e-003	7.2500e-004
tblVehicleEF	MHD	0.01	9.5290e-003
tblVehicleEF	MHD	6.5600e-004	8.0000e-005
tblVehicleEF	MHD	3.3760e-003	1.3770e-003
tblVehicleEF	MHD	0.06	0.02

tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	1.6840e-003	7.0100e-004
tblVehicleEF	MHD	0.04	0.12
tblVehicleEF	MHD	0.02	0.11
tblVehicleEF	MHD	0.39	0.05
tblVehicleEF	MHD	0.02	3.3820e-003
tblVehicleEF	MHD	3.6890e-003	5.9600e-003
tblVehicleEF	MHD	0.06	8.5610e-003
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tblVehicleEF	MHD	139.53	72.84
tblVehicleEF	MHD	1,066.63	1,001.03
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tblVehicleEF	MHD	0.62	0.67
tblVehicleEF	MHD	0.98	2.35
tblVehicleEF	MHD	1.2990e-003	2.9380e-003
tblVehicleEF	MHD	6.4490e-003	0.08
tblVehicleEF	MHD	7.8800e-004	9.6000e-005
tblVehicleEF	MHD	1.2430e-003	2.8110e-003
tblVehicleEF	MHD	6.1670e-003	0.08
tblVehicleEF	MHD	7.2400e-004	8.8000e-005
tblVehicleEF	MHD	1.3320e-003	5.6300e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.03	0.02
tblVehicleEF	MHD	6.7900e-004	2.8800e-004
tblVehicleEF	MHD	0.03	0.11

tblVehicleEF	MHD	0.02	0.11
tblVehicleEF	MHD	0.37	0.05
tblVehicleEF	MHD	1.3440e-003	6.9100e-004
tblVehicleEF	MHD	0.01	9.5290e-003
tblVehicleEF	MHD	6.6300e-004	8.1000e-005
tblVehicleEF	MHD	1.3320e-003	5.6300e-004
tblVehicleEF	MHD	0.05	0.02
tblVehicleEF	MHD	0.04	0.03
tblVehicleEF	MHD	6.7900e-004	2.8800e-004
tblVehicleEF	MHD	0.04	0.12
tblVehicleEF	MHD	0.02	0.11
tblVehicleEF	MHD	0.41	0.05
tblVehicleEF	OBUS	0.01	8.9240e-003
tblVehicleEF	OBUS	8.0950e-003	8.5070e-003
tblVehicleEF	OBUS	0.03	0.02
tblVehicleEF	OBUS	0.27	0.50
tblVehicleEF	OBUS	0.54	0.93
tblVehicleEF	OBUS	6.17	2.58
tblVehicleEF	OBUS	75.04	73.28
tblVehicleEF	OBUS	1,098.07	1,407.22
tblVehicleEF	OBUS	70.10	20.86
tblVehicleEF	OBUS	0.35	0.44
tblVehicleEF	OBUS	1.12	1.70
tblVehicleEF	OBUS	1.2100e-004	1.7750e-003
tblVehicleEF	OBUS	6.0450e-003	0.04
tblVehicleEF	OBUS	8.2300e-004	1.9000e-004
tblVehicleEF	OBUS	1.1600e-004	1.6990e-003

tblVehicleEF	OBUS	5.7680e-003	0.04
tblVehicleEF	OBUS	7.5700e-004	1.7400e-004
tblVehicleEF	OBUS	2.1800e-003	2.5990e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	9.3000e-004	1.1120e-003
tblVehicleEF	OBUS	0.04	0.09
tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.39	0.12
tblVehicleEF	OBUS	7.2800e-004	6.9900e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.0900e-004	2.0600e-004
tblVehicleEF	OBUS	2.1800e-003	2.5990e-003
tblVehicleEF	OBUS	0.02	0.02
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	9.3000e-004	1.1120e-003
tblVehicleEF	OBUS	0.05	0.11
tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.42	0.14
tblVehicleEF	OBUS	0.01	8.9470e-003
tblVehicleEF	OBUS	8.2540e-003	8.6370e-003
tblVehicleEF	OBUS	0.03	0.02
tblVehicleEF	OBUS	0.26	0.48
tblVehicleEF	OBUS	0.55	0.94
tblVehicleEF	OBUS	5.76	2.41
tblVehicleEF	OBUS	78.48	73.81
tblVehicleEF	OBUS	1,098.07	1,407.25

tblVehicleEF	OBUS	70.10	20.57
tblVehicleEF	OBUS	0.36	0.45
tblVehicleEF	OBUS	1.04	1.59
tblVehicleEF	OBUS	1.0200e-004	1.5000e-003
tblVehicleEF	OBUS	6.0450e-003	0.04
tblVehicleEF	OBUS	8.2300e-004	1.9000e-004
tblVehicleEF	OBUS	9.8000e-005	1.4350e-003
tblVehicleEF	OBUS	5.7680e-003	0.04
tblVehicleEF	OBUS	7.5700e-004	1.7400e-004
tblVehicleEF	OBUS	4.0690e-003	4.7330e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	1.7890e-003	2.1320e-003
tblVehicleEF	OBUS	0.04	0.09
tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.37	0.12
tblVehicleEF	OBUS	7.6100e-004	7.0400e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.0200e-004	2.0400e-004
tblVehicleEF	OBUS	4.0690e-003	4.7330e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	1.7890e-003	2.1320e-003
tblVehicleEF	OBUS	0.05	0.11
tblVehicleEF	OBUS	0.05	0.26
tblVehicleEF	OBUS	0.40	0.13
tblVehicleEF	OBUS	0.01	8.9200e-003

tblVehicleEF	OBUS	8.0660e-003	8.4690e-003
tblVehicleEF	OBUS	0.03	0.02
tblVehicleEF	OBUS	0.28	0.53
tblVehicleEF	OBUS	0.54	0.92
tblVehicleEF	OBUS	6.22	2.60
tblVehicleEF	OBUS	70.30	72.56
tblVehicleEF	OBUS	1,098.07	1,407.21
tblVehicleEF	OBUS	70.10	20.90
tblVehicleEF	OBUS	0.34	0.44
tblVehicleEF	OBUS	1.11	1.68
tblVehicleEF	OBUS	1.4700e-004	2.1560e-003
tblVehicleEF	OBUS	6.0450e-003	0.04
tblVehicleEF	OBUS	8.2300e-004	1.9000e-004
tblVehicleEF	OBUS	1.4100e-004	2.0620e-003
tblVehicleEF	OBUS	5.7680e-003	0.04
tblVehicleEF	OBUS	7.5700e-004	1.7400e-004
tblVehicleEF	OBUS	1.8870e-003	2.3830e-003
tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.04	0.05
tblVehicleEF	OBUS	8.5400e-004	1.0620e-003
tblVehicleEF	OBUS	0.04	0.09
tblVehicleEF	OBUS	0.05	0.27
tblVehicleEF	OBUS	0.39	0.13
tblVehicleEF	OBUS	6.8300e-004	6.9200e-004
tblVehicleEF	OBUS	0.01	0.01
tblVehicleEF	OBUS	8.1000e-004	2.0700e-004
tblVehicleEF	OBUS	1.8870e-003	2.3830e-003

tblVehicleEF	OBUS	0.02	0.03
tblVehicleEF	OBUS	0.05	0.07
tblVehicleEF	OBUS	8.5400e-004	1.0620e-003
tblVehicleEF	OBUS	0.05	0.11
tblVehicleEF	OBUS	0.05	0.27
tblVehicleEF	OBUS	0.42	0.14
tblVehicleEF	SBUS	0.84	0.08
tblVehicleEF	SBUS	0.01	6.6110e-003
tblVehicleEF	SBUS	0.06	6.9670e-003
tblVehicleEF	SBUS	7.83	3.03
tblVehicleEF	SBUS	0.64	0.53
tblVehicleEF	SBUS	6.66	0.94
tblVehicleEF	SBUS	1,146.29	366.87
tblVehicleEF	SBUS	1,103.40	1,115.27
tblVehicleEF	SBUS	53.92	6.06
tblVehicleEF	SBUS	10.00	3.57
tblVehicleEF	SBUS	4.65	4.82
tblVehicleEF	SBUS	0.01	4.0660e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.5700e-004	4.0000e-005
tblVehicleEF	SBUS	0.01	3.8900e-003
tblVehicleEF	SBUS	2.6950e-003	2.6510e-003
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.2000e-004	3.6000e-005
tblVehicleEF	SBUS	4.6830e-003	1.3080e-003
tblVehicleEF	SBUS	0.03	8.6250e-003

tblVehicleEF	SBUS	0.94	0.36
tblVehicleEF	SBUS	2.1770e-003	6.2500e-004
tblVehicleEF	SBUS	0.11	0.10
tblVehicleEF	SBUS	0.02	0.05
tblVehicleEF	SBUS	0.37	0.04
tblVehicleEF	SBUS	0.01	3.5040e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.5500e-004	6.0000e-005
tblVehicleEF	SBUS	4.6830e-003	1.3080e-003
tblVehicleEF	SBUS	0.03	8.6250e-003
tblVehicleEF	SBUS	1.35	0.52
tblVehicleEF	SBUS	2.1770e-003	6.2500e-004
tblVehicleEF	SBUS	0.13	0.11
tblVehicleEF	SBUS	0.02	0.05
tblVehicleEF	SBUS	0.40	0.04
tblVehicleEF	SBUS	0.84	0.08
tblVehicleEF	SBUS	0.01	6.6860e-003
tblVehicleEF	SBUS	0.05	5.8380e-003
tblVehicleEF	SBUS	7.71	2.99
tblVehicleEF	SBUS	0.65	0.54
tblVehicleEF	SBUS	4.83	0.68
tblVehicleEF	SBUS	1,198.60	377.09
tblVehicleEF	SBUS	1,103.40	1,115.28
tblVehicleEF	SBUS	53.92	5.63
tblVehicleEF	SBUS	10.32	3.66
tblVehicleEF	SBUS	4.37	4.53
tblVehicleEF	SBUS	9.1190e-003	3.4340e-003

tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.5700e-004	4.0000e-005
tblVehicleEF	SBUS	8.7240e-003	3.2850e-003
tblVehicleEF	SBUS	2.6950e-003	2.6510e-003
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.2000e-004	3.6000e-005
tblVehicleEF	SBUS	8.4640e-003	2.3620e-003
tblVehicleEF	SBUS	0.03	9.1440e-003
tblVehicleEF	SBUS	0.93	0.36
tblVehicleEF	SBUS	4.0830e-003	1.1650e-003
tblVehicleEF	SBUS	0.11	0.10
tblVehicleEF	SBUS	0.01	0.05
tblVehicleEF	SBUS	0.31	0.03
tblVehicleEF	SBUS	0.01	3.6000e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.2400e-004	5.6000e-005
tblVehicleEF	SBUS	8.4640e-003	2.3620e-003
tblVehicleEF	SBUS	0.03	9.1440e-003
tblVehicleEF	SBUS	1.35	0.52
tblVehicleEF	SBUS	4.0830e-003	1.1650e-003
tblVehicleEF	SBUS	0.13	0.11
tblVehicleEF	SBUS	0.01	0.05
tblVehicleEF	SBUS	0.34	0.04
tblVehicleEF	SBUS	0.84	0.08
tblVehicleEF	SBUS	0.01	6.6040e-003
tblVehicleEF	SBUS	0.07	7.2110e-003

tblVehicleEF	SBUS	8.00	3.09
tblVehicleEF	SBUS	0.63	0.53
tblVehicleEF	SBUS	7.02	0.98
tblVehicleEF	SBUS	1,074.07	352.76
tblVehicleEF	SBUS	1,103.40	1,115.26
tblVehicleEF	SBUS	53.92	6.14
tblVehicleEF	SBUS	9.56	3.44
tblVehicleEF	SBUS	4.60	4.78
tblVehicleEF	SBUS	0.01	4.9380e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	0.03	0.03
tblVehicleEF	SBUS	4.5700e-004	4.0000e-005
tblVehicleEF	SBUS	0.01	4.7240e-003
tblVehicleEF	SBUS	2.6950e-003	2.6510e-003
tblVehicleEF	SBUS	0.02	0.03
tblVehicleEF	SBUS	4.2000e-004	3.6000e-005
tblVehicleEF	SBUS	4.1680e-003	1.1480e-003
tblVehicleEF	SBUS	0.03	8.8290e-003
tblVehicleEF	SBUS	0.94	0.36
tblVehicleEF	SBUS	2.1000e-003	6.0300e-004
tblVehicleEF	SBUS	0.11	0.10
tblVehicleEF	SBUS	0.02	0.06
tblVehicleEF	SBUS	0.38	0.04
tblVehicleEF	SBUS	0.01	3.3710e-003
tblVehicleEF	SBUS	0.01	0.01
tblVehicleEF	SBUS	6.6100e-004	6.1000e-005
tblVehicleEF	SBUS	4.1680e-003	1.1480e-003

tblVehicleEF	SBUS	0.03	8.8290e-003
tblVehicleEF	SBUS	1.35	0.52
tblVehicleEF	SBUS	2.1000e-003	6.0300e-004
tblVehicleEF	SBUS	0.13	0.11
tblVehicleEF	SBUS	0.02	0.06
tblVehicleEF	SBUS	0.41	0.05
tblVehicleEF	UBUS	1.51	3.35
tblVehicleEF	UBUS	0.09	0.02
tblVehicleEF	UBUS	8.45	26.05
tblVehicleEF	UBUS	15.26	1.50
tblVehicleEF	UBUS	1,822.40	1,617.71
tblVehicleEF	UBUS	153.45	18.08
tblVehicleEF	UBUS	4.95	0.32
tblVehicleEF	UBUS	0.50	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.06	2.9340e-003
tblVehicleEF	UBUS	1.4200e-003	1.6100e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4780e-003
tblVehicleEF	UBUS	0.05	2.7920e-003
tblVehicleEF	UBUS	1.3060e-003	1.4800e-004
tblVehicleEF	UBUS	9.7430e-003	1.6370e-003
tblVehicleEF	UBUS	0.11	9.7740e-003
tblVehicleEF	UBUS	4.7860e-003	7.1300e-004
tblVehicleEF	UBUS	0.52	0.05
tblVehicleEF	UBUS	0.02	0.05
tblVehicleEF	UBUS	1.17	0.07

tblVehicleEF	UBUS	9.9960e-003	4.8690e-003
tblVehicleEF	UBUS	1.8100e-003	1.7900e-004
tblVehicleEF	UBUS	9.7430e-003	1.6370e-003
tblVehicleEF	UBUS	0.11	9.7740e-003
tblVehicleEF	UBUS	4.7860e-003	7.1300e-004
tblVehicleEF	UBUS	2.08	3.43
tblVehicleEF	UBUS	0.02	0.05
tblVehicleEF	UBUS	1.28	0.08
tblVehicleEF	UBUS	1.52	3.35
tblVehicleEF	UBUS	0.08	0.02
tblVehicleEF	UBUS	8.53	26.06
tblVehicleEF	UBUS	13.06	1.28
tblVehicleEF	UBUS	1,822.40	1,617.72
tblVehicleEF	UBUS	153.45	17.70
tblVehicleEF	UBUS	4.62	0.31
tblVehicleEF	UBUS	0.50	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.06	2.9340e-003
tblVehicleEF	UBUS	1.4200e-003	1.6100e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4780e-003
tblVehicleEF	UBUS	0.05	2.7920e-003
tblVehicleEF	UBUS	1.3060e-003	1.4800e-004
tblVehicleEF	UBUS	0.02	2.9250e-003
tblVehicleEF	UBUS	0.14	0.01
tblVehicleEF	UBUS	9.6600e-003	1.4550e-003
tblVehicleEF	UBUS	0.53	0.05

tblVehicleEF	UBUS	0.02	0.05
tblVehicleEF	UBUS	1.06	0.07
tblVehicleEF	UBUS	9.9970e-003	4.8690e-003
tblVehicleEF	UBUS	1.7720e-003	1.7500e-004
tblVehicleEF	UBUS	0.02	2.9250e-003
tblVehicleEF	UBUS	0.14	0.01
tblVehicleEF	UBUS	9.6600e-003	1.4550e-003
tblVehicleEF	UBUS	2.09	3.43
tblVehicleEF	UBUS	0.02	0.05
tblVehicleEF	UBUS	1.17	0.07
tblVehicleEF	UBUS	1.51	3.35
tblVehicleEF	UBUS	0.09	0.02
tblVehicleEF	UBUS	8.44	26.05
tblVehicleEF	UBUS	15.44	1.49
tblVehicleEF	UBUS	1,822.40	1,617.71
tblVehicleEF	UBUS	153.45	18.06
tblVehicleEF	UBUS	4.92	0.31
tblVehicleEF	UBUS	0.50	0.09
tblVehicleEF	UBUS	0.01	0.02
tblVehicleEF	UBUS	0.06	2.9340e-003
tblVehicleEF	UBUS	1.4200e-003	1.6100e-004
tblVehicleEF	UBUS	0.21	0.04
tblVehicleEF	UBUS	3.0000e-003	5.4780e-003
tblVehicleEF	UBUS	0.05	2.7920e-003
tblVehicleEF	UBUS	1.3060e-003	1.4800e-004
tblVehicleEF	UBUS	8.9770e-003	1.7200e-003
tblVehicleEF	UBUS	0.13	0.01

tblVehicleEF	UBUS	4.3820e-003	7.5400e-004
tblVehicleEF	UBUS	0.52	0.05
tblVehicleEF	UBUS	0.03	0.05
tblVehicleEF	UBUS	1.18	0.07
tblVehicleEF	UBUS	9.9960e-003	4.8690e-003
tblVehicleEF	UBUS	1.8130e-003	1.7900e-004
tblVehicleEF	UBUS	8.9770e-003	1.7200e-003
tblVehicleEF	UBUS	0.13	0.01
tblVehicleEF	UBUS	4.3820e-003	7.5400e-004
tblVehicleEF	UBUS	2.08	3.43
tblVehicleEF	UBUS	0.03	0.05
tblVehicleEF	UBUS	1.29	0.08
tblVehicleTrips	CC_TL	8.40	3.00
tblVehicleTrips	CC_TL	8.40	3.00
tblVehicleTrips	CC_TL	8.40	3.00
tblVehicleTrips	CC_TL	8.40	3.00
tblVehicleTrips	CC_TTP	80.20	96.00
tblVehicleTrips	CC_TTP	78.80	96.00
tblVehicleTrips	CC_TTP	64.70	96.00
tblVehicleTrips	CC_TTP	0.00	96.00
tblVehicleTrips	CNW_TTP	19.00	3.00
tblVehicleTrips	CNW_TTP	19.00	3.00
tblVehicleTrips	CNW_TTP	19.00	3.00
tblVehicleTrips	CNW_TTP	0.00	3.00
tblVehicleTrips	CW_TTP	0.80	1.00
tblVehicleTrips	CW_TTP	2.20	1.00
tblVehicleTrips	CW_TTP	16.30	1.00

tblVehicleTrips	CW_TTP	0.00	1.00
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	21.00	0.00
tblVehicleTrips	DV_TP	35.00	0.00
tblVehicleTrips	PB_TP	65.00	70.00
tblVehicleTrips	PB_TP	50.00	67.00
tblVehicleTrips	PB_TP	11.00	39.00
tblVehicleTrips	PR_TP	14.00	30.00
tblVehicleTrips	PR_TP	29.00	33.00
tblVehicleTrips	PR_TP	54.00	61.00
tblVehicleTrips	PR_TP	0.00	100.00
tblVehicleTrips	ST_TR	1,448.33	700.00
tblVehicleTrips	ST_TR	722.03	616.12
tblVehicleTrips	ST_TR	0.00	775.00
tblVehicleTrips	SU_TR	1,182.08	700.00
tblVehicleTrips	SU_TR	542.72	472.58
tblVehicleTrips	SU_TR	0.00	775.00
tblVehicleTrips	WD_TR	845.60	837.58
tblVehicleTrips	WD_TR	496.12	470.95
tblVehicleTrips	WD_TR	42.70	114.93
tblVehicleTrips	WD_TR	0.00	775.00
tblWater	IndoorWaterUseRate	0.00	4,248,600.00

2.0 Emissions Summary

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					
2020	0.2496	2.6734	1.7202	4.9000e-003	0.2951	0.1091	0.4042	0.1165	0.1019	0.2184	0.0000	442.7566	442.7566	0.0726	0.0000	444.5718
2021	0.3082	1.3574	1.3249	2.9000e-003	0.0761	0.0631	0.1392	0.0205	0.0592	0.0797	0.0000	257.3922	257.3922	0.0443	0.0000	258.4996
Maximum	**0.3082**	**2.6734**	**1.7202**	**4.9000e-003**	**0.2951**	**0.1091**	**0.4042**	**0.1165**	**0.1019**	**0.2184**	**0.0000**	**442.7566**	**442.7566**	**0.0726**	**0.0000**	**444.5718**

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					
2020	0.2496	2.6734	1.7202	4.9000e-003	0.1830	0.1091	0.2921	0.0638	0.1019	0.1657	0.0000	442.7563	442.7563	0.0726	0.0000	444.5716
2021	0.3082	1.3574	1.3249	2.9000e-003	0.0761	0.0631	0.1392	0.0205	0.0592	0.0797	0.0000	257.3920	257.3920	0.0443	0.0000	258.4994
Maximum	**0.3082**	**2.6734**	**1.7202**	**4.9000e-003**	**0.1830**	**0.1091**	**0.2921**	**0.0638**	**0.1019**	**0.1657**	**0.0000**	**442.7563**	**442.7563**	**0.0726**	**0.0000**	**444.5716**

	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**	**30.21**	**0.00**	**20.63**	**38.46**	**0.00**	**17.68**	**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)
1	5-4-2020	8-3-2020	1.4206	1.4206
2	8-4-2020	11-3-2020	0.9182	0.9182
3	11-4-2020	2-3-2021	0.8858	0.8858
4	2-4-2021	5-3-2021	0.8043	0.8043
5	5-4-2021	8-3-2021	0.5497	0.5497
		Highest	1.4206	1.4206

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	0.1277	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.9000e-004
Energy	0.0111	0.1009	0.0847	6.1000e-004		7.6700e-003	7.6700e-003		7.6700e-003	7.6700e-003	0.0000	300.7049	300.7049	9.9900e-003	3.6400e-003	302.0403
Mobile	3.1766	5.6893	12.9172	0.0199	1.6390	0.0275	1.6665	0.4357	0.0258	0.4616	0.0000	1,847.8497	1,847.8497	0.2041	0.0000	1,852.9525
Waste						0.0000	0.0000		0.0000	0.0000	24.1945	0.0000	24.1945	1.4299	0.0000	59.9408
Water						0.0000	0.0000		0.0000	0.0000	2.4477	35.1820	37.6297	0.2529	6.2400e-003	45.8096
Total	**3.3154**	**5.7901**	**13.0023**	**0.0205**	**1.6390**	**0.0352**	**1.6742**	**0.4357**	**0.0335**	**0.4692**	**26.6422**	**2,183.7373**	**2,210.3794**	**1.8968**	**9.8800e-003**	**2,260.7440**

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	0.1277	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.9000e-004
Energy	0.0111	0.1009	0.0847	6.1000e-004		7.6700e-003	7.6700e-003		7.6700e-003	7.6700e-003	0.0000	300.7049	300.7049	9.9900e-003	3.6400e-003	302.0403
Mobile	3.1766	5.6893	12.9172	0.0199	1.6390	0.0275	1.6665	0.4357	0.0258	0.4616	0.0000	1,847.8497	1,847.8497	0.2041	0.0000	1,852.9525
Waste						0.0000	0.0000		0.0000	0.0000	24.1945	0.0000	24.1945	1.4299	0.0000	59.9408
Water						0.0000	0.0000		0.0000	0.0000	1.9582	28.7802	30.7384	0.2023	4.9900e-003	37.2846
Total	**3.3154**	**5.7901**	**13.0023**	**0.0205**	**1.6390**	**0.0352**	**1.6742**	**0.4357**	**0.0335**	**0.4692**	**26.1526**	**2,177.3355**	**2,203.4881**	**1.8463**	**8.6300e-003**	**2,252.2190**

	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**	**1.84**	**0.29**	**0.31**	**2.66**	**12.65**	**0.38**

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	5/30/2020	6/12/2020	5	10	
2	Grading	Grading	6/13/2020	7/10/2020	5	20	
3	Building Construction	Building Construction	7/11/2020	5/28/2021	5	230	
4	Paving	Paving	5/29/2021	6/25/2021	5	20	
5	Architectural Coating	Architectural Coating	6/26/2021	7/23/2021	5	20	

Acres of Grading (Site Preparation Phase): 20

Acres of Grading (Grading Phase): 40

Acres of Paving: 5.01

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 40,673; Non-Residential Outdoor: 13,558; Striped Parking Area: 13,094 (Architectural Coating – sqft)

<u>OffRoad Equipment</u>

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Site Preparation	Crawler Tractors	4	8.00	212	0.43
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Crawler Tractors	3	8.00	212	0.43
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	0	8.00	97	0.37
Building Construction	Cranes	1	8.00	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	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
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
Architectural Coating	Air Compressors	1	8.00	78	0.48
Site Preparation	Graders	1	8.00	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	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	2,802.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	101.00	40.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	20.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2020

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					0.1009	0.0000	0.1009	0.0508	0.0000	0.0508	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0301	0.3505	0.1210	3.2000e-004		0.0150	0.0150		0.0138	0.0138	0.0000	27.9606	27.9606	9.0400e-003	0.0000	28.1867
Total	**0.0301**	**0.3505**	**0.1210**	**3.2000e-004**	**0.1009**	**0.0150**	**0.1159**	**0.0508**	**0.0138**	**0.0646**	**0.0000**	**27.9606**	**27.9606**	**9.0400e-003**	**0.0000**	**28.1867**

3.2 Site Preparation - 2020

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	2.9000e-004	3.0900e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8276	0.8276	2.0000e-005	0.0000	0.8282
Total	**4.1000e-004**	**2.9000e-004**	**3.0900e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**1.0000e-003**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8276**	**0.8276**	**2.0000e-005**	**0.0000**	**0.8282**

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					0.0394	0.0000	0.0394	0.0198	0.0000	0.0198	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0301	0.3505	0.1210	3.2000e-004		0.0150	0.0150		0.0138	0.0138	0.0000	27.9606	27.9606	9.0400e-003	0.0000	28.1867
Total	**0.0301**	**0.3505**	**0.1210**	**3.2000e-004**	**0.0394**	**0.0150**	**0.0543**	**0.0198**	**0.0138**	**0.0336**	**0.0000**	**27.9606**	**27.9606**	**9.0400e-003**	**0.0000**	**28.1867**

3.2 Site Preparation - 2020

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	2.9000e-004	3.0900e-003	1.0000e-005	9.9000e-004	1.0000e-005	1.0000e-003	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8276	0.8276	2.0000e-005	0.0000	0.8282
Total	**4.1000e-004**	**2.9000e-004**	**3.0900e-003**	**1.0000e-005**	**9.9000e-004**	**1.0000e-005**	**1.0000e-003**	**2.6000e-004**	**1.0000e-005**	**2.7000e-004**	**0.0000**	**0.8276**	**0.8276**	**2.0000e-005**	**0.0000**	**0.8282**

3.3 Grading - 2020

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					0.0829	0.0000	0.0829	0.0356	0.0000	0.0356	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0354	0.4241	0.1671	4.4000e-004		0.0172	0.0172		0.0158	0.0158	0.0000	38.5676	38.5676	0.0125	0.0000	38.8794
Total	**0.0354**	**0.4241**	**0.1671**	**4.4000e-004**	**0.0829**	**0.0172**	**0.1000**	**0.0356**	**0.0158**	**0.0514**	**0.0000**	**38.5676**	**38.5676**	**0.0125**	**0.0000**	**38.8794**

3.3 Grading - 2020

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	7.3600e-003	0.3397	0.0440	1.0600e-003	0.0242	1.0600e-003	0.0252	6.6300e-003	1.0200e-003	7.6500e-003	0.0000	101.5857	101.5857	6.3700e-003	0.0000	101.7448
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	6.9000e-004	4.8000e-004	5.1600e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3794	1.3794	3.0000e-005	0.0000	1.3803
Total	**8.0500e-003**	**0.3402**	**0.0491**	**1.0800e-003**	**0.0258**	**1.0700e-003**	**0.0269**	**7.0700e-003**	**1.0300e-003**	**8.1000e-003**	**0.0000**	**102.9651**	**102.9651**	**6.4000e-003**	**0.0000**	**103.1251**

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					0.0323	0.0000	0.0323	0.0139	0.0000	0.0139	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0354	0.4241	0.1671	4.4000e-004		0.0172	0.0172		0.0158	0.0158	0.0000	38.5675	38.5675	0.0125	0.0000	38.8793
Total	**0.0354**	**0.4241**	**0.1671**	**4.4000e-004**	**0.0323**	**0.0172**	**0.0495**	**0.0139**	**0.0158**	**0.0297**	**0.0000**	**38.5675**	**38.5675**	**0.0125**	**0.0000**	**38.8793**

3.3 Grading - 2020

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	7.3600e-003	0.3397	0.0440	1.0600e-003	0.0242	1.0600e-003	0.0252	6.6300e-003	1.0200e-003	7.6500e-003	0.0000	101.5857	101.5857	6.3700e-003	0.0000	101.7448
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	6.9000e-004	4.8000e-004	5.1600e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3794	1.3794	3.0000e-005	0.0000	1.3803
Total	**8.0500e-003**	**0.3402**	**0.0491**	**1.0800e-003**	**0.0258**	**1.0700e-003**	**0.0269**	**7.0700e-003**	**1.0300e-003**	**8.1000e-003**	**0.0000**	**102.9651**	**102.9651**	**6.4000e-003**	**0.0000**	**103.1251**

3.4 Building Construction - 2020

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	0.1398	1.2803	1.1140	1.7900e-003		0.0741	0.0741		0.0696	0.0696	0.0000	153.8707	153.8707	0.0384	0.0000	154.8296
Total	**0.1398**	**1.2803**	**1.1140**	**1.7900e-003**		**0.0741**	**0.0741**		**0.0696**	**0.0696**	**0.0000**	**153.8707**	**153.8707**	**0.0384**	**0.0000**	**154.8296**

3.4 Building Construction - 2020

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	7.0500e-003	0.2580	0.0505	6.4000e-004	0.0157	1.4600e-003	0.0171	4.5200e-003	1.4000e-003	5.9100e-003	0.0000	60.9801	60.9801	4.8700e-003	0.0000	61.1020
Worker	0.0288	0.0202	0.2153	6.4000e-004	0.0688	4.2000e-004	0.0693	0.0183	3.9000e-004	0.0187	0.0000	57.5849	57.5849	1.4400e-003	0.0000	57.6209
Total	**0.0358**	**0.2781**	**0.2658**	**1.2800e-003**	**0.0845**	**1.8800e-003**	**0.0864**	**0.0228**	**1.7900e-003**	**0.0246**	**0.0000**	**118.5650**	**118.5650**	**6.3100e-003**	**0.0000**	**118.7229**

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	0.1398	1.2803	1.1140	1.7900e-003		0.0741	0.0741		0.0696	0.0696	0.0000	153.8705	153.8705	0.0384	0.0000	154.8294
Total	**0.1398**	**1.2803**	**1.1140**	**1.7900e-003**		**0.0741**	**0.0741**		**0.0696**	**0.0696**	**0.0000**	**153.8705**	**153.8705**	**0.0384**	**0.0000**	**154.8294**

3.4 Building Construction - 2020

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	7.0500e-003	0.2580	0.0505	6.4000e-004	0.0157	1.4600e-003	0.0171	4.5200e-003	1.4000e-003	5.9100e-003	0.0000	60.9801	60.9801	4.8700e-003	0.0000	61.1020
Worker	0.0288	0.0202	0.2153	6.4000e-004	0.0688	4.2000e-004	0.0693	0.0183	3.9000e-004	0.0187	0.0000	57.5849	57.5849	1.4400e-003	0.0000	57.6209
Total	**0.0358**	**0.2781**	**0.2658**	**1.2800e-003**	**0.0845**	**1.8800e-003**	**0.0864**	**0.0228**	**1.7900e-003**	**0.0246**	**0.0000**	**118.5650**	**118.5650**	**6.3100e-003**	**0.0000**	**118.7229**

3.4 Building Construction - 2021

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	0.1072	0.9937	0.9365	1.5300e-003		0.0543	0.0543		0.0510	0.0510	0.0000	131.5512	131.5512	0.0325	0.0000	132.3626
Total	**0.1072**	**0.9937**	**0.9365**	**1.5300e-003**		**0.0543**	**0.0543**		**0.0510**	**0.0510**	**0.0000**	**131.5512**	**131.5512**	**0.0325**	**0.0000**	**132.3626**

3.4 Building Construction - 2021

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	5.0600e-003	0.1977	0.0380	5.4000e-004	0.0134	3.8000e-004	0.0138	3.8600e-003	3.6000e-004	4.2200e-003	0.0000	51.7223	51.7223	3.9500e-003	0.0000	51.8210
Worker	0.0230	0.0155	0.1685	5.3000e-004	0.0588	3.5000e-004	0.0592	0.0156	3.2000e-004	0.0160	0.0000	47.5800	47.5800	1.1100e-003	0.0000	47.6077
Total	**0.0280**	**0.2131**	**0.2065**	**1.0700e-003**	**0.0722**	**7.3000e-004**	**0.0730**	**0.0195**	**6.8000e-004**	**0.0202**	**0.0000**	**99.3023**	**99.3023**	**5.0600e-003**	**0.0000**	**99.4286**

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	0.1072	0.9937	0.9365	1.5300e-003		0.0543	0.0543		0.0510	0.0510	0.0000	131.5510	131.5510	0.0325	0.0000	132.3625
Total	**0.1072**	**0.9937**	**0.9365**	**1.5300e-003**		**0.0543**	**0.0543**		**0.0510**	**0.0510**	**0.0000**	**131.5510**	**131.5510**	**0.0325**	**0.0000**	**132.3625**

3.4 Building Construction - 2021

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	5.0600e-003	0.1977	0.0380	5.4000e-004	0.0134	3.8000e-004	0.0138	3.8600e-003	3.6000e-004	4.2200e-003	0.0000	51.7223	51.7223	3.9500e-003	0.0000	51.8210
Worker	0.0230	0.0155	0.1685	5.3000e-004	0.0588	3.5000e-004	0.0592	0.0156	3.2000e-004	0.0160	0.0000	47.5800	47.5800	1.1100e-003	0.0000	47.6077
Total	**0.0280**	**0.2131**	**0.2065**	**1.0700e-003**	**0.0722**	**7.3000e-004**	**0.0730**	**0.0195**	**6.8000e-004**	**0.0202**	**0.0000**	**99.3023**	**99.3023**	**5.0600e-003**	**0.0000**	**99.4286**

3.5 Paving - 2021

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	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0126**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

3.5 Paving - 2021

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	6.4000e-004	4.3000e-004	4.7200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3333	1.3333	3.0000e-005	0.0000	1.3341
Total	**6.4000e-004**	**4.3000e-004**	**4.7200e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.3333**	**1.3333**	**3.0000e-005**	**0.0000**	**1.3341**

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	0.0126	0.1292	0.1465	2.3000e-004		6.7800e-003	6.7800e-003		6.2400e-003	6.2400e-003	0.0000	20.0235	20.0235	6.4800e-003	0.0000	20.1854
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0126**	**0.1292**	**0.1465**	**2.3000e-004**		**6.7800e-003**	**6.7800e-003**		**6.2400e-003**	**6.2400e-003**	**0.0000**	**20.0235**	**20.0235**	**6.4800e-003**	**0.0000**	**20.1854**

3.5 Paving - 2021

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	6.4000e-004	4.3000e-004	4.7200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3333	1.3333	3.0000e-005	0.0000	1.3341
Total	**6.4000e-004**	**4.3000e-004**	**4.7200e-003**	**1.0000e-005**	**1.6500e-003**	**1.0000e-005**	**1.6600e-003**	**4.4000e-004**	**1.0000e-005**	**4.5000e-004**	**0.0000**	**1.3333**	**1.3333**	**3.0000e-005**	**0.0000**	**1.3341**

3.6 Architectural Coating - 2021

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	0.1560					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.9200e-003	0.0204	0.0242	4.0000e-005		1.2500e-003	1.2500e-003		1.2500e-003	1.2500e-003	0.0000	3.4043	3.4043	2.3000e-004	0.0000	3.4102
Total	**0.1590**	**0.0204**	**0.0242**	**4.0000e-005**		**1.2500e-003**	**1.2500e-003**		**1.2500e-003**	**1.2500e-003**	**0.0000**	**3.4043**	**3.4043**	**2.3000e-004**	**0.0000**	**3.4102**

3.6 Architectural Coating - 2021

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	8.6000e-004	5.8000e-004	6.3000e-003	2.0000e-005	2.2000e-003	1.0000e-005	2.2100e-003	5.8000e-004	1.0000e-005	6.0000e-004	0.0000	1.7777	1.7777	4.0000e-005	0.0000	1.7787
Total	**8.6000e-004**	**5.8000e-004**	**6.3000e-003**	**2.0000e-005**	**2.2000e-003**	**1.0000e-005**	**2.2100e-003**	**5.8000e-004**	**1.0000e-005**	**6.0000e-004**	**0.0000**	**1.7777**	**1.7777**	**4.0000e-005**	**0.0000**	**1.7787**

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	0.1560					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.9200e-003	0.0204	0.0242	4.0000e-005		1.2500e-003	1.2500e-003		1.2500e-003	1.2500e-003	0.0000	3.4043	3.4043	2.3000e-004	0.0000	3.4102
Total	**0.1590**	**0.0204**	**0.0242**	**4.0000e-005**		**1.2500e-003**	**1.2500e-003**		**1.2500e-003**	**1.2500e-003**	**0.0000**	**3.4043**	**3.4043**	**2.3000e-004**	**0.0000**	**3.4102**

3.6 Architectural Coating - 2021

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	8.6000e-004	5.8000e-004	6.3000e-003	2.0000e-005	2.2000e-003	1.0000e-005	2.2100e-003	5.8000e-004	1.0000e-005	6.0000e-004	0.0000	1.7777	1.7777	4.0000e-005	0.0000	1.7787
Total	**8.6000e-004**	**5.8000e-004**	**6.3000e-003**	**2.0000e-005**	**2.2000e-003**	**1.0000e-005**	**2.2100e-003**	**5.8000e-004**	**1.0000e-005**	**6.0000e-004**	**0.0000**	**1.7777**	**1.7777**	**4.0000e-005**	**0.0000**	**1.7787**

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	3.1766	5.6893	12.9172	0.0199	1.6390	0.0275	1.6665	0.4357	0.0258	0.4616	0.0000	1,847.8497	1,847.8497	0.2041	0.0000	1,852.9525
Unmitigated	3.1766	5.6893	12.9172	0.0199	1.6390	0.0275	1.6665	0.4357	0.0258	0.4616	0.0000	1,847.8497	1,847.8497	0.2041	0.0000	1,852.9525

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Convenience Market With Gas Pumps	2,847.77	2,380.00	2380.00	1,033,287	1,033,287
Fast Food Restaurant with Drive Thru	3,470.90	4,540.80	3482.91	1,505,068	1,505,068
Other Non-Asphalt Surfaces	0.00	0.00	0.00		
Regional Shopping Center	1,517.08	659.60	333.17	902,534	902,534
User Defined Retail	775.00	775.00	775.00	917,671	917,671
Total	8,610.75	8,355.41	6,971.08	4,358,561	4,358,561

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
Convenience Market With Gas	16.60	3.00	6.90	1.00	96.00	3.00	30	0	70
Fast Food Restaurant with Drive	16.60	3.00	6.90	1.00	96.00	3.00	33	0	67
Other Non-Asphalt Surfaces	16.60	8.40	6.90	0.00	0.00	0.00	0	0	0
Regional Shopping Center	16.60	3.00	6.90	1.00	96.00	3.00	61	0	39
User Defined Retail	16.60	3.00	6.90	1.00	96.00	3.00	100	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Convenience Market With Gas Pumps	0.690000	0.097000	0.097000	0.064000	0.000000	0.000000	0.000000	0.047000	0.000000	0.000000	0.005000	0.000000	0.000000
Fast Food Restaurant with Drive Thru	0.690000	0.097000	0.097000	0.064000	0.000000	0.000000	0.000000	0.047000	0.000000	0.000000	0.005000	0.000000	0.000000
Other Non-Asphalt Surfaces	0.542116	0.037578	0.185203	0.118503	0.016241	0.005141	0.017392	0.068695	0.001383	0.001183	0.004582	0.000945	0.001038
Regional Shopping Center	0.690000	0.097000	0.097000	0.064000	0.000000	0.000000	0.000000	0.047000	0.000000	0.000000	0.005000	0.000000	0.000000
User Defined Retail	0.690000	0.097000	0.097000	0.064000	0.000000	0.000000	0.000000	0.047000	0.000000	0.000000	0.005000	0.000000	0.000000

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	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	190.8965	190.8965	7.8800e-003	1.6300e-003	191.5795
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	190.8965	190.8965	7.8800e-003	1.6300e-003	191.5795
NaturalGas Mitigated	0.0111	0.1009	0.0847	6.1000e-004		7.6700e-003	7.6700e-003		7.6700e-003	7.6700e-003	0.0000	109.8083	109.8083	2.1000e-003	2.0100e-003	110.4609
NaturalGas Unmitigated	0.0111	0.1009	0.0847	6.1000e-004		7.6700e-003	7.6700e-003		7.6700e-003	7.6700e-003	0.0000	109.8083	109.8083	2.1000e-003	2.0100e-003	110.4609

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					
Convenience Market With Gas Pumps	7548	4.0000e-005	3.7000e-004	3.1000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4028	0.4028	1.0000e-005	1.0000e-005	0.4052
Fast Food Restaurant with Drive Thru	2.01389e+006	0.0109	0.0987	0.0829	5.9000e-004		7.5000e-003	7.5000e-003		7.5000e-003	7.5000e-003	0.0000	107.4686	107.4686	2.0600e-003	1.9700e-003	108.1072
Other Non-Asphalt Surfaces	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
Regional Shopping Center	29304	1.6000e-004	1.4400e-003	1.2100e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.5638	1.5638	3.0000e-005	3.0000e-005	1.5731
User Defined Retail	6993	4.0000e-005	3.4000e-004	2.9000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.3732	0.3732	1.0000e-005	1.0000e-005	0.3754
Total		**0.0111**	**0.1009**	**0.0847**	**6.0000e-004**		**7.6700e-003**	**7.6700e-003**		**7.6700e-003**	**7.6700e-003**	**0.0000**	**109.8083**	**109.8083**	**2.1100e-003**	**2.0200e-003**	**110.4609**

5.2 Energy by Land Use - NaturalGas

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					
Convenience Market With Gas Pumps	7548	4.0000e-005	3.7000e-004	3.1000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.4028	0.4028	1.0000e-005	1.0000e-005	0.4052
Fast Food Restaurant with Drive Thru	2.01389e+006	0.0109	0.0987	0.0829	5.9000e-004		7.5000e-003	7.5000e-003		7.5000e-003	7.5000e-003	0.0000	107.4686	107.4686	2.0600e-003	1.9700e-003	108.1072
Other Non-Asphalt Surfaces	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
Regional Shopping Center	29304	1.6000e-004	1.4400e-003	1.2100e-003	1.0000e-005		1.1000e-004	1.1000e-004		1.1000e-004	1.1000e-004	0.0000	1.5638	1.5638	3.0000e-005	3.0000e-005	1.5731
User Defined Retail	6993	4.0000e-005	3.4000e-004	2.9000e-004	0.0000		3.0000e-005	3.0000e-005		3.0000e-005	3.0000e-005	0.0000	0.3732	0.3732	1.0000e-005	1.0000e-005	0.3754
Total		**0.0111**	**0.1009**	**0.0847**	**6.0000e-004**		**7.6700e-003**	**7.6700e-003**		**7.6700e-003**	**7.6700e-003**	**0.0000**	**109.8083**	**109.8083**	**2.1100e-003**	**2.0200e-003**	**110.4609**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	42942	13.6822	5.6000e-004	1.2000e-004	13.7312
Fast Food Restaurant with Drive Thru	349690	111.4188	4.6000e-003	9.5000e-004	111.8174
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	166716	53.1193	2.1900e-003	4.5000e-004	53.3093
User Defined Retail	39784.5	12.6762	5.2000e-004	1.1000e-004	12.7215
Total		**190.8965**	**7.8700e-003**	**1.6300e-003**	**191.5795**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Convenience Market With Gas Pumps	42942	13.6822	5.6000e-004	1.2000e-004	13.7312
Fast Food Restaurant with Drive Thru	349690	111.4188	4.6000e-003	9.5000e-004	111.8174
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	166716	53.1193	2.1900e-003	4.5000e-004	53.3093
User Defined Retail	39784.5	12.6762	5.2000e-004	1.1000e-004	12.7215
Total		**190.8965**	**7.8700e-003**	**1.6300e-003**	**191.5795**

6.0 Area Detail

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	0.1277	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.9000e-004
Unmitigated	0.1277	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.9000e-004

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	0.0156					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1121					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.9000e-004
Total	**0.1277**	**0.0000**	**3.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**7.4000e-004**	**7.4000e-004**	**0.0000**	**0.0000**	**7.9000e-004**

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	0.0156					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1121					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	3.8000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	7.4000e-004	7.4000e-004	0.0000	0.0000	7.9000e-004
Total	**0.1277**	**0.0000**	**3.8000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**7.4000e-004**	**7.4000e-004**	**0.0000**	**0.0000**	**7.9000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

Install Low Flow Bathroom Faucet

Install Low Flow Kitchen Faucet

Install Low Flow Toilet

Install Low Flow Shower

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	30.7384	0.2023	4.9900e-003	37.2846
Unmitigated	37.6297	0.2529	6.2400e-003	45.8096

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.251847 / 0.154358	1.6712	8.2700e-003	2.1000e-004	1.9398
Fast Food Restaurant with Drive Thru	2.23704 / 0.14279	10.4962	0.0733	1.8000e-003	12.8664
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0.977757 / 0.599271	6.4880	0.0321	8.1000e-004	7.5308
User Defined Retail	4.2486 / 0	18.9744	0.1392	3.4200e-003	23.4726
Total		**37.6297**	**0.2529**	**6.2400e-003**	**45.8096**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Convenience Market With Gas Pumps	0.201477 / 0.154358	1.4462	6.6200e-003	1.7000e-004	1.6615
Fast Food Restaurant with Drive Thru	1.78963 / 0.14279	8.4980	0.0586	1.4400e-003	10.3946
Other Non-Asphalt Surfaces	0 / 0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	0.782206 / 0.599271	5.6147	0.0257	6.5000e-004	6.4505
User Defined Retail	3.39888 / 0	15.1795	0.1113	2.7400e-003	18.7780
Total		**30.7384**	**0.2023**	**5.0000e-003**	**37.2846**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	24.1945	1.4299	0.0000	59.9408
Unmitigated	24.1945	1.4299	0.0000	59.9408

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Convenience Market With Gas Pumps	10.22	2.0746	0.1226	0.0000	5.1397
Fast Food Restaurant with Drive Thru	84.89	17.2319	1.0184	0.0000	42.6913
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	13.86	2.8135	0.1663	0.0000	6.9702
User Defined Retail	10.22	2.0746	0.1226	0.0000	5.1397
Total		**24.1945**	**1.4299**	**0.0000**	**59.9408**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Convenience Market With Gas Pumps	10.22	2.0746	0.1226	0.0000	5.1397
Fast Food Restaurant with Drive Thru	84.89	17.2319	1.0184	0.0000	42.6913
Other Non-Asphalt Surfaces	0	0.0000	0.0000	0.0000	0.0000
Regional Shopping Center	13.86	2.8135	0.1663	0.0000	6.9702
User Defined Retail	10.22	2.0746	0.1226	0.0000	5.1397
Total		**24.1945**	**1.4299**	**0.0000**	**59.9408**

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

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APPENDIX 4.2:

EMFAC2017 MODEL OUTPUTS

EMFAC2017 Derived CalEEMod Annual Emission Rates: Year 2021[1,2]

Season	Pollutant	LDA	LDT1	LDT2	MDV	LHDT1	LHDT2	MHDT	HHDT	OBUS	UBUS	MCY	SBUS	MH
Annual	CH4_IDLEX	0	0	0	0	0.0048817	0.003171878	0.00314956	0.028025082	0.0089241	0	0	0.0775364	0
Annual	CH4_RUNEX	0.0024679	0.0080137	0.0042469	0.0057582	0.0053307	0.00385685	0.005979459	0.017512358	0.0085068	3.3499927	0.3189586	0.006611	0.0033366
Annual	CH4_STREX	0.0514349	0.0864427	0.0721015	0.0901226	0.0155417	0.00902796	0.008486959	1.50966E-07	0.0241173	0.0189454	0.2419601	0.0069668	0
Annual	CO_IDLEX	0	0	0	0	0.1715443	0.133002634	0.344301802	7.554755782	0.4983972	0	0	3.0314681	0
Annual	CO_RUNEX	0.6607706	1.6174892	0.9809246	1.2008452	0.7233436	0.527547956	0.567530032	0.360830925	0.9268618	26.053818	19.614979	0.5278349	0.3389262
Annual	CO_STREX	2.1231898	2.4262418	2.7332893	3.2694856	0.9612367	0.557999679	1.005578025	0.002927257	2.5764261	1.5036633	8.5534027	0.935991	0
Annual	CO2_NBIO_IDLEX	0	0	0	0	9.4389441	14.85812264	74.92942657	1409.071939	73.2813	0	0	366.87062	0
Annual	CO2_NBIO_RUNEX	265.87247	317.00231	338.79394	421.49284	639.94809	638.8286233	1001.029746	1350.003042	1407.2197	1617.7136	208.29751	1115.2653	941.75894
Annual	CO2_NBIO_STREX	54.732988	66.641424	71.50512	88.726879	10.536933	7.29205499	8.176871766	0.025645885	20.859105	18.079918	60.732649	6.0622481	0
Annual	NOX_IDLEX	0	0	0	0	0.0839942	0.12326671	0.687040104	7.340848513	0.4448801	0	0	3.5677378	0
Annual	NOX_RUNEX	0.0397214	0.1439049	0.0890651	0.1204502	1.6040949	1.771993189	2.371331761	3.049249417	1.6964151	0.3156396	1.1278435	4.815332	4.4260188
Annual	NOX_STREX[3]	0.1881326	0.3057199	0.3075781	0.3916808	0.3098001	0.190995667	1.157977191	1.987942919	0.5901894	0.1827289	0.2611474	0.6951168	0
Annual	PM10_IDLEX	0	0	0	0	0.0009698	0.001439396	0.002417777	0.010735771	0.0017754	0	0	0.0040656	0
Annual	PM10_PMBW	0.03675	0.03675	0.03675	0.03675	0.07644	0.089180026	0.130340037	0.061044808	0.13034	0.0878825	0.01176	0.7448002	0.13034
Annual	PM10_PMTW	0.008	0.008	0.008	0.008	0.0100045	0.010844691	0.012000003	0.035591932	0.012	0.0219127	0.004	0.0106038	0.016
Annual	PM10_RUNEX	0.001447	0.0022935	0.0014983	0.0015727	0.0110719	0.014058285	0.081902383	0.054300292	0.0388422	0.0029342	0.0017573	0.0289399	0.1440902
Annual	PM10_STREX	0.001919	0.0029511	0.0019584	0.0020549	0.0002325	0.00011436	9.60687E-05	4.78955E-07	0.0001895	0.0001614	0.0028664	3.969E-05	0
Annual	PM25_IDLEX	0	0	0	0	0.0009278	0.001377128	0.002313185	0.010271347	0.0016986	0	0	0.0038897	0
Annual	PM25_PMBW	0.01575	0.01575	0.01575	0.01575	0.03276	0.038220011	0.055860016	0.026162061	0.05586	0.0376639	0.00504	0.3192001	0.05586
Annual	PM25_PMTW	0.002	0.002	0.002	0.002	0.0025011	0.002711173	0.003000001	0.008897983	0.003	0.0054782	0.001	0.0026509	0.004
Annual	PM25_RUNEX	0.0013331	0.002111	0.0013791	0.0014511	0.0105729	0.013440271	0.078355878	0.051951277	0.0371485	0.0027923	0.0016442	0.0276784	0.1378569
Annual	PM25_STREX	0.0017645	0.0027136	0.0018008	0.0018907	0.0002138	0.00010515	8.83317E-05	4.40381E-07	0.0001743	0.0001484	0.0026999	3.649E-05	0
Annual	ROG_DIURN	0.0709615	0.2279058	0.1115534	0.1328241	0.0031777	0.001686647	0.000719125	3.88846E-06	0.0025989	0.0016373	1.6562081	0.0013084	0
Annual	ROG_HTSK	0.10305	0.2749462	0.141202	0.1703815	0.0801093	0.04271725	0.020519462	0.000102787	0.0237258	0.0097745	0.8409595	0.0086252	0
Annual	ROG_IDLEX	0	0	0	0	0.0208492	0.01614729	0.020404549	0.578945413	0.0541252	0	0	0.3592209	0
Annual	ROG_RESTL	0.0538996	0.152895	0.0893091	0.1117212	0.001557	0.000842264	0.000355368	2.04116E-06	0.0011123	0.0007132	0.9014079	0.0006249	0
Annual	ROG_RUNEX	0.0095181	0.0353936	0.0172993	0.0255161	0.0610474	0.061254748	0.105165502	0.070102456	0.085283	0.0536982	2.1573849	0.0955117	0.0718344
Annual	ROG_RUNLS	0.2124948	0.8718373	0.4423822	0.4988996	0.4976668	0.24843085	0.103094312	0.000537301	0.2580837	0.0467565	1.8670626	0.0531627	0
Annual	ROG_STREX	0.2274477	0.4409655	0.3337808	0.4453538	0.0770784	0.044248995	0.045754898	7.74755E-07	0.12495	0.0737709	1.8284645	0.0401038	0
Annual	SO2_IDLEX	0	0	0	0	9.124E-05	0.000141875	0.000710428	0.013279669	0.000699	0	0	0.0035039	0
Annual	SO2_RUNEX	0.0026302	0.0031369	0.0033519	0.0041675	0.006225	0.00615548	0.009529146	0.012662863	0.013687	0.0048688	0.0020613	0.0106759	0.008903
Annual	SO2_STREX	0.0005416	0.0006595	0.0007076	0.000878	0.0001043	7.21608E-05	8.09168E-05	2.53787E-07	0.0002064	0.0001789	0.000601	5.999E-05	0
Annual	TOG_DIURN	0.0709615	0.2279058	0.1115534	0.1328241	0.0031777	0.001686647	0.000719125	3.88846E-06	0.0025989	0.0016373	1.6562081	0.0013084	0
Annual	TOG_HTSK	0.10305	0.2749462	0.141202	0.1703815	0.0801093	0.04271725	0.020519462	0.000102787	0.0237258	0.0097745	0.8409595	0.0086252	0
Annual	TOG_IDLEX	0	0	0	0	0.0291719	0.021706067	0.026541318	0.660227184	0.0709457	0	0	0.5173855	0
Annual	TOG_RESTL	0.0538996	0.152895	0.0893091	0.1117212	0.001557	0.000842264	0.000355368	2.04116E-06	0.0011123	0.0007132	0.9014079	0.0006249	0
Annual	TOG_RUNEX	0.0138377	0.0515808	0.025197	0.03609	0.0743573	0.071514189	0.121900381	0.094181826	0.105849	3.4254029	2.6533125	0.1131323	0.0817787
Annual	TOG_RUNLS	0.2124948	0.8718373	0.4423822	0.4988996	0.4976668	0.24843085	0.103094312	0.000537301	0.2580837	0.0467565	1.8670626	0.0531627	0
Annual	TOG_STREX	0.2490251	0.4827987	0.3654467	0.4875656	0.0843911	0.04844708	0.050095854	8.48259E-07	0.1368045	0.0807698	1.9896031	0.0439086	0
Summer	CH4_IDLEX	0	0	0	0	0.0048943	0.003179398	0.002988132	0.029267582	0.008947	0	0	0.0776239	0
Summer	CH4_RUNEX	0.0028102	0.0090557	0.0048283	0.0065116	0.0054195	0.003886277	0.006008402	0.017512845	0.0086371	3.3500273	0.3167895	0.0066861	0.0033366
Summer	CH4_STREX	0.0452848	0.0756767	0.0634946	0.079235	0.0149963	0.008724699	0.008203165	1.44785E-07	0.0230917	0.0172223	0.2167882	0.0058384	0
Summer	CO_IDLEX	0	0	0	0	0.1715443	0.133002634	0.283248392	7.394529068	0.4770626	0	0	2.9913957	0
Summer	CO_RUNEX	0.8095887	1.9589316	1.199991	1.4565661	0.7336795	0.53078633	0.571044996	0.360990515	0.9423481	26.055433	20.271718	0.5359658	0.3389262
Summer	CO_STREX	1.8735032	2.1462811	2.4181512	2.8823192	0.9160369	0.533118914	0.958793231	0.002769899	2.4081525	1.2787351	8.000177	0.6769998	0
Summer	CO2_NBIO_IDLEX	0	0	0	0	9.4389441	14.85812264	76.43648013	1402.585729	73.806182	0	0	377.08981	0
Summer	CO2_NBIO_RUNEX	289.13788	341.78981	362.86398	447.07104	639.96646	638.8343162	1001.035914	1350.003309	1407.2469	1617.7166	209.25596	1115.2798	941.75894
Summer	CO2_NBIO_STREX	54.240717	66.007334	70.864914	87.923788	10.455453	7.247216262	8.097078623	0.02539636	20.57343	17.70055	59.192684	5.6297242	0
Summer	NOX_IDLEX	0	0	0	0	0.0839942	0.12326671	0.696369233	7.102104354	0.4452295	0	0	3.6596149	0
Summer	NOX_RUNEX	0.0370269	0.1337085	0.0834295	0.1123006	1.5099261	1.672640909	2.234535358	2.878739583	1.5861138	0.3092297	0.9796707	4.5295242	4.176671
Summer	NOX_STREX[3]	0.1810222	0.2943185	0.2969376	0.3769864	0.2989911	0.184713864	1.155237738	1.987922245	0.5808405	0.1737617	0.2471217	0.690535	0
Summer	PM10_IDLEX	0	0	0	0	0.0009698	0.001439396	0.002040822	0.010209832	0.0015001	0	0	0.003434	0
Summer	PM10_PMBW	0.03675	0.03675	0.03675	0.03675	0.07644	0.089180026	0.130340037	0.061044808	0.13034	0.0878825	0.01176	0.7448002	0.13034
Summer	PM10_PMTW	0.008	0.008	0.008	0.008	0.0100045	0.010844691	0.012000003	0.035591932	0.012	0.0219127	0.004	0.0106038	0.016
Summer	PM10_RUNEX	0.001447	0.0022935	0.0014983	0.0015727	0.0110719	0.014058285	0.081902383	0.054300292	0.0388422	0.0029342	0.0017573	0.0289399	0.1440902
Summer	PM10_STREX	0.001919	0.0029511	0.0019584	0.0020549	0.0002325	0.00011436	9.60687E-05	4.78955E-07	0.0001895	0.0001614	0.0028664	3.969E-05	0
Summer	PM25_IDLEX	0	0	0	0	0.0009278	0.001377128	0.001952537	0.009768159	0.0014352	0	0	0.0032854	0
Summer	PM25_PMBW	0.01575	0.01575	0.01575	0.01575	0.03276	0.038220011	0.055860016	0.026162061	0.05586	0.0376639	0.00504	0.3192001	0.05586
Summer	PM25_PMTW	0.002	0.002	0.002	0.002	0.0025011	0.002711173	0.003000001	0.008897983	0.003	0.0054782	0.001	0.0026509	0.004
Summer	PM25_RUNEX	0.0013331	0.002111	0.0013791	0.0014511	0.0105729	0.013440271	0.078355878	0.051951277	0.0371485	0.0027923	0.0016442	0.0276784	0.1378569
Summer	PM25_STREX	0.0017645	0.0027136	0.0018008	0.0018907	0.0002138	0.00010515	8.83317E-05	4.40381E-07	0.0001743	0.0001484	0.0026999	3.649E-05	0
Summer	ROG_DIURN	0.137536	0.4434368	0.2165836	0.2567996	0.0059534	0.003183337	0.001376531	7.88812E-06	0.0047328	0.0029254	3.2774295	0.0023624	0
Summer	ROG_HTSK	0.1212164	0.3404269	0.1671912	0.1969378	0.0944687	0.051107885	0.024778962	0.000118453	0.0262292	0.011705	1.2342664	0.0091436	0
Summer	ROG_IDLEX	0	0	0	0	0.0208492	0.01614729	0.019550437	0.604825315	0.05414	0	0	0.3587863	0
Summer	ROG_RESTL	0.1018073	0.2943259	0.166327	0.2058512	0.0029976	0.001613042	0.000700753	4.21702E-06	0.0021323	0.001455	2.0451252	0.0011653	0
Summer	ROG_RUNEX	0.010761	0.0399861	0.0196003	0.0285498	0.0615085	0.061384554	0.10530363	0.070105668	0.0859015	0.0537965	2.1335495	0.095879	0.0718344
Summer	ROG_RUNLS	0.2122531	0.8752207	0.4439328	0.5004052	0.5029376	0.251952182	0.105360765	0.000555876	0.2593192	0.0452861	1.8628508	0.0490392	0
Summer	ROG_STREX	0.1986978	0.3842606	0.2918661	0.3889196	0.0741484	0.042639957	0.044075897	7.4502E-07	0.1193048	0.0669665	1.6289296	0.0335486	0
Summer	SO2_IDLEX	0	0	0	0	9.124E-05	0.000141875	0.000724773	0.013218475	0.000704	0	0	0.0036004	0
Summer	SO2_RUNEX	0.0028604	0.0033822	0.0035901	0.0044206	0.0062252	0.006155536	0.009529207	0.012662865	0.0136873	0.0048688	0.0020708	0.010676	0.008903
Summer	SO2_STREX	0.0005368	0.0006532	0.0007013	0.0008701	0.0001035	7.17171E-05	8.01272E-05	2.51318E-07	0.0002036	0.0001752	0.0005858	5.571E-05	0
Summer	TOG_DIURN	0.137536	0.4434368	0.2165836	0.2567996	0.0059534	0.003183337	0.001376531	7.88812E-06	0.0047328	0.0029254	3.2774295	0.0023624	0
Summer	TOG_HTSK	0.1212164	0.3404269	0.1671912	0.1969378	0.0944687	0.051107885	0.024778962	0.000118453	0.0262292	0.011705	1.2342664	0.0091436	0
Summer	TOG_IDLEX	0	0	0	0	0.0291719	0.021706067	0.025370251	0.689730027	0.0709625	0	0	0.5168907	0
Summer	TOG_RESTL	0.1018073	0.2943259	0.166327	0.2058512	0.0029976	0.001613042	0.000700753	4.21702E-06	0.0021323	0.001455	2.0451252	0.0011653	0
Summer	TOG_RUNEX	0.0156493	0.0582714	0.02855	0.0405174	0.07503	0.071703602	0.122101937	0.094186513	0.1067517	3.4255463	2.6255922	0.1136682	0.0817787
Summer	TOG_RUNLS	0.2122531	0.8752207	0.4439328	0.5004052	0.5029376	0.251952182	0.105360765	0.000555876	0.2593192	0.0452861	1.8628508	0.0490392	0
Summer	TOG_STREX	0.2175478	0.4207143	0.3195555	0.4257816	0.0811832	0.046685386	0.04825756	8.15703E-07	0.1306237	0.0733198	1.7725315	0.0367315	0

Winter	CH4_IDLEX	0	0	0	0	0.0048811	0.00317031	0.003381722	0.025228032	0.0089201	0	0	0.0775394	0
Winter	CH4_RUNEX	0.0023814	0.007708	0.0040761	0.0055367	0.0053184	0.003848875	0.005959861	0.003232688	0.0084688	3.3499957	0.3182082	0.0066036	0.0033366
Winter	CH4_STREX	0.0526493	0.088744	0.074077	0.0923982	0.0155664	0.009093446	0.008560718	1.51684E-07	0.0242904	0.0188577	0.2425357	0.0072109	0
Winter	CO_IDLEX	0	0	0	0	0.1715443	0.133002634	0.429382205	7.756122349	0.5278592	0	0	3.0868062	0
Winter	CO_RUNEX	0.6198191	1.5141815	0.9146277	1.1225458	0.7219481	0.526656248	0.565245032	0.320407657	0.9227247	26.05396	19.135571	0.5273069	0.3389262
Winter	CO_STREX	2.1658884	2.4841853	2.8021442	3.3410887	0.9632652	0.563047222	1.018642479	0.002911678	2.6028825	1.491325	8.4887644	0.9807025	0
Winter	CO2_NBIO_IDLEX	0	0	0	0	9.4389441	14.85812264	72.84369844	1414.571988	72.556463	0	0	352.75841	0
Winter	CO2_NBIO_RUNEX	259.46754	309.48741	331.49217	413.84023	639.94558	638.8270537	1001.025731	1340.32292	1407.2124	1617.7139	207.51768	1115.2644	941.75894
Winter	CO2_NBIO_STREX	54.820223	66.77205	71.645988	88.87887	10.540527	7.301210775	8.199176884	0.025621202	20.903802	18.059132	60.638256	6.1376482	0
Winter	NOX_IDLEX	0	0	0	0	0.0839942	0.12326671	0.674156402	7.64970751	0.4443975	0	0	3.4408599	0
Winter	NOX_RUNEX	0.0382367	0.1395305	0.0862178	0.1165071	1.5854252	1.75413213	2.348928423	3.020777526	1.684904	0.3142026	1.1206265	4.7774211	4.3807012
Winter	NOX_STREX[3]	0.1884477	0.3066245	0.3085042	0.3924958	0.308695	0.191593617	1.158503587	1.987941183	0.5898865	0.1811328	0.261731	0.6959657	0
Winter	PM10_IDLEX	0	0	0	0	0.0009698	0.001439396	0.002938334	0.011416509	0.0021556	0	0	0.0049379	0
Winter	PM10_PMBW	0.03675	0.03675	0.03675	0.03675	0.07644	0.089180026	0.130340037	0.060862657	0.13034	0.0878825	0.01176	0.7448002	0.13034
Winter	PM10_PMTW	0.008	0.008	0.008	0.008	0.0100045	0.010844691	0.012000003	0.035485721	0.012	0.0219127	0.004	0.0106038	0.016
Winter	PM10_RUNEX	0.001447	0.0022935	0.0014983	0.0015727	0.0110719	0.014058285	0.081902383	0.054282899	0.0388422	0.0029342	0.0017573	0.0289399	0.1440902
Winter	PM10_STREX	0.001919	0.0029511	0.0019584	0.0020549	0.0002325	0.00011436	9.60687E-05	4.78955E-07	0.0001895	0.0001614	0.0028664	3.969E-05	0
Winter	PM25_IDLEX	0	0	0	0	0.0009278	0.001377128	0.002811223	0.010922636	0.0020624	0	0	0.0047243	0
Winter	PM25_PMBW	0.01575	0.01575	0.01575	0.01575	0.03276	0.038220011	0.055860016	0.026083996	0.05586	0.0376639	0.00504	0.3192001	0.05586
Winter	PM25_PMTW	0.002	0.002	0.002	0.002	0.0025011	0.002711173	0.003000001	0.00887143	0.003	0.0054782	0.001	0.0026509	0.004
Winter	PM25_RUNEX	0.0013331	0.002111	0.0013791	0.0014511	0.0105729	0.013440271	0.078355878	0.051934636	0.0371485	0.0027923	0.0016442	0.0276784	0.1378569
Winter	PM25_STREX	0.0017645	0.0027136	0.0018008	0.0018907	0.0002138	0.00010515	8.83317E-05	4.40381E-07	0.0001743	0.0001484	0.0026999	3.649E-05	0
Winter	ROG_DIURN	0.0575855	0.1922037	0.0879547	0.104066	0.0028253	0.001328755	0.000562608	3.84032E-06	0.0023832	0.0017197	1.5870396	0.0011476	0
Winter	ROG_HTSK	0.1098539	0.3036326	0.1506629	0.1802055	0.090976	0.046544016	0.021526123	0.00012145	0.0250943	0.0111926	1.0360126	0.0088293	0
Winter	ROG_IDLEX	0	0	0	0	0.0208492	0.01614729	0.021595838	0.543152606	0.0541049	0	0	0.3598211	0
Winter	ROG_RESTL	0.0454037	0.1280078	0.0748932	0.0953197	0.0014146	0.000700507	0.000287901	2.13248E-06	0.0010621	0.000754	0.7337523	0.0006032	0
Winter	ROG_RUNEX	0.0091883	0.0340143	0.0166024	0.0245582	0.0609781	0.061218527	0.105074288	0.069280131	0.0851064	0.0537077	2.1519258	0.0954855	0.0718344
Winter	ROG_RUNLS	0.2382144	1.0088513	0.5066292	0.5680498	0.5332963	0.266504162	0.111093974	0.000565077	0.274238	0.0549047	2.1198495	0.0646936	0
Winter	ROG_STREX	0.2332732	0.4525194	0.3432333	0.4568216	0.0771912	0.044593111	0.04623067	7.78033E-07	0.1257727	0.0734048	1.8308597	0.0414531	0
Winter	SO2_IDLEX	0	0	0	0	9.124E-05	0.000141875	0.000690573	0.013364175	0.0006922	0	0	0.0033706	0
Winter	SO2_RUNEX	0.0025668	0.0030626	0.0032797	0.0040918	0.006225	0.006155465	0.009529106	0.012662862	0.013687	0.0048688	0.0020536	0.0106759	0.008903
Winter	SO2_STREX	0.0005425	0.0006608	0.000709	0.0008795	0.0001043	7.22514E-05	8.11375E-05	2.53543E-07	0.0002069	0.0001787	0.0006001	6.074E-05	0
Winter	TOG_DIURN	0.0575855	0.1922037	0.0879547	0.104066	0.0028253	0.001328755	0.000562608	3.84032E-06	0.0023832	0.0017197	1.5870396	0.0011476	0
Winter	TOG_HTSK	0.1098539	0.3036326	0.1506629	0.1802055	0.090976	0.046544016	0.021526123	0.00012145	0.0250943	0.0111926	1.0360126	0.0088293	0
Winter	TOG_IDLEX	0	0	0	0	0.0291719	0.021706067	0.028175725	0.618337897	0.0709225	0	0	0.5180688	0
Winter	TOG_RESTL	0.0454037	0.1280078	0.0748932	0.0953197	0.0014146	0.000700507	0.000287901	2.13248E-06	0.0010621	0.000754	0.7337523	0.0006032	0
Winter	TOG_RUNEX	0.0133572	0.0495718	0.0241816	0.0347133	0.0742561	0.071461335	0.121767281	0.078903864	0.1055914	3.4254167	2.6466033	0.1130941	0.0817787
Winter	TOG_RUNLS	0.2382144	1.0088513	0.5066292	0.5680498	0.5332963	0.266504162	0.111093974	0.000565077	0.274238	0.0549047	2.1198495	0.0646936	0
Winter	TOG_STREX	0.2554034	0.4954488	0.375796	0.5001219	0.0845147	0.048823844	0.050616765	8.51848E-07	0.1377052	0.080369	1.9922304	0.0453859	0

1 Source: California Air Resources Board. EMFAC2017 Web Database. https://www.arb.ca.gov/emfac/2017/; California Air Pollution Control Officers Association (CAPCOA). 2017, November. California Emissions Estimator Model User's Guide, Version 2016.3.2, Appendix A.

2 Unless otherwise noted, per CalEEMod methodology, the calculated CalEEMod emission rates are derived from the emission rates obtained using the EMFAC2017 Web Database for the Los Angeles (SC) region .

3 Because EMFAC2017 provides vehicle trips data for MHDT and HHDT diesel trucks, the formula provided in Appendix A of the CalEEMod User's Guide in calculating the NO_X STREX emission rates are utilized.

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Appendix F

Preliminary Geotechnical Interpretive Report

Earth Strata Geotechnical Services, Inc.
Geotechnical, Environmental and Materials Testing Consultants

September 3, 2019

Project No. 192805-10A

Empire Design Group, Inc.
24861 Washington Avenue
P.O. Box 944
Murrieta, CA 92562

Subject: **Preliminary Geotechnical Interpretive Report, Proposed Commercial Development, Assessor's Parcel Number 389-030-012 through -018, Located at 28915 Lake Street, City of Lake Elsinore, Riverside County, California**

Earth Strata Geotechnical Services is pleased to present our updated preliminary geotechnical interpretive report for the proposed commercial development, Assessor's Parcel Number 389-030-012 through -018, located at 28915 Lake Street in the City of Lake Elsinore, Riverside County, California. This work was performed in accordance with the scope of work described in our proposal, dated August 9, 2019. The purpose of this study is to evaluate the nature, distribution, engineering properties, and geologic strata underlying the site with respect to the proposed development.

Earth Strata Geotechnical Services appreciates the opportunity to offer our consultation and advice on this project. In the event that you have any questions, please do not hesitate to contact the undersigned at your earliest convenience.

Respectfully submitted,

EARTH STRATA GEOTECHNICAL SERVICES

Stephen M. Poole, PE, GE
Principal Engineer

Aaron G. Wood, PG, CEG
Principal Geologist

SMP/AGW/jf

Distribution: (2) Addressee

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Attachments:

INTRODUCTION

Earth Strata Geotechnical Services is pleased to present our updated preliminary geotechnical interpretive report for the proposed development. The purpose of this study was to evaluate the nature, distribution, engineering properties, and geologic strata underlying the site with respect to the proposed development, and then provide preliminary grading and foundation design recommendations based on the plans and previous geotechnical reports you provided. The general location of the subject property is indicated on the Vicinity Map, Figure 1. The plans you provided were used as the base map to show geologic conditions within the subject site, see Geotechnical Map, Plate 1.

SITE DESCRIPTION

The subject property is located at 28915 Lake Street in the City of Lake Elsinore, Riverside County, California. The approximate location of the site is shown on the Vicinity Map, Figure 1.

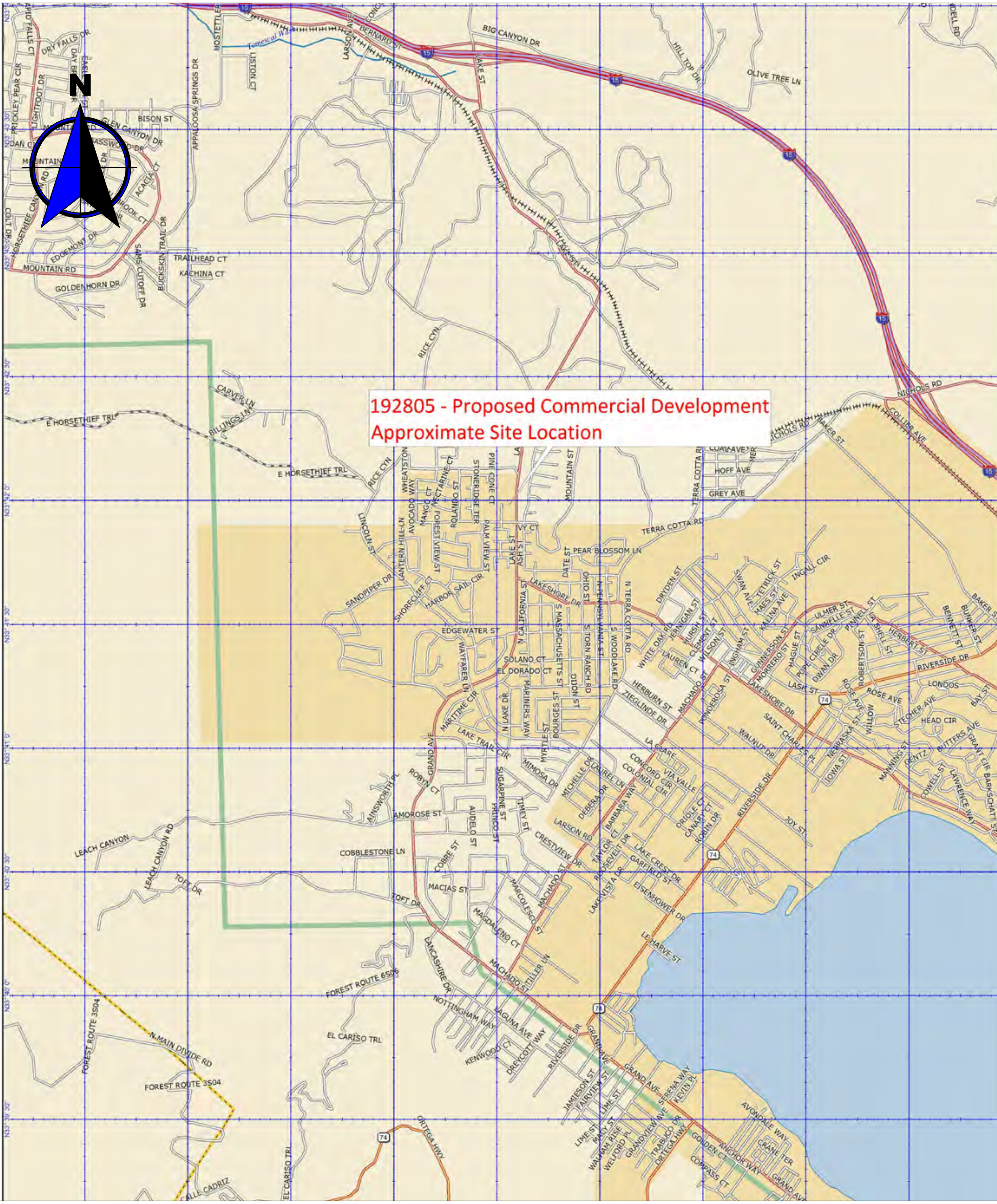
The subject property is comprised of approximately 4.15 acres of undeveloped land. The site has not been graded. Topographic relief at the subject property is relatively low with the terrain being generally sloping to flat. Elevations at the site range from approximately 1,480 to 1,520 feet above mean sea level (msl), for a difference of about 40± feet across the entire site. Drainage within the subject property generally flows to the east.

The site is currently bordered by residential development to the north, east, south, and west. Most of the vegetation on the site consists of moderate amounts of annual weeds/grasses, along with small to large trees scattered throughout the subject sites.

PROPOSED DEVELOPMENT AND GRADING

The proposed commercial development is expected to consist of concrete, wood or steel framed one- and/or two-story structures utilizing slab on grade construction with associated streets, landscape areas, and utilities. The current development plans include six (6) commercial buildings and one (1) gas station canopy positioned across seven (7) parcels.

The plans provided by you were utilized in our exploration and form the base for our Geotechnical Map.



Earth Strata Geotechnical Services, Inc.
Geotechnical, Environmental and Materials Testing Consultants
www.ESGSINC.com (951) 397-8315

PROPOSED COMMERCIAL DEVELOPMENT		192805-10A
VICINITY MAP	SCALE 1:40,625	
	AUG 2019	FIGURE 1

FIELD EXPLORATION AND LABORATORY TESTING

Field Exploration

Previous subsurface exploration for the proposed commercial development was performed on November 16, 2007 by Leighton Consulting, Inc. A truck mounted hollow-stem-auger drill rig was utilized to drill seven (7) borings throughout the parcels to a maximum depth of 30 feet. In addition, subsurface exploration performed by Earth Strata Geotechnical Services within our subject sites was performed on August 23, 2019 for additional exploratory excavations. A truck mounted hollow-stem-auger drill rig was utilized to drill three (3) borings throughout the site to a maximum depth of 16.5 feet. An underground utilities clearance was obtained from Underground Service Alert of Southern California, prior to the subsurface exploration.

Earth materials encountered during exploration were classified and logged in general accordance with the Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) of ASTM D 2488. Upon completion of laboratory testing, exploratory logs and sample descriptions may have been reconciled to reflect laboratory test results with regard to ASTM D 2487.

Associated with the subsurface exploration was the collection of bulk (disturbed) samples and relatively undisturbed samples of earth materials for laboratory testing and analysis. The relatively undisturbed samples were obtained with a 3 inch outside diameter modified California split-spoon sampler lined with 1-inch-high brass rings. Samples obtained using a hollow stem auger drill rig, were mechanically driven with successive 30 inch drops of a 140-pound automatic trip safety hammer. The blow count per one-foot increment was recorded in the boring logs. The central portions of the driven samples were placed in sealed containers and transported to our laboratory for testing and analysis. The approximate exploratory locations are shown on Plate 1 and descriptive logs are presented in Appendix B.

Laboratory Testing

Atterberg Limits, maximum dry density/optimum moisture content, direct shear tests, expansion potential, R-value, collapse potential, pH, resistivity, sulfate content, chloride content, and in-situ density/moisture content were determined for selected undisturbed and bulk samples of earth materials, considered representative of those encountered. An evaluation of the test data is reflected throughout the Conclusions and Recommendations section of this report. A brief description of laboratory test criteria and summaries of test data are presented in Appendix C.

FINDINGS

Regional Geology

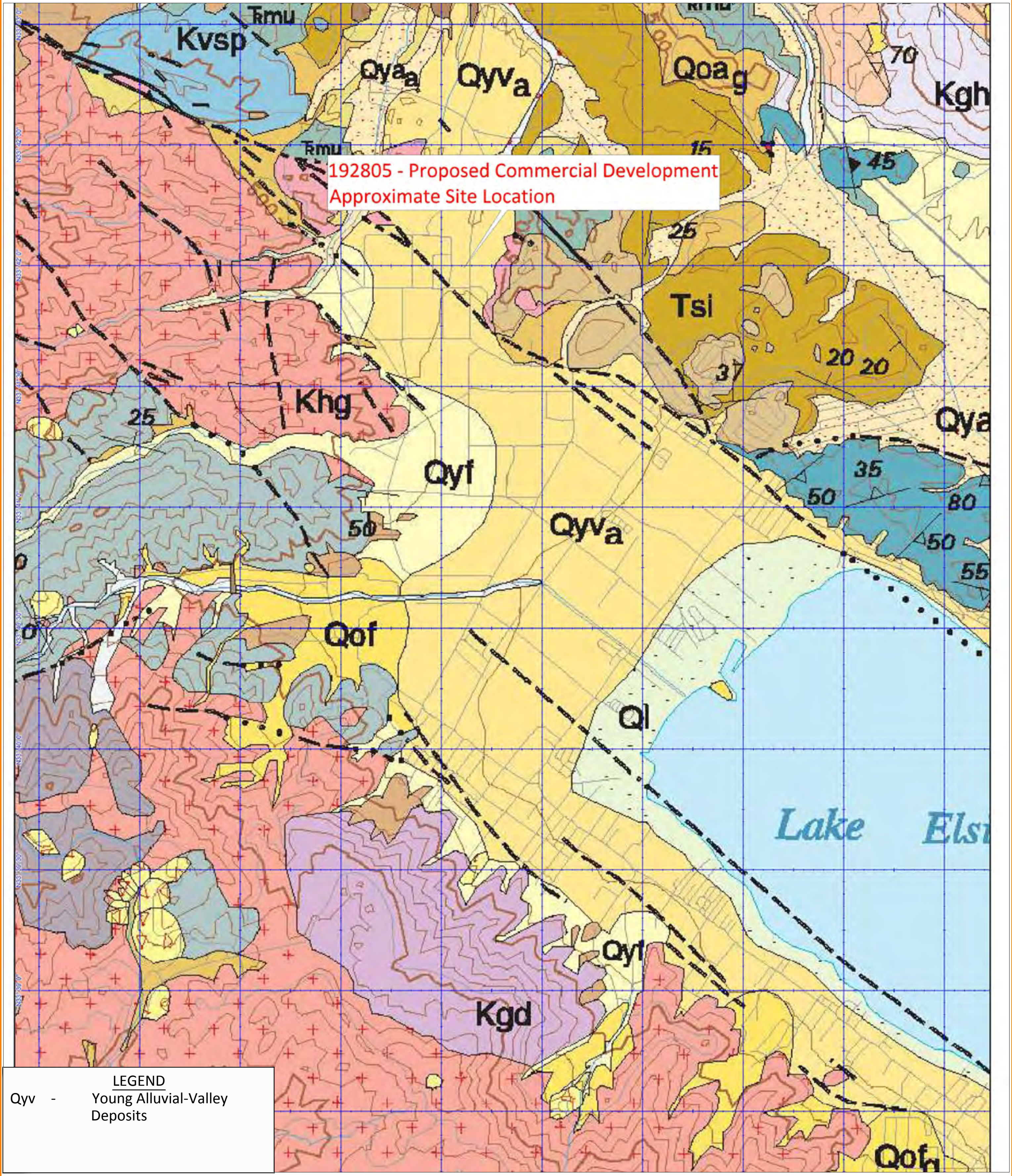
Regionally, the site is located in the Peninsular Ranges Geomorphic Province of California. The Peninsular Ranges are characterized by northwest trending steep mountain ranges separated by sediment filled elongated valleys. The dominant structural geologic features reflect the northwest trend of the province. Associated with and subparallel to the San Andreas Fault are the San Jacinto Fault, Newport-Inglewood, and the Whittier-Elsinore Fault. The Santa Ana Mountains abut the west side of the Elsinore Fault while the Perris Block forms the other side of the fault zone to the east. The Perris Block is bounded to the east by the San Jacinto Fault. The northern perimeter of the Los Angeles basin forms part of a northerly dipping blind thrust fault at the boundary between the Peninsular Ranges Province and the Transverse Range Province.

The mountainous regions within the Peninsular Ranges Province are comprised of Pre-Cretaceous, metasedimentary, and metavolcanic rocks along with Cretaceous plutonic rocks of the Southern California Batholith. The low lying areas are primarily comprised of Tertiary and Quaternary non-marine alluvial sediments consisting of alluvial deposits, sandstones, claystones, siltstones, conglomerates, and occasional volcanic units. A map illustrating the regional geology is presented on the Regional Geologic Map, Figure 2.

Local Geology

The earth materials on the site are primarily comprised of Quaternary Young Alluvial Valley materials. A general description of the dominant earth materials observed on the site is provided below:

- Quaternary Young Alluvial Valley Deposits (map symbol Qyv): Quaternary Young Alluvial Valley deposits were encountered to the maximum depth explored of 16.5 feet. These alluvial deposits consist predominately of interlayered yellow brown to dark yellow brown, fine to coarse grained silty sand, and occasional sandy silt. These deposits were generally noted to be in a dry to slightly moist, dense to very dense state.



LEGEND

Qyv - Young Alluvial-Valley Deposits

REFERNCES: Morton, D.M., Hauser, Rachel M., and Ruppert, Kelly R., 2004, Preliminary Digital Geologic Map of the San Bernardino and Santa Ana 30' x 60' Quadrangle, Southern California, Version 2.0: U.S. Geological Survey Open-File Report 99-0172.

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PROPOSED COMMERCIAL DEVELOPMENT		192805-10A
REGIONAL GEOLOGIC MAP	SCALE 1:40,625	
	AUG 2019	FIGURE 2

Faulting

The project is located in a seismically active region and as a result, significant ground shaking will likely impact the site within the design life of the proposed project. The geologic structure of the entire southern California area is dominated by northwest-trending faults associated with the San Andreas Fault system, which accommodates for most of the right lateral movement associated with the relative motion between the Pacific and North American tectonic plates. Known active faults within this system include the Newport-Inglewood, Whittier-Elsinore, San Jacinto and San Andreas Faults.

No active faults are known to project through the site and the site is not located within an Alquist-Priolo Earthquake Fault Zone, established by the State of California to restrict the construction of new habitable structures across identifiable traces of known active faults. Although no Alquist-Priolo Fault Zones are located within the subject sites, the County Fault Zone established for the Glen Ivy Fault Zone does trend northwest to southeast through the bottom half of the subject sites. See Figure 3, County Fault Zone and Geotechnical Map, Plate 1 for details.

Fault investigations with trenching and subsequent geotechnical mapping conducted by Leighton Consulting, Inc. found no evidence of faulting across a postulated fault scarp within the parcel south of mountain street, adjacent to the subject lots. No faults were able to be identified by previous fault zone studies (California Division of Mines and Geology 1979; Leighton 2002, 2003; Petra, 2004).

An active fault is defined by the State of California as having surface displacement within the past 11,000 years or during the Holocene geologic time period.

Based on our review of regional geologic maps and applicable computer programs (USGS 2008 Interactive Deaggregation, Caltrans ARS online, and USGS Earthquake Hazard Programs), the Elsinore Fault with an approximate source to site distance of 0.31 kilometers is the closest known active fault anticipated to produce the highest ground accelerations, with an anticipated maximum modal magnitude of 7.7. A list of faults as well as a list of significant historical seismic events within a 100km radius of the subject site are included in Appendix D.

Landslides

Landslide debris was not observed during our subsurface exploration and no ancient landslides are known to exist on the site. No landslides are known to exist, or have been mapped, in the vicinity of the site. Geologic mapping of the site conducted during our investigation, and review of aerial imagery of the site, reveal no geomorphic expressions indicative of landsliding. The materials encountered in the pad area were found to be very hard and no oversteepened slopes exist on the site or are proposed.

CONCLUSIONS AND RECOMMENDATIONS

General

From geotechnical and engineering geologic points of view, the subject property is considered suitable for the proposed development, provided the following conclusions and recommendations are incorporated into the plans and are implemented during construction.

Earthwork

Earthwork and Grading

The provisions of the 2016 California Building Code (CBC), including the General Earthwork and Grading Specifications in the last Appendix of this report, should be applied to all earthwork and grading operations, as well as in accordance with all applicable grading codes and requirements of the appropriate reviewing agency. Unless specifically revised or amended herein, grading operations should also be performed in accordance with applicable provisions of our General Earthwork and Grading Specifications within the last appendix of this report.

Clearing and Grubbing

Vegetation including trees, grasses, weeds, brush, shrubs, or any other debris should be stripped from the areas to be graded and properly disposed of offsite. In addition, laborers should be utilized to remove any roots, branches, or other deleterious materials during grading operations.

Earth Strata Geotechnical Services should be notified at the appropriate times to provide observation and testing services during Clearing and Grubbing operations. Any buried structures or unanticipated conditions should be brought to our immediate attention.

Excavation Characteristics

Based on the results of our exploration and experience with similar projects in similar settings, the near surface earth materials, will be readily excavated with conventional earth moving equipment. Excavation difficulty is a function of the degree of weathering and amount of fracturing within the bedrock. Bedrock generally becomes harder and more difficult to excavate with increasing depth.

Groundwater

Groundwater was not observed during our subsurface exploration. It should be noted that localized groundwater could be encountered during grading due to the limited number of exploratory locations or other factors.

Ground Preparation for Fill Areas

For each area to receive compacted fill, the removal of low density, compressible earth materials, such as topsoils, and upper alluvials, should continue until firm competent alluvium is encountered. Removal excavations are subject to verification by the project engineer, geologist or their representative. Prior to placing compacted fills, the exposed bottom in each removal area should be scarified to a depth of 6 inches or more, watered or air dried as necessary to achieve near optimum moisture conditions and then compacted to a minimum of 90 percent of the maximum dry density determined by ASTM D 1557.

The intent of remedial grading is to diminish the potential for hydro-consolidation, slope instability, and/or settlement. Remedial grading should extend beyond the perimeter of the proposed structures a horizontal distance equal to the depth of excavation or a minimum of 5 feet, whichever is greater. For cursory purposes the anticipated removal depths are shown on the enclosed Geotechnical Map, Plate 1. In general, the anticipated removal depths should vary from 3 to 5 feet below existing grade.

Wet Removals

Wet alluvial materials will probably not be encountered within the low lying areas of the site. If removals of wet alluvial materials are required, special grading equipment and procedures can greatly reduce overall costs. Careful planning by an experienced grading contractor can reduce the need for special equipment, such as swamp cats, draglines, excavators, pumps, and top loading earthmovers. Possible solutions may include the placement of imported angular rock and/or geotextile ground reinforcement. More specific recommendations can be provided based on the actual conditions encountered. Drying or mixing of wet materials with dry materials will be needed to bring the wet materials to near optimum moisture prior to placing wet materials into compacted fills.

Oversize Rock

Oversize rock is not expected to be encountered during grading. Oversize rock that is encountered (i.e., rock exceeding a maximum dimension of 12 inches) should be disposed of offsite or stockpiled onsite and crushed for future use. The disposal of oversize rock is discussed in greater detail in General Earthwork and Grading Specifications within the last appendix of this report.

Compacted Fill Placement

Compacted fill materials should be placed in 6 to 8 inch maximum (uncompacted) lifts, watered or air dried as necessary to achieve uniform near optimum moisture content and then compacted to a minimum of 90 percent of the maximum dry density determined by ASTM D 1557.

Import Earth Materials

Should import earth materials be needed to achieve final design grades, all potential import materials should be free of deleterious/oversize materials, non-expansive, and approved by the project geotechnical consultant prior to delivery onsite.

Fill Slopes

When properly constructed, fill slopes up to 10 feet high with inclinations of 2:1 (h:v) or flatter are considered to be grossly stable. Keyways are required at the toe of all fill slopes higher than 5 feet and steeper than 5:1 (h:v). Keyways should be a minimum of 10 feet wide and 2 feet into competent earth materials, as measured on the downhill side. In order to establish keyway removals, backcuts should be cut no steeper than 1:1 or as recommended by the geotechnical engineer or engineering geologist. Compacted fill should be benched into competent earth materials.

Cut Slopes

When properly constructed, cut slopes into older alluvium up to 10 feet high with inclinations of 2:1 (h:v) or flatter are considered grossly stable. Cut slopes should be observed by the engineering geologist or his representative during grading, but are anticipated to be stable.

Stabilization Fills

Currently, stabilization fills will not be required for cut slopes in the alluvium. Our engineering geologist or his representative should be called to evaluate all slopes during grading. In the event that unfavorable geologic conditions are encountered, recommendations for stabilization fills or flatter slopes will be provided.

Fill Over Cut Slopes

The fill portion of fill over cut slopes should not be constructed until the cut portion of the slope has been cut to finish grade. The earth materials and geologic structure exposed along the cut slope should be evaluated with regard to suitability for compacted fills or foundations and for stability. If the cut materials are determined to be competent, then the construction of the keyway and subdrain system may commence or additional remedial recommendations will be provided.

Temporary Backcuts

It is the responsibility of the grading contractor to follow all Cal-OSHA requirements with regard to excavation safety. Where existing developments are upslope, adequate slope stability to protect those developments must be maintained. Temporary backcuts will be required to accomplish removals of unsuitable materials and possibly, to perform canyon removals, stabilization fills, and/or keyways. Backcuts should be excavated at a gradient of 1:1 (h:v) or flatter. Flatter backcuts may be required where geologic structure or earth materials are unfavorable. It is imperative that grading schedules minimize the exposure time of the unsupported excavations. All excavations should be stabilized within 30 days of initial excavation.

Cut/Fill Transitions

Cut/fill transitions should be eliminated from all building areas where the depth of fill placed within the "fill" portion exceeds proposed footing depths. This is to diminish distress to structures resulting from excessive differential settlement. The entire foundation of each structure should be founded on a uniform bearing material. This should be accomplished by overexcavating the "cut" portion and replacing the excavated materials as properly compacted fill. Refer to the following table for recommended depths of overexcavation.

DEPTH OF FILL ("fill" portion)	DEPTH OF OVEREXCAVATION ("cut" portion)
Up to 5 feet	Equal Depth
5 to 10 feet	5 feet
Greater than 10 feet	One-half the thickness of fill placed on the "fill" portion (10 feet maximum)

Overexcavation of the "cut" portion should extend beyond the building perimeter a horizontal distance equal to the depth of overexcavation or a minimum of 5 feet, whichever is greater.

Cut Areas

In cut areas, an area a minimum of 5 feet beyond the footprint of the proposed structures should overexcavated until; competent bottoms are achieved; to a minimum 3 feet below the proposed foundations; or per the Overexcavation Table above; (whichever is greater) and replaced with compacted fill. Final determination of areas that require overexcavation should be determined in the field by a representative of Earth Strata Geotechnical Services.

Shrinkage, Bulking and Subsidence

Volumetric changes in earth material quantities will occur when poorly consolidated earth materials are replaced with properly compacted fill. Estimates of the percent shrinkage/bulking factors for the various geologic units observed on the subject property are based on in-place densities and on the estimated average percent of relative compaction achieved during grading.

GEOLOGIC UNIT	SHRINKAGE (%)
Alluvium	5 to 10

Subsidence from scarification and recompaction of exposed bottom surfaces is expected to be negligible to approximately 0.01 foot.

The estimates of shrinkage/bulking and subsidence are intended as an aid for project engineers in determining earthwork quantities. Since many variables can affect the accuracy of these estimates, they should be used with caution and contingency plans should be in place for balancing the project.

Geotechnical Observations

Clearing operations, removal of unsuitable materials, and general grading procedures should be observed by the project geotechnical consultant or his representative. No compacted fill should be placed without observations by the geotechnical consultant or his representative to verify the adequacy of the removals.

The project geotechnical consultant or his representative should be present to observe grading operations and to check that minimum compaction requirements and proper lift thicknesses are being met, as well as to verify compliance with the other recommendations presented herein.

Post Grading Considerations

Slope Landscaping and Maintenance

Adequate slope and building pad drainage is essential for the long term performance of the subject site. The gross stability of graded slopes should not be adversely affected, provided all drainage provisions are properly constructed and maintained. Engineered slopes should be landscaped with deep rooted, drought tolerant maintenance free plant species, as recommended by the project landscape architect.

Site Drainage

Control of site drainage is important for the performance of the proposed project. Roof gutters are recommended for the proposed structures. Pad and roof drainage should be collected and transferred to driveways, adjacent streets, storm-drain facilities, or other locations approved by the building official in non-erosive drainage devices. Drainage should not be allowed to pond on the pad or against any foundation or retaining wall. Drainage should not be allowed to flow uncontrolled over any descending slope. Planters located within retaining wall backfill should be sealed to prevent moisture intrusion into the backfill. Planters located next to structures should be sealed to the depth of the footings. Drainage control devices require periodic cleaning, testing and maintenance to remain effective.

At a minimum, pad drainage should be designed at the minimum gradients required by the CBC. To divert water away from foundations, the ground surface adjacent to foundations should also be graded at the minimum gradients required per the CBC.

Utility Trenches

All utility trench backfill should be compacted at near optimum moisture to a minimum of 90 percent of the maximum dry density determined by ASTM D 1557. For utility trench backfill within pavement areas the upper 6 inches of subgrade materials should be compacted to 95 percent of the maximum dry density determined by ASTM D 1557. This includes within the street right-of-ways, utility easements, under footings, sidewalks, driveways and building floor slabs, as well as within or adjacent to any slopes. Backfill should be placed in approximately 6 to 8 inch maximum loose lifts and then mechanically compacted with a hydro-hammer, rolling with a sheepsfoot, pneumatic tampers, or similar equipment. The utility trenches should be tested by the project geotechnical engineer or their representative to verify minimum compaction requirements are obtained.

In order to minimize the penetration of moisture below building slabs, all utility trenches should be backfilled with compacted fill, lean concrete or concrete slurry where they undercut the perimeter foundation. Utility trenches that are proposed parallel to any building footings (interior and/or exterior trenches), should not be located within a 1:1 (h:v) plane projected downward from the outside bottom edge of the footing.

SEISMIC DESIGN CONSIDERATIONS

Ground Motions

Structures are required to be designed and constructed to resist the effects of seismic ground motions as provided in the 2016 California Building Code Section 1613. The design is dependent on the site class, occupancy category I, II, III, or IV, mapped spectral accelerations for short periods (S_S), and mapped spectral acceleration for a 1-second period (S_1).

In order for structural design to comply with the 2016 CBC, the USGS "US Seismic Design Maps" online tool was used to compile spectral accelerations for the subject property based on data and maps jointly compiled by the United States Geological Survey (USGS) and the California Geological Survey (CGS). The data found in the following table is based on the Maximum Considered Earthquake (MCE) with 5% damped ground motions having a 2% probability of being exceeded in 50 years (2,475 year return period).

The seismic design coefficients were determined by a combination of the site class, mapped spectral accelerations, and occupancy category. The following seismic design coefficients should be implemented during design of the proposed structures. Summaries of the Seismic Hazard Deaggregation graphs and test data are presented in Appendix D.

2016 CBC	FACTOR
Site Location	Latitude: 33.700119° (North) Longitude: -117.390624°(West)
Site Class	D
Mapped Spectral Accelerations for short periods, S_S	2.53 g
Mapped Spectral Accelerations for 1-Second Period, S_1	1.028 g
Maximum Considered Earthquake Spectral Response Acceleration for Short Periods, S_{MS}	2.53 g
Maximum Considered Earthquake Spectral Response Acceleration for 1-Second Period, S_{M1}	1.542 g
Design Spectral Response Acceleration for Short Periods, S_{DS}	1.687 g
Design Spectral Response Acceleration for 1-Second Period, S_{D1}	1.028 g
Seismic Design Category	E
Importance Factor Based on Occupancy Category	II

We performed the probabilistic seismic hazard assessment for the site in accordance with the 2016 CBC, Section 1803.5.11 and 1803.5.12. The probabilistic seismic hazard maps and data files were jointly prepared by the United States Geological Survey (USGS) and the California Geological Survey (CGS) and can be found at the CGS Probabilistic Seismic Hazards Mapping Ground Motion Page. Actual ground shaking intensities at the site may be substantially higher or lower based on complex variables such as the near source directivity effects, depth and consistency of earth materials, topography, geologic structure, direction of fault rupture, and seismic wave reflection, refraction, and attenuation rates. The mean peak ground acceleration was calculated to be 1.023 g.

Secondary Seismic Hazards

Secondary effects of seismic shaking considered as potential hazards include several types of ground failure as well as induced flooding. Different types of ground failure, which could occur as a consequence of severe ground shaking at the site, include landslides, ground lurching, shallow ground rupture, and liquefaction/lateral spreading. The probability of occurrence of each type of ground failure depends on the severity of the earthquake, distance from faults, topography, the state of subsurface earth materials, groundwater conditions, and other factors. Based on our experience, subsurface exploration, and laboratory testing, all of the above secondary effects of seismic activity are considered unlikely.

Seismically induced flooding is normally a consequence of a tsunami (seismic sea wave), a seiche (i.e., a wave-like oscillation of surface water in an enclosed basin that may be initiated by a strong earthquake) or failure of a major reservoir or retention system up gradient of the site. Since the site is at an elevation of more than 1,400 feet above mean sea level and is located more than 30 miles inland from the nearest coastline of the Pacific Ocean, the potential for seismically induced flooding due to a tsunami is considered nonexistent. Since no enclosed bodies of water lie adjacent to or up gradient of the site, the likelihood for induced flooding due to a dam failure or a seiche overcoming the dam’s freeboard is considered nonexistent.

Liquefaction and Lateral Spreading

Liquefaction occurs as a result of a substantial loss of shear strength or shearing resistance in loose, saturated, cohesionless earth materials subjected to earthquake induced ground shaking. Potential impacts from liquefaction include loss of bearing capacity, liquefaction related settlement, lateral movements, and surface manifestation such as sand boils. Seismically induced settlement occurs when loose sandy soils become denser when subjected to shaking during an earthquake. The three factors determining whether a site is likely to be subject to liquefaction include seismic shaking, type and consistency of earth materials, and groundwater level. The proposed structures will be supported by compacted fill and competent alluvium. As such, the potential for earthquake induced liquefaction and lateral spreading beneath the proposed structures is considered very low to remote due to the recommended compacted fill, relatively low groundwater level, and the dense nature of the deeper onsite earth materials.

TENTATIVE FOUNDATION DESIGN RECOMMENDATIONS

General

Provided grading is performed in accordance with the recommendations of this report, shallow foundations are considered feasible for support of the proposed structures. Tentative foundation recommendations are provided herein and graphic presentations of relevant recommendations may also be included on the enclosed map.

Allowable Bearing Values

An allowable bearing value of 2,500 pounds per square foot (psf) is recommended for design of 24-inch square pad footings and 12-inch-wide continuous footings founded at a minimum depth of 12 inches below the lowest adjacent final grade. This value may be increased by 20 percent for each additional 1-foot of width and/or depth to a maximum value of 3,000 psf. Recommended allowable bearing values include both dead and frequently applied live loads and may be increased by one third when designing for short duration wind or seismic forces.

Settlement

Based on the settlement characteristics of the earth materials that underlie the building sites and the anticipated loading, we estimate that the maximum total settlement of the footings will be less than approximately ¾ inch. Differential settlement is expected to be about ½ inch over a horizontal distance of approximately 20 feet, for an angular distortion ratio of 1:480. It is anticipated that the majority of the settlement will occur during construction or shortly after the initial application of loading.

The above settlement estimates are based on the assumption that the grading and construction are performed in accordance with the recommendations presented in this report and that the project geotechnical consultant will observe or test the earth material conditions in the footing excavations.

Lateral Resistance

Passive earth pressure of 250 psf per foot of depth to a maximum value of 2,500 psf may be used to establish lateral bearing resistance for footings. For areas coved with hardscape, passive earth pressure may be taken from the surface. For areas without hardscape, the upper 12 inches of the soil profile must be neglected when calculating passive earth pressure. A coefficient of friction of 0.36 times the dead load forces may be used between concrete and the supporting earth materials to determine lateral sliding resistance. The above values may be increased by one-third when designing for short duration wind or seismic forces. When combining passive and friction for lateral resistance, the passive component should be reduced by one third. In no case shall the lateral sliding resistance exceed one-half the dead load for clay, sandy clay, sandy silty clay, silty clay, and clayey silt.

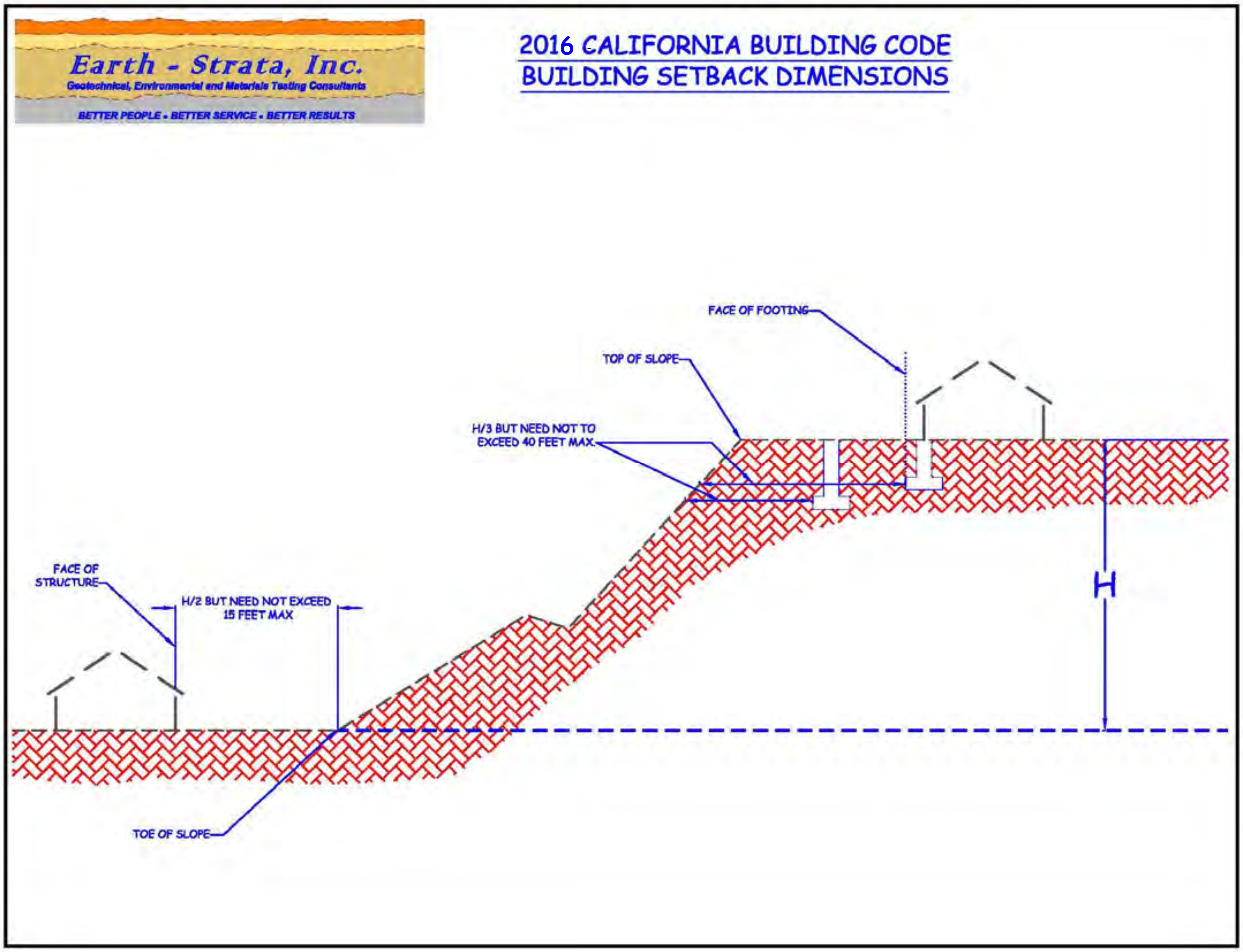
The above lateral resistance values are based on footings for an entire structure being placed directly against either compacted fill or competent alluvium.

Structural Setbacks and Building Clearance

Structural setbacks are required per the 2016 California Building Code (CBC). Additional structural setbacks are not required due to geologic or geotechnical conditions within the site. Improvements constructed in close proximity to natural or properly engineered and compacted slopes can, over time, be affected by natural processes including gravity forces, weathering, and long term secondary settlement. As a result, the CBC requires that buildings and structures be setback or footings deepened to resist the influence of these processes.

For structures that are planned near ascending and descending slopes, the footings should be embedded to satisfy the requirements presented in the CBC, Section 1808.7 as illustrated in the following Foundation Clearances from Slopes diagram.

FOUNDATION CLEARANCES FROM SLOPES



When determining the required clearance from ascending slopes with a retaining wall at the toe, the height of the slope shall be measured from the top of the wall to the top of the slope.

Foundation Observations

In accordance with the 2016 CBC and prior to the placement of forms, concrete, or steel, all foundation excavations should be observed by the geologist, engineer, or his representative to verify that they have been excavated into competent bearing materials. The excavations should be per the approved plans, moistened, cleaned of all loose materials, trimmed neat, level, and square. Any moisture softened earth materials should be removed prior to steel or concrete placement.

Earth materials from foundation excavations should not be placed in slab on grade areas unless the materials are tested for expansion potential and compacted to a minimum of 90 percent of the maximum dry density.

Expansive Soil Considerations

Preliminary laboratory test results indicate onsite earth materials exhibit an expansion potential of **LOW** as classified in accordance with 2016 CBC Section 1803.5.3 and ASTM D4829-03. Additional, testing for expansive soil conditions should be conducted upon completion of rough grading. The following recommendations should be considered the very minimum requirements, for the earth materials tested. It is common practice for the project architect or structural engineer to require additional slab thickness, footing sizes, and/or reinforcement.

Low Expansion Potential (Expansion Index of 21 to 50)

Our laboratory test results indicate that the earth materials onsite exhibit a **LOW** expansion potential as classified in accordance with 2016 CBC Section 1803.5.3 and ASTM D4829-03. Accordingly, the CBC specifies that slab on ground foundations (floor slabs) resting on earth materials with expansion indices greater than 20, require special design considerations in accordance with 2016 CBC Sections 1808.6.1 and 1808.6.2. The design procedures are based on the thickness and plasticity index of the various earth materials within the upper 15 feet of the proposed structure. For preliminary design purposes, we have assumed an effective plasticity index of 12.

Footings

- Exterior continuous footings may be founded at the minimum depths below the lowest adjacent final grade (i.e. 12-inch minimum depth for one-story, 18-inch minimum depth for two-story, and 24-inch minimum depth for three-story construction). Interior continuous footings for one-, two-, and three-story construction may be founded at a minimum depth of 12 inches below the lowest adjacent final grade. All continuous footings should have a minimum width of 12, 15, and 18 inches, for one-, two-, and three-story structures, respectively, and should be reinforced with a minimum of four (4) No. 4 bars, two (2) top and two (2) bottom.

- Exterior pad footings intended to support roof overhangs, such as second story decks, patio covers and similar construction should be a minimum of 24 inches square and founded at a minimum depth of 18 inches below the lowest adjacent final grade. The pad footings should be reinforced with a minimum of No. 4 bars spaced a maximum of 18 inches on center, each way, and should be placed near the bottom-third of the footings.

Building Floor Slabs

- The project architect or structural engineer should evaluate minimum floor slab thickness and reinforcement in accordance with 2016 CBC Section 1808.6.2 based on an assumed effective plasticity index of 12. Building floor slabs should be a minimum of 4 inches thick and reinforced with a minimum of No. 4 bars spaced a maximum of 18 inches on center, each way. All floor slab reinforcement should be supported on concrete chairs or bricks to ensure the desired placement at mid-depth.

- Interior floor slabs, within moisture sensitive areas, should be underlain by a minimum 10-mil thick moisture/vapor barrier to help reduce the upward migration of moisture from the underlying earth materials. The moisture/vapor barrier used should meet the performance standards of an ASTM E 1745 Class A material, and be properly installed in accordance with ACI publication 318-05. It is the responsibility of the contractor to ensure that the moisture/vapor barriers are free of openings, rips, or punctures prior to placing concrete. As an option for additional moisture reduction, higher strength concrete, such as a minimum 28-day compressive strength of 5,000 pounds per square inch (psi) may be used. Ultimately, the design of the moisture/vapor barrier system and recommendations for concrete placement and curing are the purview of the foundation engineer, taking into consideration the project requirements provided by the architect and owner.

- Garage floor slabs should be a minimum of 5 inches thick and should be reinforced in a similar manner as living area floor slabs. Garage floor slabs should be placed separately from adjacent wall footings with a positive separation maintained with ⅜ inch minimum felt expansion joint materials and quartered with weakened plane joints. A 12-inch-wide turn down founded at the same depth as adjacent footings should be provided across garage entrances. The turn down should be reinforced with a minimum of two (2) No. 4 bars, one (1) top and one (1) bottom.

- The subgrade earth materials below all floor slabs should be pre-watered to achieve a moisture content that is at least equal or slightly greater than optimum moisture content, prior to placing concrete. This moisture content should penetrate a minimum depth of 12 inches into the subgrade earth materials. The pre-watering should be verified by Earth Strata Geotechnical Services during construction.

Post Tensioned Slab/Foundation Design Recommendations

In lieu of the proceeding foundation recommendations, post tensioned slabs may be used to support the proposed structures. We recommend that the foundation engineer design the foundation system using the Preliminary Post Tensioned Foundation Slab Design table below. These parameters have been provided in general accordance with Post Tensioned Design. Alternate designs addressing the effects of expansive earth materials are allowed per 2016 CBC Section 1808.6.2. When utilizing these parameters, the foundation engineer should design the foundation system in accordance with the allowable deflection criteria of applicable codes and per the requirements of the structural engineer/architect.

It should be noted that the post tensioned design methodology is partially based on the assumption that soil moisture changes around and underneath post tensioned slabs, are influenced only by climate conditions. Soil moisture change below slabs is the major factor in foundation damages relating to expansive soil. However, the design methodology has no consideration for presaturation, owner irrigation, or other non-climate related influences on the moisture content of subgrade earth materials. In recognition of these factors, we modified the geotechnical parameters determined from this methodology to account for reasonable irrigation practices and proper homeowner maintenance. Additionally, we recommend that prior to excavating footings, slab subgrades be presoaked to a depth of 12 inches and maintained at above optimum moisture until placing concrete. Furthermore, we recommend that the moisture content of the earth materials around the immediate perimeter and below the slab be presaturated to at least 1% above optimum moisture content just prior to placing concrete. The pre-watering should be verified and tested by Earth Strata Geotechnical Services during construction.

The following geotechnical parameters assume that areas adjacent to the foundations, which are planted and irrigated, will be designed with proper drainage to prevent water from ponding. Water ponding near the foundation causes significant moisture change below the foundation. Our recommendations do not account for excessive irrigation and/or incorrect landscape design. Planters placed adjacent to the foundation, should be designed with an effective drainage system or liners, to prevent moisture infiltration below the foundation. Some lifting of the perimeter foundation beam should be expected even with properly constructed planters. Based on our experience monitoring sites with similar earth materials, elevated moisture contents below the foundation perimeter due to incorrect landscaping irrigation or maintenance, can result in uplift at the perimeter foundation relative to the central portion of the slab.

Future owners should be informed and educated of the importance in maintaining a consistent level of moisture within the earth materials around the structures. Future owners should also be informed of the potential negative consequences of either excessive watering, or allowing expansive earth materials to become too dry. Earth materials will shrink as they dry, followed by swelling during the rainy winter season, or when irrigation is resumed. This will cause distress to site improvements and structures.

Preliminary Post Tensioned Foundation Slab Design

PARAMETER		VALUE
Expansion Index		Low[1]
Percent Finer than 0.002 mm in the Fraction Passing the No. 200 Sieve		< 20 percent (assumed)
Type of Clay Mineral		Montmorillonite (assumed)
Thornthwaite Moisture Index		+20
Depth to Constant Soil Suction		7 feet
Constant Soil Suction		P.F. 3.6
Moisture Velocity		0.7 inches/month
Center Lift	Edge moisture variation distance, e_m Center lift, y_m	5.5 feet 2.0 inches
Edge Lift	Edge moisture variation distance, e_m Edge lift, y_m	3.0 feet 0.8 inches
Soluble Sulfate Content for Design of Concrete Mixtures in Contact with Earth Materials		Negligible
Modulus of Subgrade Reaction, k (assuming presaturation as indicated below)		200 pci
Minimum Perimeter Foundation Embedment		18
Perimeter Foundation Reinforcement		--
Under Slab Moisture/Vapor Barrier and Sand Layer		10-mil thick moisture/vapor barrier meeting the requirements of a ASTM E 1745 Class A material

1. Obtained by laboratory testing.
2. Recommendations for foundation reinforcement are ultimately the purview of the foundation/structural engineer based upon the geotechnical criteria presented in this report, and structural engineering considerations.

Corrosivity

Corrosion is defined by the National Association of Corrosion Engineers (NACE) as "a deterioration of a substance or its properties because of a reaction with its environment." From a geotechnical viewpoint, the "substances" are the reinforced concrete foundations or buried metallic elements (not surrounded by concrete) and the "environment" is the prevailing earth materials in contact with them. Many factors can contribute to corrosivity, including the presence of chlorides, sulfates, salts, organic materials, different oxygen levels, poor drainage, different soil types, and moisture content. It is not considered practical or realistic to test for all of the factors which may contribute to corrosivity.

The potential for concrete exposure to chlorides is based upon the recognized Caltrans reference standard "Bridge Design Specifications", under Subsection 8.22.1 of that document, Caltrans has determined that "Corrosive water or soil contains more than 500 parts per million (ppm) of chlorides". Based on limited preliminary laboratory testing, the onsite earth materials have chloride contents *less* than 500 ppm. As such, specific requirements resulting from elevated chloride contents are not required.

Specific guidelines for concrete mix design are provided in 2016 CBC Section 1904.1 and ACI 318, Section 4.3 Table 4.3.1 when the soluble sulfate content of earth materials exceeds 0.1 percent by weight. Based on limited preliminary laboratory testing, the onsite earth materials are classified in accordance with Table 4.3.1 as having a *negligible* sulfate exposure condition. Therefore, structural concrete in contact with onsite earth materials should utilize Type I or II.

Based on our laboratory testing of resistivity, the onsite earth materials in contact with buried steel should be considered *corrosive*. Additionally, pH values below 9.7 are recognized as being corrosive to most common metallic components including, copper, steel, iron, and aluminum. The pH values for the earth materials tested were *lower* than 9.7. Therefore, any steel or metallic materials that are exposed to the earth materials should be encased in concrete or other measures should be taken to provide corrosion protection.

If building slabs are to be post tensioned, the post tensioning cables should be encased in concrete and/or encapsulated in accordance with the Post Tensioning Institute Guide Specifications. Post tensioning cable end plate anchors and nuts also need to be protected if exposed. If the anchor plates and nuts are in a recess in the edge of the concrete slab, the recess should be filled in with a non-shrink, non-porous, moisture-insensitive epoxy grout so that the anchorage assembly and the end of the cable are completely encased and isolated from the soil. A standard non-shrink, non-metallic cementitious grout may be used only when the post tension anchoring assembly is polyethylene encapsulated similar to that offered by Hayes Industries, LTD or O'Strand, Inc.

The preliminary test results for corrosivity are based on limited samples, and the initiation of grading may blend various earth materials together. This blending or imported material could alter and increase the detrimental properties of the onsite earth materials. Accordingly, additional testing for chlorides and sulfates along with testing for pH and resistivity should be performed upon completion of grading. Laboratory test results are presented in Appendix C.

RETAINING WALLS

Active and At-Rest Earth Pressures

Foundations may be designed in accordance with the recommendations provided in the Tentative Foundation Design Recommendation section of this report. The following table provides the minimum recommended equivalent fluid pressures for design of retaining walls a maximum of 8 feet high. The active earth pressure should be used for design of unrestrained retaining walls, which are free to tilt slightly. The at-rest earth pressure should be used for design of retaining walls that are restrained at the top, such as basement walls, curved walls with no joints, or walls restrained at corners. For curved walls, active pressure may be used if tilting is acceptable and construction joints are provided at each angle point and at a minimum of 15 foot intervals along the curved segments.

MINIMUM STATIC EQUIVALENT FLUID PRESSURES (pcf)		
PRESSURE TYPE	BACKSLOPE CONDITION	
	LEVEL	2:1 (h:v)
Active Earth Pressure	40	63
At-Rest Earth Pressure	60	95

The retaining wall parameters provided do not account for hydrostatic pressure behind the retaining walls. Therefore, the subdrain system is a very important part of the design. All retaining walls should be designed to resist surcharge loads imposed by other nearby walls, structures, or vehicles should be added to the above earth pressures, if the additional loads are being applied within a 1.5:1 (h:v) plane projected up from the heel of the retaining wall footing. As a way of minimizing surcharge loads and the settlement potential of nearby buildings, the footings for the building can be deepened below the 1.5:1 (h:v)plane projected up from the heel of the retaining wall footing.

Upon request and under a separate scope of work, more detailed analyses can be performed to address equivalent fluid pressures with regard to stepped retaining walls, actual retaining wall heights, actual backfill inclinations, specific backfill materials, higher retaining walls requiring earthquake design motions, etc.

Subdrain System

We recommend a perforated pipe and gravel subdrain system be provided behind all proposed retaining walls to prevent the buildup of hydrostatic pressure behind the proposed retaining walls. The perforated pipe should consist of 4-inch minimum diameter Schedule 40 PVC or ABS SDR-35, placed with the perforations facing down. The pipe should be surrounded by 1 cubic foot per foot of ¾- or 1½ inch open graded gravel wrapped in filter fabric. The filter fabric should consist of Mirafi 140N or equivalent to prevent infiltration of fines and subsequent clogging of the subdrain system.

In lieu of a perforated pipe and gravel subdrain system, weep holes or open vertical masonry joints may be provided in the lowest row of block exposed to the air to prevent the buildup of hydrostatic pressure behind the proposed retaining walls. Weep holes should be a minimum of 3 inches in diameter and provided at intervals of at least every 6 feet along the wall. Open vertical masonry joints should be provided at a minimum of 32 inch intervals. A continuous gravel fill, a minimum of 1 cubic foot per foot, should be placed behind the weep holes or open masonry joints. The gravel should be wrapped in filter fabric consisting of Mirafi 140N or equivalent.

The retaining walls should be adequately coated on the backfilled side of the walls with a proven waterproofing compound by an experienced professional to inhibit infiltration of moisture through the walls.

Temporary Excavations

All excavations should be made in accordance with Cal-OSHA requirements. Earth Strata Geotechnical Services is not responsible for job site safety.

Retaining Wall Backfill

Retaining wall backfill materials should be approved by the geotechnical engineer or his representative prior to placement as compacted fill. Retaining wall backfill should be placed in lifts no greater than 6 to 8 inches, watered or air dried as necessary to achieve near optimum moisture contents. All retaining wall backfill should be compacted to a minimum of 90 percent of the maximum dry density as determined by ASTM D 1557. Retaining wall backfill should be capped with a paved surface drain.

CONCRETE FLATWORK

Thickness and Joint Spacing

Concrete sidewalks and patio type slabs should be at least 4 inches thick and provided with construction or expansion joints every 6 feet or less, to reduce the potential for excessive cracking. Concrete driveway slabs should be at least 5 inches thick and provided with construction or expansion joints every 10 feet or less.

Subgrade Preparation

In order to reduce the potential for unsightly cracking, subgrade earth materials underlying concrete flatwork should be compacted at near optimum moisture to a minimum of 90 percent of the maximum dry density determined by ASTM D 1557 and then moistened to optimum or slightly above optimum moisture content. This moisture should extend to a depth of 12 inches below subgrade and be maintained prior to placement of concrete. Pre-watering of the earth materials prior to placing concrete will promote uniform curing of the concrete and minimize the development of shrinkage cracks. The project geotechnical engineer or his representative should verify the density and moisture content of the earth materials and the depth of moisture penetration prior to placing concrete.

Cracking within concrete flatwork is often a result of factors such as the use of too high a water to cement ratio and/or inadequate steps taken to prevent moisture loss during the curing of the concrete. Concrete distress can be reduced by proper concrete mix design and proper placement and curing of the concrete. Minor cracking within concrete flatwork is normal and should be expected.

GRADING PLAN REVIEW AND CONSTRUCTION SERVICES

This report has been prepared for the exclusive use of **Empire Design Group** and their authorized representative. It likely does not contain sufficient information for other parties or other uses. Earth Strata Geotechnical Services should be engaged to review the final design plans and specifications prior to construction. This is to verify that the recommendations contained in this report have been properly incorporated into the project plans and specifications. Should Earth Strata Geotechnical Services not be accorded the opportunity to review the project plans and specifications, we are not responsibility for misinterpretation of our recommendations.

We recommend that Earth Strata Geotechnical Services be retained to provide geologic and geotechnical engineering services during grading and foundation excavation phases of the work. In order to allow for design changes in the event that the subsurface conditions differ from those anticipated prior to construction.

Earth Strata Geotechnical Services should review any changes in the project and modify and approve in writing the conclusions and recommendations of this report. This report and the drawings contained within are intended for design input purposes only and are not intended to act as construction drawings or specifications. In the event that conditions encountered during grading or construction operations appear to be different than those indicated in this report, this office should be notified immediately, as revisions may be required.

REPORT LIMITATIONS

Our services were performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable soils engineers and geologists, practicing at the time and location this report was prepared. No other warranty, expressed or implied, is made as to the conclusions and professional advice included in this report.

Earth materials vary in type, strength, and other geotechnical properties between points of observation and exploration. Groundwater and moisture conditions can also vary due to natural processes or the works of man on this or adjacent properties. As a result, we do not and cannot have complete knowledge of the subsurface conditions beneath the subject property. No practical study can completely eliminate uncertainty with regard to the anticipated geotechnical conditions in connection with a subject property. The conclusions and recommendations within this report are based upon the findings at the points of observation and are subject to confirmation by Earth Strata Geotechnical Services based on the conditions revealed during grading and construction.

This report was prepared with the understanding that it is the responsibility of the owner or their representative, to ensure that the conclusions and recommendations contained herein are brought to the attention of the other project consultants and are incorporated into the plans and specifications. The owners' contractor should properly implement the conclusions and recommendations during grading and construction, and notify the owner if they consider any of the recommendations presented herein to be unsafe or unsuitable.

APPENDIX A

REFERENCES

APPENDIX A

References

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APPENDIX B

EXPLORATORY LOGS

Geotechnical Boring Log B-2

Date: August 23, 2019	**Project Name: Lake Steet, Lake Elsinore** — **Page: 1 of 1**
Project Number: 192805-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** — **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**<u>Quaternary Young Alluvial Valley Deposits (Qyv):</u>**
					SC	Clayey SAND; dark brown, dry, medium dense, fine to coarse sand with
	35	2.5'	119.6	11.8		trace gravel
					SM	Silty SAND; dark yellowish brown, dense, fine to coarse sand with clay
5	83/11"	5'	123.2	2.1		Very dense below 5 feet
	83/10"	7.5'	112.9	8.3		Light olive yellow
						Total Depth: 8.5 feet
10						No Groundwater
15						
20						
25						
30						

Geotechnical Boring Log B-3

Date: August 23, 2019	Project Name: Lake Steet, Lake Elsinore — Page: 1 of 1
Project Number: 192805-10A	Logged By: JF
Drilling Company: Drilling It	Type of Rig: B-61
Drive Weight (lbs): 140	Drop (in): 30 — Hole Diameter (in): 8
Top of Hole Elevation (ft): See Map	Hole Location: See Geotechnical Map

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0						**Quaternary Young Alluvial Valley Deposits (Qyv):**
					SM	Silty SAND; light yellowish brown, dry, very dense, fine to coarse sand with
	44	2.5'	101.3	10.9		clay and trace gravel
5	90/11"	5'	103.1	15.6	ML	Sandy SILT; olive yellow, dry, very stiff, fine to medium sand
	REF/5"	7.5'	113.2	8.4		
						Total Depth: 8.5 feet
10						No Groundwater
15						
20						
25						
30						

42184 Remington Avenue, Temecula, CA 92590

Earth Strata Geotechnical Services, Inc.

Geotechnical, Environmental and Materials Testing Consultants

www.ESGSINC.com (951) 397-8315

Geotechnical Boring Log B-1

Date: August 23, 2019	**Project Name: Lake Steet, Lake Elsinore** **Page: 1 of 1**
Project Number: 192805-10A	**Logged By: JF**
Drilling Company: Drilling It	**Type of Rig: B-61**
Drive Weight (lbs): 140	**Drop (in): 30** **Hole Diameter (in): 8**
Top of Hole Elevation (ft): See Map	**Hole Location: See Geotechnical Map**

Depth (ft)	Blow Count Per Foot	Sample Depth	Dry Density (pcf)	Moisture (%)	Classification Symbol	MATERIAL DESCRIPTION
0		0-5'				**Quaternary Young Alluvial Valley Deposits (Qyv):**
					SM	Silty SAND; yellowish brown, dry, medium dense, fine to coarse sand with clay
	63	2.5'	120.1	6.2		and trace gravel
						Very dense below 2 feet
5	49	5'	125.9	5.4		Olive yellow, dry to slightly moist, fine to medium sand below 5 feet
	74	7.5'	112.6	3.9		
10	43	10'	113.9	5.3		
15	45	15'	104.9	8.7		Strong brown, fine to coarse sand
						Total Depth: 16.5 feet
						No Groundwater
20						
25						
30						

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GEOTECHNICAL BORING LOG B-1

Date: 11-16-07 | Sheet 1 of 2
Project: Marinita Devel Lake Street Prelim | Project No. 602051-001
Drilling Co.: Redman Drilling | Type of Rig: CME-75
Hole Diameter: 8" inches | Drive Weight: 140lb | Drop: 30 inches
Elevation Top of Hole +/- feet | Location: See Boring Location Map

Logged By: KXS
Sampled By:

Elevation Feet	Depth Feet	Graphic Log (N S)	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION	Type of Tests
	0							SM	QUATERNARY YOUNGER ALLUVIUM (Qal)	
			B1-1 @ 0-5'						@0-5': Silty fine to medium grained SAND with coarse grained particles, brown, damp	EI
	5			R-2	20	114	4		@5': Silty fine to coarse grained SAND, brown, damp, medium dense	
								SM	QUATERNARY OLDER ALLUVIUM (Qalo)	
	10			R-3	50/4"				@10': Silty fine to coarse grained SAND, dark brown, damp, dense	DS
	15			R-4	76/11"				@15': Silty fine to coarse grained SAND, brown, moist, dense	
	20			R-5	67	117	15		@20': Silty fine to medium grained SAND with lean clay, dark brown, moist, dense	
	25			R-6	50/5"				@25': Silty fine to medium grained SAND, dark brown, moist, dense	
	30									

SAMPLE TYPES:
S SPT
R RING SAMPLE
B BULK SAMPLE
T TUBE SAMPLE
G GRAB SAMPLE
C CORE SAMPLE

TYPE OF TESTS:
SU SULFATE
DS DIRECT SHEAR
MD MAXIMUM DENSITY
CN CONSOLIDATION
CR CORROSION
HCO HYDROCOLLAPSE
HD HYDROMETER
SA SIEVE ANALYSIS
AL ATTERBERG LIMITS
EI EXPANSION INDEX
RV R-VALUE
CS CORROSION SUITE
MC MOISTURE CONTENT
SE SAND EQUIVALENT
-200 200 WASH
RDS REMOLDED DS
LOI LOSS ON IGNITION

Leighton

GEOTECHNICAL BORING LOG B-1

Date 11-16-07 — Sheet 2 of 2

Project Marinita Devel Lake Street Prelim — Project No. 602051-001

Drilling Co. Redman Drilling — Type of Rig CME-75

Hole Diameter 8" inches — Drive Weight 140lb — Drop 30 inches

Elevation Top of Hole +/- feet — Location See Boring Location Map

Logged By KXS

Sampled By

Elevation Feet	Depth Feet	Graphic Log (N S)	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION	Type of Tests
	30			R-7	50/1.5"				@30': Silty fine to medium grained SAND, brown, moist, very dense	
									Total Depth 30' 1.5" Grounwater Not Encountered Backfilled with Spoils on 11/16/2007	
	35									
	40									
	45									
	50									
	55									
	60									

SAMPLE TYPES:
- S SPT
- R RING SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE
- G GRAB SAMPLE
- C CORE SAMPLE

TYPE OF TESTS:
- SU SULFATE
- DS DIRECT SHEAR
- MD MAXIMUM DENSITY
- CN CONSOLIDATION
- CR CORROSION
- HCO HYDROCOLLAPSE
- HD HYDROMETER
- SA SIEVE ANALYSIS
- AL ATTERBERG LIMITS
- EI EXPANSION INDEX
- RV R-VALUE
- CS CORROSION SUITE
- MC MOISTURE CONTENT
- SE SAND EQUIVALENT
- -200 200 WASH
- RDS REMOLDED DS
- LOI LOSS ON IGNITION

Leighton

GEOTECHNICAL BORING LOG B-2

Date 11-16-07 | Sheet 1 of 1
Project Marinita Devel Lake Street Prelim | Project No. 602051-001
Drilling Co. Redman Drilling | Type of Rig CME-75
Hole Diameter 8" inches | Drive Weight 140lb | Drop 30 inches
Elevation Top of Hole +/- feet | Location See Boring Location Map

Logged By KXS
Sampled By

Elevation Feet	Depth Feet	Graphic Log (N S)	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION	Type of Tests
	0							SM	QUATERNARY OLDER ALLUVIUM (Qalo)	
			B2-1 @ 0-5'						@0-5': Silty fine to coarse grained SAND, brown, damp	SA
	5			R-2	50/3"	109	4		@5': Silty fine to medium grained SAND, light brown, damp, dense	
	10			R-3	50/5"	101	11		@10': Silty fine to medium grained SAND, dark brown, moist, dense	
	15			R-4	50/5"				@15': Silty fine to medium grained SAND, dark brown, moist, very dense	
									Total Depth 15' 6" Grounwater Not Encountered Backfilled with Spoils on 11/16/2007	
	20									
	25									
	30									

SAMPLE TYPES:
S SPT
R RING SAMPLE
B BULK SAMPLE
T TUBE SAMPLE
G GRAB SAMPLE
C CORE SAMPLE

TYPE OF TESTS:
SU SULFATE
DS DIRECT SHEAR
MD MAXIMUM DENSITY
CN CONSOLIDATION
CR CORROSION
HCO HYDROCOLLAPSE
HD HYDROMETER
SA SIEVE ANALYSIS
AL ATTERBERG LIMITS
EI EXPANSION INDEX
RV R-VALUE
CS CORROSION SUITE
MC MOISTURE CONTENT
SE SAND EQUIVALENT
-200 200 WASH
RDS REMOLDED DS
LOI LOSS ON IGNITION

Leighton

GEOTECHNICAL BORING LOG B-3

Date 11-16-07 **Sheet** 1 **of** 1
Project Marinita Devel Lake Street Prelim **Project No.** 602051-001
Drilling Co. Redman Drilling **Type of Rig** CME-75
Hole Diameter 8" inches **Drive Weight** 140lb **Drop** 30 inches
Elevation Top of Hole +/- feet **Location** See Boring Location Map

Logged By KXS
Sampled By

Elevation Feet	Depth Feet	Graphic Log (N S)	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION	Type of Tests
	0							SM	QUATERNARY OLDER ALLUVIUM (Qalo)	
									@0-5': Silty fine to medium grained SAND, brown, damp	
	5			R-1	50/3"	108	4		@5': Silty fine to medium grained SAND, dark brown, damp, dense	
	10			R-2	50/3"				@10': Silty fine to coarse grained SAND, light brown, moist, dense	
									Total Depth 10' 9" Grounwater Not Encountered Backfilled with Spoils on 11/16/2007	
	15									
	20									
	25									
	30									

SAMPLE TYPES:
- S SPT
- R RING SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE
- G GRAB SAMPLE
- C CORE SAMPLE

TYPE OF TESTS:
- SU SULFATE
- DS DIRECT SHEAR
- MD MAXIMUM DENSITY
- CN CONSOLIDATION
- CR CORROSION
- HCO HYDROCOLLAPSE
- HD HYDROMETER
- SA SIEVE ANALYSIS
- AL ATTERBERG LIMITS
- EI EXPANSION INDEX
- RV R-VALUE
- CS CORROSION SUITE
- MC MOISTURE CONTENT
- SE SAND EQUIVALENT
- -200 200 WASH
- RDS REMOLDED DS
- LOI LOSS ON IGNITION

Leighton

GEOTECHNICAL BORING LOG B-4

Date 11-16-07 **Sheet** 1 **of** 1
Project Marinita Devel Lake Street Prelim **Project No.** 602051-001
Drilling Co. Redman Drilling **Type of Rig** CME-75
Hole Diameter 8" inches **Drive Weight** 140lb **Drop** 30 inches
Elevation Top of Hole +/- feet **Location** See Boring Location Map

Logged By KXS
Sampled By

Elevation Feet	Depth Feet	Graphic Log (N S)	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION	Type of Tests
	0							SM	QUATERNARY YOUNGER ALLUVIUM (Qal)	
			B4-1 @ 0-5'						@0-5': Silty fine to coarse grained SAND, dark brown, damp	
	5			R-2	30	116	7	SM	QUATERNARY OLDER ALLUVIUM (Qalo) @5': Silty fine to coarse grained SAND, brown, moist, medium dense	
	10			R-3	69	121	6		@10': Silty fine to medium grained SAND with coarse grained particles, brown, moist, dense	
	15			R-4	61	117	6		@15': Silty fine to coarse grained SAND with silt, gray, moist, dense	
	20			R-5	50/2"				No Recovery	
									Total Depth 20' 2" Grounwater Not Encountered Backfilled with Spoils on 11/16/2007	
	25									
	30									

SAMPLE TYPES:
S SPT
R RING SAMPLE
B BULK SAMPLE
T TUBE SAMPLE
G GRAB SAMPLE
C CORE SAMPLE

TYPE OF TESTS:
SU SULFATE
DS DIRECT SHEAR
MD MAXIMUM DENSITY
CN CONSOLIDATION
CR CORROSION
HCO HYDROCOLLAPSE
HD HYDROMETER
SA SIEVE ANALYSIS
AL ATTERBERG LIMITS
EI EXPANSION INDEX
RV R-VALUE
CS CORROSION SUITE
MC MOISTURE CONTENT
SE SAND EQUIVALENT
-200 200 WASH
RDS REMOLDED DS
LOI LOSS ON IGNITION

Leighton

GEOTECHNICAL BORING LOG B-5

Date 11-16-07 **Sheet** 1 **of** 1
Project Marinita Devel Lake Street Prelim **Project No.** 602051-001
Drilling Co. Redman Drilling **Type of Rig** CME-75
Hole Diameter 8" inches **Drive Weight** 140lb **Drop** 30 inches
Elevation Top of Hole +/- feet **Location** See Boring Location Map

Logged By: KXS
Sampled By:

Elevation Feet	Depth Feet	Graphic Log	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION	Type of Tests
	0	N S						SM	QUATERNARY YOUNGER ALLUVIUM (Qal)	
									@0-5': Silty fine to medium grained SAND with coarse grained particles, brown, damp	
								SM	QUATERNARY OLDER ALLUVIUM (Qalo)	
	5			R-1	58	114	4		@5': Silty fine to medium grained SAND with coarse grained particles & gravel, gray, moist, medium dense	HCO
	10			R-2	35	106	6		@10': Silty fine to medium grained SAND with coarse grained particles, brown, moist, medium dense	HCO
	15			R-3	50/4"				@15': Silty fine to coarse grained SAND, brown, moist, dense	
	20			R-4	50/6"				@20': Silty fine to coarse grained SAND with gravel, dark brown, moist, dense	
									Total Depth 21' Grounwater Not Encountered Backfilled with Spoils on 11/16/2007	
	25									
	30									

SAMPLE TYPES:
- S SPT
- R RING SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE
- G GRAB SAMPLE
- C CORE SAMPLE

TYPE OF TESTS:
- SU SULFATE
- DS DIRECT SHEAR
- MD MAXIMUM DENSITY
- CN CONSOLIDATION
- CR CORROSION
- HCO HYDROCOLLAPSE
- HD HYDROMETER
- SA SIEVE ANALYSIS
- AL ATTERBERG LIMITS
- EI EXPANSION INDEX
- RV R-VALUE
- CS CORROSION SUITE
- MC MOISTURE CONTENT
- SE SAND EQUIVALENT
- -200 200 WASH
- RDS REMOLDED DS
- LOI LOSS ON IGNITION

Leighton

GEOTECHNICAL BORING LOG B-6

Date: 11-16-07 | Sheet 1 of 1
Project: Marinita Devel Lake Street Prelim | Project No. 602051-001
Drilling Co.: Redman Drilling | Type of Rig: CME-75
Hole Diameter: 8" inches | Drive Weight: 140lb | Drop: 30 inches
Elevation Top of Hole +/- feet | Location: See Boring Location Map

Logged By: KXS
Sampled By:

Elevation Feet	Depth Feet	Graphic Log (N S)	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION	Type of Tests
	0							SM	QUATERNARY YOUNGER ALLUVIUM (Qal)	
			B6-1 @ 0-5'						@0-5': Silty fine SAND, reddish brown, moist	CS
								SM	QUATERNARY OLDER ALLUVIUM (Qalo)	
	5			R-2	84/8"	117	8		@5': Silty fine SAND, reddish brown, moist, dense	
	10			R-3	50/3"				@10': Silty fine to coarse grained SAND with gravel, gray & brown, moist, very dense	
	15			R-4	50/4"				@15': Silty fine to coarse grained SAND with gravel, gray & brown, moist, very dense	
									Total Depth 15' 4" Grounwater Not Encountered Backfilled with Spoils on 11/16/2007	
	20									
	25									
	30									

SAMPLE TYPES:
- S SPT
- R RING SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE
- G GRAB SAMPLE
- C CORE SAMPLE

TYPE OF TESTS:
- SU SULFATE
- DS DIRECT SHEAR
- MD MAXIMUM DENSITY
- CN CONSOLIDATION
- CR CORROSION
- HCO HYDROCOLLAPSE
- HD HYDROMETER
- SA SIEVE ANALYSIS
- AL ATTERBERG LIMITS
- EI EXPANSION INDEX
- RV R-VALUE
- CS CORROSION SUITE
- MC MOISTURE CONTENT
- SE SAND EQUIVALENT
- -200 200 WASH
- RDS REMOLDED DS
- LOI LOSS ON IGNITION

Leighton

GEOTECHNICAL BORING LOG B-7

Date 11-16-07 **Sheet** 1 **of** 1
Project Marinita Devel Lake Street Prelim **Project No.** 602051-001
Drilling Co. Redman Drilling **Type of Rig** CME-75
Hole Diameter 8" inches **Drive Weight** 140lb **Drop** 30 inches
Elevation Top of Hole +/- feet **Location** See Boring Location Map

Logged By KXS
Sampled By

Elevation Feet	Depth Feet	Graphic Log (N S)	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION	Type of Tests
	0							SM	QUATERNARY YOUNGER ALLUVIUM (Qal) @0-2': Silty fine SAND, reddish brown brown, moist	
			B7-1 @ 2-5'						@2-5': Silty fine to medium grained SAND with coarese grained particles, brown, moist	
	5							SM	QUATERNARY OLDER ALLUVIUM (Qalo)	
				R-2	50/5"	113	3		@5': Silty fine to coarse grained SAND, brown, moist, dense	
	10			R-3	50/6"	93	7		@10': Silty fine to coarse grained SAND, brown, moist, dense (ring sample distrubed during sampling)	
	15			R-4	70				@15': Silty fine SAND, brown, moist, dense	
									Total Depth 16' 6" Grounwater Not Encountered Backfilled with Spoils on 11/16/2007	
	20									
	25									
	30									

SAMPLE TYPES:
- S SPT
- R RING SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE
- G GRAB SAMPLE
- C CORE SAMPLE

TYPE OF TESTS:
- SU SULFATE
- DS DIRECT SHEAR
- MD MAXIMUM DENSITY
- CN CONSOLIDATION
- CR CORROSION
- HCO HYDROCOLLAPSE
- HD HYDROMETER
- SA SIEVE ANALYSIS
- AL ATTERBERG LIMITS
- EI EXPANSION INDEX
- RV R-VALUE
- CS CORROSION SUITE
- MC MOISTURE CONTENT
- SE SAND EQUIVALENT
- -200 200 WASH
- RDS REMOLDED DS
- LOI LOSS ON IGNITION

Leighton

APPENDIX C

LABORATORY PROCEDURES AND TEST RESULTS

APPENDIX C

Laboratory Procedures and Test Results

Laboratory testing provided quantitative and qualitative data involving the relevant engineering properties of the representative earth materials selected for testing. The representative samples were tested in general accordance with American Society for Testing and Materials (ASTM) procedures and/or California Test Methods (CTM).

Soil Classification: Earth materials encountered during exploration were classified and logged in general accordance with the Standard Practice for Description and Identification of Soils (Visual-Manual Procedure) of ASTM D 2488. Upon completion of laboratory testing, exploratory logs and sample descriptions were reconciled to reflect laboratory test results with regard to ASTM D 2487.

Moisture and Density Tests: For select samples moisture content was determined using the guidelines of ASTM D 2216 and dry density determinations were made using the guidelines of ASTM D 2937. These tests were performed on relatively undisturbed samples and the test results are presented on the exploratory logs.

Maximum Density Tests: The maximum dry density and optimum moisture content of representative samples were determined using the guidelines of ASTM D 1557. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE CONTENT (%)
Bulk 1@ 0 - 5 feet	Clayey SAND	127.0	10.5

Expansion Index: The expansion potential of representative samples was evaluated using the guidelines of ASTM D 4829. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	EXPANSION INDEX	EXPANSION POTENTIAL
Bulk 1@ 0 - 5 feet	Clayey SAND	25	Low

Minimum Resistivity and pH Tests: Minimum resistivity and pH Tests of select samples were performed using the guidelines of CTM 643. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	pH	MINIMUM RESISTIVITY (ohm-cm)
Bulk 1@ 0 - 5 feet	Clayey SAND	7.2	1,900

Soluble Sulfate: The soluble sulfate content of select samples was determined using the guidelines of CTM 417. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	SULFATE CONTENT (% by weight)	SULFATE EXPOSURE
Bulk 1@ 0 - 5 feet	Clayey SAND	0.001	Negligible

<u>Chloride Content</u>: Chloride content of select samples was determined using the guidelines of CTM 422. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	CHLORIDE CONTENT (ppm)
Bulk 1@ 0 - 5 feet	Clayey SAND	30

Previous Laboratory Testing by Leighton Consulting, Inc.

Previous laboratory testing was performed on selected representative subsurface soil samples by Leighton Consulting (2007) to evaluate the chemical and physical characteristics of the selected soils. A discussion of the laboratory test methods performed, and a summary of the laboratory test data is presented below.

Grain Size Distribution: Select samples were tested using the guidelines of ASTM D 1140. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	% PASSING # 200 SIEVE
B-1 @ 0 - 5 feet	Clayey SAND	38

Atterberg Limits: The Atterberg limits of select samples were determined using the guidelines of ASTM D 4318 for engineering classification of fine materials. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	LIQUID LIMIT	PLASTIC LIMIT	PLASTICITY INDEX	ASTM SYMBOL
B-2 @ 0 - 5 feet	Clayey SAND	-	-	-	SC

Expansion Index: The expansion potential of representative samples was evaluated using the guidelines of ASTM D 4829. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	EXPANSION INDEX	EXPANSION POTENTIAL
B-1 @ 0 - 5 feet	Silty SAND	5	Very Low

Direct Shear: Direct shear tests were performed on representative remolded and/or undisturbed samples using the guidelines of ASTM D 3080.

SAMPLE LOCATION	MATERIAL DESCRIPTION	*FRICTION ANGLE (degrees)	*APPARENT COHESION (psf)
B-1 @ 10 feet	Clayey SAND	35	680

Remolded to 90 percent of the maximum dry density.

R-Value: The R-value of representative samples was determined using the guidelines of CTM 301. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	R-VALUE
B-1 @ 0 - 5 feet	Silty SAND	53

Minimum Resistivity and pH Tests: Minimum resistivity and pH Tests of select samples were performed using the guidelines of CTM 643. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	pH	MINIMUM RESISTIVITY (ohm-cm)
B-1 @ 0 - 5 feet	Silty SAND	6.8	11,645

Soluble Sulfate: The soluble sulfate content of select samples was determined using the guidelines of CTM 417. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	SULFATE CONTENT (% by weight)	SULFATE EXPOSURE
B-6 @ 0 – 5 feet	B-6 @ 0 – 5 feet	<0.015	Negligible

Chloride Content: Chloride content of select samples was determined using the guidelines of CTM 422. The test results are presented in the table below.

SAMPLE LOCATION	MATERIAL DESCRIPTION	CHLORIDE CONTENT (ppm)
B-6 @ 0 - 5 feet	Silty SAND	340

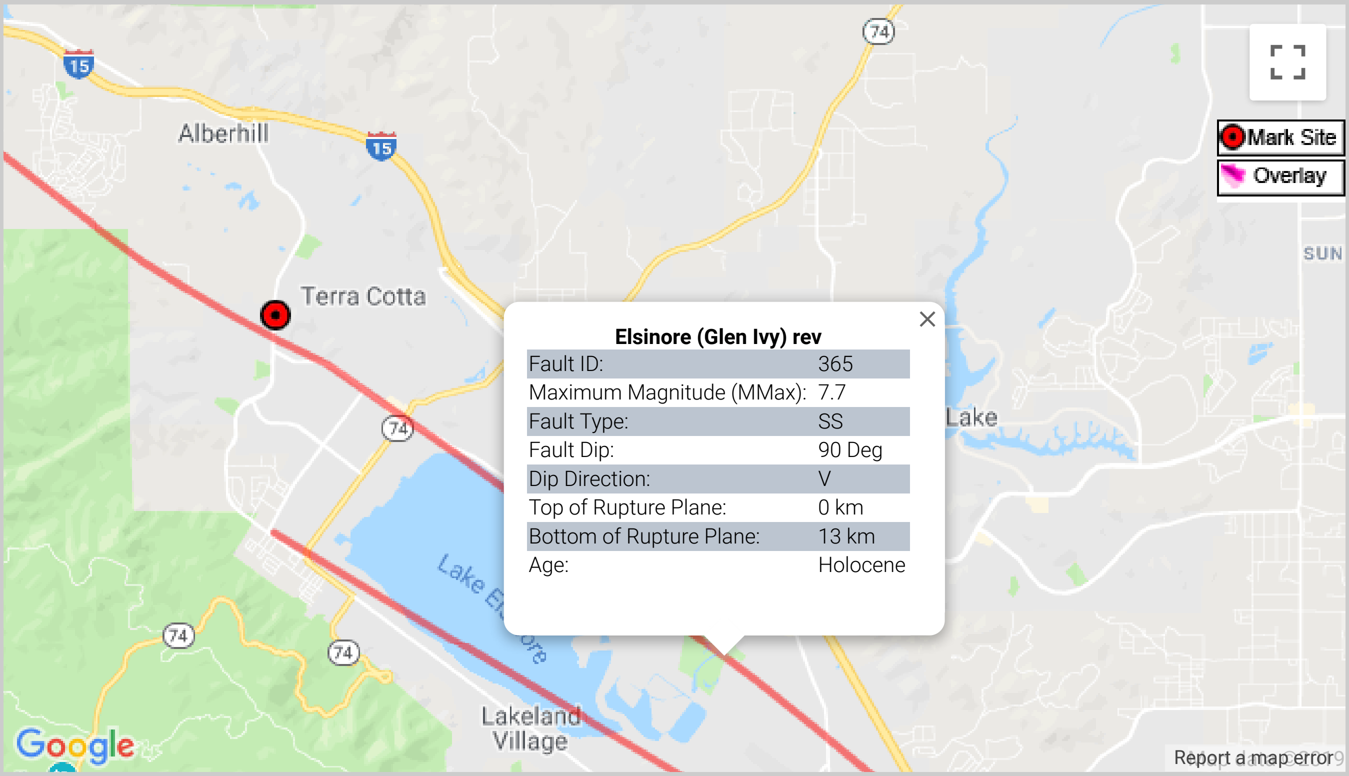
APPENDIX D

SEISMICITY

Caltrans ARS Online (v2.3.09)

This web-based tool calculates both deterministic and probabilistic acceleration response spectra for any location in California based on criteria provided in *Appendix B of Caltrans Seismic Design Criteria*. More...

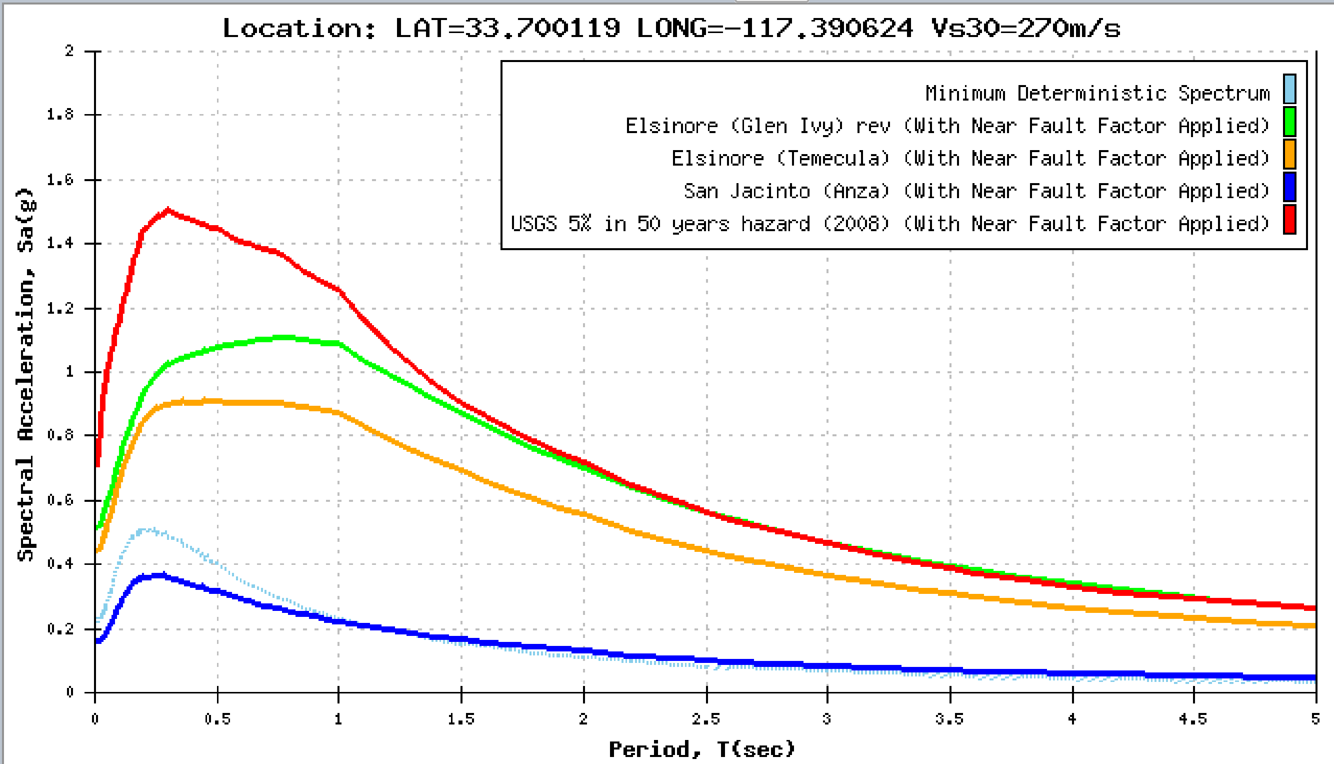
SELECT SITE LOCATION



Latitude: 33.700119 **Longitude:** -117.390624 ***Vs30*:** 270 m/s Calculate

CALCULATED SPECTRA

Display Curves: 3



Tabular Data | Envelope Only | Hide Near Fault | Axis Scale | Show Basin

Apply Near Fault Adjustment To:

NOTE: Caltrans SDC requires application of a Near Fault Adjustment factor for sites less than 25 km (Rrup) from the causative fault.

☑ Deterministic Spectrum Using

0.31 Km Elsinore (Glen Ivy) rev

3.60 Km Elsinore (Temecula)

33.08 Km San Jacinto (Anza)

☑ Probabilistic Spectrum Using

0.31 Km (Recommend Performing Deaggregation To Verify)

◉ Show Spectrum with Adjustment Only

○ Show Spectrum with and without near fault Adjustment

OK

U.S. Geological Survey - Earthquake Hazards Program

2008 National Seismic Hazard Maps - Source Parameters

New Search

Distance in Kilometers	Name	State	Pref Slip Rate (mm/yr)	Dip (degrees)	Dip Dir	Slip Sense	Rupture Top (km)	Rupture Bottom (km)	Length (km)
0.34	Elsinore;GI+T+J	CA	n/a	86	NE	strike slip	0	17	153
0.34	Elsinore;W+GI+T	CA	n/a	84	NE	strike slip	0	14	124
0.34	Elsinore;W+GI	CA	n/a	81	NE	strike slip	0	14	83
0.34	Elsinore;GI+T	CA	5	90	V	strike slip	0	14	78
0.34	Elsinore;GI+T+J+CM	CA	n/a	86	NE	strike slip	0	16	195
0.34	Elsinore;W+GI+T+J+CM	CA	n/a	84	NE	strike slip	0	16	241
0.34	Elsinore;GI	CA	5	90	V	strike slip	0	13	37
0.34	Elsinore;W+GI+T+J	CA	n/a	84	NE	strike slip	0	16	199
3.59	Elsinore;T+J	CA	n/a	86	NE	strike slip	0	17	127
3.59	Elsinore;T+J+CM	CA	n/a	85	NE	strike slip	0	16	169
3.59	Elsinore;T	CA	5	90	V	strike slip	0	14	52
21.33	Chino, alt 2	CA	1	65	SW	strike slip	0	14	29
23.42	Elsinore;W	CA	2.5	75	NE	strike slip	0	14	46
25.54	Chino, alt 1	CA	1	50	SW	strike slip	0	9	24
28.74	San Joaquin Hills	CA	0.5	23	SW	thrust	2	13	27
33.56	San Jacinto;A+CC+B	CA	n/a	90	V	strike slip	0.1	15	152
33.56	San Jacinto;A+C	CA	n/a	90	V	strike slip	0	17	118
33.56	San Jacinto;A+CC+B+SM	CA	n/a	90	V	strike slip	0.1	15	178

33.56	San Jacinto;A	CA	9	90	V	strike slip	0	17	71
33.56	San Jacinto;A+CC	CA	n/a	90	V	strike slip	0	16	118
35.52	San Jacinto;SBV+SJV	CA	n/a	90	V	strike slip	0	16	88
35.52	San Jacinto;SJV+A+CC+B+SM	CA	n/a	90	V	strike slip	0.1	15	196
35.52	San Jacinto;SJV+A+CC+B	CA	n/a	90	V	strike slip	0.1	15	170
35.52	San Jacinto;SJV	CA	18	90	V	strike slip	0	16	43
35.52	San Jacinto;SJV+A+CC	CA	n/a	90	V	strike slip	0	16	136
35.52	San Jacinto;SJV+A+C	CA	n/a	90	V	strike slip	0	17	136
35.52	San Jacinto;SJV+A	CA	n/a	90	V	strike slip	0	17	89
35.52	San Jacinto;SBV+SJV+A+CC+B+SM	CA	n/a	90	V	strike slip	0.1	15	241
35.52	San Jacinto;SBV+SJV+A+CC+B	CA	n/a	90	V	strike slip	0.1	15	215
35.52	San Jacinto;SBV+SJV+A+CC	CA	n/a	90	V	strike slip	0	16	181
35.52	San Jacinto;SBV+SJV+A+C	CA	n/a	90	V	strike slip	0	17	181
35.52	San Jacinto;SBV+SJV+A	CA	n/a	90	V	strike slip	0	16	134
37.90	San Jacinto;SBV	CA	6	90	V	strike slip	0	16	45
42.59	Newport Inglewood Connected alt 1	CA	1.3	89		strike slip	0	11	208
42.59	Newport Inglewood Connected alt 2	CA	1.3	90	V	strike slip	0	11	208
42.59	Newport-Inglewood (Offshore)	CA	1.5	90	V	strike slip	0	10	66
49.36	Puente Hills (Coyote Hills)	CA	0.7	26	N	thrust	2.8	15	17
51.40	Newport-Inglewood, alt 1	CA	1	88		strike slip	0	15	65
51.91	S. San Andreas;CH+CC+BB+NM+SM+NSB+SSB	CA	n/a	90	V	strike slip	0	14	384
51.91	S. San Andreas;CH+CC+BB+NM+SM+NSB+SSB+BG+CO	CA	n/a	86		strike slip	0.1	13	512

51.91	S. San Andreas;SSB+BG	CA	n/a	71		strike slip	0	13	101
51.91	S. San Andreas;NSB+SSB+BG+CO	CA	n/a	79		strike slip	0.2	12	206
51.91	S. San Andreas;CC+BB+NM+SM+NSB+SSB	CA	n/a	90	V	strike slip	0	14	322
51.91	S. San Andreas;CC+BB+NM+SM+NSB+SSB+BG	CA	n/a	85		strike slip	0	14	380
51.91	S. San Andreas;CC+BB+NM+SM+NSB+SSB+BG+CO	CA	n/a	86		strike slip	0.1	13	449
51.91	S. San Andreas;CH+CC+BB+NM+SM+NSB+SSB+BG	CA	n/a	86		strike slip	0	14	442
51.91	S. San Andreas;NM+SM+NSB+SSB	CA	n/a	90	V	strike slip	0	13	213
51.91	S. San Andreas;NM+SM+NSB+SSB+BG	CA	n/a	83		strike slip	0	14	271
51.91	S. San Andreas;NM+SM+NSB+SSB+BG+CO	CA	n/a	84		strike slip	0.1	13	340
51.91	S. San Andreas;NSB+SSB	CA	n/a	90	V	strike slip	0	13	79
51.91	S. San Andreas;NSB+SSB+BG	CA	n/a	75		strike slip	0	14	136
51.91	S. San Andreas;PK+CH+CC+BB+NM+SM+NSB+SSB	CA	n/a	90	V	strike slip	0.1	13	421
51.91	S. San Andreas;PK+CH+CC+BB+NM+SM+NSB+SSB+BG	CA	n/a	86		strike slip	0.1	13	479
51.91	S. San Andreas;PK+CH+CC+BB+NM+SM+NSB+SSB+BG+CO	CA	n/a	86		strike slip	0.1	13	548
51.91	S. San Andreas;SM+NSB+SSB	CA	n/a	90	V	strike slip	0	13	176
51.91	S. San Andreas;SM+NSB+SSB+BG	CA	n/a	81		strike slip	0	13	234
51.91	S. San Andreas;SM+NSB+SSB+BG+CO	CA	n/a	83		strike slip	0.1	13	303
51.91	S. San Andreas;SSB	CA	16	90	V	strike slip	0	13	43
51.91	S. San Andreas;SSB+BG+CO	CA	n/a	77		strike slip	0.2	12	170
51.91	S. San Andreas;BB+NM+SM+NSB+SSB	CA	n/a	90	V	strike slip	0	14	263
51.91	S. San Andreas;BB+NM+SM+NSB+SSB+BG	CA	n/a	84		strike slip	0	14	321
51.91	S. San Andreas;BB+NM+SM+NSB+SSB+BG+CO	CA	n/a	85		strike slip	0.1	13	390

52.27	S. San Andreas;CC+BB+NM+SM+NSB	CA	n/a	90	V	strike slip	0	14	279
52.27	S. San Andreas;PK+CH+CC+BB+NM+SM+NSB	CA	n/a	90	V	strike slip	0.1	13	377
52.27	S. San Andreas;BB+NM+SM+NSB	CA	n/a	90	V	strike slip	0	14	220
52.27	S. San Andreas;NM+SM+NSB	CA	n/a	90	V	strike slip	0	13	170
52.27	S. San Andreas;CH+CC+BB+NM+SM+NSB	CA	n/a	90	V	strike slip	0	14	341
52.27	S. San Andreas;SM+NSB	CA	n/a	90	V	strike slip	0	13	133
52.27	S. San Andreas;NSB	CA	22	90	V	strike slip	0	13	35
52.43	Cucamonga	CA	5	45	N	thrust	0	8	28
53.04	San Jose	CA	0.5	74	NW	strike slip	0	15	20
53.33	Elsinore;J	CA	3	84	NE	strike slip	0	19	75
53.33	Elsinore;J+CM	CA	3	84	NE	strike slip	0	17	118
57.01	Sierra Madre	CA	2	53	N	reverse	0	14	57
57.01	Sierra Madre Connected	CA	2	51		reverse	0	14	76
61.28	S. San Andreas;BG+CO	CA	n/a	72		strike slip	0.3	12	125
61.28	S. San Andreas;BG	CA	n/a	58		strike slip	0	13	56
63.55	Puente Hills (Santa Fe Springs)	CA	0.7	29	N	thrust	2.8	15	11
64.12	Rose Canyon	CA	1.5	90	V	strike slip	0	8	70
64.37	Cleghorn	CA	3	90	V	strike slip	0	16	25
66.59	Palos Verdes Connected	CA	3	90	V	strike slip	0	10	285
66.59	Palos Verdes	CA	3	90	V	strike slip	0	14	99
67.62	Coronado Bank	CA	3	90	V	strike slip	0	9	186
69.34	North Frontal (West)	CA	1	49	S	reverse	0	16	50
69.91	S. San Andreas;CH+CC+BB+NM+SM	CA	n/a	90	V	strike slip	0	14	306

69.91	S. San Andreas;CC+BB+NM+SM	CA	n/a	90	V	strike slip	0	14	243
69.91	S. San Andreas;BB+NM+SM	CA	n/a	90	V	strike slip	0	14	184
69.91	S. San Andreas;NM+SM	CA	n/a	90	V	strike slip	0	14	134
69.91	S. San Andreas;PK+CH+CC+BB+NM+SM	CA	n/a	90	V	strike slip	0.1	13	342
69.91	S. San Andreas;SM	CA	29	90	V	strike slip	0	13	98
73.25	Clamshell-Sawpit	CA	0.5	50	NW	reverse	0	14	16
73.37	Pinto Mtn	CA	2.5	90	V	strike slip	0	16	74
74.39	Puente Hills (LA)	CA	0.7	27	N	thrust	2.1	15	22
75.61	Raymond	CA	1.5	79	N	strike slip	0	16	22
77.36	Elysian Park (Upper)	CA	1.3	50	NE	reverse	3	15	20
82.68	San Jacinto;CC+B+SM	CA	n/a	90	V	strike slip	0.2	14	103
82.68	San Jacinto;CC+B	CA	n/a	90	V	strike slip	0.2	14	77
82.68	San Jacinto;CC	CA	4	90	V	strike slip	0	16	43
84.64	San Jacinto;C	CA	14	90	V	strike slip	0	17	47
85.30	Verdugo	CA	0.5	55	NE	reverse	0	15	29
87.30	Helendale-So Lockhart	CA	0.6	90	V	strike slip	0	13	114
89.21	North Frontal (East)	CA	0.5	41	S	thrust	0	16	27
90.57	Hollywood	CA	1	70	N	strike slip	0	17	17
94.35	Santa Monica Connected alt 2	CA	2.4	44		strike slip	0.8	11	93
94.39	Earthquake Valley	CA	2	90	V	strike slip	0	19	20
96.11	Burnt Mtn	CA	0.6	67	W	strike slip	0	16	21
99.76	Lenwood-Lockhart-Old Woman Springs	CA	0.9	90	V	strike slip	0	13	145

Search Results

1 of 1 earthquakes in map area.

Click for more information

6.5 **Gulf of Santa Catalina, California**
1800-11-22 21:30:00 (UTC) –

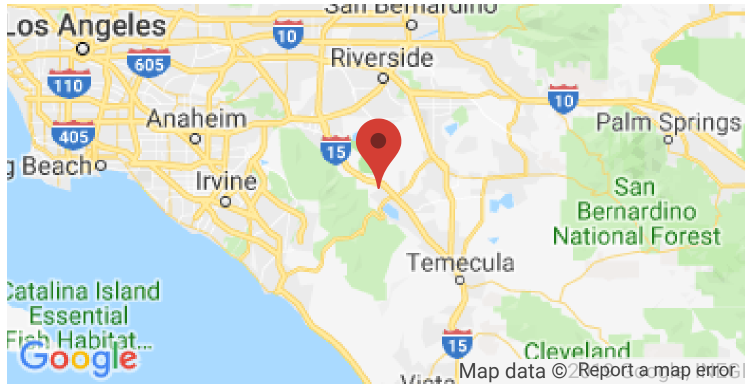
Didn't find what you were looking for?

- Check your Settings.
- Which earthquakes are included on the map and list?
- Felt something not shown – report it here.

Earthquakes updated

Hazards by Location

Search Information



Address: 28915 Lake St, Lake Elsinore, CA 92530, USA

Coordinates: 33.69979679999999, -117.391232

Elevation: ft

Timestamp: 2019-09-03T20:26:42.011Z

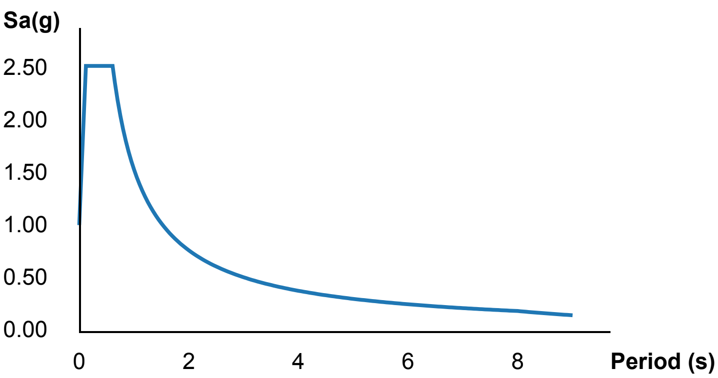
Hazard Type: Seismic

Reference Document: ASCE7-10

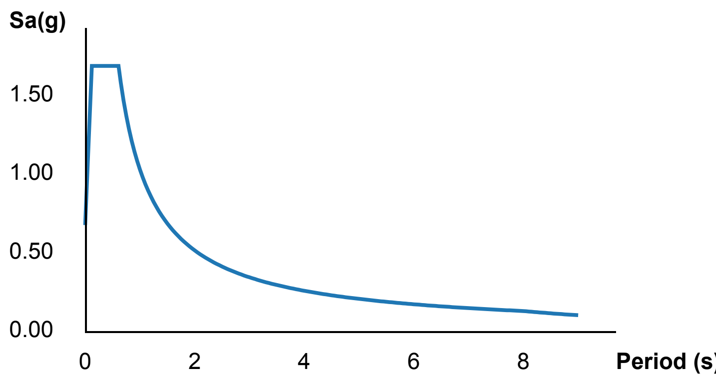
Risk Category: II

Site Class: D

MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	2.53	MCE_R ground motion (period=0.2s)
S_1	1.028	MCE_R ground motion (period=1.0s)
S_{MS}	2.53	Site-modified spectral acceleration value
S_{M1}	1.542	Site-modified spectral acceleration value
S_{DS}	1.687	Numeric seismic design value at 0.2s SA
S_{D1}	1.028	Numeric seismic design value at 1.0s SA

▾Additional Information

Name	Value	Description
SDC	E	Seismic design category
F_a	1	Site amplification factor at 0.2s
F_v	1.5	Site amplification factor at 1.0s

CR_S	0.901	Coefficient of risk (0.2s)
CR_1	0.884	Coefficient of risk (1.0s)
PGA	1.023	MCE_G peak ground acceleration
F_{PGA}	1	Site amplification factor at PGA
PGA_M	1.023	Site modified peak ground acceleration
T_L	8	Long-period transition period (s)
SsRT	2.53	Probabilistic risk-targeted ground motion (0.2s)
SsUH	2.809	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	2.652	Factored deterministic acceleration value (0.2s)
S1RT	1.028	Probabilistic risk-targeted ground motion (1.0s)
S1UH	1.162	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
S1D	1.214	Factored deterministic acceleration value (1.0s)
PGAd	1.023	Factored deterministic acceleration value (PGA)

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Disclaimer

Hazard loads are provided by the U.S. Geological Survey Seismic Design Web Services.

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APPENDIX E

GENERAL EARTHWORK AND GRADING SPECIFICATIONS

EARTH-STRATA

General Earthwork and Grading Specifications

General

Intent: These General Earthwork and Grading Specifications are intended to be the minimum requirements for the grading and earthwork shown on the approved grading plan(s) and/or indicated in the geotechnical report(s). These General Earthwork and Grading Specifications should be considered a part of the recommendations contained in the geotechnical report(s) and if they are in conflict with the geotechnical report(s), the specific recommendations in the geotechnical report shall supersede these more general specifications. Observations made during earthwork operations by the project Geotechnical Consultant may result in new or revised recommendations that may supersede these specifications and/or the recommendations in the geotechnical report(s).

The Geotechnical Consultant of Record: The Owner shall employ a qualified Geotechnical Consultant of Record (Geotechnical Consultant), prior to commencement of grading or construction. The Geotechnical Consultant shall be responsible for reviewing the approved geotechnical report(s) and accepting the adequacy of the preliminary geotechnical findings, conclusions, and recommendations prior to the commencement of the grading or construction.

Prior to commencement of grading or construction, the Owner shall coordinate with the Geotechnical Consultant, and Earthwork Contractor (Contractor) to schedule sufficient personnel for the appropriate level of observation, mapping, and compaction testing.

During earthwork and grading operations, the Geotechnical Consultant shall observe, map, and document the subsurface conditions to confirm assumptions made during the geotechnical design phase of the project. Should the observed conditions differ significantly from the interpretive assumptions made during the design phase, the Geotechnical Consultant shall recommend appropriate changes to accommodate the observed conditions, and notify the reviewing agency where required.

The Geotechnical Consultant shall observe the moisture conditioning and processing of the excavations and fill materials. The Geotechnical Consultant should perform periodic relative density testing of fill materials to verify that the attained level of compaction is being accomplished as specified.

The Earthwork Contractor: The Earthwork Contractor (Contractor) shall be qualified, experienced, and knowledgeable in earthwork logistics, preparation and processing of earth materials to receive compacted fill, moisture-conditioning and processing of fill, and compacting fill. The Contractor shall be provided with the approved grading plans and geotechnical report(s) for his review and acceptance of responsibilities, prior to commencement of grading. The Contractor shall be solely responsible for performing the grading in accordance with the approved grading plans and geotechnical report(s). Prior to commencement of grading, the Contractor shall prepare and submit to the Owner and the Geotechnical Consultant a work plan that indicates the sequence of earthwork grading, the number of "equipment" of work and the estimated quantities of daily earthwork contemplated for the site. The Contractor shall inform the Owner and the Geotechnical Consultant of work schedule changes and revisions to the work plan at least 24 hours in advance of such changes so that appropriate personnel will be available for observation and testing. No assumptions shall be made by the Contractor with regard to whether the Geotechnical Consultant is aware of all grading operations.

It is the sole responsibility of the Contractor to provide adequate equipment and methods to accomplish the earthwork operations in accordance with the applicable grading codes and agency ordinances, these specifications, and the recommendations in the approved geotechnical report(s) and grading plan(s). At the sole discretion of the Geotechnical Consultant, any unsatisfactory conditions, such as unsuitable earth materials, improper moisture conditioning, inadequate compaction, insufficient buttress keyway size, adverse weather conditions, etc., resulting in a quality of work less than required in the approved grading plans and geotechnical report(s), the Geotechnical Consultant shall reject the work and may recommend to the Owner that grading be stopped until conditions are corrected.

Preparation of Areas for Compacted Fill

Clearing and Grubbing: Vegetation, such as brush, grass, roots, and other deleterious material shall be sufficiently removed and properly disposed in a method acceptable to the Owner, Geotechnical Consultant, and governing agencies.

The Geotechnical Consultant shall evaluate the extent of these removals on a site by site basis. Earth materials to be placed as compacted fill shall not contain more than 1 percent organic materials (by volume). No compacted fill lift shall contain more than 10 percent organic matter.

Should potentially hazardous materials be encountered, the Contractor shall stop work in the affected area, and a hazardous materials specialist shall immediately be consulted to evaluate the potentially hazardous materials, prior to continuing to work in that area.

It is our understanding that the State of California defines most refined petroleum products (gasoline, diesel fuel, motor oil, grease, coolant, etc.) as hazardous waste. As such, indiscriminate dumping or spillage of these fluids may constitute a misdemeanor, punishable by fines and/or imprisonment, and shall be prohibited. The contractor is responsible for all hazardous waste related to his operations. The Geotechnical Consultant does not have expertise in this area. If hazardous waste is a concern, then the Owner should contract the services of a qualified environmental assessor.

Processing: Exposed earth materials that have been observed to be satisfactory for support of compacted fill by the Geotechnical Consultant shall be scarified to a minimum depth of 6 inches. Exposed earth materials that are not observed to be satisfactory shall be removed or alternative recommendations may be provided by the Geotechnical Consultant. Scarification shall continue until the exposed earth materials are broken down and free of oversize material and the working surface is reasonably uniform, flat, and free of uneven features that would inhibit uniform compaction. The earth materials should be moistened or air dried to near optimum moisture content, prior to compaction.

Overexcavation: The Cut Lot Typical Detail and Cut/Fill Transition Lot Typical Detail, included herein provides a graphic illustration that depicts typical overexcavation recommendations made in the approved geotechnical report(s) and/or grading plan(s).

Keyways and Benching: Where fills are to be placed on slopes steeper than 5:1 (horizontal to vertical units), the ground shall be thoroughly benched as compacted fill is placed. Please see the three Keyway and Benching Typical Details with subtitles Cut Over Fill Slope, Fill Over Cut Slope, and Fill Slope for a graphic illustration. The lowest bench or smallest keyway shall be a minimum of 15 feet wide (or ½ the proposed slope height) and at least 2 feet into competent earth materials as advised by the Geotechnical Consultant. Typical benches shall be excavated a minimum height of 4 feet into competent earth materials or as recommended by the Geotechnical Consultant. Fill placed on slopes steeper than 5:1 should be thoroughly benched or otherwise excavated to provide a flat subgrade for the compacted fill.

Evaluation/Acceptance of Bottom Excavations: All areas to receive compacted fill (bottom excavations), including removal excavations, processed areas, keyways, and benching, shall be observed, mapped, general elevations recorded, and/or tested prior to being accepted by the Geotechnical Consultant as suitable to receive compacted fill. The Contractor shall obtain a written acceptance from the Geotechnical Consultant prior to placing compacted fill. A licensed surveyor shall provide the survey control for determining elevations of bottom excavations, processed areas, keyways, and benching. The Geotechnical Consultant is not responsible for erroneously located, fills, subdrain systems, or excavations.

Fill Materials

General: Earth material to be used as compacted fill should to a large extent be free of organic matter and other deleterious substances as evaluated and accepted by the Geotechnical Consultant.

Oversize: Oversize material is rock that does not break down into smaller pieces and has a maximum diameter greater than 8 inches. Oversize rock shall not be included within compacted fill unless specific methods and guidelines acceptable to the Geotechnical Consultant are followed. For examples of methods and guidelines of oversize rock placement see the enclosed Oversize Rock Disposal Detail. The inclusion of oversize materials in the compacted fill shall only be acceptable if the oversize material is completely surrounded by compacted fill or thoroughly jetted granular materials. No oversize material shall be placed within 10 vertical feet of finish grade or within 2 feet of proposed utilities or underground improvements.

Import: Should imported earth materials be required, the proposed import materials shall meet the requirements of the Geotechnical Consultant. Well graded, very low expansion potential earth materials free of organic matter and other deleterious substances are usually sought after as import materials. However, it is generally in the Owners best interest that potential import earth materials are provided to the Geotechnical Consultant to determine their suitability for the intended purpose. At least 48 hours should be allotted for the appropriate laboratory testing to be performed, prior to starting the import operations.

Fill Placement and Compaction Procedures

Fill Layers: Fill materials shall be placed in areas prepared to receive fill in nearly horizontal layers not exceeding 8 inches in loose thickness. Thicker layers may be accepted by the Geotechnical Consultant, provided field density testing indicates that the grading procedures can adequately compact the thicker layers. Each layer of fill shall be spread evenly and thoroughly mixed to obtain uniformity within the earth materials and consistent moisture throughout the fill.

Moisture Conditioning of Fill: Earth materials to be placed as compacted fill shall be watered, dried, blended, and/or mixed, as needed to obtain relatively uniform moisture contents that are at or slightly above optimum. The maximum density and optimum moisture content tests should be performed in accordance with the American Society of Testing and Materials (ASTM test method D1557-00).

Compaction of Fill: After each layer has been moisture-conditioned, mixed, and evenly spread, it should be uniformly compacted to a minimum of 90 percent of maximum dry density as determined by ASTM test method D1557-00. Compaction equipment shall be adequately sized and be either specifically designed for compaction of earth materials or be proven to consistently achieve the required level of compaction.

Compaction of Fill Slopes: In addition to normal compaction procedures specified above, additional effort to obtain compaction on slopes is needed. This may be accomplished by backrolling of slopes with sheepsfoot rollers as the fill is being placed, by overbuilding the fill slopes, or by other methods producing results that are satisfactory to the Geotechnical Consultant. Upon completion of grading, relative compaction of the fill and the slope face shall be a minimum of 90 percent of maximum density per ASTM test method D1557-00.

Compaction Testing of Fill: Field tests for moisture content and relative density of the compacted fill earth materials shall be periodically performed by the Geotechnical Consultant. The location and frequency of tests shall be at the Geotechnical Consultant's discretion based on field observations. Compaction test locations will not necessarily be random. The test locations may or may not be selected to verify minimum compaction requirements in areas that are typically prone to inadequate compaction, such as close to slope faces and near benching.

Frequency of Compaction Testing: Compaction tests shall be taken at minimum intervals of every 2 vertical feet and/or per 1,000 cubic yards of compacted materials placed. Additionally, as a guideline, at least one (1) test shall be taken on slope faces for each 5,000 square feet of slope face and/or for each 10 vertical feet of slope. The Contractor shall assure that fill placement is such that the testing schedule described herein can be accomplished by the Geotechnical Consultant. The Contractor shall stop or slow down the earthwork operations to a safe level so that these minimum standards can be obtained.

Compaction Test Locations: The approximate elevation and horizontal coordinates of each test location shall be documented by the Geotechnical Consultant. The Contractor shall coordinate with the Surveyor to assure that sufficient grade stakes are established. This will provide the Geotechnical Consultant with sufficient accuracy to determine the approximate test locations and elevations. The Geotechnical Consultant can not be responsible for staking erroneously located by the Surveyor or Contractor. A minimum of two grade stakes should be provided at a maximum horizontal distance of 100 feet and vertical difference of less than 5 feet.

Subdrain System Installation

Subdrain systems shall be installed in accordance with the approved geotechnical report(s), the approved grading plan, and the typical details provided herein. The Geotechnical Consultant may recommend additional subdrain systems and/or changes to the subdrain systems described herein, with regard to the extent, location, grade, or material depending on conditions encountered during grading or other factors. All subdrain systems shall be surveyed by a licensed land surveyor (except for retaining wall subdrain systems) to verify line and grade after installation and prior to burial. Adequate time should be allowed by the Contractor to complete these surveys.

Excavation

All excavations and over-excavations for remedial purposes shall be evaluated by the Geotechnical Consultant during grading operations. Remedial removal depths indicated on the geotechnical plans are estimates only. The actual removal depths and extent shall be determined by the Geotechnical Consultant based on the field evaluation of exposed conditions during grading operations. Where fill over cut slopes are planned, the cut portion of the slope shall be excavated, evaluated, and accepted by the Geotechnical Consultant prior to placement of the fill portion of the proposed slope, unless specifically addressed by the Geotechnical Consultant. Typical details for cut over fill slopes and fill over cut slopes are provided herein.

Trench Backfill

1) The Contractor shall follow all OHSA and Cal/OSHA requirements for trench excavation safety.

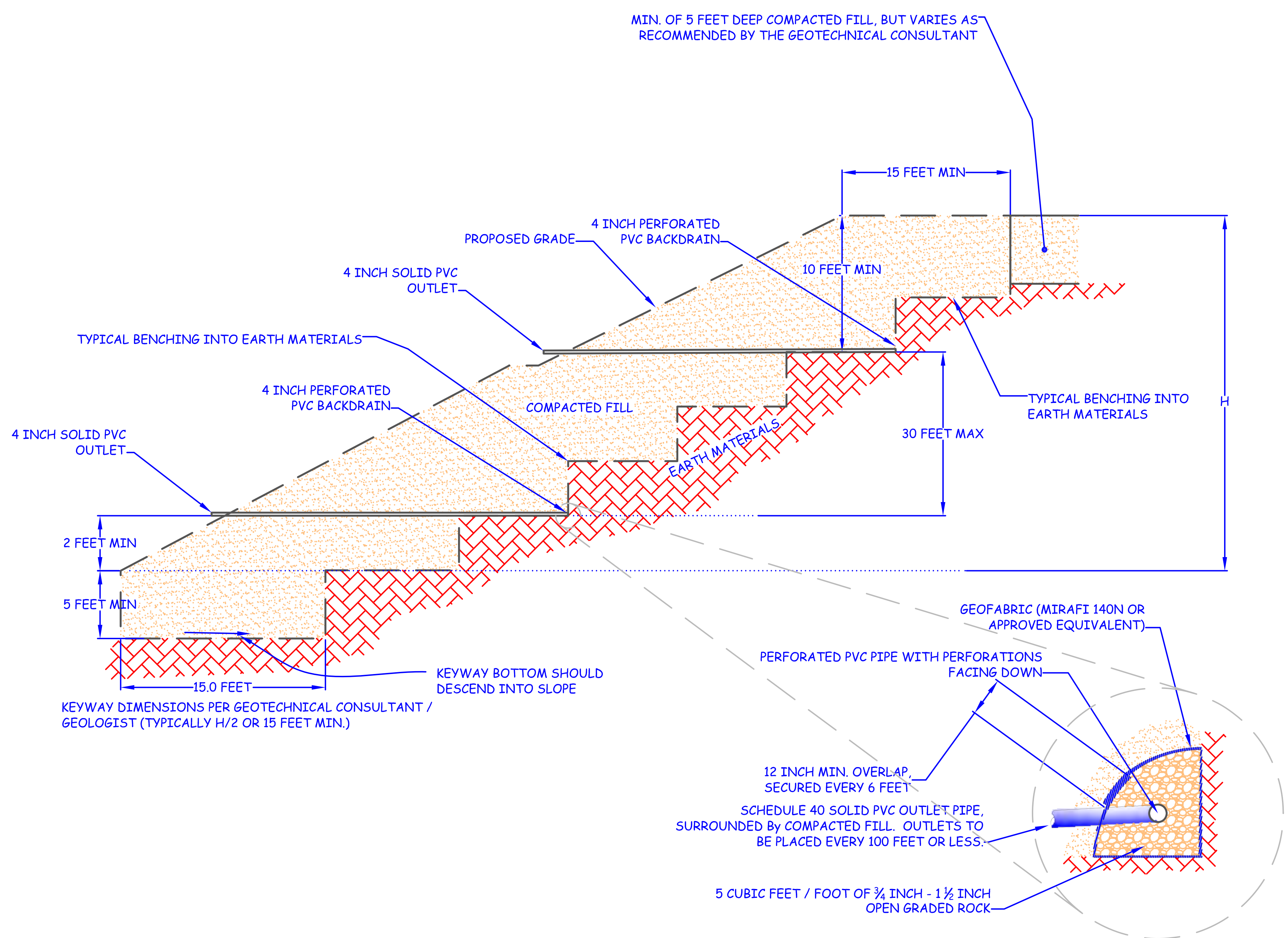
2) Bedding and backfill of utility trenches shall be done in accordance with the applicable provisions in the Standard Specifications of Public Works Construction. Bedding materials shall have a Sand Equivalency more than 30 (SE>30). The bedding shall be placed to 1 foot over the conduit and thoroughly jetting to provide densification. Backfill should be compacted to a minimum of 90 percent of maximum dry density, from 1 foot above the top of the conduit to the surface.

3) Jetting of the bedding materials around the conduits shall be observed by the Geotechnical Consultant.

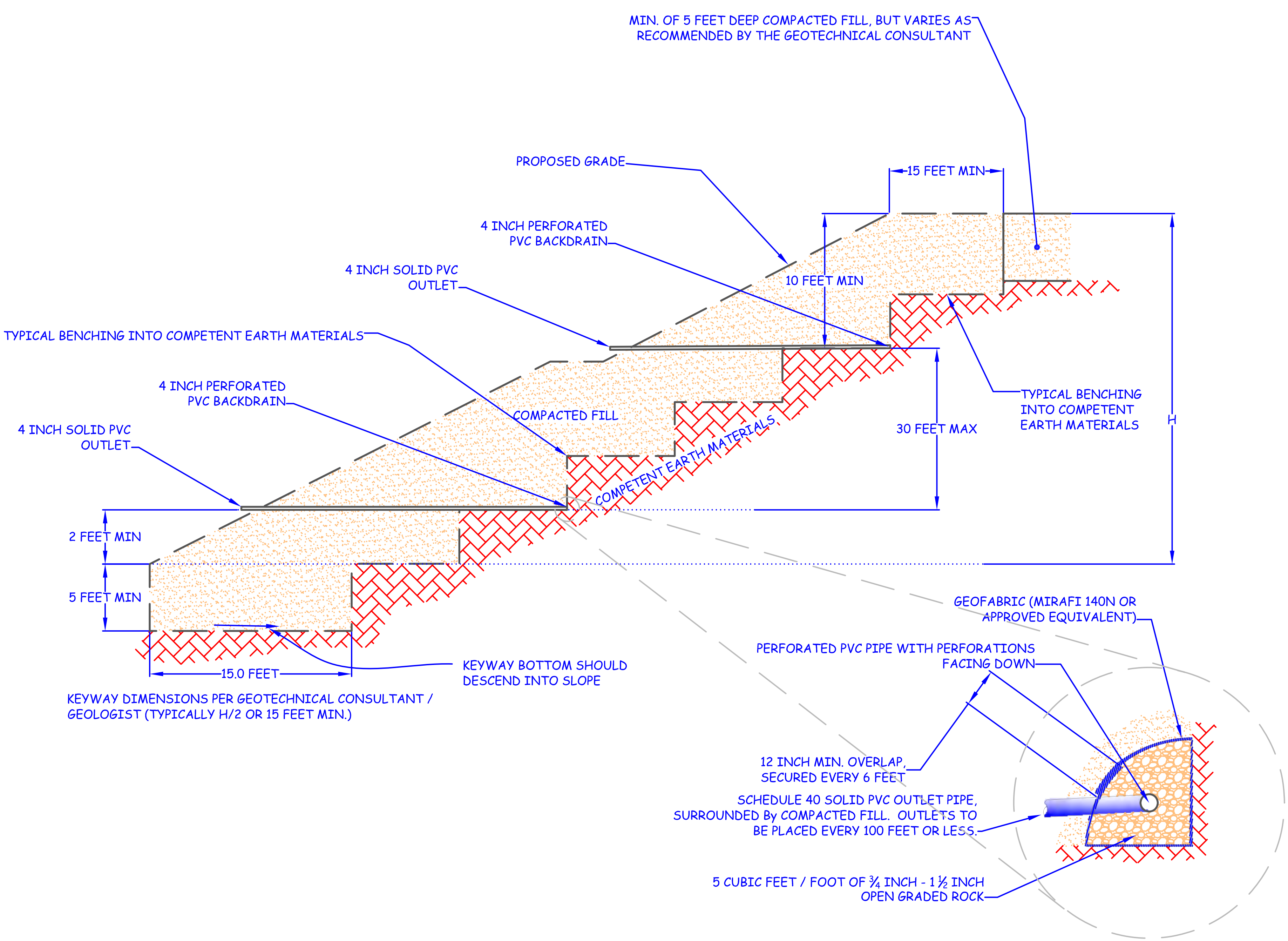
4) The Geotechnical Consultant shall test trench backfill for the minimum compaction requirements recommended herein. At least one test should be conducted for every 300 linear feet of trench and for each 2 vertical feet of backfill.

5) For trench backfill the lift thicknesses shall not exceed those allowed in the Standard Specifications of Public Works Construction, unless the Contractor can demonstrate to the Geotechnical Consultant that the fill lift can be compacted to the minimum relative compaction by his alternative equipment or method.

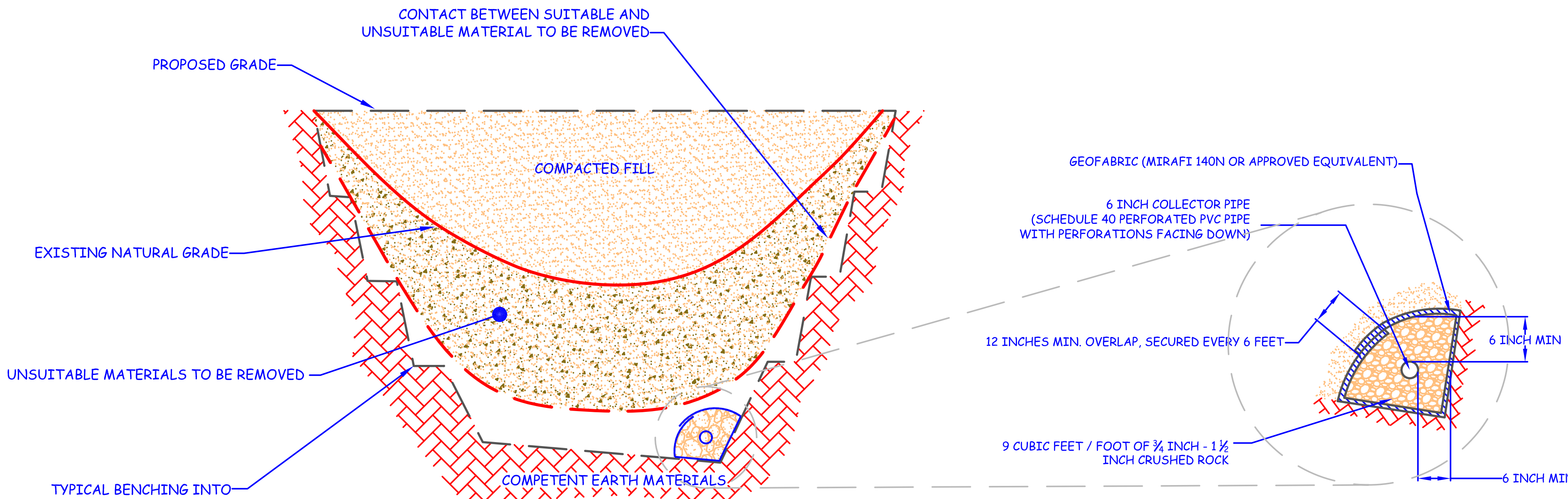
STABILIZATION FILL TYPICAL DETAIL



BUTTRESS TYPICAL DETAIL



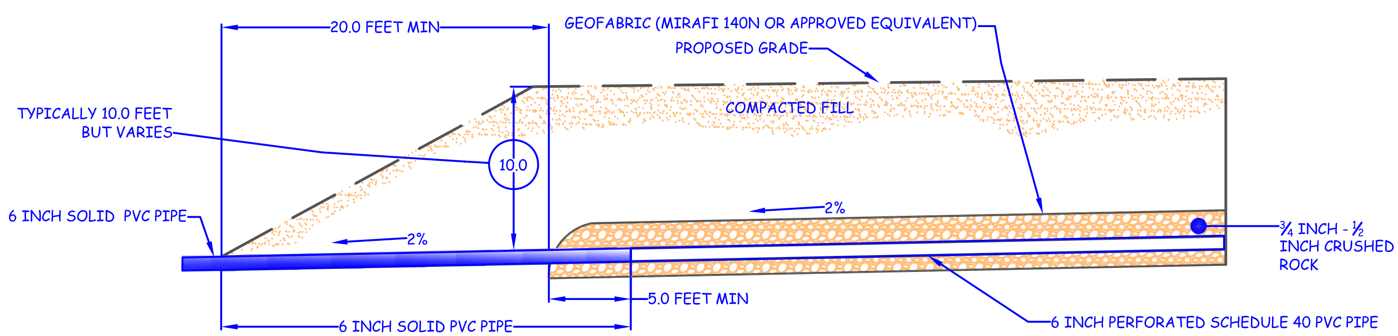
CANYON SUBDRAIN SYSTEM TYPICAL DETAIL



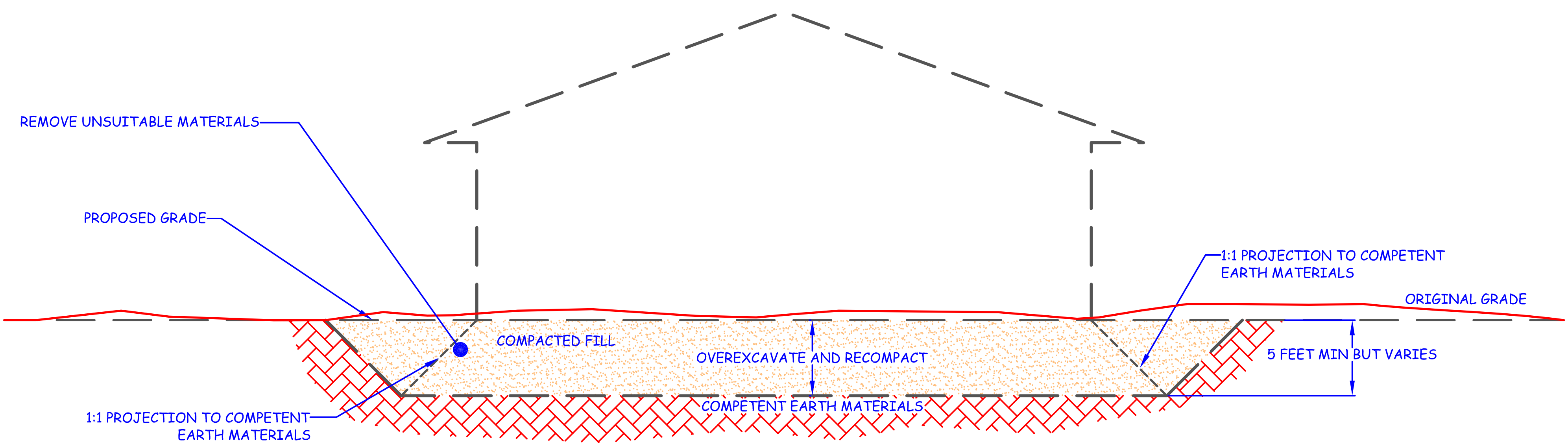
NOTES:
1 - CONTINUOUS RUNS IN EXCESS OF 500 FEET LONG WILL REQUIRE AN 8 INCH DIAMETER PIPE.

2 - FINAL 20 FEET OF PIPE AT OUTLET WILL BE SOLID AND BACKFILLED WITH COMPACTED FINE-GRAINED EARTH MATERIALS.

CANYON SUBDRAIN TYPICAL OUTLET



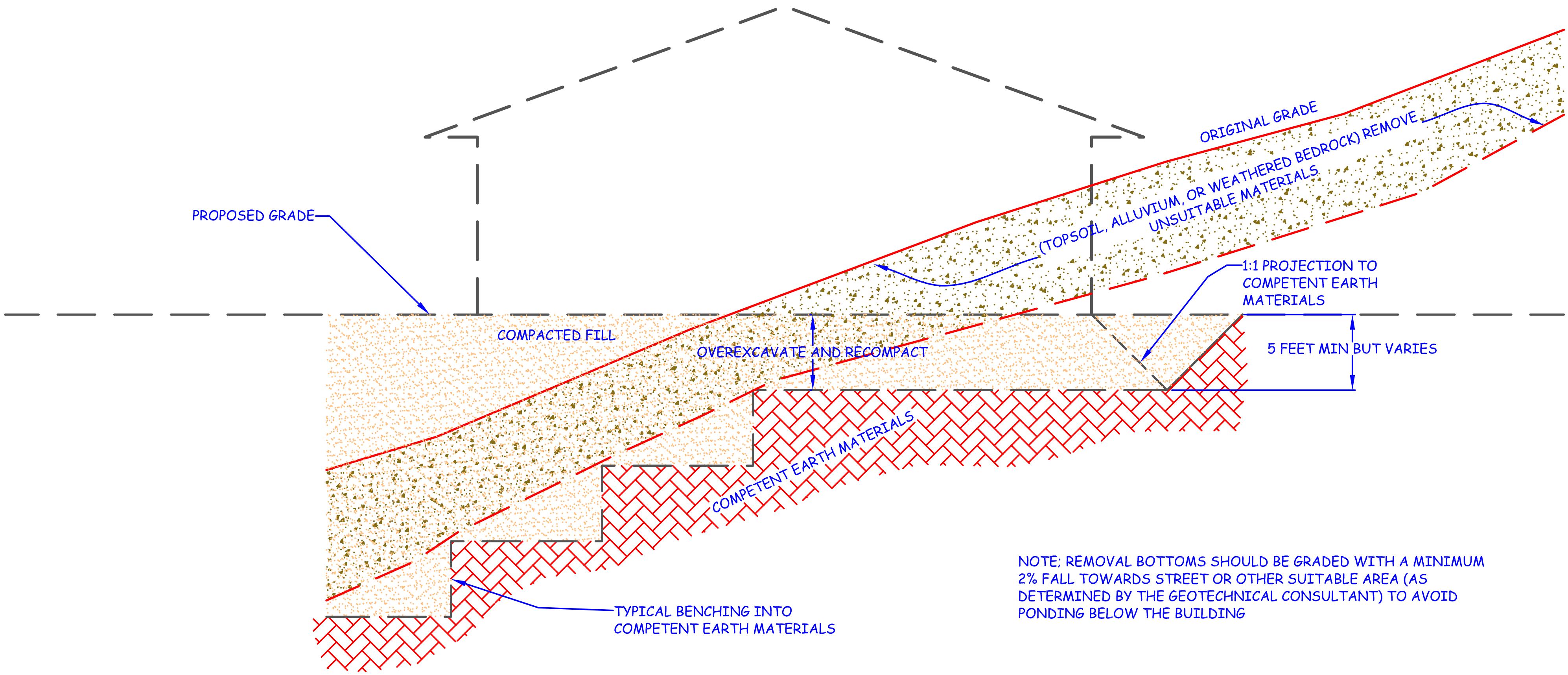
CUT LOT TYPICAL DETAIL



NOTE; REMOVAL BOTTOMS SHOULD BE GRADED WITH A MINIMUM 2% FALL TOWARDS STREET OR OTHER SUITABLE AREA (AS DETERMINED BY THE GEOTECHNICAL CONSULTANT) TO AVOID PONDING BELOW THE BUILDING

NOTE: WHERE DESIGN CUT LOTS ARE EXCAVATED ENTIRELY INTO COMPETENT EARTH MATERIALS, OVEREXCAVATION MAY STILL BY NEEDED FOR HARD-ROCK CONDITIONS OR MATERIALS WITH VARIABLE EXPANSION POTENTIALS

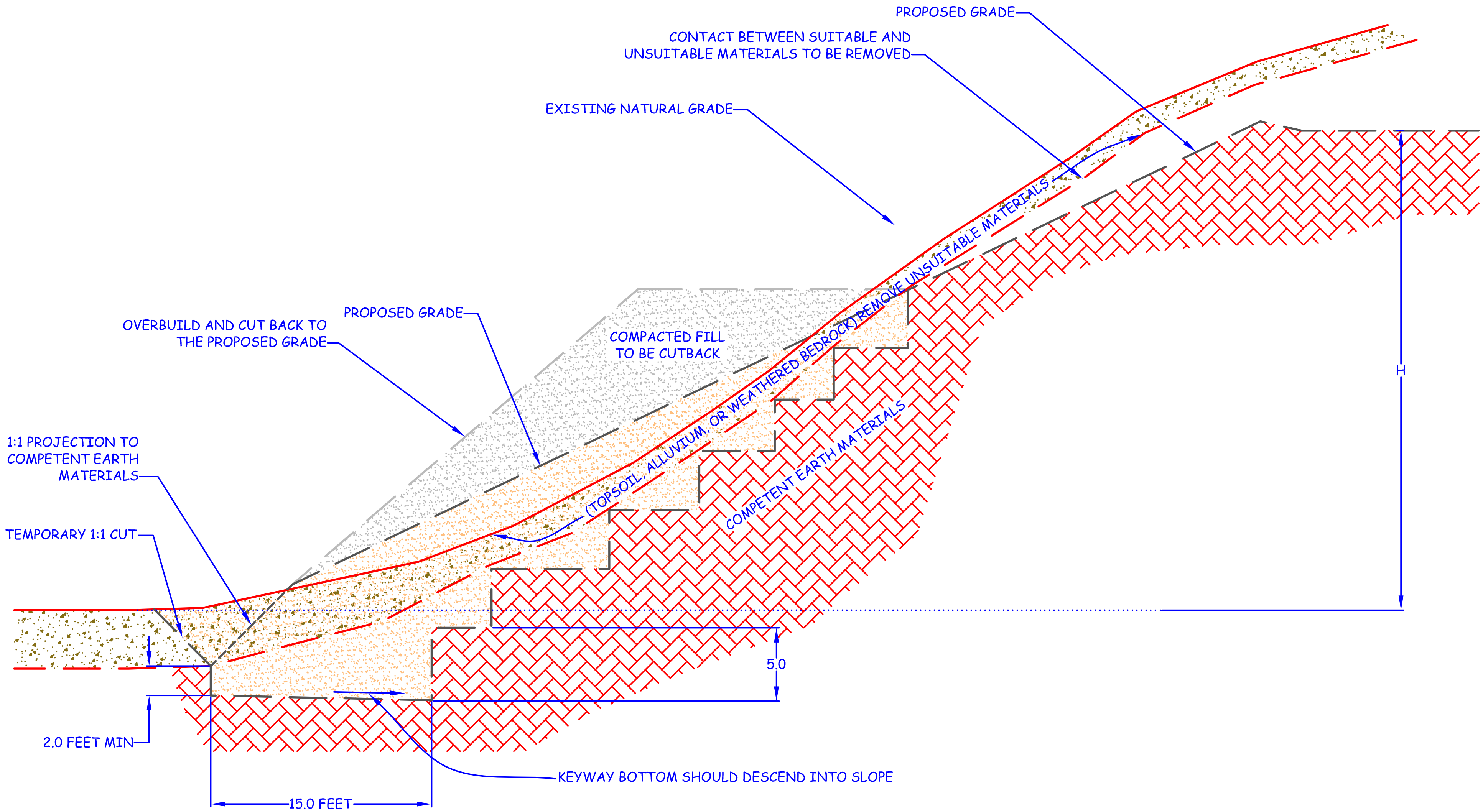
CUT / FILL TRANSITION LOT TYPICAL DETAIL



NOTE: REMOVAL BOTTOMS SHOULD BE GRADED WITH A MINIMUM 2% FALL TOWARDS STREET OR OTHER SUITABLE AREA (AS DETERMINED BY THE GEOTECHNICAL CONSULTANT) TO AVOID PONDING BELOW THE BUILDING

NOTE: WHERE DESIGN CUT LOTS ARE EXCAVATED ENTIRELY INTO COMPETENT EARTH MATERIALS, OVEREXCAVATION MAY STILL BY NEEDED FOR HARD-ROCK CONDITIONS OR MATERIALS WITH VARIABLE EXPANSION POTENTIALS

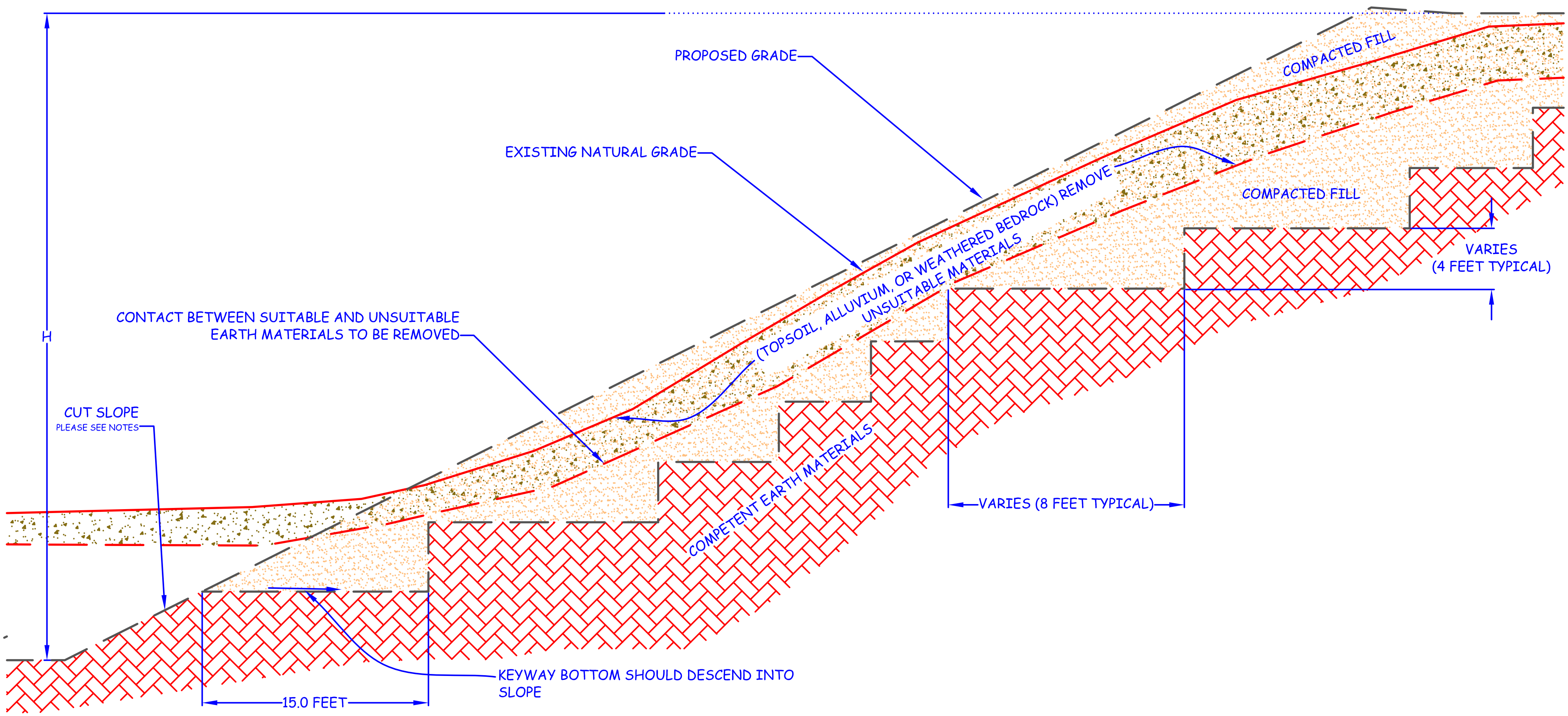
KEYWAY & BENCHING TYPICAL DETAILS
CUT OVER FILL SLOPE



NOTE:

NATURAL SLOPES STEEPER THAN 5:1 (H:V) MUST BE BENCHED INTO COMPETENT EARTH MATERIALS

KEYWAY & BENCHING TYPICAL DETAILS
FILL OVER CUT SLOPE



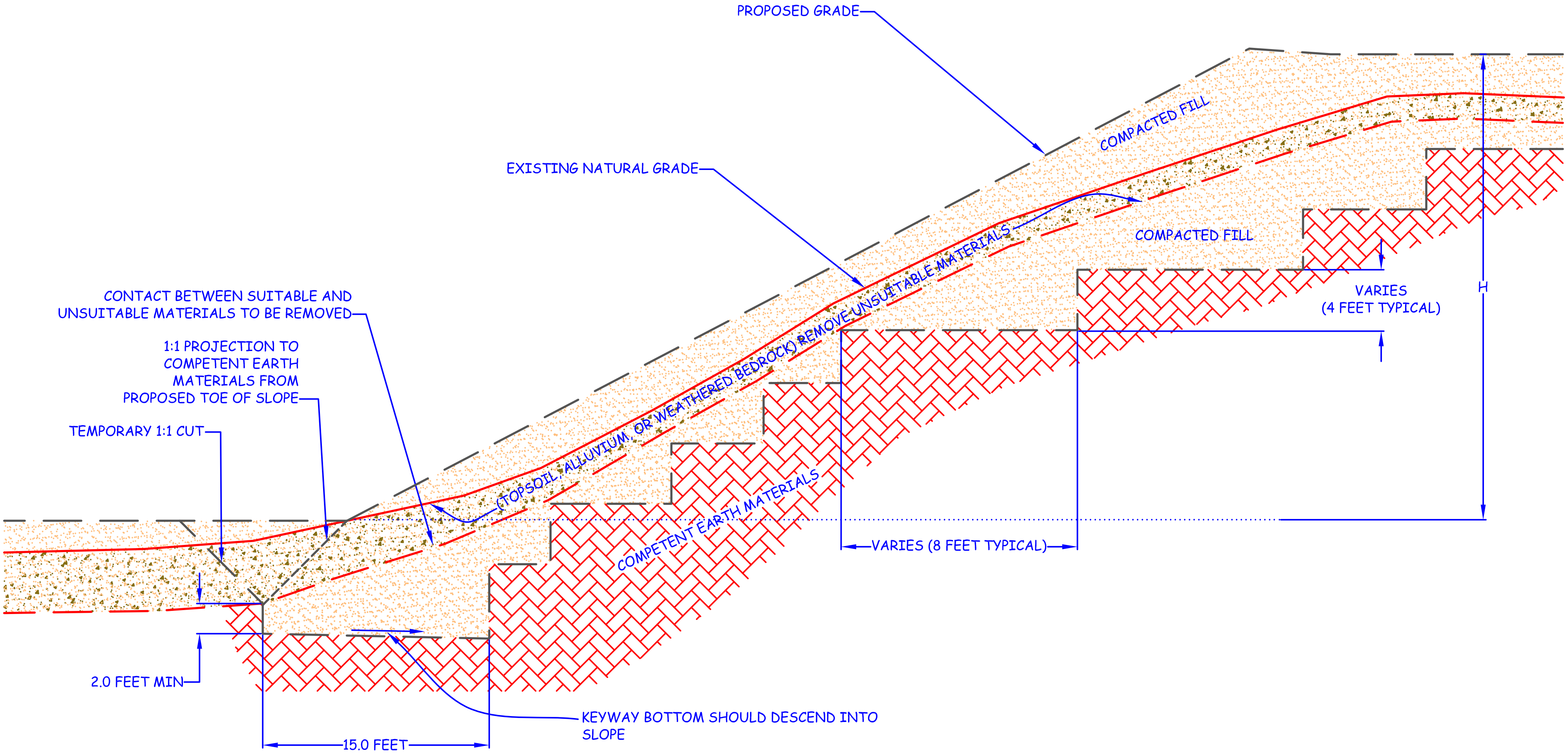
KEYWAY DIMENSIONS PER GEOTECHNICAL CONSULTANT /
GEOLOGIST (TYPICALLY H/2 OR 15 FEET MIN.)

NOTES:

NATURAL SLOPES STEEPER THAN 5:1 (H:V) MUST BE
BENCHED INTO COMPETENT EARTH MATERIALS

THE CUT SLOPE MUST BE CONSTRUCTED FIRST

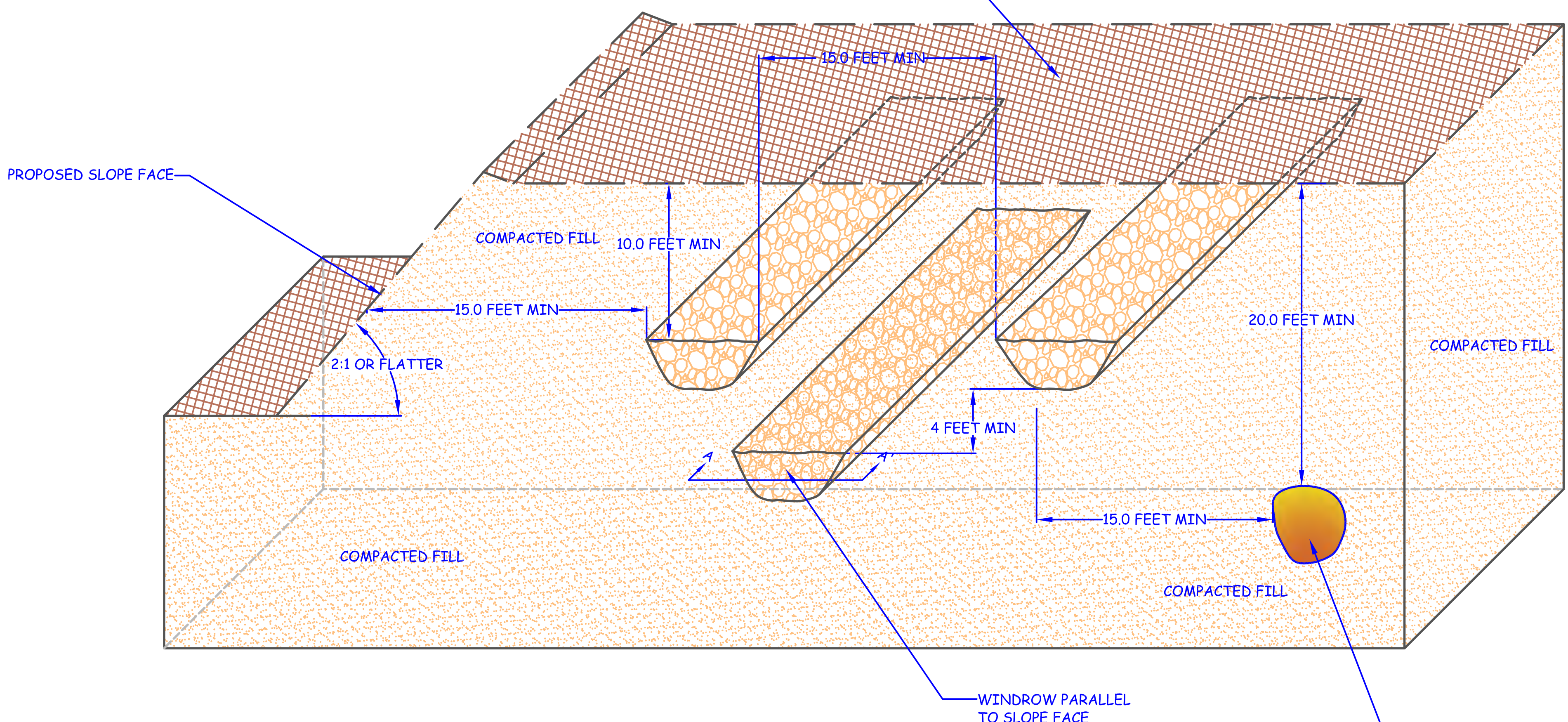
KEYWAY & BENCHING TYPICAL DETAILS
FILL SLOPE



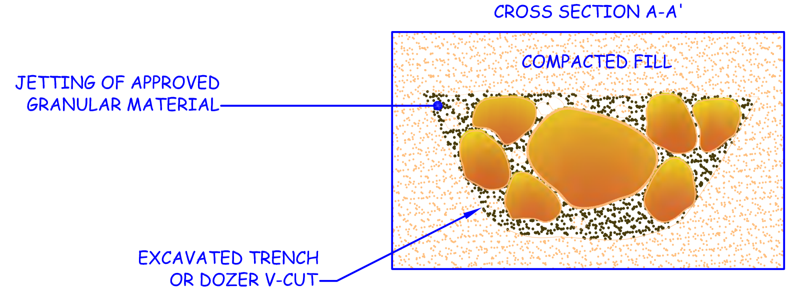
NOTES:

NATURAL SLOPES STEEPER THAN 5:1 (H:V) MUST BE BENCHED INTO COMPETENT EARTH MATERIALS

OVERSIZE ROCK TYPICAL DETAIL

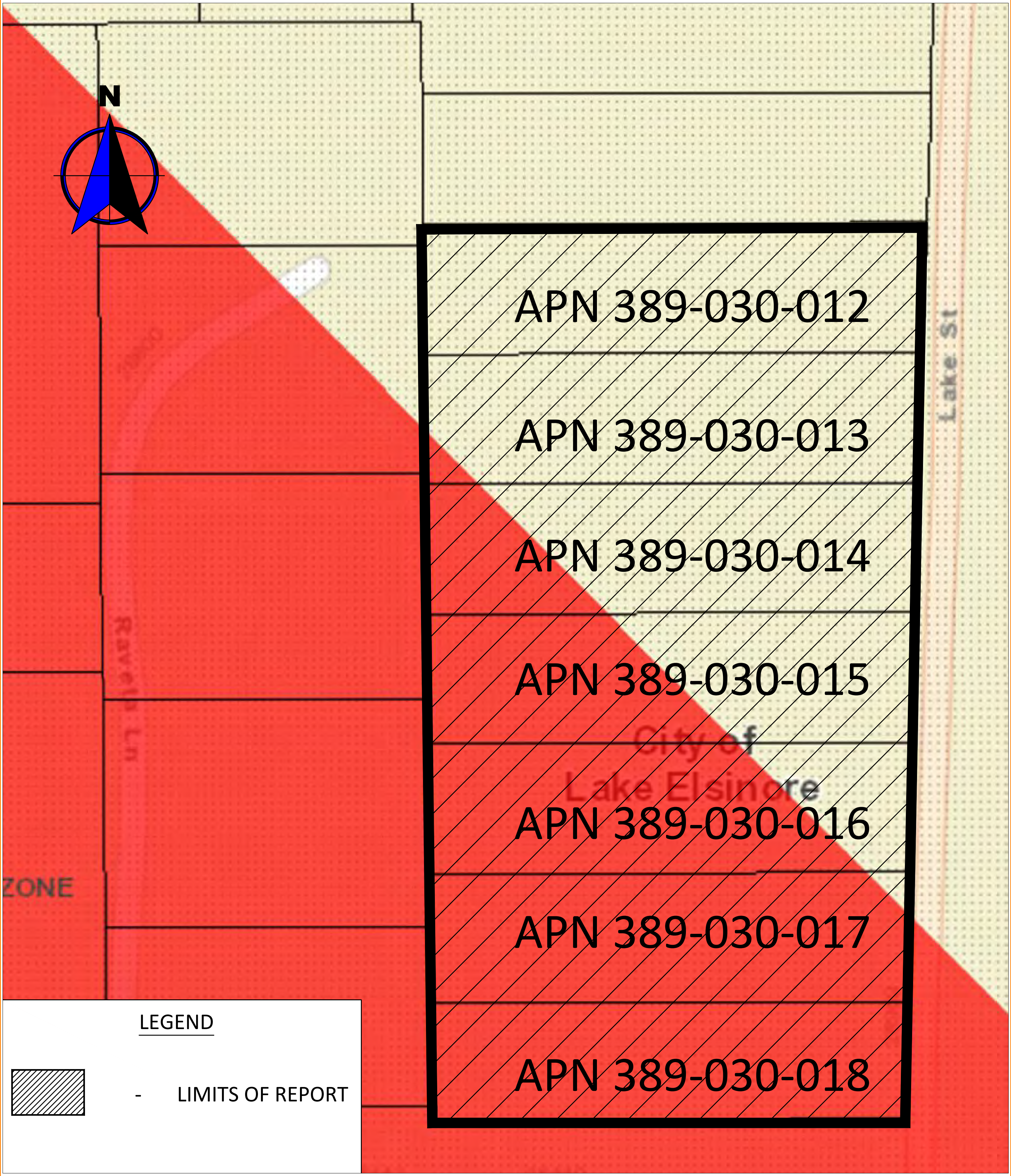


CROSS SECTION A-A'



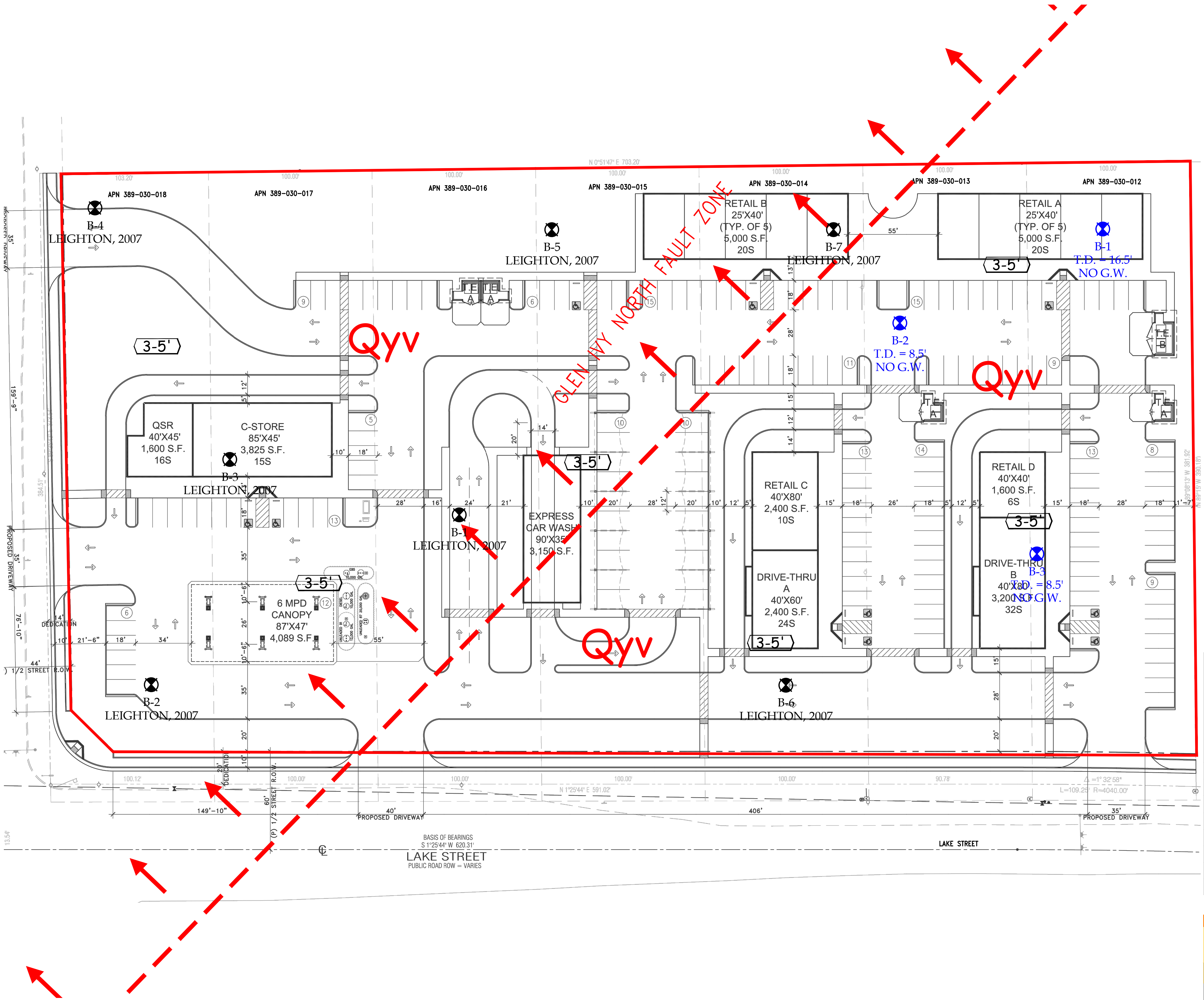
NOTES:

OVERSIZE ROCK IS LARGER THAN
8 INCHES IN MAX DIAMETER



REFFERENCES: MAP MY COUNTY V8.1, https://gis.countyofriverside.us/Html5Viewer/?viewer=MMC_Public

Earth - Strata, Inc. Geotechnical, Environmental and Materials Testing Consultants BETTER PEOPLE • BETTER SERVICE • BETTER RESULTS	PROPOSED COMMERCIAL DEVELOPMENT		192805-10A
	COUNTY FAULT MAP	SCALE: 1" = 100'	
		AUG 2019	FIGURE 3



LEGEND

Locations are Approximate

Geologic Units

Qyv - Quaternary Young Valley Deposits

Symbols

- Limits of Report

- Northeast Extent of County Fault Zone For Glen Ivy North Fault

B-3 T.D. = 8.5' NO G.W. - Boring Location
Including Total Depth and Depth to Groundwater

B-7 LEIGHTON, 2007 - Boring Location
By Leighton Consulting, Inc. May 2007

3-5' - Recommended Removal Depths

GEOTECHNICAL MAP

LOCATED AT 28915 LAKE STREET

CITY OF LAKE ELSINORE, RIVERSIDE COUNTY, CALIFORNIA

APN'S 389-030-012, -013, -014, -015, -016, 017 AND -018

PROJECT	PROPOSED COMMERCIAL DEVELOPMENT		
CLIENT	EMPIRE DESIGN GROUP, INC.		
PROJECT NO.	192805-10A		
DATE	AUGUST 2019		
SCALE	1:60		
DWG XREFS			
REVISION			
DRAWN BY	JDG	PLATE	1 OF 1

Earth Strata Geotechnical Services, Inc.

Geotechnical, Environmental and Materials Testing Consultants

www.ESGSINC.com (951) 397-8315

February 14, 2020

Earth Strata Geotechnical Services, Inc.

Geotechnical, Environmental and Materials Testing Consultants

Project No. 192805-70A

Mr. Greg Hann
EMPIRE DESIGN GROUP. INC.
24861 Washington Avenue
P.O. Box 944
Murrieta, CA 92562

Subject: **Response to the City of Lake Elsinore Review Comments Regarding Preliminary Geotechnical Interpretive Report for, Proposed Commercial Development, Assessor's Parcel Numbers 389-030-012 Through -018 City of Lake Elsinore, Riverside County, California**

Reference: *Preliminary Geotechnical Interpretive Report, Proposed Commercial Development, Assessor's Parcel Number 389-030-012 through -018, Located at 28915 Lake Street, City of Lake Elsinore, Riverside County, California*, dated September 3, 2019

Introduction

Earth Strata has prepared this response to the Review Comments letter for the above referenced project prepared by the City of Lake Elsinore dated December 26, 2019. The comment will be listed below followed by our response to each comment. The following changes and clarifications should be considered part of and attached to the report referenced above.

COMMENT NO. 9

9. "The Phase 1 ESA and City Records Show that parts of the project site fall within the county fault zone. The geotechnical report does not reference this."

Response – Acknowledged. According to Riverside County GIS reports, as show in Figure 3 of the referenced report, parcels 389-030-013 through -018 fall within a county fault zone.

COMMENT NO. 10

10. "Please provide copies of the past fault studies used for reference by the geotechnical report."

Response – The referenced reports were not provided. The references were taken from a previous report by Leighton Consulting Inc. The report by Leighton Consulting Inc., will be provided.

Leighton Consulting Inc., 2007, *Preliminary Geotechnical Investigation, Proposed Commercial Development, "Lake Street Marketplace", NWC Mountain Street and Lake Street, City of Lake Elsinore, California*, dated December 6

The opportunity to be of service is appreciated. Should you have any questions or require further clarification, please notify this office at your earliest convenience.

Respectfully submitted,

EARTH STRATA GEOTECHNICAL SERVICES, INC.

Stephen M. Poole, PE, GE
Principal Engineer

Aaron G. Wood, PG, CEG
Principal Geologist

Hogan Rangel, GIT
Staff Geologist

SMP/AGW/hr

Attachment: County of Riverside Review Comments Letter (Rear of Text)

Distribution: (2) Addressee

Engineering Department:

TA-GROUP 9. The Phase I ESA and City records show that parts of the project site fall within the County Fault Zone. The geotechnical report does not reference this.

GEO EARTH STRATA 10. Please provide copies of the pat fault studies used for reference by the geotechnical report.

EDG 11. There are TIF/TUMF credits available for improvements to Lake Street. The credits cannot overlap.

CIVIL 12. How many lots will be on the final map?

Storm Water Management / Pollution Prevention / NPDES

CIVIL 13. Site discharges to Lake – treat & release.

LANDSCAPE 14. Incorporate self-retaining/self-treating features into onsite landscape.

CIVIL 15. Where are Retail Buildings A & B discharging to?

CIVIL 16. Identify how flows exiting by way of the driveways are treated.

CIVIL 17. Full trash capture for onsite and adjacent offsite CBs.

CIVIL 18. How is the canopy area treated?

CIVIL 19. WQMP – Prelim & Final are required.
- Prelim WQMP must be approved prior to scheduling for Planning Commission
- Final WQMP must be approved prior to ANY PERMIT issuance.

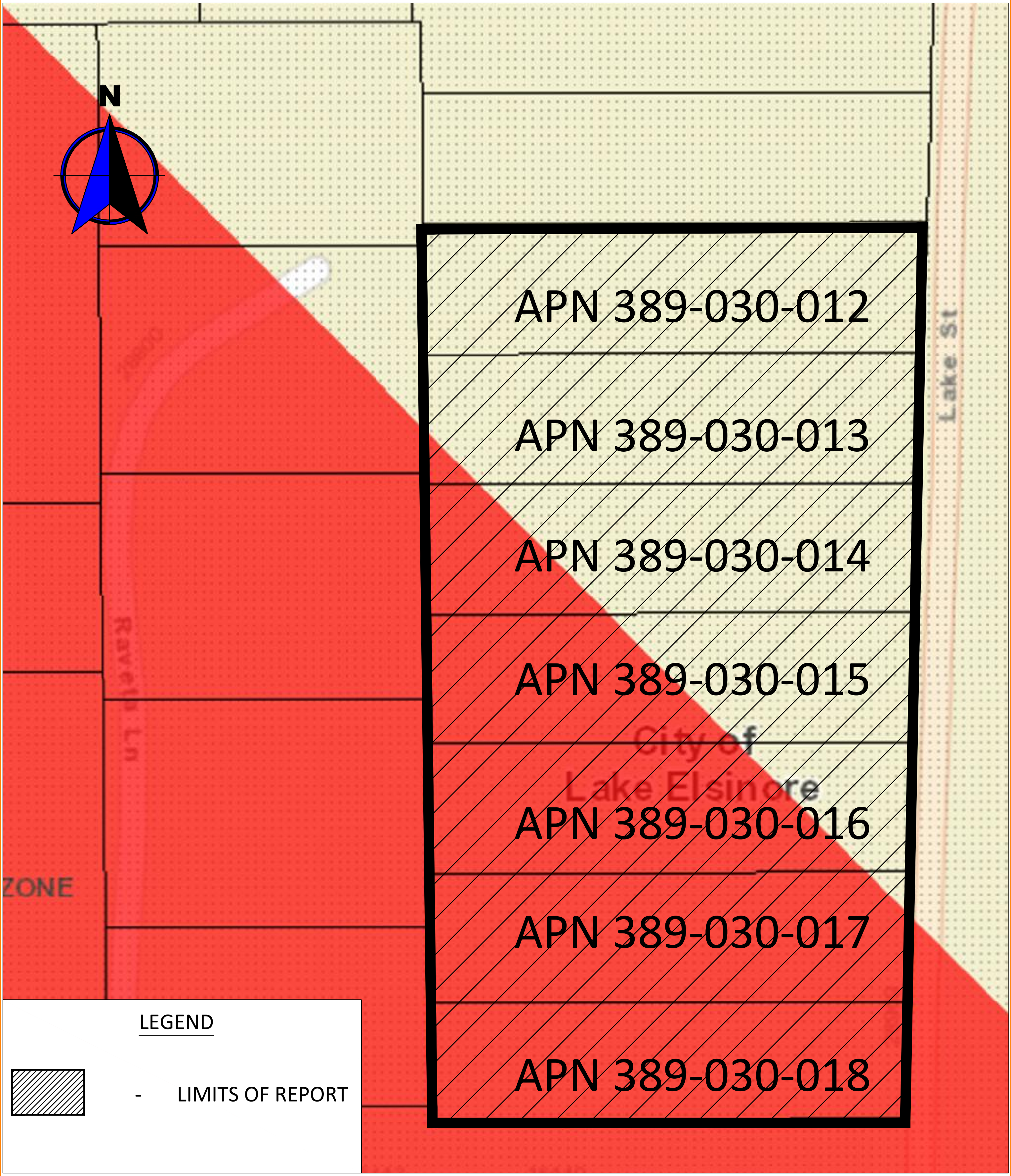
Fire Department:

EDG 20. Please see the attached comment letter dated December 5, 2019 from the Fire Department regarding this project.

Elsinore Valley Municipal Water District:

EDG 21. Please see the attached letter dated December 23, 2019 from the Water District regarding this project.

Please submit two (2) full size sets and eight (11X17) sets of the revised plans along with a digital copy (i.e. PDF format). If you have any questions or concerns regarding this letter, you may reach me by phone at (951) 674-3124, Ext. 913 or by e-mail at dabraham@lake-elsinore.org.



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Earth - Strata, Inc.
Geotechnical, Environmental and Materials Testing Consultants
BETTER PEOPLE • BETTER SERVICE • BETTER RESULTS

PROPOSED COMMERCIAL DEVELOPMENT		192805-10A
COUNTY FAULT MAP	SCALE: 1" = 100'	
	AUG 2019	FIGURE 3

Leighton Consulting, Inc.
A LEIGHTON GROUP COMPANY

May 11, 2009

Project No. 602051-001

Marinita Development Company
3835 Birch Street
Newport Beach, California 92660

Attention: Mr. David Garrison

Subject: Supplemental Geotechnical Report – Clarifications on Liquefaction at "Lake Street Marketplace", APN's 389-030-014 through -018, City of Lake Elsinore, California

Reference: Preliminary Geotechnical Investigation, Proposed Commercial Development "Lake Street Marketplace" NWC Mountain Street and Lake Street, City of Lake Elsinore, California, Project No. 602051-001, dated December 6, 2007.

In accordance with your request, we are providing this report to further describe the liquefaction potential at the subject site. As indicated in Section 2.5 of the referenced report, "the soils underlying the site have a very low potential for liquefaction due to their high relative density and lack of a shallow water table." The following is generally our basis for such a conclusion:

- The Older Alluvial Soils (Qalo), Late Pleistocene-aged alluvial soil is the major geologic unit underlying the site. This unit generally consists of moist, silty fine to coarse sand with an N-value (Standard Penetration Test) of at least 30 blows per foot within the depth explored. This relatively high N-value is indicative of dense to very dense soil that is not prone to liquefaction. This unit is expected to extend to a greater depth and be further underlain by very dense granitic bedrock.
- Groundwater was not encountered in any of the exploratory borings performed on this site to a maximum depth of 30 feet. Based on in-house data and historic records, groundwater is expected to exist at a depth greater than 50 feet. Based on our previous investigation performed by Leighton for the adjacent site (southwest corner of Grand Avenue and Mountain Street), groundwater was not encountered to a depth of 50.5 feet.
- The depth of our onsite borings were generally less than 30 feet due to encountering dense older alluvial materials and practical refusal to the 2.4-inch soil sampling apparatus (typically more than 50 blows / 6-inch of sample advancement). Due to this prevailing dense soil condition and our experience with the underlying geologic unit, we determined that these borings depths were sufficient to derive to the necessary geologic conclusions and design recommendations included in the report.

Although the Safety Element of the Riverside County General Plan adopted in 2003 indicates that the project site is located within an area classified as having a "moderate" risk for liquefaction, the results of our site specific evaluation indicates that the risk of liquefaction on this site is very low. The relatively loose to medium dense Holocene-age alluvial soil (upper 7 feet) will be either removed by the proposed site grading or be subject to complete removal and recompaction as recommended in our referenced soils report.

The opportunity to be of continued service on this project is greatly appreciated. If you should have any questions, please do not hesitate to call the undersigned.

Respectfully submitted,
LEIGHTON CONSULTING, INC.

REGISTERED PROFESSIONAL ENGINEER
SIMON I. SAIID
No. 2641
Exp. ______
GEOTECHNICAL
STATE OF CALIFORNIA

Simon I. Saiid,
GE 2641 Exp. 09/30/09
Principal Engineer

PROFESSIONAL GEOLOGIST
ROBERT F. RIHA
No. 1921
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

Robert F. Riha,
CEG 1921
Sr. Principal Geologist

Distribution: (2) Addressee, one via email
(1) Bob Edmonds via email

PRELIMINARY GEOTECHNICAL INVESTIGATION
PROPOSED COMMERCIAL DEVELOPMENT
"LAKE STREET MARKETPLACE"
NWC MOUNTAIN STREET AND LAKE STREET
CITY OF LAKE ELSINORE, CALIFORNIA

Prepared For:

MARINITA DEVELOPMENT COMPANY
3835 Birch Street
Newport Beach, CA 92660

Project No. 602051-001

December 6, 2007

Leighton Consulting, Inc.
A LEIGHTON GROUP COMPANY

Leighton Consulting, Inc.
A LEIGHTON GROUP COMPANY

December 6, 2007

Project No. 602051-001

Marinita Development Company
3835 Birch Street
Newport Beach, California, 92660

Attention: Mr. David Garrison

Subject: Preliminary Geotechnical Investigation for the Proposed Commercial Development, "Lake Street Marketplace", APNs 389-030-014 through -018, City of Lake Elsinore, California.

In accordance with your request and authorization, we are pleased to provide herewith our geotechnical investigation report for the subject site. This report summarizes our findings and provides preliminary recommendations for foundation design and construction. In our opinion, the subject site is considered suitable for the intended use provided the recommendations included in this report are implemented during design and construction phases of development.

The opportunity to be of service on this project is greatly appreciated. If you should have any questions, please do not hesitate to call our office.

Respectfully submitted,

LEIGHTON CONSULTING, INC.

REGISTERED PROFESSIONAL ENGINEER KANDEEPAN SARAVANAPAVAN NO. 71739 Exp. 12/31/07 CIVIL STATE OF CALIFORNIA

PROFESSIONAL GEOLOGIST MITCHEL S. BORNYASZ No. 2416 CERTIFIED ENGINEERING GEOLOGIST STATE OF CALIFORNIA

REGISTERED PROFESSIONAL ENGINEER SIMON I. SAID No. 2641 Exp. GEOTECHNICAL STATE OF CALIFORNIA

Kandeepan Saravanapavan	Mitch Bornyasz	Simon I. Saiid
RCE 71739 (Exp 12/31/07)	CEG 2416 (Exp. 10/31/08)	GE 2641(Exp. 09/30/09)
Senior Staff Engineer	Project Geologist	Principal Engineer

KXS/MSB/SIS/ew

Distribution: (4) Addressee

Leighton Consulting, Inc.
A LEIGHTON GROUP COMPANY

December 6, 2007

Project No. 602051-001

Marinita Development Company
3835 Birch Street
Newport Beach, California, 92660

Attention: Mr. David Garrison

Subject: Preliminary Geotechnical Investigation for the Proposed Commercial Development, "Lake Street Marketplace", APNs 389-030-014 through -018, City of Lake Elsinore, California.

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STATE OF CALIFORNIA

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Senior Staff Engineer	Project Geologist	Principal Engineer

KXS/MSB/SIS/ew
Distribution: (4) Addressee

41715 Enterprise Circle N., Suite 103 ▪ Temecula, CA 92590-5661
951.296.0530 ▪ Fax 951.296.0534 ▪ www.leightonconsulting.com

TABLE OF CONTENTS

Accompanying Figures, Tables, Plates and Appendices

Tables

Figures

Appendices

1.0 INTRODUCTION

1.1 Purpose and Scope of Work

The purpose of our geotechnical investigation was to evaluate the overall geotechnical and geologic conditions on this site and provide recommendations for foundation design and construction. Our scope of work for this study included the following:

- Geologic site reconnaissance;
- Review of pertinent in-house maps and published documents regarding geological and geotechnical conditions at the proposed site;
- Drilling, sampling, and logging of seven (7) hollow-stem auger boreholes to evaluate subsurface soil conditions and collect samples for laboratory testing. One borehole was advanced to a depth of 30.0 feet;
- Laboratory testing of selected soil samples to determine in-situ moisture and density, soil classification (grain size distribution), compressibility, expansion potential, maximum dry density and optimum moisture content, subgrade Resistance Value (R-Value), corrosion potential and other pertinent engineering parameters of on site materials;
- Compilation of this geotechnical report which presents our findings, conclusions, and preliminary recommendations for foundation design and site development.

1.2 Site Description and Proposed Development

The subject site is an approximately 4-acre rectangular shaped parcel of land located at the northwest corner of the intersection of Lake Street and Mountain Street in the City of Lake Elsinore, California (Figure 1). Most of the site is currently vacant land except for a house situated in the northern portion of the property. Remnants of a previous building foundation and chimney were observed in the southeast portion of the property. Lake Street bounds the site to the east, Mountain Street to the south, and existing residential property to the west and north. Topographically, the site slopes moderately in a southwesterly direction with approximately 40 feet of relief.

Based on review of the provided preliminary site plan and the other information provided, we understand that the proposed development will include four one- to two-story retail/commercial buildings of conventional construction, parking areas and associated site improvements. While grading plans were not available at the time of this investigation, your information indicates that cuts of up to 20 feet in height are anticipated, which may require the construction of retaining walls. Conventional cut and fill grading is anticipated to construct the graded pads and roadways.

1.3 Field Investigation

Prior to drilling, a preliminary field reconnaissance was made by a certified engineering geologist from our firm. During this site visit, the existing cut slope along Mountain Street in the southeastern portion of the site was examined for any evidence of potential faulting, shears, or any other geologic features. Based on this limited exposure, no evidence of faulting or any adverse geologic conditions were observed within this portion of the site.

Seven soil borings were excavated on November 16, 2007 utilizing a CME-75 drill rig. The boring depths ranged from approximately 10 to 30 feet below existing grade. The borings were logged and sampled by an engineer from our firm. The log of each boring is presented in Appendix B and the boring locations are indicated on the Boring Location Map (Figure 3).

1.4 Laboratory Testing

Laboratory testing was performed on selected representative subsurface soil samples to evaluate the chemical and physical characteristics of the selected soils. A discussion of the laboratory test methods performed and a summary of the laboratory test data is presented in Appendix C.

2.0 GEOTECHNICAL FINDINGS

2.1 Regional Geology

The site is located in the Peninsular Range Geomorphic Province of Southern California. More specifically, the property is located along the northeastern margin of a fault controlled, down dropped block (graben), known as the Elsinore Trough (Kennedy, 1977). This graben is believed to contain as much as 3000 feet of alluvium which has been accumulated since Miocene time (Mann,1955). In this area the Elsinore Trough is bounded on the northeast by the Glen Ivy North Fault (*Geologic Map*, Figure 2). The Glen Ivy North Fault, along with other local faults, form part of the Elsinore Fault Zone, which extends from the San Gabriel River Valley southeasterly to beyond the United States-Mexico border.

The Santa Ana Mountains lie along the western side of the Elsinore Fault Zone and the Perris Block is located along the eastern side of the fault zone. The mountain ranges are underlain by pre-Cretaceous meta-sedimentary and meta-volcanic rocks and Cretaceous plutonic rocks of the Southern California batholith. Tertiary sediments, volcanics and Quaternary sediments flank the mountain ranges. The Tertiary and Quaternary rocks are generally comprised of non-marine sediments consisting of sandstones, mudstones, conglomerates, and locally volcanic units.

2.2 Faulting and Seismicity

The City of Lake Elsinore, like the rest of Southern California, is in a seismically active region as a result of being located near the active margin between the North American and Pacific tectonic plates. The principal source of seismic activity is movement along the northwest-trending regional faults such as the San Andreas, San Jacinto and Elsinore fault zones. These fault systems produce approximately 55 millimeters of slip per year between the plates. The Elsinore fault zone is the closest fault to the site capable of producing a major quake. This fault zone is estimated to accommodate 10 to 15 percent of the plate boundary motion, and is estimated to have a slip rate of 5 millimeters per year (mm/yr.) (WGCEP, 1995).

By definition of the California Geologic Survey (CGS), an active fault is one which has had surface displacement within the Holocene Epoch (roughly the last 11,000 years). This definition of a fault with Holocene activity is used in delineating Earthquake Fault Zones as mandated by the Alquist-Priolo Geologic Hazard Zones Act of 1972 and as subsequently revised in 1994 (Hart, 1994) as the Alquist-Priolo Earthquake Fault Zoning

Act and Earthquake Fault Zones. The intent of the act is to require fault investigations on sites located within Earthquake Fault Zones to preclude new construction of certain inhabited structures across the trace of active faults.

The subject site is not located within any State of California Earthquake Fault Zones as created by the Alquist-Priolo Earthquake Fault Zoning Act. However, as depicted on Figure 2, a portion of the site is included within a fault hazard zone as indicated in the Safety Element portion of the Riverside County General Plan (2003). Our review of geologic literature for the area indicates that there have been previous investigations for the postulated fault associated with the County fault zone in the immediate vicinity of the subject site (CDMG, 1979; Leighton, 2002, 2003; Petra, 2004). None of these investigations were able to identify faulting at the site location in this zone. Specifically, trenching and subsequent geotechnical mapping conducted by Leighton Consulting, Inc. during grading to the immediate south of Mountain Street showed no evidence for faulting across the postulated fault scarp. It is our opinion that the postulated "fault" lineament is related to a buried stream channel margin and is not indicative of on-site faulting. Our interpretation of this feature is in agreement with the findings of the Supplement (#1) to Fault Evaluation FER-72 prepared by the California division of Mines and Geology (Dated January 30, 1979).

Based on the above, and review of pertinent geologic hazard maps, the nearest state zoned "active fault" included in both the county and State AP zones, is the Glen Ivy North Segment of the Elsinore Fault Zone, located approximately 0.38 mile (0.61 km) west of the site.

The following table presents geotechnical earthquake design parameters calculated in accordance with California Building Code (CBC), 2007, Chapter 16, Section 1613:

Table 1. 2007 CBC Seismic Design Coefficients

Design Parameters	Reference- CBC 2007	Design Value
Site Class	Table 1613.5.2	C
Mapped Spectral Acceleration at Short Period (S_S)	Figure 1613.5(3)	1.8 g
Mapped Spectral Acceleration at 1 Second (S_1)	Figure 1613.5(4)	0.7 g
Design Spectral Acceleration at Short Period (S_{DS})	Equation 16-39	1.2 g
Design Spectral Acceleration at 1 Second (S_{D1})	Equation 16-40	0.6 g

The design values were calculated utilizing a software program published by United States Geological Survey (USGS) Department which follows the procedures stated in American Society of Civil Engineers (ASCE) Publication ASCE 7-05 and CBC Chapter 16, Section 1613.

2.3 Site Specific Geotechnical Conditions

2.3.1 Earth Materials

Our field exploration, observations, and review of the pertinent literature (Appendix A) indicate that subsurface materials within the site include geologic units consisting of various alluvial deposits. These materials are considered suitable for re-use as compacted fill, if cleared of debris and organic matter. Detailed descriptions of the subsurface materials encountered during our field investigation are included in the boring logs (Appendix B). A general description of each geologic unit is given below:

2.3.2 Surficial Soils (not a mapped unit)

Thin deposits of topsoil and undocumented fill soils were observed locally within the site. These materials appeared to be derived from the other geologic units observed onsite. All topsoil and undocumented artificial fill should be excavated, but may be reused as compacted fill if cleared of debris and organic matter.

2.3.3 Alluvial Soils (Map Symbol - Qal)

Holocene-age alluvial soil ranging up to 7 feet in depth covers the majority of the site. This alluvium generally consists of brown, damp, loose to medium dense, fine to coarse, silty sand with a very low expansion potential (EI<21). Alluvial materials cleared of debris and organic materials are suitable for use as compacted fills.

2.3.4 Older Alluvial Soils (Map Symbol - Qalo)

Late Pleistocene-age alluvial soil is the major geologic unit underlying this site. These older valley deposits (alluvial fan deposits) generally consist of medium brown to dark brown, damp to moist, dense to very dense, silty fine to coarse sand. As observed in local road-cuts, a well developed argillic soil has resulted in pockets of dark red clay, well formed peds and clay films in the elevated portions of the older alluvium.

2.3.5 Groundwater and Surface Water

Groundwater was not encountered in the exploratory borings. No seepage or standing water was observed on the ground surface during the time of the investigation.

2.3.6 Landslides and Rockfalls

No evidence of on-site landsliding or rockfall was observed during our field investigation. Due to overall site topography, the potential for lansliding or rockfall in the future is considered very low.

2.3.7 Rippability

Based upon our field observations, and experience in the nearby area, LCI anticipates that the on-site near-surface soils will be excavatable using conventional heavy duty earthwork equipment.

2.4 Seismic Considerations

The principal seismic considerations for most structures in Southern California are surface rupturing of fault traces and damage caused by ground shaking or seismically induced ground settlement. Soil lurching refers to the rolling motion on the ground surface by the passage of seismic surface waves. Effects of this nature are likely to be most severe where the thickness of soft sediments varies appreciably under structures. The potential for lurching can be reduced if the potentially compressible soils present on the site are removed and properly compacted in accordance with the recommendations of this report.

Ground rupture is generally considered to most likely occur along pre-existing active faults. Although a splay of the Glen Ivy Fault has been postulated to traverse the site (Webber, 1977, Riverside Co., 2003), our investigation and previous investigations within this area did not identify any evidence of active faulting on the postulated fault trace. The potential for site ground rupture is considered low.

Ground rupture cannot be ruled out for nearby faults in the event of sympathetic movement associated with displacement along the Elsinore Fault Zone, San Andreas fault, or other regional faults. Ground rupture could potentially affect existing and future facilities (such as gas, electrical, water mains and aqueducts) during a seismic event along the Elsinore Fault Zone.

2.5 Liquefaction

Liquefaction generally occurs when saturated fine sands and silts lose their physical strengths when subjected to earthquake shaking. Liquefaction potential is primarily affected by material gradation, relative density, and intensity and duration of ground motion. This effect may be manifested by excessive settlements and sand boils at the ground surface.

The soils underlying the site have a very low potential for liquefaction due to their high relative density and lack of a shallow water table. The relatively shallow loose alluvial deposists will be subject to removal and recompaction based on the remedial grading recommendations included in Section 4 of this report.

3.0 CONCLUSIONS AND PRELIMINARY RECOMMENDATIONS

3.1 Summary of Conclusions and Preliminary Recommendations

Based on the results of this study, the proposed development of the site appears feasible from a geotechnical viewpoint provided that the following recommendations are incorporated into the design and construction phases of development. Seismic Design Parameters

Seismically resistant structural design in accordance with local building ordinances should be followed during the design of all structures. Building Codes have been developed to minimize structural damage. However, some level of damage as the result of ground shaking generated by nearby earthquakes is considered likely in this area.

3.2 Earthwork

Earthwork should be performed in accordance with the following recommendations and the *Earthwork and Grading Guide Specifications* included in Appendix E of this report. In case of conflict, the following recommendations should supersede guide specifications in Appendix E. The contract between the developer and earthwork contractor should be worded such that it is the responsibility of the contractor to place fill properly and in accordance with the recommendations presented in this report, including the guide specifications in Appendix E, notwithstanding the required testing and observation of the geotechnical consultant.

3.2.1 Site Preparation and Remedial Grading

Prior to grading the proposed structural improvement areas (i.e. all-structural fill areas, pavement areas, building footprints, etc.), the site should be cleared of surface and subsurface structures or obstructions. Pending further field verification and evaluation, we recommend the following overexcavation / remedial grading:

Building Footprints: In order to reduce the potential for adverse long-term differential settlement, we recommend that the upper 5 to 7 feet of onsite soils be removed and recompacted in accordance with our recommendations included in Appendix E. After completion of the recommended removal and prior to fill placement, the exposed surface should be scarified to a minimum depth of 8-inches, moisture conditioned and recompacted to at least 90 percent of maximum dry density, as determined in accordance with ASTM Test Method D1557-00. The lateral extent of overexcavation beyond the outside edge of all settlement-sensitive structures/ foundations should be equivalent to that vertically removed. Similarly, all compacted fill should extend laterally from the outside edge of all settlement-sensitive structures or foundations to a distance equal to the depth of filling. In areas where new foundations are located adjacent to exsiting foundations this remedial criteria should be subject to further review and evaluation. In cut areas where finish grades are below the recommended removal depth, the upper 12-inches of subgrade should be scarified and recompacted. Localized deeper removal may be warranted based on prevailing soils conditions encountered during grading.

Parking Areas**:** Where applicable, we recommend that the upper 3 feet of onsite soils for all exterior flatwork, hardscape, and paved areas be scarified and recompacted to at least 90 percent of maximum dry density prior to receiving aggregate base or concrete pavement. Deeper overexcavation may be required based on the exposed subsurface conditions during grading.

3.2.2 Suitability of Site Soils for Fills

Undocumented fill and alluvial soils should be considered suitable for re-use as compacted fills provided the recommendations contained herein are followed. If cobbles and boulders larger than 6-inches in largest dimension are encountered or produced during grading, these oversized cobbles and boulders should be disposed of in non-structural and non-pavement areas. As an alternative, oversized cobbles and boulders can be crushed in place to a size less-than 6-inches, and then placed in accordance with the recommendations presented in Appendix E. Fills containing appreciable percent of oversized rock (greater than 20%) with diameters greater-than 6-inches will require our reevaluation and recommendations for use or disposition.

3.2.3 Import Soils

Import soils and/or borrow sites should be evaluated by us prior to import. Import soils should be uncontaminated, granular in nature, free of organic material (loss on ignition less-than 2 percent), have very low expansion potential (with an Expansion Index less than 20) and have a low corrosion impact to the proposed improvements.

3.2.4 Utility Trenches

Utility trenches should be backfilled with compacted fill in accordance with Sections 306-1.2 and 306-1.3 of the *Standard Specifications for Public Works Construction,* ("Greenbook"), 2003 Edition. Fill material should be placed in lifts not exceeding 8 inches in uncompacted thickness and should be compacted to at least 90 percent relative compaction (ASTM D 1557-02$^{\varepsilon 1}$) by mechanical means only and 95 percent relative compaction within building footprints. The upper 6 inches of backfill in all pavement areas should be compacted to at least 95 percent relative compaction.

Where granular backfill is used in utility trenches adjacent to moisture sensitive subgrades and foundation soils, we recommend that a cut-off "plug" of impermeable material be placed in these trenches at the perimeter of buildings, and at pavement edges adjacent to irrigated landscaped areas. A "plug" can consist of a 5-foot long section of clayey soils with more than 35-percent passing the No. 200 sieve, or a Controlled Low Strength Material (CLSM) consisting of one sack of Portland-cement plus one sack of bentonite per cubic-yard of sand. CLSM should generally conform to Section 201-6 of the *Standard Specifications for Public Works Construction,* ("Greenbook"), 2003 Edition. Then CLSM plug is intended to reduce the likelihood of water migrating from landscaped areas along permeable trench backfill into the building and pavement subgrades, resulting in wetting of moisture sensitive subgrade earth materials under buildings and pavements.

Excavation of utility trenches should be performed in accordance with the project plans, specifications and the *California Construction Safety Orders* (2003 Edition or more current). The contractor must be responsible for providing a "competent person" as defined in Article 6 of the *California Construction Safety Orders*. Contractors should be advised that sandy soils (such as fills generated from the onsite alluvium) could make excavations particularly unsafe. All safety precautions should be properly implemented at all times. In addition, excavations at or near the toe of slopes and/or parallel to slopes may be highly unstable due to the increased driving force and load on the trench wall. Spoil piles from the excavation(s) and construction equipment should be kept away from the sides of the trenches. Leighton Consulting, Inc. does not consult in the area of safety engineering.

3.2.5 Shrinkage

The volume change of excavated onsite soils upon recompaction is expected to vary with materials, density, in-situ moisture content, location and compaction effort. The in-place and compacted densities of soil materials vary and accurate overall determination of shrinkage cannot be made. Therefore, we recommend site grading include, if possible, a balance area or ability to adjust grades slightly to accommodate some variation. Based on our limited geotechnical laboratory testing, we expect a recompaction shrinkage (when recompacted to 90-percent of ASTM D1557-02$^{\varepsilon 1}$) of 10- to 15-percent by volume within the upper 5 feet.

3.2.6 Drainage

All drainage should be directed away from structures and pavements by means of approved permanent/temporary drainage devices. Adequate storm drainage of any proposed pad should be provided to avoid wetting of foundation and pavement subgrade soils. Irrigation adjacent to buildings should be avoided wherever possible. As an option, sealed-bottom planter boxes and/or drought resistant vegetation should be used within 5-feet of buildings. Pavements should be separated from irrigated areas by deeply embedded concrete curbs extending below pavement base.

3.3 Foundation Design

Based on known conditions and anticipated structural loads, shallow spread or continuous wall footings bearing on properly compacted fill can be used to support the proposed buildings based the following design criteria:

3.3.1 Minimum Footing Dimensions and Embedment

Footings should be embedded at least 18-inches below lowest adjacent grades. Footing embedments are measured from lowest adjacent finished grade, considered as the top of interior slabs-on-grade or the finished exterior grade, excluding landscape, whichever is lower. Footings located adjacent to utility trenches or vaults should be embedded below an imaginary 1:1 (horizontal:vertical) plane projected upward and outward from the bottom edge of the trench or vault towards the footing. A minimum base width of 12 inches for continuous footings and a minimum bearing area of 3 square feet (1.75 ft by 1.75

ft) for pad foundations should be used. All footing excavations should be observed by geotechnical engineer before reinforcing steel is placed.

3.3.2 Allowable Vertical Bearing

Based on the above dimensions, an allowable vertical bearing capacity of 2,000 pounds-per-square-foot (psf) may be used for design of footings. This allowable bearing pressure may be increased by 500 psf for each additional foot of embedment and/or width, to a maximum vertical bearing value of 3,000 psf. These bearing values may be increased by one-third when considering short-term seismic or wind loads.

Conventional footings/slab may be enhanced by structurally tying the slabs-on-grade to the perimeter and interior footings as directed by the structural consultant for the project. The slab and footings may be placed (poured) monolithically to further integrate the structural system as a means of reducing the potential for structural damage due to dynamically induced settlement at this site. The need for tie beam/grade beam for these building foundations should be determined by the structural consultant for the project.

3.3.3 Lateral Loads

Lateral loads may be resisted by friction between the footings and the supporting subgrade. A maximum allowable frictional resistance of 0.35 may be used for design of concrete structures poured on properly compacted fill. In addition, lateral resistance may be provided by passive pressures acting against foundations poured neat against properly compacted granular fill. The passive earth pressure may be computed as an equivalent fluid having a density of 300 psf per foot of depth, to a maximum earth pressure of 3,000 pounds per square foot. When combining passive pressure and frictional resistance, the passive pressure component should be reduced by one-third.

3.3.4 Settlement Estimates

Based on known condition and the proposed remedial grading, total settlement due to applied foundation loads for buildings located on compacted fill soils (minimum 90 percent relative compaction) is expected to be less than one (1) inch with ½ inch differential settlement across a lateral distance of 40 feet or between similar structural elements of the building, whichever is a greater distortion. The majority of the static settlement associated with the building loads (elastic compression) is anticipated to occur during construction as the load is applied.

3.4 Retaining Walls

Where applicable, basement walls or cantilever retaining walls (less than 20 feet in height) should be designed for lateral earth pressures as described in this section. The magnitude of these pressures depends on the amount that the wall can yield horizontally under load. If the wall can yield enough to mobilize full shear strength of backfill soils, then the wall can be designed for "active" pressure. If the wall cannot yield under the applied load, the shear strength of the soil cannot be mobilized and the earth pressure will be higher. Such walls should be designed for "at rest" conditions. If a structure moves toward the soils, the resulting resistance developed by the soil is the "passive" resistance. Retaining walls backfilled with non-expansive (Expansion Index less than 20), free draining soils should be designed using the following equivalent fluid pressures (Table 2):

Table 2. Retaining Wall Design Earth Pressures (Static, Drained Conditions)

Loading Conditions	Equivalent Fluid Density (pcf) For Level Backfill*	Equivalent Fluid Density (pcf) For 2H:1V Backfill*
Active*	35	50
At-Rest*	50	75
Passive**	300	300

*For non-expansive backfill, only.
** Maximum passive pressure not to exceed 3,000 psf at depth.

Total depth of retained earth for design of cantilever walls should be measured as the vertical distance below the ground surface measured at the wall face for stem design, or measured at the heel of the footing for overturning and sliding calculations. Should a sloping backfill be constructed above the wall or backfill be loaded by an adjacent surcharge load, the equivalent fluid weight values provided above should be re-evaluated on an individual case basis by Leighton Consulting, Inc.

In addition to the above lateral forces due to retained earth, surcharge due to above grade loads on the wall backfill, such as an adjacent structure, should be considered in design of the retaining wall. Vertical surcharge loads behind the retaining wall on or in the backfill within a 1:1 (horizontal:vertical) plane projection up and out from the retaining wall toe, should be considered as lateral and vertical surcharge. Unrestrained (cantilever) retaining walls should be designed to resist one-third of these surcharge loads applied as a uniform horizontal pressure on the wall. Braced walls should also be designed to resist an additional uniform horizontal-pressure equivalent to one-half of uniform vertical surcharge-loads. Higher walls or non-standard wall designs should be reviewed by LCI prior to construction to check that the proper soil parameters have been incorporated into the wall design.

All basement walls should be provided with appropriate drainage. The outlet pipe should be sloped to drain to a suitable location. Typical wall drainage design is illustrated in Figure C-1, *Retaining Wall Backfill and Subdrain Detail*, for non-expansive backfill. Wall backfill should be compacted by mechanical methods to a minimum of 90 percent relative compaction (ASTM D1557-02$^{\varepsilon 1}$). Walls should not be backfilled until wall concrete attains the 28-day compressive strength and/or as determined by the Structural Engineer that the wall is structurally capable of supporting backfill. Lightweight compaction equipment should be used, unless other wise approved by the Structural Engineer.

3.5 Concrete Slabs-On-Grade

Slab-on-grade floors utilized with conventional foundations should be designed with a minimum thickness as indicated by the project structural engineer consistent with a modulus of subgrade reaction of 150 pounds-per-square-inch per inch (pci) and reinforced in accordance with the structural engineer's recommendations. A slip-sheet or equivalent should be used if crack-sensitive floor coverings (such as ceramic tiles, etc.) are to be placed directly on the concrete slab-on-grade. In addition, it has been a standard of care to install a moisture retarder underneath all slabs where moisture condensation is undesirable. Moisture vapor retarders may retard but not totally eliminate moisture vapor movement from the underlying soils up through the slabs. Moisture vapor transmission may be additionally reduced by use of concrete additives. LCI does not practice in the field of moisture vapor transmission evaluation/mitigation. Therefore, we recommend that a qualified person/firm be engaged/consulted with to evaluate the general and specific moisture vapor transmission paths and any impact on the proposed construction. This person/firm should provide recommendations for mitigation of potential adverse impact of moisture vapor transmission on various components of the structure as deemed appropriate.

3.6 Soil Corrosivity and Sulfate Content

3.6.1 Sulfate Content

Concrete in contact with earth materials should be designed in accordance with the California Building Code for a soil with negligible sulfate concentration. Additional geochemical testing should be conducted during grading to verify the sulfate content of the soils.

3.6.2 Soil Corrosivity

Based on past experience on this site, the onsite soil is considered corrosive to buried metal pipes. It is recommended that a corrosion engineer be consulted to provide recommendations for proper protection of buried metal pipes at this site.

3.7 Preliminary Pavement design

For planning and estimating purposes, we have made some assumptions based on the anticipated vehicle traffic usage. The appropriate pavement section will depend on the type of final subgrade soil, traffic load and planned pavement life. Since an evaluation of the actual finish subgrade soils cannot be made at this time, we have used an R-value of 53 based on our laboratory testing of a representative soil sample . The pavement sections are calculated based on Traffic Indexes (TI) as indicated in Table below:

Table 3. Asphalt Pavement Section Thickness

General Traffic Condition	Design Traffic Index (TI)	Asphalt Concrete (inches)	Aggregate Base* (inches)
Automobile Parking Lanes	4.0	3.0	4.0
	4.5	3.0	4.0
Truck Access & Parking Areas	6.0	3.5	6.0
	6.5	4.0	6.0

Appropriate Traffic Index (TI) data should be selected by the project civil engineer or traffic engineering consultant and appropriate R-value of the subgrade soils will need to be determined after completion of rough grading to finalize the pavement design. Final pavement sections should be in general accordance with local, county and industry standards. The Caltrans pavement section design calculations were based on a pavement life of approximately 20 years with a normal amount of flexible pavement maintenance. Portland cement concrete should be used, rather than asphalt, in point and impact load areas such as loading docks and trash truck bin loading areas.

Subgrade soils in the upper 6 inches of the driveways and parking areas should be properly compacted to at least 95 percent relative compaction (ASTM D1557-$02^{\varepsilon 1}$) and should be moisture-conditioned to optimum or slightly above optimum, and kept in this condition until the pavement section is constructed. Minimum relative compaction requirements for aggregate base should be 95 percent of the maximum laboratory density as determined by ASTM D1557-$02^{\varepsilon 1}$.

Asphalt concrete and aggregate base should conform to *Caltrans Standard Specifications* (July 1995 Edition) Sections 39 and 26-1.02A, respectively. As an alternative, asphalt concrete can conform to Section 203-6 of the *Standard Specifications for Public Works Construction* (Green Book), 2003 Edition. Crushed aggregate base or crushed miscellaneous base can conform to Sections 200-2.2 and 200-2.4 of the *Standard Specifications for Public Works Construction* (Green Book), 2003 Edition, respectively. Pavement subgrades should be compacted to 90 percent and pavement base should be compacted to 95 percent of the ASTM D1557-$02^{\varepsilon 1}$ laboratory maximum density for these materials.

For preliminary planning purposes, fire lanes may be constructed of Portland Cement Concrete (PCC) with a minimum thickness of 5½-inches assuming light axle loads and an average daily truck traffic (ADTT) of less than 500. For medium/heavy axle loads and an ADT of 500 or more, a minimum PCC thickness of 7 inches should be used, such as for trash corrals and trash truck aprons, loading docks, etc. All PCC pavement should have a minimum 28-day concrete compressive strength of 3,250 psi and have appropriate joints and saw cuts in accordance with either Portland Cement Association (PCA) or American Concrete Institute (ACI) guidelines. PCC subgrade should be compacted to 95 percent relative compaction in the upper 6 inches.

The above PCC sections should be re-evaluated following the provision of the precise grading plans, which indicate the locations of concrete pavements. We recommend that the ADT be confirmed by the project civil designer or traffic consultant prior to completion of the project. For truck lanes and ramps, a 4-inch (minimum) layer of Class 2 aggregate base at 95 percent relative compaction should be considered beneath the PCC paving. This 4-inch layer of Class 2 aggregate may be used beneath other areas of PCC pavement to improve performance. The upper 6 inches of the underlying subgrade soils should also be compacted to at least 95 percent relative compaction (ASTM D1557-$02^{\varepsilon 1}$).

Additional details should be added to the plans indicating the pavement thickness transitions, pavement joint dowels, expansion joints and sawcut joints. Use of concrete cutoff or edge barriers should be considered at the perimeter of the common parking or driveway areas when they are adjacent to either open (unfinished) or landscaped areas

4.0 GEOTECHNICAL REVIEW

Geotechnical review of the project plans and specifications is of paramount importance in engineering practice. Poor performances of many foundation and earthwork projects have been attributed to inadequate construction review. We recommend that Leighton Consulting, Inc. be provided the opportunity to review the following items.

4.1 Plans and Specifications

We should review the project rough grading and foundation plans and specifications prior to release for bidding and construction. Such review is important to determine whether the geotechnical recommendations in this report have been effectively implemented in the project design. Additional field and laboratory testing may be warranted based on these reviews. Review findings should be reported in writing by the geotechnical consultant, or documented by stamp on the approved drawings.

4.2 Construction Review

Observation and testing should be performed by Leighton Consulting, Inc. representatives during construction. It is anticipated that the geologic conditions and materials exposed during construction will vary from that encountered in test borings. Reasonably continuous construction observation and review during site grading and foundation installation allows for evaluation of the actual soil conditions and the ability to provide appropriate revisions where required to meet the site conditions.

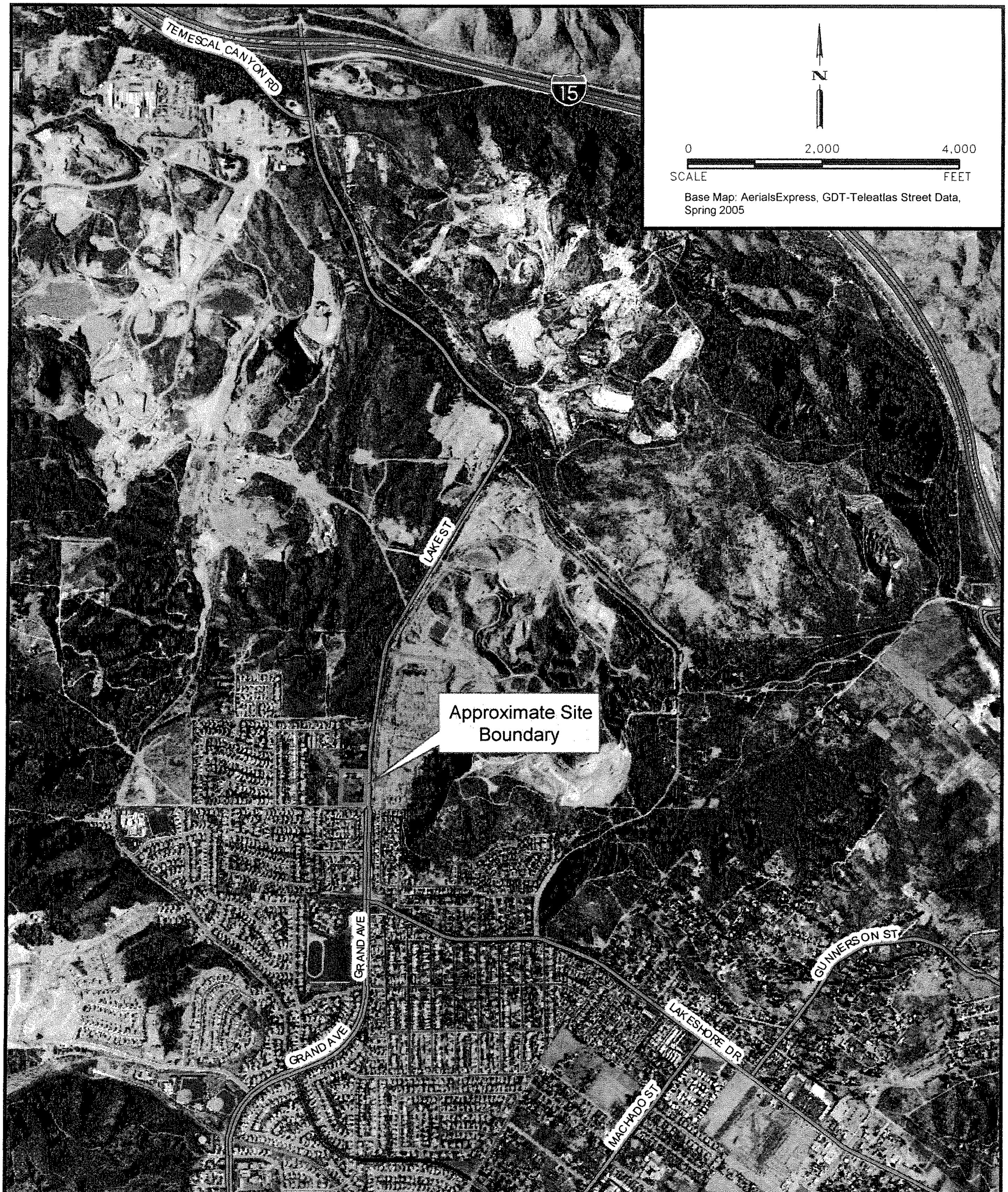
Site preparation, removal of unsuitable soils, approval of imported earth materials, fill placement, foundation installation and other geotechnically-related operations should be observed, tested, and documented by representatives of Leighton Consulting, Inc.

5.0 LIMITATIONS

This report was prepared solely for the use of Marinita Development Company and their consulting team, for the design of the proposed Lake Street Marketplace as described in this report, in accordance with generally accepted geotechnical engineering practices at this time in California. No warranty is expressed or implied.

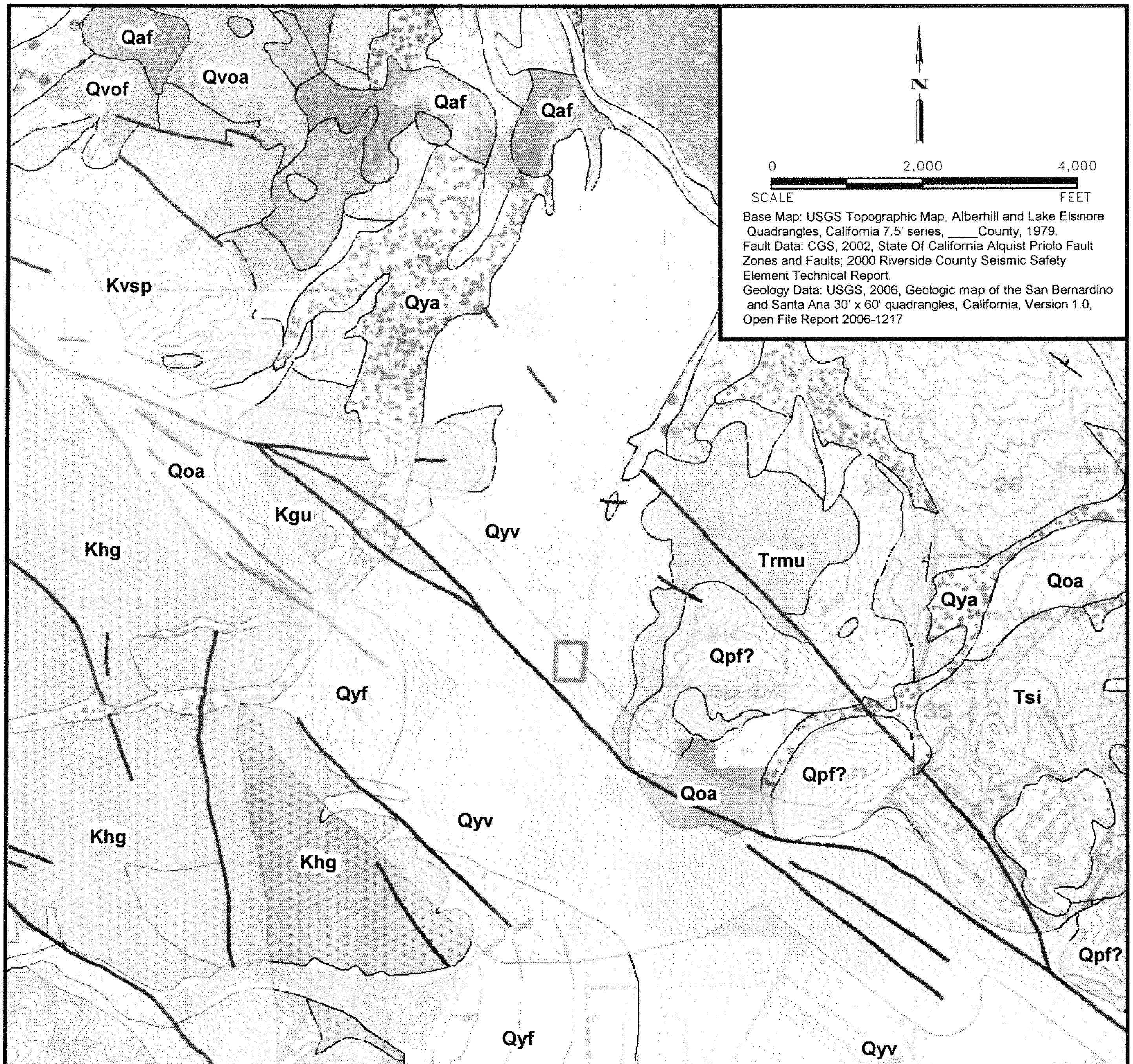
This report was necessarily based in part upon data obtained from a limited number of observances, soil and/or samples, analyses, histories of occurrences, spaced past subsurface explorations and limited information on historical events and observations. Such information is necessarily incomplete. It is understood that additional subsurface geotechnical data may be necessary for the completion of the geotechnical evaluation of this property based on review of the project rough-grading plans. The nature of many sites is such that differing characteristics can be experienced within small distances and under various climatic conditions. Changes in subsurface conditions can, and do, occur over time.

This report is not authorized for use by, and is not to be relied upon by any party except, Marinita Development Company, its successors and assigns as owner of the property, with whom Leighton Consulting, Inc. has contracted for the work. Use of or reliance on this report by any other party is at that party's risk. Unauthorized use of or reliance on this report constitutes an agreement to defend and indemnify Leighton Consulting, Inc. from and against any liability which may arise as a result of such use or reliance, regardless of any fault, negligence, or strict liability of Leighton Consulting, Inc.



Preliminary Geotechnical Investigation Lake Street Marketplace City of Lake Elsinore, California	**SITE LOCATION MAP**	Project No. **602051-001** Date **December 2007** Figure 1

\\GIS\Administration\ArcGISTemplates\NEW_GDT_SiteLocationMap.mxd



Legend

- Approximate Site Boundary
- Alquist-Priolo Earthquake Faults
- Alquist-Priolo Earthquake Fault Zones
- Riverside County Earthquake Faults
- Riverside County Earthquake Fault Zones

Geologic Units

- Qyv, Young alluvial-valley deposits,
- Qpf, Pauba Formation, Fanglomerate member
- Khg, Heterogeneous granitic rocks,
- Kgu, Granite, undifferentiated,
- Trmu, Rocks of Menifee Valley, undifferentiated,

Note: Regional Geologic map does not reflect presence of Older Quaternary-age alluvium observed on site during this investigation.

**Preliminary Geotechnical Investigation
Lake Street Marketplace
City of Lake Elsinore, California**

REGIONAL GEOLOGY AND FAULT MAP

Project No.
602051-001

Date
December 2007

Figure 2

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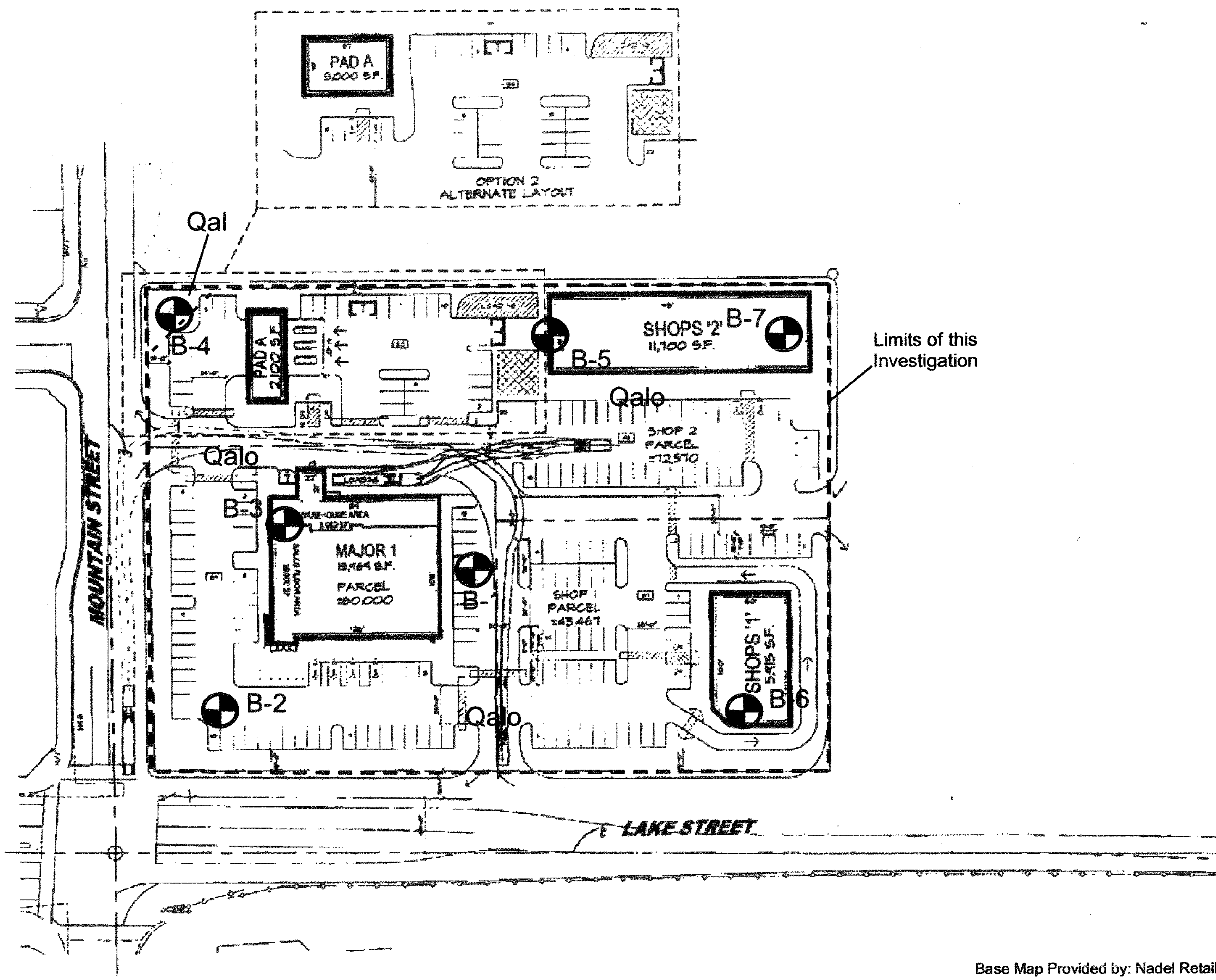


Summary

Land	±4.09 AC	±178,037SF
Building		33,684SF
Land-to-Bldg Ratio		4.2/1
Coverage		19%
Parking Required		203 stalls
Parking Provided		203 stalls
Parking Ratio		6/1000

Parking Required

Retail @ 1/200 (13,969)	70 stalls
Rest. @ 1/45 Seating Area (2,800) & 1/200 Remaining (3,340) =62 + 17	79 stalls
Retail @ 1/250 (13,575)	54 stalls
Total	203 stalls

Summary (w/Alternate Layout)

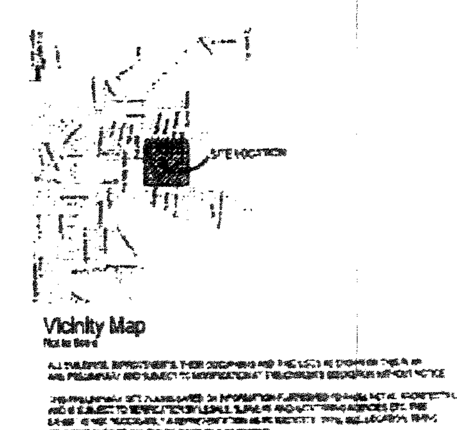
Land	±4.09 AC	±178,037SF
Building		34,584SF
Land-to-Bldg Ratio		4.15/1
Coverage		19.43%
Parking Required		203 stalls
Parking Provided		203 stalls
Parking Ratio		6/1000

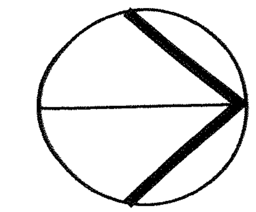
Parking Required

Retail @ 1/200 (13,969)	70 stalls
Rest. @ 1/45 Seating Area (2,800) & 1/200 Remaining (2,600) =62 + 13	75 stalls
Retail @ 1/250 (14,475)	58 stalls
Total	203 stalls

30

Scale
1 in ≈ 100 ft





LEGEND

Boring Location
B-7

Qal - Quaternary age younger alluvium

Qalo - Quaternary age older alluvium

See boring logs and report text for descriptions

Base Map Provided by: Nadel Retail Architects, Dated 5/4/07

Marinita Development Company/Lake St. Marketplace
NWC Mountain St. and Lake St.
Lake Elsinore, California

Boring Location Map

Project No.
602051-001

Date
December 2007

Figure 3

APPENDIX A

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APPENDIX B

FIELD EXPLORATION

On November 16, 2007, LCI conducted field investigation at the subject site. Approximate locations of these explorations are depicted on Figure 3, *Boring Location Map*. The primary purpose of these borings was to evaluate the physical characteristics of the site soils. These explorations allowed evaluation and measurement of the surficial soils, limited evaluation of the ability to excavate site earth materials and provided representative undisturbed and bulk samples for geotechnical laboratory testing.

The attached subsurface exploration logs and related information depict subsurface conditions only at the locations indicated and at the particular date designated on the logs. Subsurface conditions at other locations may differ from conditions occurring at these logged locations. The passage of time may result in altered subsurface conditions due to environmental changes. In addition, any stratification lines on the logs represent the approximate boundary between sampling intervals and soil types; and the transition may be gradual.

GEOTECHNICAL BORING LOG B-1

Date 11-16-07 | Sheet 1 of 2
Project Marinita Devel Lake Street Prelim | Project No. 602051-001
Drilling Co. Redman Drilling | Type of Rig CME-75
Hole Diameter 8" inches | Drive Weight 140lb | Drop 30 inches
Elevation Top of Hole +/- feet | Location See Boring Location Map

Logged By KXS
Sampled By

Elevation Feet	Depth Feet	Graphic Log (N S)	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION	Type of Tests
	0							SM	QUATERNARY YOUNGER ALLUVIUM (Qal)	
			B1-1 @ 0-5'						@0-5': Silty fine to medium grained SAND with coarse grained particles, brown, damp	EI
	5			R-2	20	114	4		@5': Silty fine to coarse grained SAND, brown, damp, medium dense	
								SM	QUATERNARY OLDER ALLUVIUM (Qalo)	
	10			R-3	50/4"				@10': Silty fine to coarse grained SAND, dark brown, damp, dense	DS
	15			R-4	76/11"				@15': Silty fine to coarse grained SAND, brown, moist, dense	
	20			R-5	67	117	15		@20': Silty fine to medium grained SAND with lean clay, dark brown, moist, dense	
	25			R-6	50/5"				@25': Silty fine to medium grained SAND, dark brown, moist, dense	
	30									

SAMPLE TYPES:
S SPT
R RING SAMPLE
B BULK SAMPLE
T TUBE SAMPLE
G GRAB SAMPLE
C CORE SAMPLE

TYPE OF TESTS:
SU SULFATE
DS DIRECT SHEAR
MD MAXIMUM DENSITY
CN CONSOLIDATION
CR CORROSION
HCO HYDROCOLLAPSE
HD HYDROMETER
SA SIEVE ANALYSIS
AL ATTERBERG LIMITS
EI EXPANSION INDEX
RV R-VALUE
CS CORROSION SUITE
MC MOISTURE CONTENT
SE SAND EQUIVALENT
-200 200 WASH
RDS REMOLDED DS
LOI LOSS ON IGNITION

Leighton

GEOTECHNICAL BORING LOG B-1

Date 11-16-07 | Sheet 2 of 2
Project Marinita Devel Lake Street Prelim | Project No. 602051-001
Drilling Co. Redman Drilling | Type of Rig CME-75
Hole Diameter 8" inches | Drive Weight 140lb | Drop 30 inches
Elevation Top of Hole +/- feet | Location See Boring Location Map

Elevation Feet	Depth Feet	Graphic Log (N S)	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION Logged By KXS Sampled By	Type of Tests
	30			R-7	50/1.5"				@30': Silty fine to medium grained SAND, brown, moist, very dense	
									Total Depth 30' 1.5" Grounwater Not Encountered Backfilled with Spoils on 11/16/2007	
	35									
	40									
	45									
	50									
	55									
	60									

SAMPLE TYPES:
S SPT
R RING SAMPLE
B BULK SAMPLE
T TUBE SAMPLE
G GRAB SAMPLE
C CORE SAMPLE

TYPE OF TESTS:
SU SULFATE
DS DIRECT SHEAR
MD MAXIMUM DENSITY
CN CONSOLIDATION
CR CORROSION
HCO HYDROCOLLAPSE
HD HYDROMETER
SA SIEVE ANALYSIS
AL ATTERBERG LIMITS
EI EXPANSION INDEX
RV R-VALUE
CS CORROSION SUITE
MC MOISTURE CONTENT
SE SAND EQUIVALENT
-200 200 WASH
RDS REMOLDED DS
LOI LOSS ON IGNITION

Leighton

GEOTECHNICAL BORING LOG B-2

Date	11-16-07	Sheet	1 of 1
Project	Marinita Devel Lake Street Prelim	Project No.	602051-001
Drilling Co.	Redman Drilling	Type of Rig	CME-75
Hole Diameter	8" inches	Drive Weight	140lb
Drop	30 inches		
Elevation Top of Hole +/-	feet	Location	See Boring Location Map

Logged By KXS

Sampled By

Elevation Feet	Depth Feet	Graphic Log (N S)	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION	Type of Tests
	0							SM	QUATERNARY OLDER ALLUVIUM (Qalo)	
			B2-1 @ 0-5'						@0-5': Silty fine to coarse grained SAND, brown, damp	SA
	5			R-2	50/3"	109	4		@5': Silty fine to medium grained SAND, light brown, damp, dense	
	10			R-3	50/5"	101	11		@10': Silty fine to medium grained SAND, dark brown, moist, dense	
	15			R-4	50/5"				@15': Silty fine to medium grained SAND, dark brown, moist, very dense	
									Total Depth 15' 6" Grounwater Not Encountered Backfilled with Spoils on 11/16/2007	
	20									
	25									
	30									

SAMPLE TYPES:
- S SPT
- R RING SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE
- G GRAB SAMPLE
- C CORE SAMPLE

TYPE OF TESTS:
- SU SULFATE
- DS DIRECT SHEAR
- MD MAXIMUM DENSITY
- CN CONSOLIDATION
- CR CORROSION
- HCO HYDROCOLLAPSE
- HD HYDROMETER
- SA SIEVE ANALYSIS
- AL ATTERBERG LIMITS
- EI EXPANSION INDEX
- RV R-VALUE
- CS CORROSION SUITE
- MC MOISTURE CONTENT
- SE SAND EQUIVALENT
- -200 200 WASH
- RDS REMOLDED DS
- LOI LOSS ON IGNITION

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GEOTECHNICAL BORING LOG B-3

Date 11-16-07 **Sheet** 1 **of** 1

Project Marinita Devel Lake Street Prelim **Project No.** 602051-001

Drilling Co. Redman Drilling **Type of Rig** CME-75

Hole Diameter 8" inches **Drive Weight** 140lb **Drop** 30 inches

Elevation Top of Hole +/- feet **Location** See Boring Location Map

Logged By KXS

Sampled By

Elevation Feet	Depth Feet	Graphic Log (N S)	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION	Type of Tests
	0							SM	<u>QUATERNARY OLDER ALLUVIUM (Qalo)</u>	
									@0-5': Silty fine to medium grained SAND, brown, damp	
	5			R-1	50/3"	108	4		@5': Silty fine to medium grained SAND, dark brown, damp, dense	
	10			R-2	50/3"				@10': Silty fine to coarse grained SAND, light brown, moist, dense	
									Total Depth 10' 9" Grounwater Not Encountered Backfilled with Spoils on 11/16/2007	
	15									
	20									
	25									
	30									

SAMPLE TYPES:
- S SPT
- R RING SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE
- G GRAB SAMPLE
- C CORE SAMPLE

<u>TYPE OF TESTS:</u>
- SU SULFATE
- DS DIRECT SHEAR
- MD MAXIMUM DENSITY
- CN CONSOLIDATION
- CR CORROSION
- HCO HYDROCOLLAPSE
- HD HYDROMETER
- SA SIEVE ANALYSIS
- AL ATTERBERG LIMITS
- EI EXPANSION INDEX
- RV R-VALUE
- CS CORROSION SUITE
- MC MOISTURE CONTENT
- SE SAND EQUIVALENT
- -200 200 WASH
- RDS REMOLDED DS
- LOI LOSS ON IGNITION

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GEOTECHNICAL BORING LOG B-4

Date 11-16-07 **Sheet** 1 **of** 1
Project Marinita Devel Lake Street Prelim **Project No.** 602051-001
Drilling Co. Redman Drilling **Type of Rig** CME-75
Hole Diameter 8" inches **Drive Weight** 140lb **Drop** 30 inches
Elevation Top of Hole +/- feet **Location** See Boring Location Map

Logged By KXS
Sampled By

Elevation Feet	Depth Feet	Graphic Log (N S)	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION	Type of Tests
	0							SM	QUATERNARY YOUNGER ALLUVIUM (Qal)	
			B4-1 @ 0-5'						@0-5': Silty fine to coarse grained SAND, dark brown, damp	
	5			R-2	30	116	7	SM	QUATERNARY OLDER ALLUVIUM (Qalo) @5': Silty fine to coarse grained SAND, brown, moist, medium dense	
	10			R-3	69	121	6		@10': Silty fine to medium grained SAND with coarse grained particles, brown, moist, dense	
	15			R-4	61	117	6		@15': Silty fine to coarse grained SAND with silt, gray, moist, dense	
	20			R-5	50/2"				No Recovery Total Depth 20' 2" Grounwater Not Encountered Backfilled with Spoils on 11/16/2007	
	25									
	30									

SAMPLE TYPES:
- S SPT
- R RING SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE
- G GRAB SAMPLE
- C CORE SAMPLE

TYPE OF TESTS:
- SU SULFATE
- DS DIRECT SHEAR
- MD MAXIMUM DENSITY
- CN CONSOLIDATION
- CR CORROSION
- HCO HYDROCOLLAPSE
- HD HYDROMETER
- SA SIEVE ANALYSIS
- AL ATTERBERG LIMITS
- EI EXPANSION INDEX
- RV R-VALUE
- CS CORROSION SUITE
- MC MOISTURE CONTENT
- SE SAND EQUIVALENT
- -200 200 WASH
- RDS REMOLDED DS
- LOI LOSS ON IGNITION

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GEOTECHNICAL BORING LOG B-5

Date 11-16-07 **Sheet** 1 **of** 1
Project Marinita Devel Lake Street Prelim **Project No.** 602051-001
Drilling Co. Redman Drilling **Type of Rig** CME-75
Hole Diameter 8" inches **Drive Weight** 140lb **Drop** 30 inches
Elevation Top of Hole +/- feet **Location** See Boring Location Map

Logged By KXS
Sampled By

Elevation Feet	Depth Feet	Graphic Log (N–S)	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION	Type of Tests
	0							SM	QUATERNARY YOUNGER ALLUVIUM (Qal)	
									@0-5': Silty fine to medium grained SAND with coarse grained particles, brown, damp	
								SM	QUATERNARY OLDER ALLUVIUM (Qalo)	
	5			R-1	58	114	4		@5': Silty fine to medium grained SAND with coarse grained particles & gravel, gray, moist, medium dense	HCO
	10			R-2	35	106	6		@10': Silty fine to medium grained SAND with coarse grained particles, brown, moist, medium dense	HCO
	15			R-3	50/4"				@15': Silty fine to coarse grained SAND, brown, moist, dense	
	20			R-4	50/6"				@20': Silty fine to coarse grained SAND with gravel, dark brown, moist, dense	
									Total Depth 21' Grounwater Not Encountered Backfilled with Spoils on 11/16/2007	
	25									
	30									

SAMPLE TYPES:
S SPT
R RING SAMPLE
B BULK SAMPLE
T TUBE SAMPLE
G GRAB SAMPLE
C CORE SAMPLE

TYPE OF TESTS:
SU SULFATE
DS DIRECT SHEAR
MD MAXIMUM DENSITY
CN CONSOLIDATION
CR CORROSION
HCO HYDROCOLLAPSE
HD HYDROMETER
SA SIEVE ANALYSIS
AL ATTERBERG LIMITS
EI EXPANSION INDEX
RV R-VALUE
CS CORROSION SUITE
MC MOISTURE CONTENT
SE SAND EQUIVALENT
-200 200 WASH
RDS REMOLDED DS
LOI LOSS ON IGNITION

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GEOTECHNICAL BORING LOG B-6

Date 11-16-07 **Sheet** 1 **of** 1

Project Marinita Devel Lake Street Prelim **Project No.** 602051-001

Drilling Co. Redman Drilling **Type of Rig** CME-75

Hole Diameter 8" inches **Drive Weight** 140lb **Drop** 30 inches

Elevation Top of Hole +/- feet **Location** See Boring Location Map

Logged By KXS

Sampled By

Elevation Feet	Depth Feet	Graphic Log (N S)	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION	Type of Tests
	0							SM	QUATERNARY YOUNGER ALLUVIUM (Qal)	
			B6-1 @ 0-5'						@0-5': Silty fine SAND, reddish brown, moist	CS
								SM	QUATERNARY OLDER ALLUVIUM (Qalo)	
	5			R-2	84/8"	117	8		@5': Silty fine SAND, reddish brown, moist, dense	
	10			R-3	50/3"				@10': Silty fine to coarse grained SAND with gravel, gray & brown, moist, very dense	
	15			R-4	50/4"				@15': Silty fine to coarse grained SAND with gravel, gray & brown, moist, very dense	
									Total Depth 15' 4" Grounwater Not Encountered Backfilled with Spoils on 11/16/2007	
	20									
	25									
	30									

SAMPLE TYPES:
- S SPT
- R RING SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE
- G GRAB SAMPLE
- C CORE SAMPLE

TYPE OF TESTS:
- SU SULFATE
- DS DIRECT SHEAR
- MD MAXIMUM DENSITY
- CN CONSOLIDATION
- CR CORROSION
- HCO HYDROCOLLAPSE
- HD HYDROMETER
- SA SIEVE ANALYSIS
- AL ATTERBERG LIMITS
- EI EXPANSION INDEX
- RV R-VALUE
- CS CORROSION SUITE
- MC MOISTURE CONTENT
- SE SAND EQUIVALENT
- -200 200 WASH
- RDS REMOLDED DS
- LOI LOSS ON IGNITION

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GEOTECHNICAL BORING LOG B-7

Date 11-16-07 **Sheet** 1 **of** 1
Project Marinita Devel Lake Street Prelim **Project No.** 602051-001
Drilling Co. Redman Drilling **Type of Rig** CME-75
Hole Diameter 8" inches **Drive Weight** 140lb **Drop** 30 inches
Elevation Top of Hole +/- feet **Location** See Boring Location Map

Logged By KXS
Sampled By

Elevation Feet	Depth Feet	Graphic Log (N S)	Notes	Sample No.	Blows Per Foot	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	DESCRIPTION	Type of Tests
	0							SM	QUATERNARY YOUNGER ALLUVIUM (Qal) @0-2': Silty fine SAND, reddish brown brown, moist @2-5': Silty fine to medium grained SAND with coarese grained particles, brown, moist	
			B7-1 @ 2-5'							
	5							SM	QUATERNARY OLDER ALLUVIUM (Qalo)	
				R-2	50/5"	113	3		@5': Silty fine to coarse grained SAND, brown, moist, dense	
	10			R-3	50/6"	93	7		@10': Silty fine to coarse grained SAND, brown, moist, dense (ring sample distrubed during sampling)	
	15			R-4	70				@15': Silty fine SAND, brown, moist, dense	
									Total Depth 16' 6" Grounwater Not Encountered Backfilled with Spoils on 11/16/2007	
	20									
	25									
	30									

SAMPLE TYPES:
- S SPT
- R RING SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE
- G GRAB SAMPLE
- C CORE SAMPLE

TYPE OF TESTS:
- SU SULFATE
- DS DIRECT SHEAR
- MD MAXIMUM DENSITY
- CN CONSOLIDATION
- CR CORROSION
- HCO HYDROCOLLAPSE
- HD HYDROMETER
- SA SIEVE ANALYSIS
- AL ATTERBERG LIMITS
- EI EXPANSION INDEX
- RV R-VALUE
- CS CORROSION SUITE
- MC MOISTURE CONTENT
- SE SAND EQUIVALENT
- -200 200 WASH
- RDS REMOLDED DS
- LOI LOSS ON IGNITION

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APPENDIX C

Laboratory Testing Procedures and Test Results

Classification or Grain Size Tests: Typical materials were subjected to mechanical grain-size analysis by sieving from U.S. Standard brass screens (ASTM Test Method D2419). Hydrometer analyses were performed where appreciable quantities of fines were encountered and in accordance with ASTM Test Method D422. The data was evaluated in determining the classification of the materials. The grain-size distribution curves are presented in the test data and the Unified Soil Classification (USCS) is presented in both the test data and the boring logs.

Direct Shear Tests: Direct shear tests were performed, in general accordance with ASTM Test Method D3080, on selected disturbed samples. The samples were remolded to 90 percent relative compaction in accordance with ASTM 1557 and were soaked for a minimum of 24 hours under a surcharge equal to the applied normal force during testing. After transfer of the sample to the shear box, and reloading the sample, pore pressures set up in the sample due to the transfer were allowed to dissipate for a period of approximately 1 hour prior to application of shearing force. The samples were tested under various normal loads, a motor-driven, strain-controlled, direct-shear testing apparatus at a strain rate of less than 0.001 inches per minute (depending upon the soil type). The test results are presented in the test data.

Expansion Index Tests: The expansion potential of selected materials was evaluated in accordance with ASTM Test Method D4829. Specimens are molded under a given compactive energy to approximately the optimum moisture content and approximately 50 percent saturation or approximately 90 percent relative compaction. The prepared 1-inch thick by 4-inch diameter specimens are loaded to an equivalent 144 psf surcharge and are inundated with tap water until volumetric equilibrium is reached. The test results are presented in the test data.

Hydrocollapse Tests: Hydrocollapse tests were performed in accordance with ASTM Test Method D4546/D5333 on selected, relatively undisturbed ring samples. Samples were placed in a consolidometer and loads were applied in geometric progression. The percent hydrocollapse for each load cycle was recorded as the ratio of the amount of vertical compression to the original 1-inch height. The hydrocollapse test results are presented in the test data herein.

Moisture and Density Determination Tests: Moisture content and dry density determinations were performed in accordance with ASTM Test Method D2216 and D2937 on relatively undisturbed samples obtained from the test borings and/or trenches. The results of these tests are presented in the boring and/or trench logs. Where applicable, only moisture content was determined from "undisturbed" or disturbed samples.

R-Value: The resistance (R-value) was determined by the California Materials Method No. 301 for subgrade soils. Three samples were prepared and exudation pressure and R-value determined on each one. The graphically determined R-value at exudation pressure of 300 psi is summarized in the test data.

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EXPANSION INDEX of SOILS
ASTM D 4829

Project Name:	MARINITA DEVEL LAKE STREET	Tested By:	JAP	Date:	11/28/07
Project No. :	602051-001	Checked By:	JMB	Date:	11/29/07
Boring No:	B-1	Depth (ft.)	0-5.0		
Sample No. :	B1-1	Location:			
Sample Description:	SM, BROWN SILTY SAND WITH TRACE GRAVEL.				

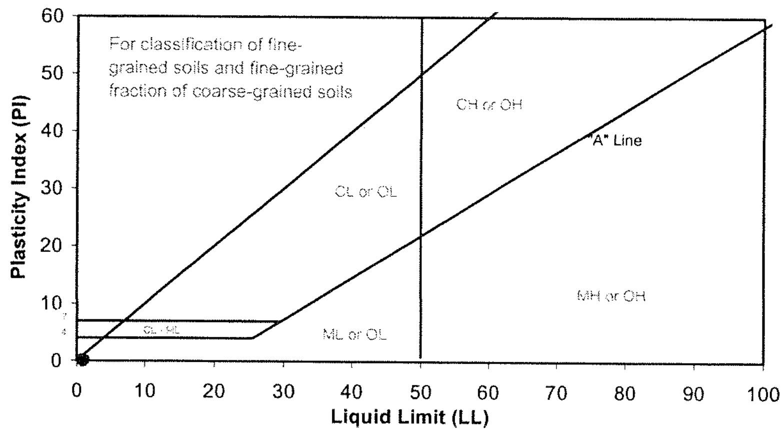
Dry Wt. of Soil + Cont. (gm.)	24725.0
Wt. of Container No. (gm.)	0.0
Dry Wt. of Soil (gm.)	24725.0
Weight Soil Retained on #4 Sieve	79.7
Percent Passing # 4	99.7

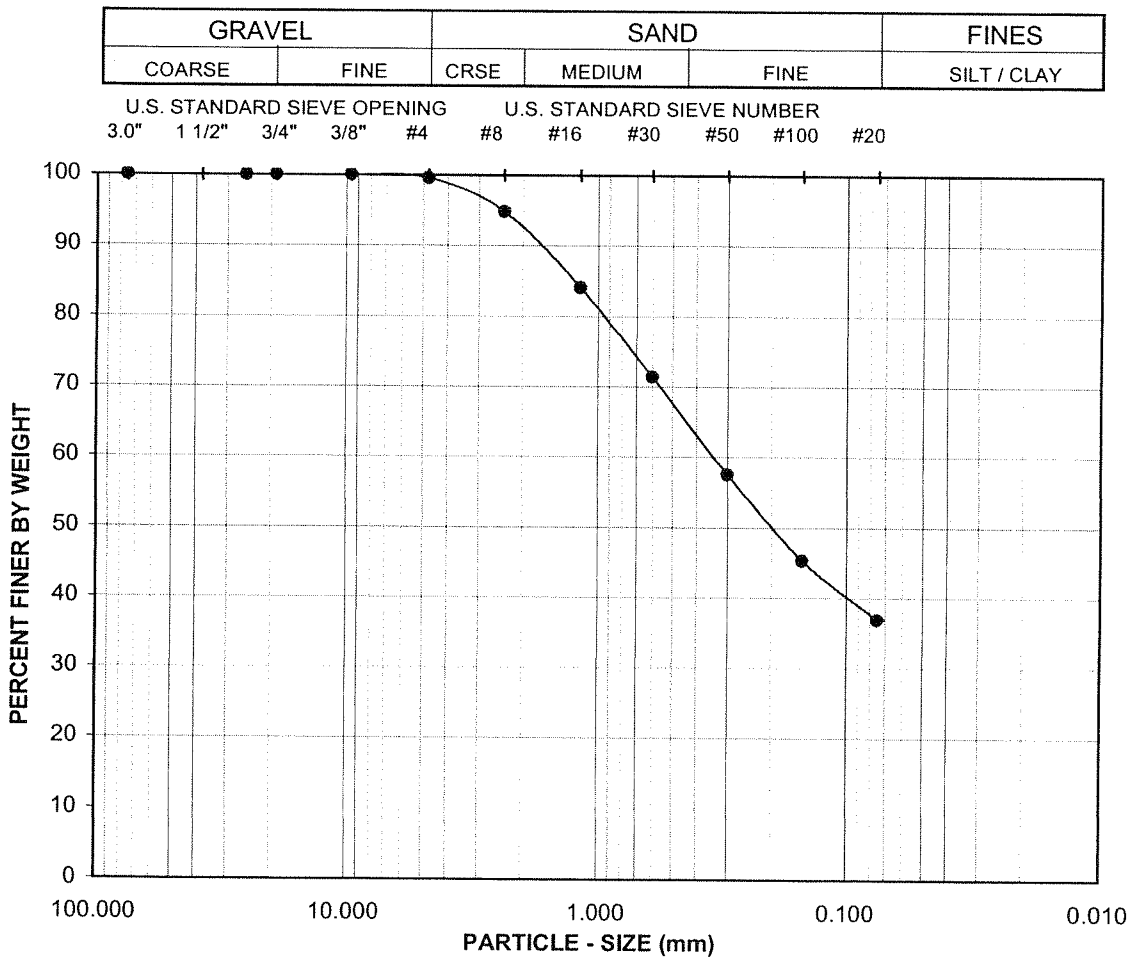
MOLDED SPECIMEN	Before Test	After Test
Specimen Diameter (in.)	4.01	4.01
Specimen Height (in.)	1.0000	1.0014
Wt. Comp. Soil + Mold (gm.)	633.5	652.4
Wt. of Mold (gm.)	188.6	188.6
Specific Gravity (Assumed)	2.70	2.70
Container No.	E-17	E-17
Wet Wt. of Soil + Cont. (gm.)	321.3	652.4
Dry Wt. of Soil + Cont. (gm.)	300.4	413.9
Wt. of Container (gm.)	21.3	188.6
Moisture Content (%)	7.5	12.1
Wet Density (pcf)	134.2	139.7
Dry Density (pcf)	124.8	124.7
Void Ratio	0.350	0.352
Total Porosity	0.259	0.261
Pore Volume (cc)	53.7	54.0
Degree of Saturation (%) [S meas]	**57.8**	**92.5**

SPECIMEN INUNDATION in distilled water for the period of 24 h or expansion rate < 0.0002 in./h.

Date	Time	Pressure (psi)	Elapsed Time (min.)	Dial Readings (in.)
11/28/07	14:18	1.0	0	0.5000
11/28/07	14:28	1.0	10	0.4998
	Add Distilled Water to the Specimen			
11/29/07	4:43	1.0	855	0.5014
11/29/07	5:43	1.0	915	0.5014

Expansion Index (EI meas) =	((Final Rdg - Initial Rdg) / Initial Thick.) x 1000	1.6
Expansion Index (EI)$_{50}$ =	EI meas - (50 -S meas)x((65+EI meas) / (220-S meas))	**5**





Boring No.:	Sample No.:	Depth (ft.):	Soil Type	GR:SA:FI	LL,PL,PI
B-2	B2-1	0-5.0	(SC-SM)	0 : 63 : 37	** : ** : ** :

Project No.: 602051-001

MARINITA DEVEL LAKE STREET

ATTERBERG LIMITS, PARTICLE - SIZE CURVE

ASTM D 4318, D 422

Visual Sample Description:
(SC-SM), BROWN SILTY, CLAYEY SAND WITH TRACE GRAVEL.

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Rev. 08-04

Sieve,B-2,B2-1

One-Dimensional Swell or Settlement Potential of Cohesive Soils

(ASTM D 4546)

Leighton

Project Name:	MARINITA DEVEL LAKE STREET	Tested By:	VRO
Project No.:	602051-001	Checked By:	JMB
Boring No.:	B-5	Sample Type:	IN SITU
Sample No.:	R-1	Depth (ft.)	5.0
Date:	11/28/07	Date:	11/29/07

Sample Description: SM, BROWN SILTY SAND.

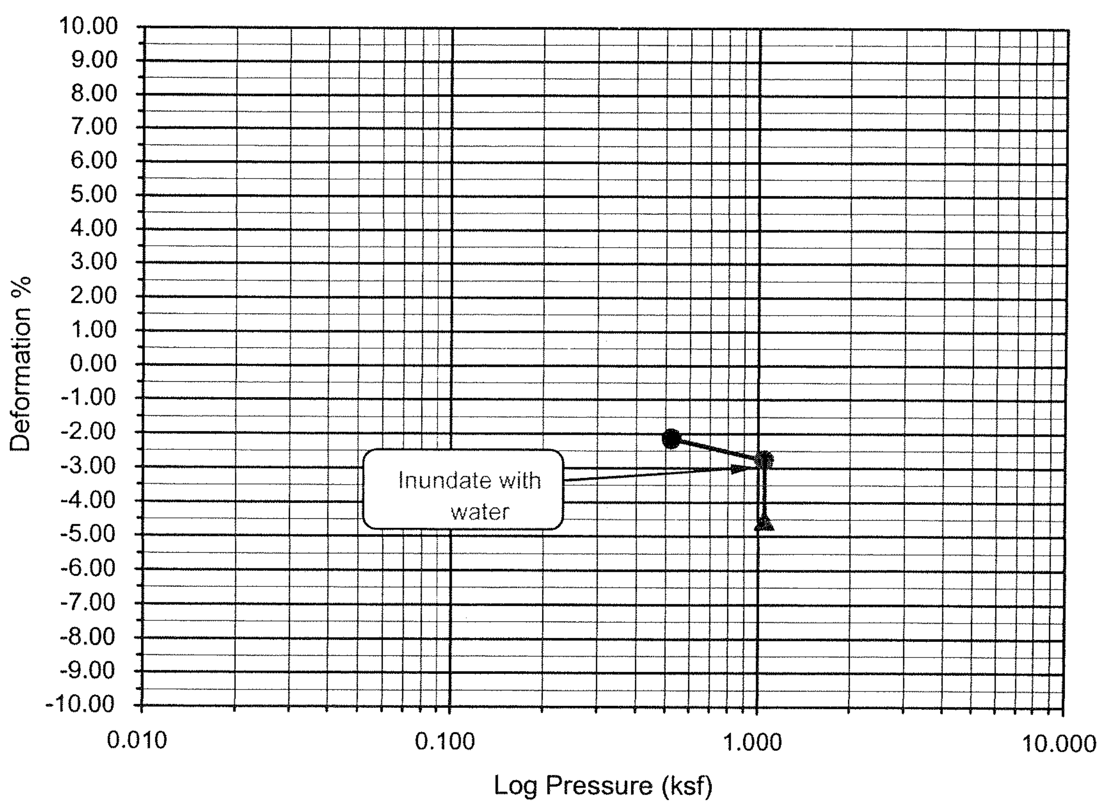
Initial Dry Density (pcf):	113.9
Initial Moisture (%):	4.2
Initial Length (in.):	1.0000
Initial Dial Reading:	0.0500
Diameter(in):	2.416

Final Dry Density (pcf):	119.3
Final Moisture (%) :	14.2
Initial Void ratio:	0.4795
Specific Gravity(assumed):	2.70
Initial Saturation (%)	23.4

Pressure (p) (ksf)	Final Reading (in)	Apparent Thickness (in)	Load Compliance (%)	Swell (+) Settlement (-) % of Sample Thickness	Void Ratio	Corrected Deformation (%)
0.525	0.0716	0.9784	0.00	-2.16	0.4476	-2.16
1.050	0.0778	0.9722	0.00	-2.78	0.4384	-2.78
H2O	0.0953	0.9547	0.00	-4.53	0.4125	-4.53

Percent Swell / Settlement After Inundation = -1.80

Deformation % - Log Pressure Curve



Rev. 08-04

Collapse-Swell; B-5 R-1

Leighton

One-Dimensional Swell or Settlement Potential of Cohesive Soils
(ASTM D 4546)

Project Name: MARINITA DEVEL LAKE STREET
Tested By: VRO Date: 11/28/07
Project No.: 602051-001
Checked By: JMB Date: 11/29/07
Boring No.: B-5
Sample Type: IN SITU
Sample No.: R-2
Depth (ft.) 10.0
Sample Description: SM, BROWN SILTY SAND.

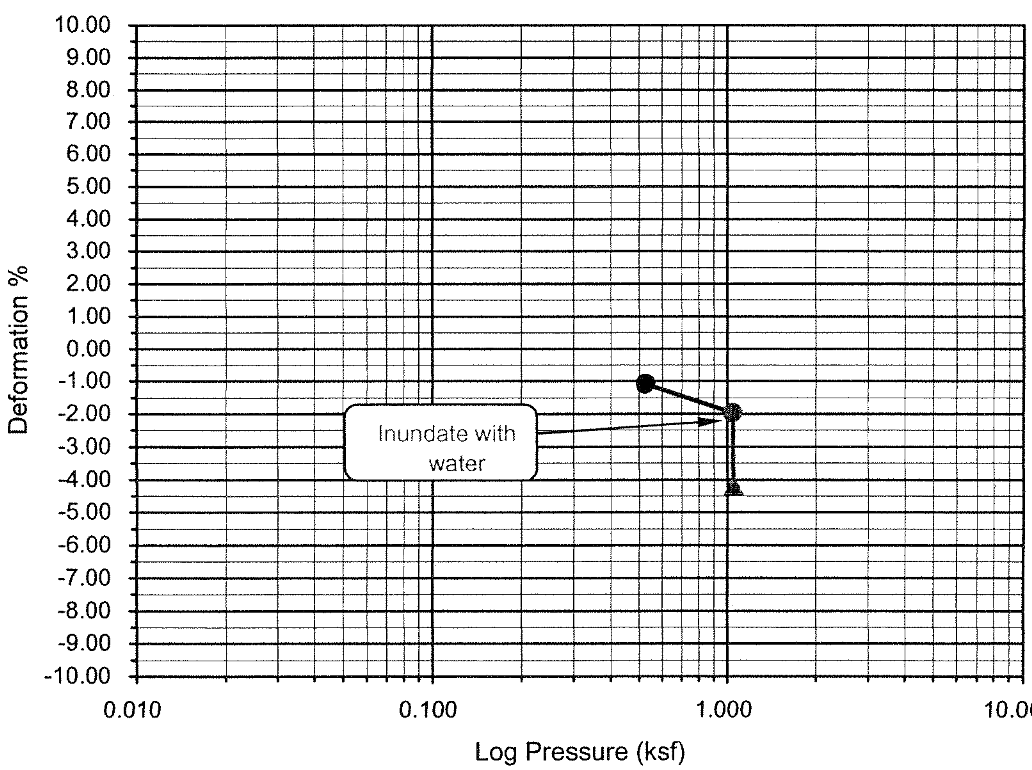
Initial Dry Density (pcf):	106.4
Initial Moisture (%):	6.1
Initial Length (in.):	1.0000
Initial Dial Reading:	0.0500
Diameter(in):	2.416

Final Dry Density (pcf):	111.0
Final Moisture (%) :	16.7
Initial Void ratio:	0.5847
Specific Gravity(assumed):	2.70
Initial Saturation (%)	28.1

Pressure (p) (ksf)	Final Reading (in)	Apparent Thickness (in)	Load Compliance (%)	Swell (+) Settlement (-) % of Sample Thickness	Void Ratio	Corrected Deformation (%)
0.526	0.0609	0.9891	0.00	-1.09	0.5674	-1.09
1.050	0.0698	0.9802	0.00	-1.98	0.5533	-1.98
H2O	0.0920	0.9580	0.00	-4.20	0.5181	-4.20

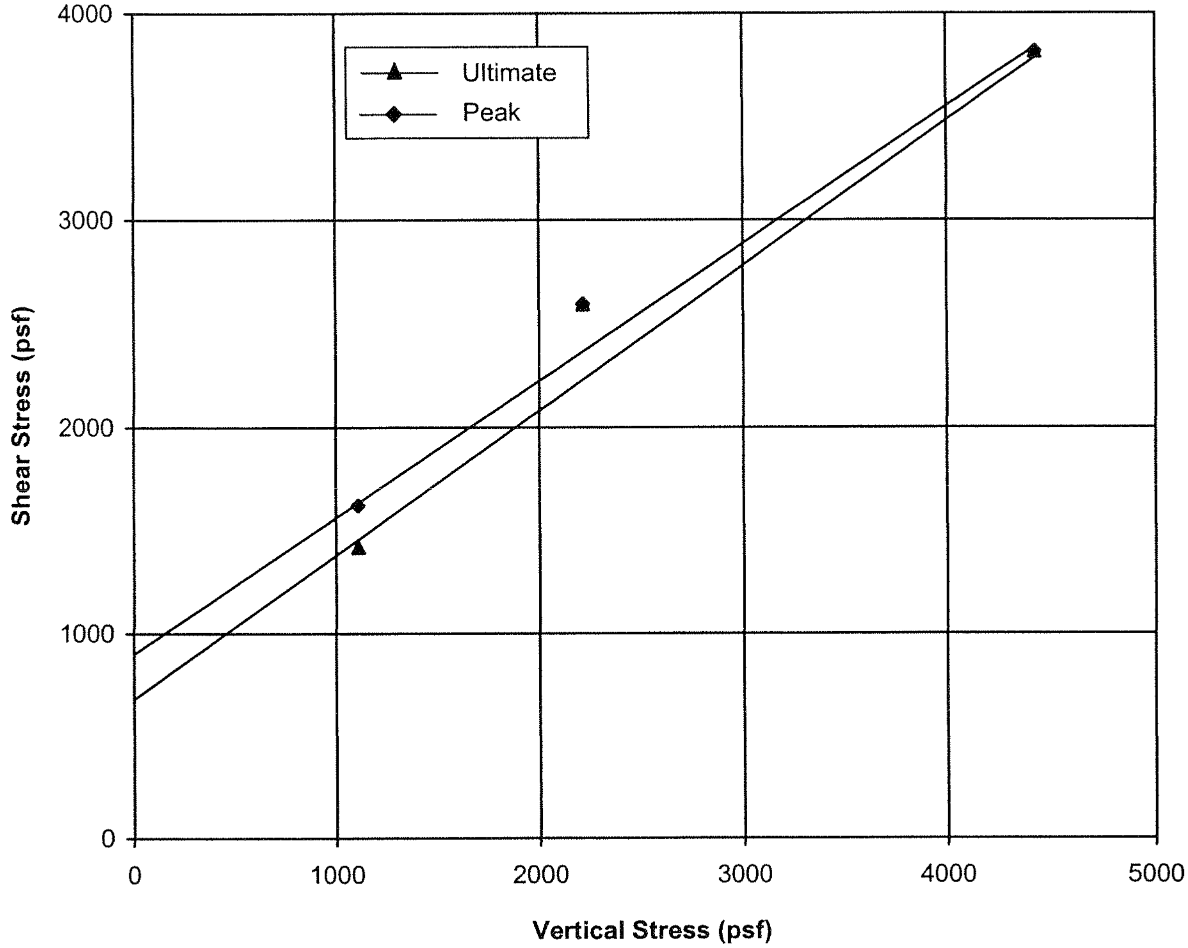
Percent Swell / Settlement After Inundation = -2.26

Deformation % - Log Pressure Curve



Rev. 08-04

Collapse-Swell; B-5 R-2



Boring Location	**B-1**	
Sample Depth (feet)	**10**	
Sample Description	**SC-SM, BROWN SILTY CLAYEY SAND**	
Sample Method	**Remolded to 90 percent Compaction**	
Initial Average Dry Density	**106.7**	pcf

Average Strength Parameters

Friction Angle, ϕ'_{peak} (deg)	**33.5**
Cohesion, c'_{peak} (psf)	**900**
Friction Angle, ϕ'_{ult} (deg)	**35**
Cohesion, c'_{ult} (psf)	**680**

DIRECT SHEAR SUMMARY

Project No.	602051-001
Project Name	Marinita Devel Lake Street
Date	November 29, 2007

Leighton

SOIL RESISTIVITY TEST

DOT CA TEST 532 / 643

Project Name: MARINITA DEVEL LAKE STREET
Project No. : 602051-001
Boring No.: B-6
Sample No. : B6-1
Visual Soil Identification: SM

Tested By : JAP Date: 11/29/07
Data Input By: JAP Date: 11/29/07
Checked By: JMB Date: 11/29/07
Depth (ft.) : 0-5.0

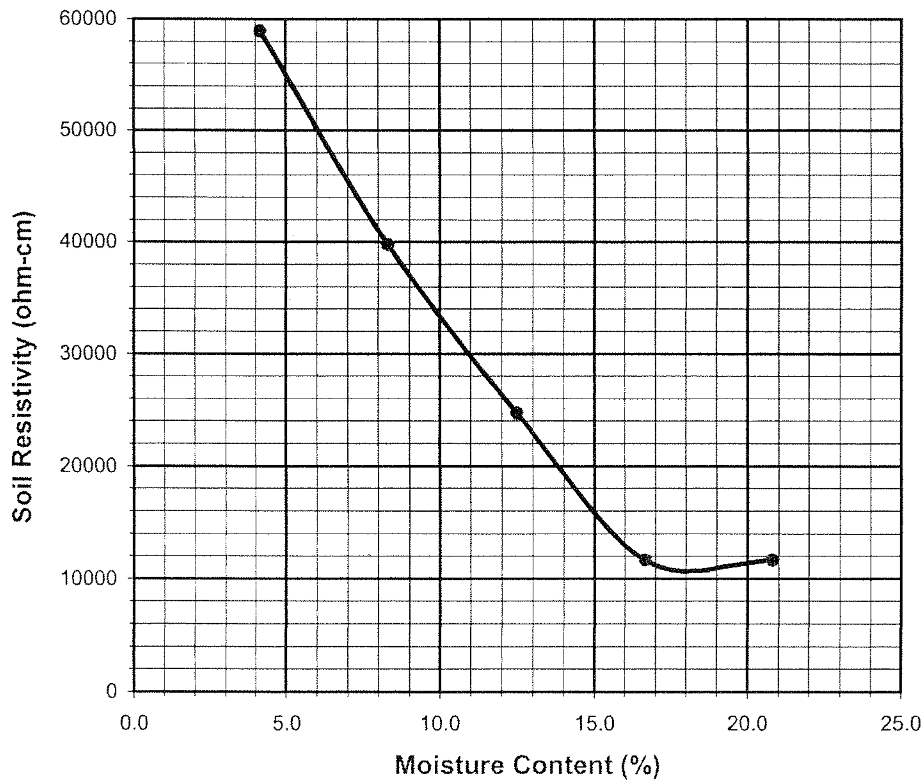
Initial Moisture Content (%)

Wet Wt. of Soil + Cont. (g)	1100.0
Dry Wt. of Soil + Cont. (g)	1100.0
Wt. of Container (g)	0.0
Moisture Content (%) (MCi)	0.00

Initial Soil Weight (gm)(Wt)	600.0
Box Constant:	6.85

MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100

Remolded Specimen	Moisture Adjustments				
Water Added (ml) (Wa)	25	50	75	100	125
Adj. Moisture Content (%) (MC)	4.17	8.33	12.50	16.67	20.83
Resistance Rdg. (ohm)	8600	5800	3600	1700	1700
Soil Resistivity (ohm-cm)	58910	39730	24660	11645	11645



Minimum Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content ppm / %	Chloride Content (ppm)	Soil pH
DOT CA Test 532 / 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 532/643
11645	**16.67**	**<150** <0.015	**340**	**6.84**

Rev. 11-04

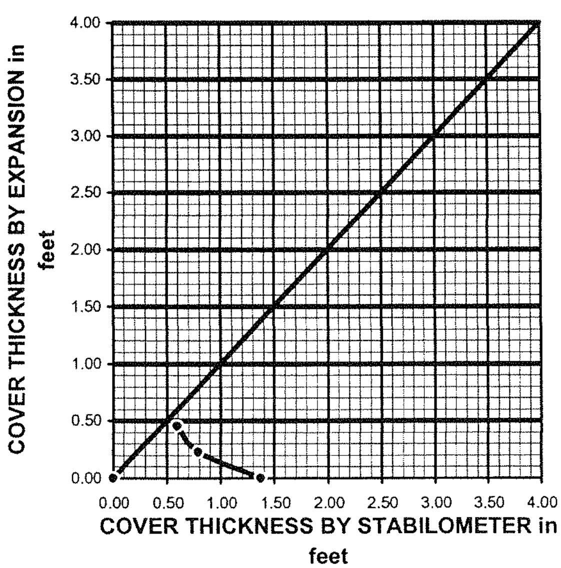
Leighton

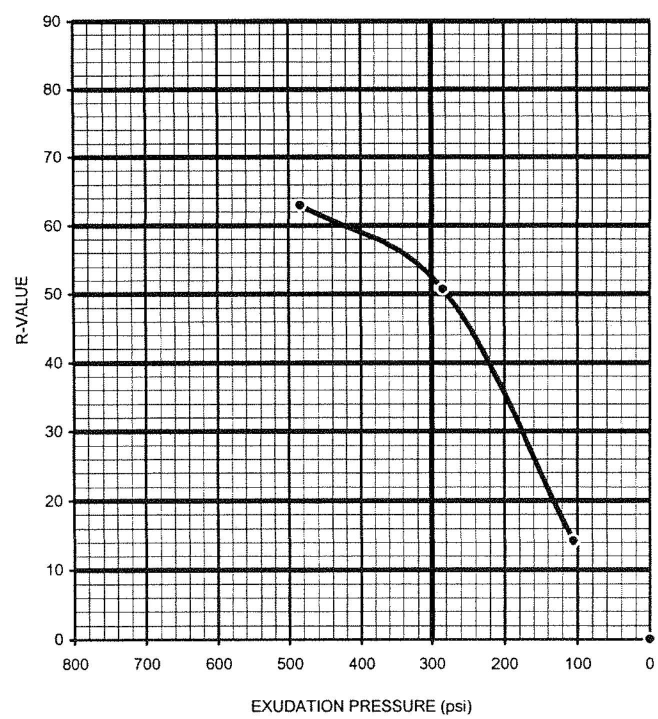
R-VALUE TEST RESULTS

Project Name:	MARINITA DEVEL LAKE STREET	Date:	11/29/07
Project Number:	602051-001	Technician:	JRH
Boring Number:	B-1	Depth (ft.):	0-5.0
Sample Number:	B1-1	Sample Location:	** —
Sample Description:	SM, BROWN SILTY SAND WITH TRACE GRAVEL.		

TEST SPECIMEN	A	B	C
MOISTURE AT COMPACTION %	8.4	9.4	10.4
HEIGHT OF SAMPLE, Inches	2.51	2.54	2.55
DRY DENSITY, pcf	126.8	124.6	125.7
COMPACTOR AIR PRESSURE, psi	250	200	100
EXUDATION PRESSURE, psi	484	283	105
EXPANSION, Inches x 10exp-4	12	6	0
STABILITY Ph 2,000 lbs (160 psi)	37	51	118
TURNS DISPLACEMENT	4.90	5.20	5.41
R-VALUE UNCORRECTED	63	51	14
R-VALUE CORRECTED	63	51	14

DESIGN CALCULATION DATA	a	b	c
GRAVEL EQUIVALENT FACTOR	1.0	1.0	1.0
TRAFFIC INDEX	5.0	5.0	5.0
STABILOMETER THICKNESS, ft.	0.59	0.79	1.37
EXPANSION PRESSURE THICKNESS, ft.	0.45	0.23	0.00





R-VALUE BY EXPANSION:	N/A
R-VALUE BY EXUDATION:	53
EQUILIBRIUM R-VALUE:	53

Rev. 08-04

APPENDIX D

EARTHWORK AND GRADING SPECIFICATIONS

GENERAL EARTHWORK AND GRADING SPECIFICATIONS FOR ROUGH GRADING

1.0 General

1.1 Intent: These General Earthwork and Grading Specifications are for the grading and earthwork shown on the approved grading plan(s) and/or indicated in the geotechnical report(s). These Specifications are a part of the recommendations contained in the geotechnical report(s). In case of conflict, the specific recommendations in the geotechnical report shall supersede these more general Specifications. Observations of the earthwork by the project Geotechnical Consultant during the course of grading may result in new or revised recommendations that could supersede these specifications or the recommendations in the geotechnical report(s).

1.2 The Geotechnical Consultant of Record: Prior to commencement of work, the owner shall employ the Geotechnical Consultant of Record (Geotechnical Consultant). The Geotechnical Consultants shall be responsible for reviewing the approved geotechnical report(s) and accepting the adequacy of the preliminary geotechnical findings, conclusions, and recommendations prior to the commencement of the grading.

Prior to commencement of grading, the Geotechnical Consultant shall review the "work plan" prepared by the Earthwork Contractor (Contractor) and schedule sufficient personnel to perform the appropriate level of observation, mapping, and compaction testing.

During the grading and earthwork operations, the Geotechnical Consultant shall observe, map, and document the subsurface exposures to verify the geotechnical design assumptions. If the observed conditions are found to be significantly different than the interpreted assumptions during the design phase, the Geotechnical Consultant shall inform the owner, recommend appropriate changes in design to accommodate the observed conditions, and notify the review agency where required. Subsurface areas to be geotechnically observed, mapped, elevations recorded, and/or tested include natural ground after it has been cleared for receiving fill but before fill is placed, bottoms of all "remedial removal" areas, all key bottoms, and benches made on sloping ground to receive fill.

The Geotechnical Consultant shall observe the moisture-conditioning and processing of the subgrade and fill materials and perform relative compaction testing of fill to determine the attained level of compaction. The Geotechnical Consultant shall provide the test results to the owner and the Contractor on a routine and frequent basis.

1.3 The Earthwork Contractor: The Earthwork Contractor (Contractor) shall be qualified, experienced, and knowledgeable in earthwork logistics, preparation and processing of ground to receive fill, moisture-conditioning and processing of fill, and compacting fill. The Contractor shall review and accept the plans, geotechnical report(s), and these Specifications prior to commencement of grading. The Contractor shall be solely responsible for performing the grading in accordance with the plans and specifications.
The Contractor shall prepare and submit to the owner and the Geotechnical Consultant a work plan that indicates the sequence of earthwork grading, the number of "spreads" of

work and the estimated quantities of daily earthwork contemplated for the site prior to commencement of grading. The Contractor shall inform the owner and the Geotechnical Consultant of changes in work schedules and updates to the work plan at least 24 hours in advance of such changes so that appropriate observations and tests can be planned and accomplished. The Contractor shall not assume that the Geotechnical Consultant is aware of all grading operations.

The Contractor shall have the sole responsibility to provide adequate equipment and methods to accomplish the earthwork in accordance with the applicable grading codes and agency ordinances, these Specifications, and the recommendations in the approved geotechnical report(s) and grading plan(s). If, in the opinion of the Geotechnical Consultant, unsatisfactory conditions, such as unsuitable soil, improper moisture condition, inadequate compaction, insufficient buttress key size, adverse weather, etc., are resulting in a quality of work less than required in these specifications, the Geotechnical Consultant shall reject the work and may recommend to the owner that construction be stopped until the conditions are rectified.

2.0 Preparation of Areas to be Filled

2.1 Clearing and Grubbing: Vegetation, such as brush, grass, roots, and other deleterious material shall be sufficiently removed and properly disposed of in a method acceptable to the owner, governing agencies, and the Geotechnical Consultant.

The Geotechnical Consultant shall evaluate the extent of these removals depending on specific site conditions. Earth fill material shall not contain more than 1 percent of organic materials (by volume). No fill lift shall contain more than 5 percent of organic matter. Nesting of the organic materials shall not be allowed.

If potentially hazardous materials are encountered, the Contractor shall stop work in the affected area, and a hazardous material specialist shall be informed immediately for proper evaluation and handling of these materials prior to continuing to work in that area.

As presently defined by the State of California, most refined petroleum products (gasoline, diesel fuel, motor oil, grease, coolant, etc.) have chemical constituents that are considered to be hazardous waste. As such, the indiscriminate dumping or spillage of these fluids onto the ground may constitute a misdemeanor, punishable by fines and/or imprisonment, and shall not be allowed.

2.2 Processing: Existing ground that has been declared satisfactory for support of fill by the Geotechnical Consultant shall be scarified to a minimum depth of 6 inches. Existing ground that is not satisfactory shall be overexcavated as specified in the following section. Scarification shall continue until soils are broken down and free of large clay lumps or clods and the working surface is reasonably uniform, flat, and free of uneven features that would inhibit uniform compaction.

2.3 Overexcavation: In addition to removals and overexcavations recommended in the approved geotechnical report(s) and the grading plan, soft, loose, dry, saturated, spongy, organic-rich, highly fractured or otherwise unsuitable ground shall be overexcavated to competent ground as evaluated by the Geotechnical Consultant during grading.

2.4 Benching: Where fills are to be placed on ground with slopes steeper than 5:1 (horizontal to vertical units), the ground shall be stepped or benched. Please see the Standard Details for a graphic illustration. The lowest bench or key shall be a minimum of 15 feet wide and at least 2 feet deep, into competent material as evaluated by the Geotechnical Consultant. Other benches shall be excavated a minimum height of 4 feet into competent material or as otherwise recommended by the Geotechnical Consultant. Fill placed on ground sloping flatter than 5:1 shall also be benched or otherwise overexcavated to provide a flat subgrade for the fill.

2.5 Evaluation/Acceptance of Fill Areas: All areas to receive fill, including removal and processed areas, key bottoms, and benches, shall be observed, mapped, elevations recorded, and/or tested prior to being accepted by the Geotechnical Consultant as suitable to receive fill. The Contractor shall obtain a written acceptance from the Geotechnical Consultant prior to fill placement. A licensed surveyor shall provide the survey control for determining elevations of processed areas, keys, and benches.

3.0 Fill Material

3.1 General: Material to be used as fill shall be essentially free of organic matter and other deleterious substances evaluated and accepted by the Geotechnical Consultant prior to placement. Soils of poor quality, such as those with unacceptable gradation, high expansion potential, or low strength shall be placed in areas acceptable to the Geotechnical Consultant or mixed with other soils to achieve satisfactory fill material.

3.2 Oversize: Oversize material defined as rock, or other irreducible material with a maximum dimension greater than 8 inches, shall not be buried or placed in fill unless location, materials, and placement methods are specifically accepted by the Geotechnical Consultant. Placement operations shall be such that nesting of oversized material does not occur and such that oversize material is completely surrounded by compacted or densified fill. Oversize material shall not be placed within 10 vertical feet of finish grade or within 2 feet of future utilities or underground construction.

3.3 Import: If importing of fill material is required for grading, proposed import material shall meet the requirements of Section 3.1. The potential import source shall be given to the Geotechnical Consultant at least 48 hours (2 working days) before importing begins so that its suitability can be determined and appropriate tests performed. Import fill should be free of all deleterious material and hazardous waste. Testing for hazardous waste typically takes between 7 and 14 working days.

4.0 Fill Placement and Compaction

4.1 Fill Layers: Approved fill material shall be placed in areas prepared to receive fill (per Section 3.0) in near-horizontal layers not exceeding 8 inches in loose thickness. The Geotechnical Consultant may accept thicker layers if testing indicates the grading procedures can adequately compact the thicker layers. Each layer shall be spread evenly and mixed thoroughly to attain relative uniformity of material and moisture throughout.

4.2 Fill Moisture Conditioning: Fill soils shall be watered, dried back, blended, and/or mixed, as necessary to attain a relatively uniform moisture content at or slightly over optimum. Maximum density and optimum soil moisture content tests shall be performed in accordance with the American Society of Testing and Materials (ASTM Test Method D1557-91).

4.3 Compaction of Fill: After each layer has been moisture-conditioned, mixed, and evenly spread, it shall be uniformly compacted to not less than 90 percent of maximum dry density (ASTM Test Method D1557-91). Compaction equipment shall be adequately sized and be either specifically designed for soil compaction or of proven reliability to efficiently achieve the specified level of compaction with uniformity.

4.4 Compaction of Fill Slopes: In addition to normal compaction procedures specified above, compaction of slopes shall be accomplished by backrolling of slopes with sheepsfoot rollers at increments of 3 to 4 feet in fill elevation, or by other methods producing satisfactory results acceptable to the Geotechnical Consultant. Upon completion of grading, relative compaction of the fill, out to the slope face, shall be at least 90 percent of maximum density per ASTM Test Method D1557-91.

4.5 Compaction Testing: Field tests for moisture content and relative compaction of the fill soils shall be performed by the Geotechnical Consultant. Location and frequency of tests shall be at the Consultant's discretion based on field conditions encountered. Compaction test locations will not necessarily be selected on a random basis. Test locations shall be selected to verify adequacy of compaction levels in areas that are judged to be prone to inadequate compaction (such as close to slope faces and at the fill/bedrock benches).

4.6 Frequency of Compaction Testing: Tests shall be taken at intervals not exceeding 2 feet in vertical rise and/or 1,000 cubic yards of compacted fill soils embankment. In addition, as a guideline, at least one test shall be taken on slope faces for each 5,000 square feet of slope face and/or each 10 feet of vertical height of slope. The Contractor shall assure that fill construction is such that the testing schedule can be accomplished by the Geotechnical Consultant. The Contractor shall stop or slow down the earthwork construction if these minimum standards are not met.

4.7 Compaction Test Locations: The Geotechnical Consultant shall document the approximate elevation and horizontal coordinates of each test location. The Contractor shall coordinate with the project surveyor to assure that sufficient grade stakes are established so that the Geotechnical Consultant can determine the test locations with sufficient accuracy. At a minimum, two grade stakes within a horizontal distance of 100 feet and vertically less than 5 feet apart from potential test locations shall be provided.

5.0 Subdrain Installation

Subdrain systems shall be installed in accordance with the approved geotechnical report(s), the grading plan, and the Standard Details. The Geotechnical Consultant may recommend additional subdrains and/or changes in subdrain extent, location, grade, or material depending on conditions encountered during grading. All subdrains shall be surveyed by a land surveyor/civil engineer for line and grade after installation and prior to burial. Sufficient time should be allowed by the Contractor for these surveys.

6.0 Excavation

Excavations, as well as over-excavation for remedial purposes, shall be evaluated by the Geotechnical Consultant during grading. Remedial removal depths shown on geotechnical plans are estimates only. The actual extent of removal shall be determined by the Geotechnical Consultant based on the field evaluation of exposed conditions during grading. Where fill-over-cut slopes are to be graded, the cut portion of the slope shall be made, evaluated, and accepted by the Geotechnical Consultant prior to placement of materials for construction of the fill portion of the slope, unless otherwise recommended by the Geotechnical Consultant.

7.0 Trench Backfills

7.1 The Contractor shall follow all OHSA and Cal/OSHA requirements for safety of trench excavations.

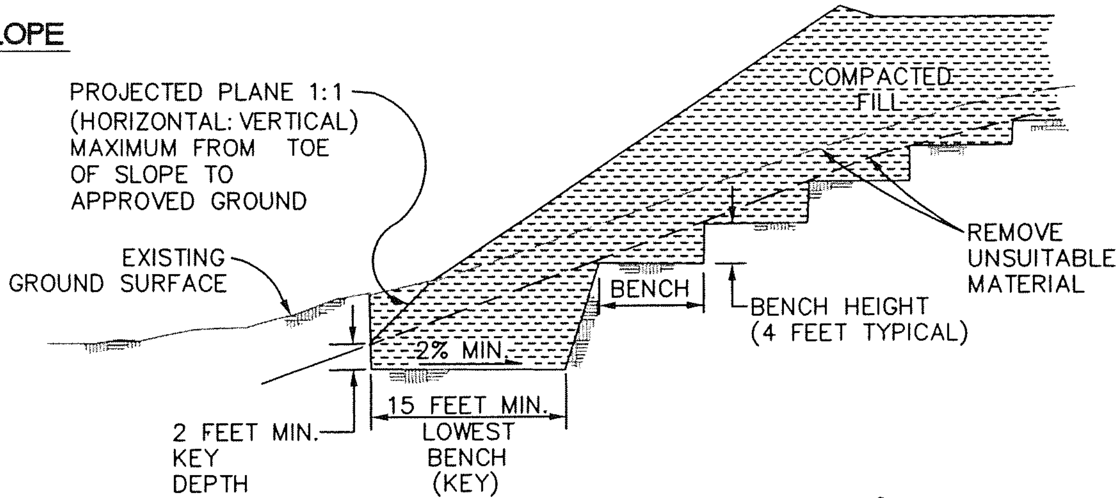
7.2 All bedding and backfill of utility trenches shall be done in accordance with the applicable provisions of Standard Specifications of Public Works Construction. Bedding material shall have a Sand Equivalent greater than 30 (SE>30). The bedding shall be placed to 1 foot over the top of the conduit and densified by jetting. Backfill shall be placed and densified to a minimum of 90 percent of maximum from 1 foot above the top of the conduit to the surface.

7.3 The jetting of the bedding around the conduits shall be observed by the Geotechnical Consultant.

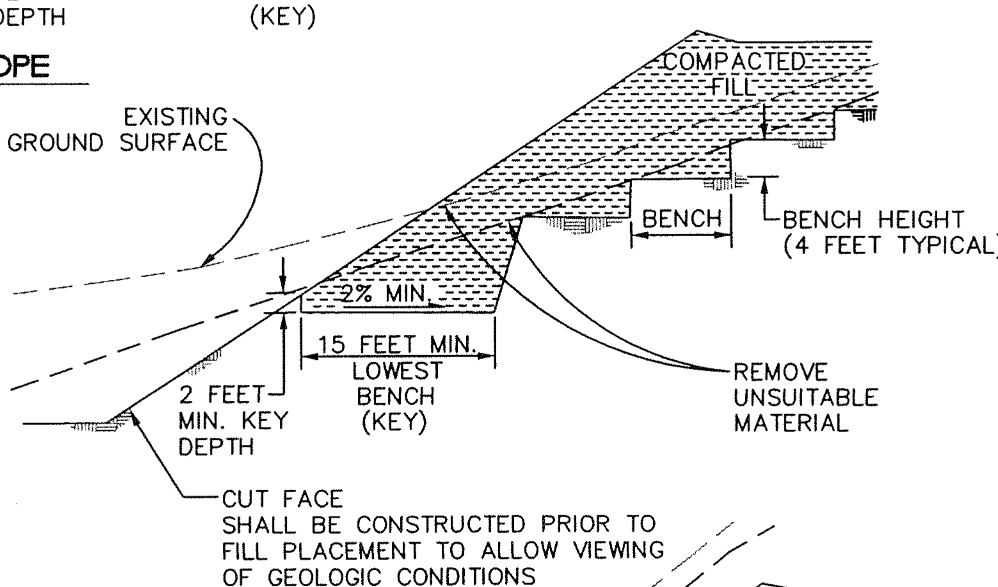
7.4 The Geotechnical Consultant shall test the trench backfill for relative compaction. At least one test should be made for every 300 feet of trench and 2 feet of fill.

7.5 Lift thickness of trench backfill shall not exceed those allowed in the Standard Specifications of Public Works Construction unless the Contractor can demonstrate to the Geotechnical Consultant that the fill lift can be compacted to the minimum relative compaction by his alternative equipment and method.

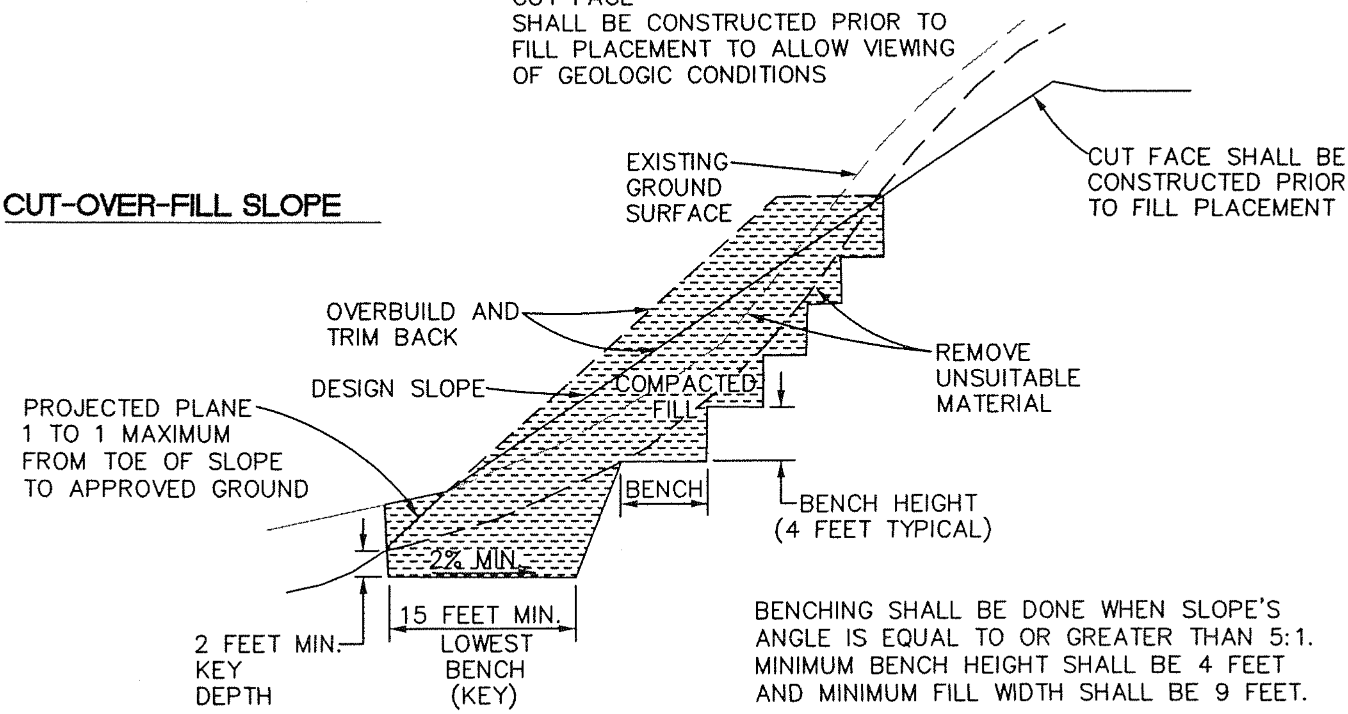
FILL SLOPE



FILL-OVER-CUT SLOPE

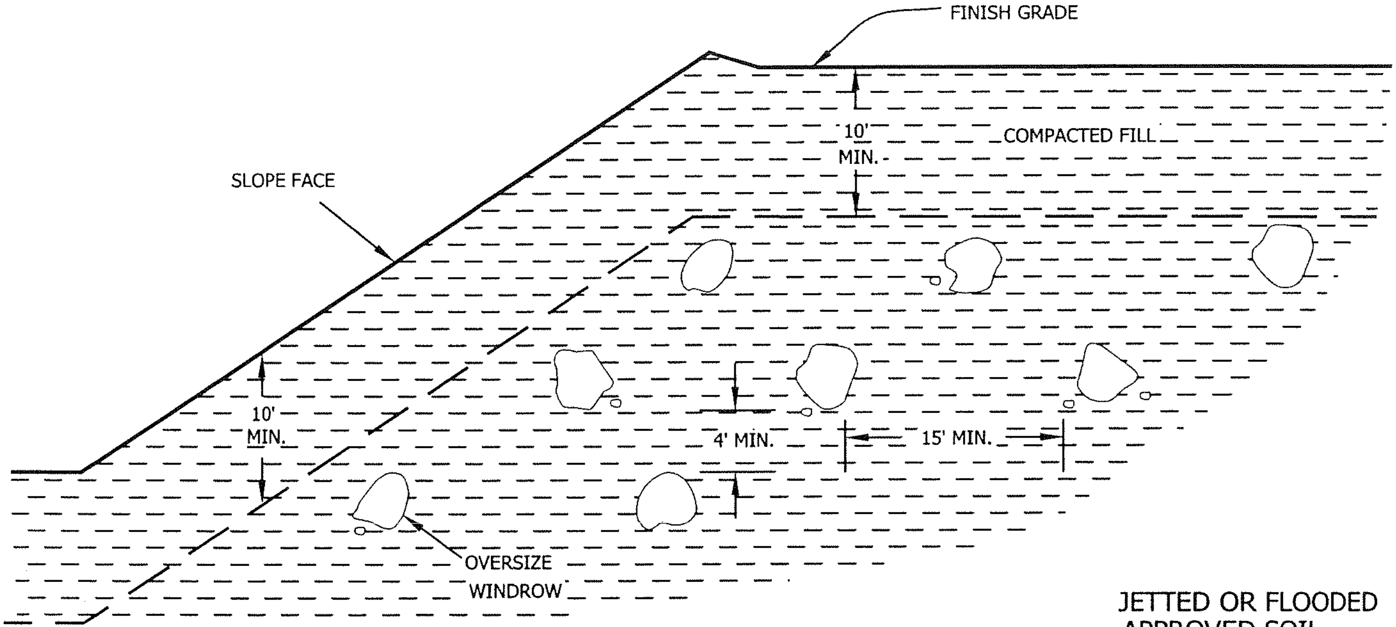


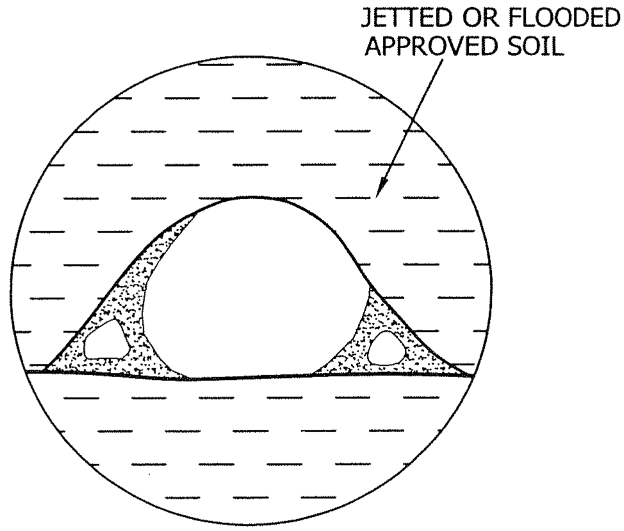
CUT-OVER-FILL SLOPE



BENCHING SHALL BE DONE WHEN SLOPE'S ANGLE IS EQUAL TO OR GREATER THAN 5:1. MINIMUM BENCH HEIGHT SHALL BE 4 FEET AND MINIMUM FILL WIDTH SHALL BE 9 FEET.

KEYING AND BENCHING	GENERAL EARTHWORK AND GRADING SPECIFICATIONS STANDARD DETAILS A	Leighton

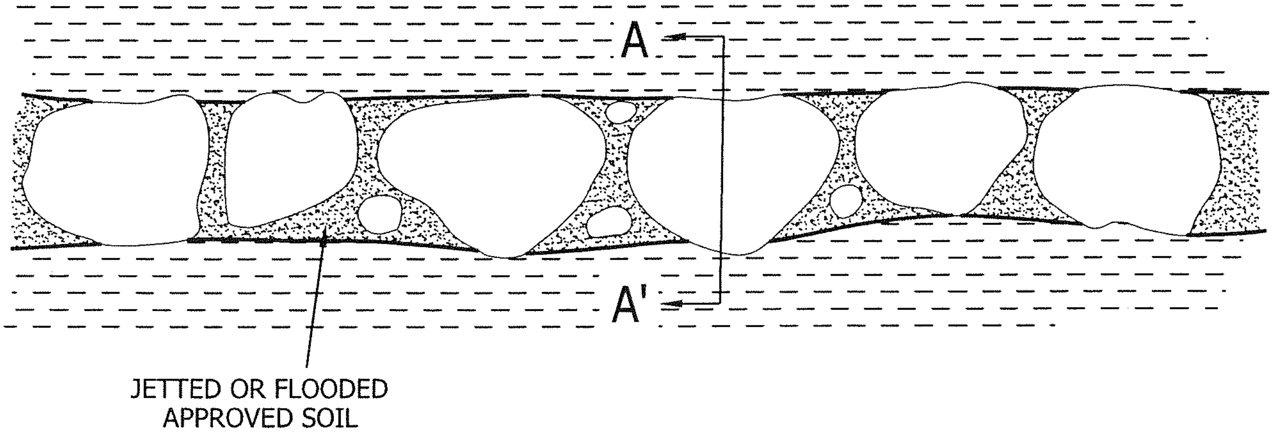




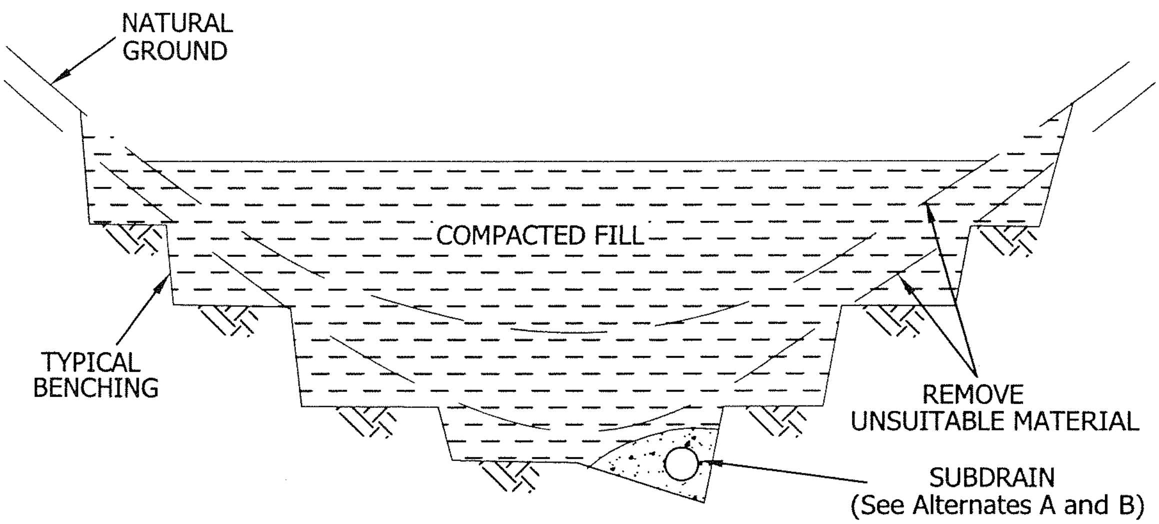
SECTION A-A'

- Oversize rock is larger than 8 inches in largest dimension.
- Backfill with approved soil jetted or flooded in place to fill all the voids.
- Do not bury rock within 10 feet of finish grade.
- Windrow of buried rock shall be parallel to the finished slope face.

PROFILE ALONG WINDROW

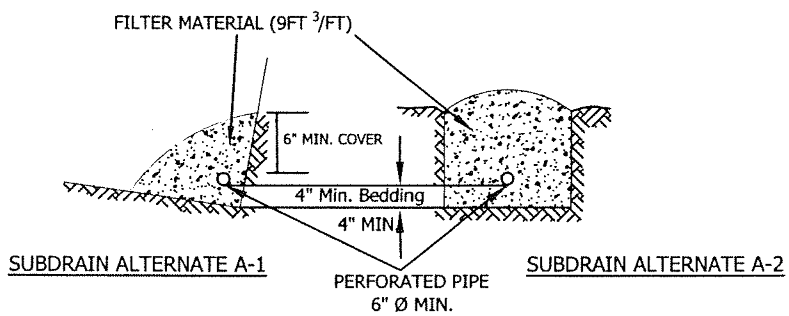


OVERSIZE ROCK DISPOSAL	GENERAL EARTHWORK AND GRADING SPECIFICATIONS STANDARD DETAILS B	Leighton



SUBDRAIN ALTERNATE A

PERFORATED PIPE SURROUNDED WITH FILTER MATERIAL

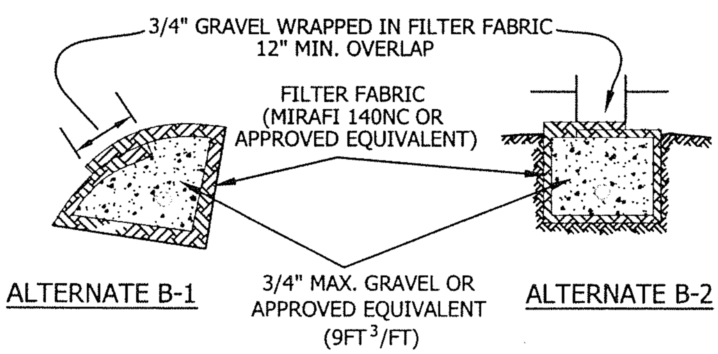


FILTER MATERIAL

FILTER MATERIAL SHALL BE CLASS 2 PERMEABLE MATERIAL PER STATE OF CALIFORNIA STANDARD SPECIFICATION, OR APPROVED ALTERNATE. CLASS 2 GRADING AS FOLLOWS:

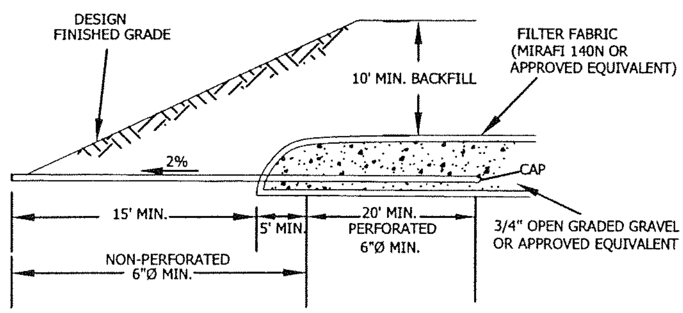
Sieve Size	Percent Passing
1"	100
3/4"	90-100
3/8"	40-100
No. 4	25-40
No. 8	18-33
No. 30	5-15
No. 50	0-7
No. 200	0-3

SUBDRAIN ALTERNATE B

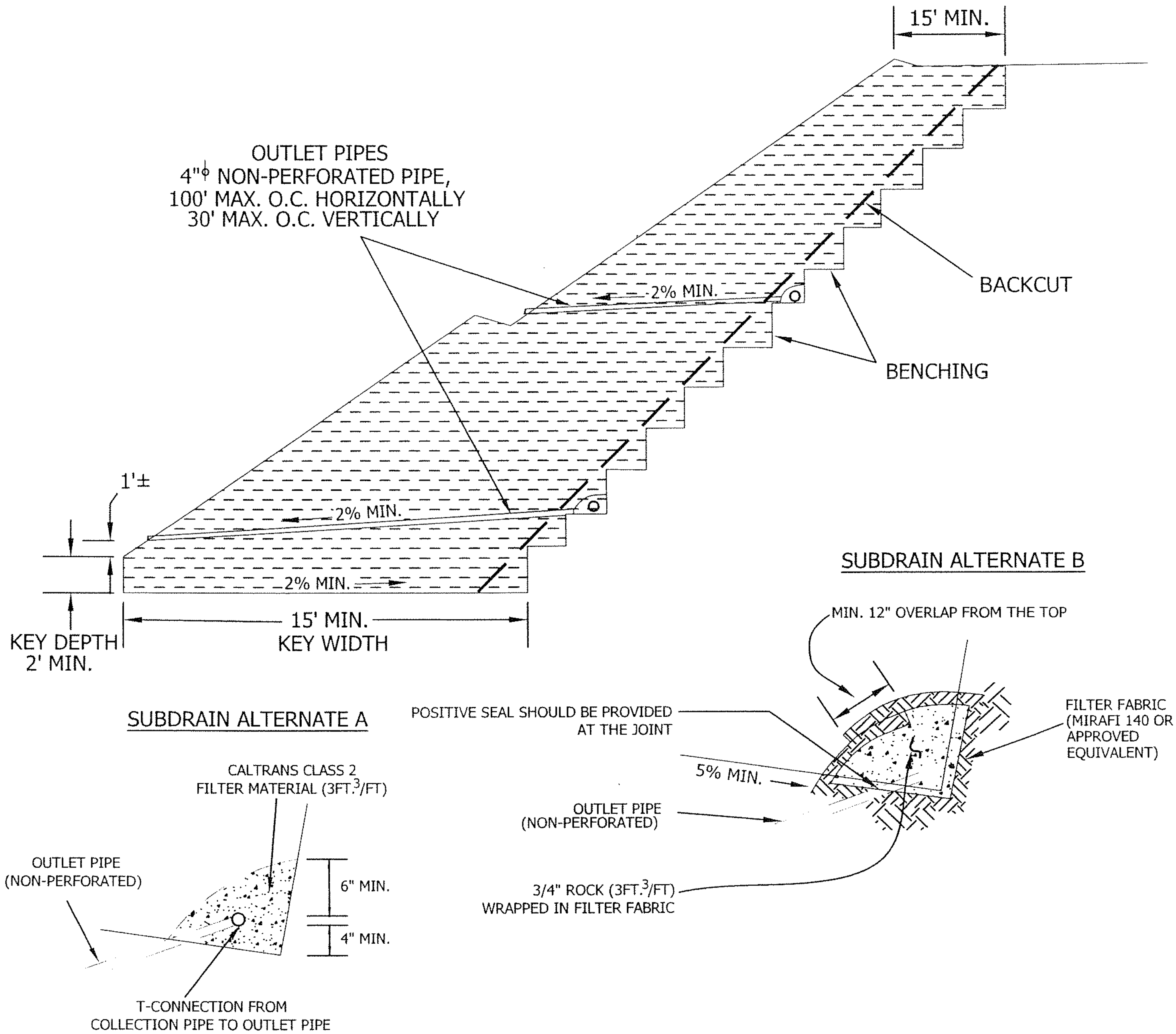


PERFORATED PIPE IS OPTIONAL PER GOVERNING AGENCY'S REQUIREMENTS

DETAIL OF CANYON SUBDRAIN TERMINAL



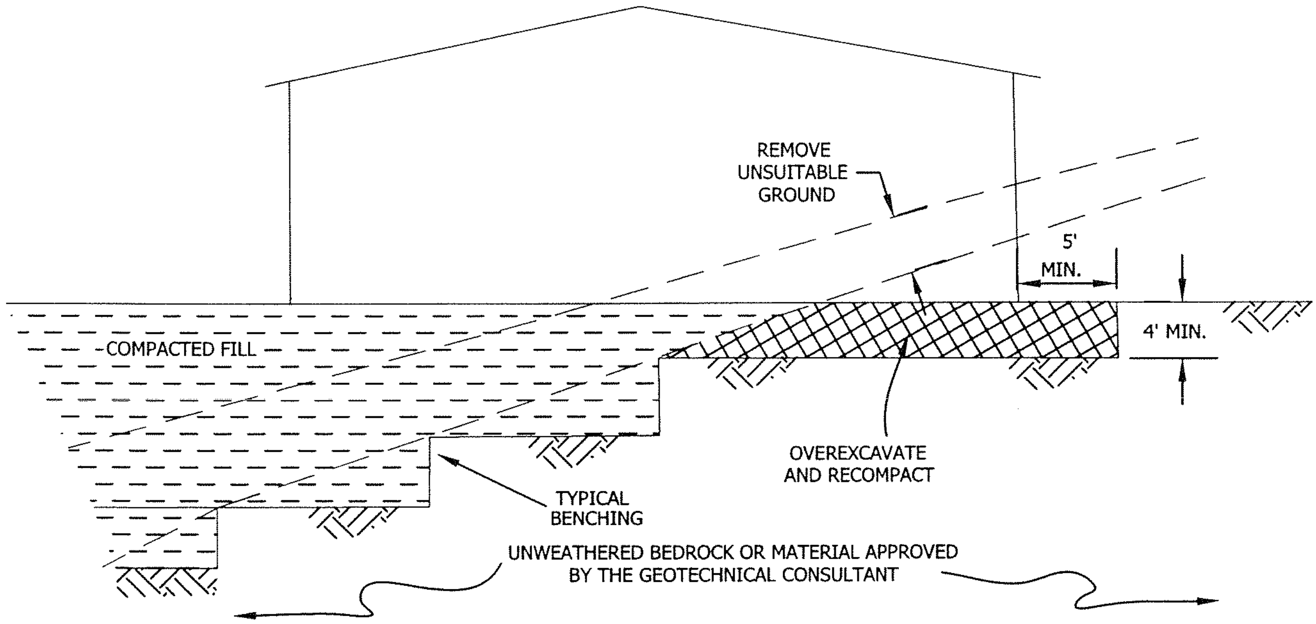
CANYON SUBDRAIN	GENERAL EARTHWORK AND GRADING SPECIFICATIONS STANDARD DETAILS C	Leighton



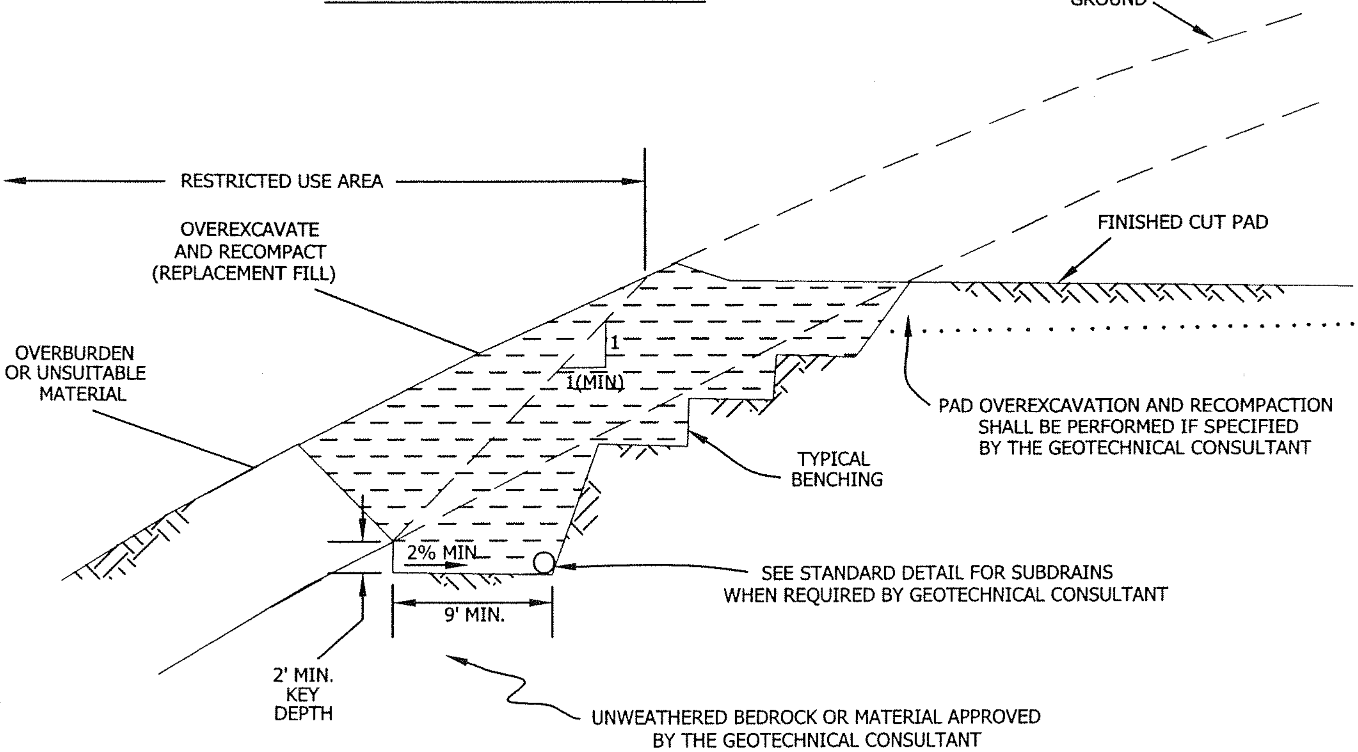
- SUBDRAIN INSTALLATION - Subdrain collector pipe shall be installed with perforations down or, unless otherwise designated by the geotechnical consultant. Outlet pipes shall be non-perforated pipe. The subdrain pipe shall have at least 8 perforations uniformly spaced per foot. Perforation shall be 1/4" to 1/2" if drilled holes are used. All subdrain pipes shall have a gradient at least 2% towards the outlet.
- SUBDRAIN PIPE - Subdrain pipe shall be ASTM D2751, ASTM D1527 (Schedule 40) or SDR 23.5 ABS pipe or ASTM D3034 (Schedule 40) or SDR 23.5 PVC pipe.
- All outlet pipe shall be placed in a trench and, after fill is placed above it, rodded to verify integrity.

BUTTRESS OR REPLACEMENT FILL SUBDRAINS	GENERAL EARTHWORK AND GRADING SPECIFICATIONS STANDARD DETAILS D	Leighton

CUT-FILL TRANSITION LOT OVEREXCAVATION



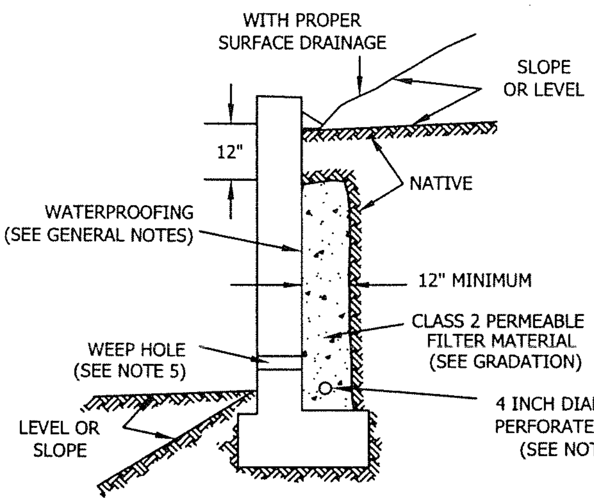
SIDE HILL FILL FOR CUT PAD



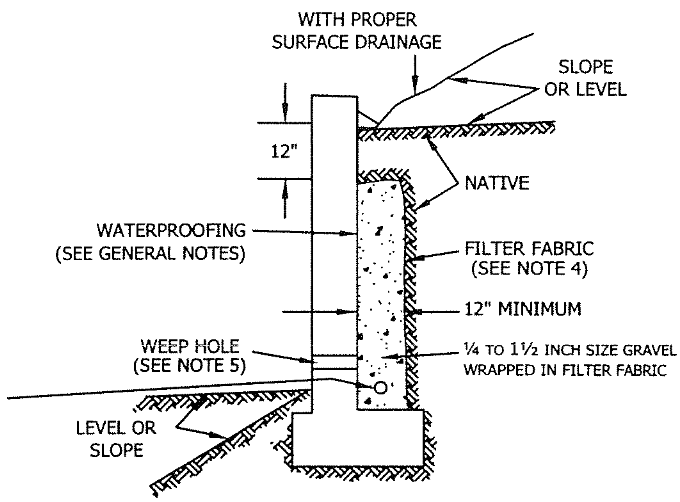
TRANSITION LOT FILLS AND SIDE HILL FILLS	GENERAL EARTHWORK AND GRADING SPECIFICATIONS STANDARD DETAILS E	Leighton

SUBDRAIN OPTIONS AND BACKFILL WHEN NATIVE MATERIAL HAS EXPANSION INDEX OF ≤50

OPTION 1: PIPE SURROUNDED WITH CLASS 2 PERMEABLE MATERIAL



OPTION 2: GRAVEL WRAPPED IN FILTER FABRIC



Class 2 Filter Permeable Material Gradation
Per Caltrans Specifications

Sieve Size	Percent Passing
1"	100
3/4"	90-100
3/8"	40-100
No. 4	25-40
No. 8	18-33
No. 30	5-15
No. 50	0-7
No. 200	0-3

GENERAL NOTES:

* Waterproofing should be provided where moisture nuisance problem through the wall is undesirable.
* Water proofing of the walls is not under purview of the geotechnical engineer
* All drains should have a gradient of 1 percent minimum

*Outlet portion of the subdrain should have a 4-inch diameter solid pipe discharged into a suitable disposal area designed by the project engineer. The subdrain pipe should be accessible for maintenance (rodding)

*Other subdrain backfill options are subject to the review by the geotechnical engineer and modification of design parameters.

Notes:

1) Sand should have a sand equivalent of 30 or greater and may be densified by water jetting.
2) 1 Cu. ft. per ft. of 1/4- to 1 1/2-inch size gravel wrapped in filter fabric
3) Pipe type should be ASTM D1527 Acrylonitrile Butadiene Styrene (ABS) SDR35 or ASTM D1785 Polyvinyl Chloride plastic (PVC), Schedule 40, Armco A2000 PVC, or approved equivalent. Pipe should be installed with perforations down. Perforations should be 3/8 inch in diameter placed at the ends of a 120-degree arc in two rows at 3-inch on center (staggered)
4) Filter fabric should be Mirafi 140NC or approved equivalent.
5) Weephole should be 3-inch minimum diameter and provided at 10-foot maximum intervals. If exposure is permitted, weepholes should be located 12 inches above finished grade. If exposure is not permitted such as for a wall adjacent to a sidewalk/curb, a pipe under the sidewalk to be discharged through the curb face or equivalent should be provided. For a basement-type wall, a proper subdrain outlet system should be provided.
6) Retaining wall plans should be reviewed and approved by the geotechnical engineer.
7) Walls over six feet in height are subject to a special review by the geotechnical engineer and modifications to the above requirements.

RETAINING WALL BACKFILL AND SUBDRAIN DETAIL FOR WALLS 6 FEET OR LESS IN HEIGHT

WHEN NATIVE MATERIAL HAS EXPANSION INDEX OF ≤50

Leighton

APPENDIX E

ASFE-IMPORTANT INFORMATION REGARDING YOUR GEOTECHNICAL REPORT

Important Information About Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual subsurface conditions revealed during construction. *The geotechnical engineer who developed your report cannot assume responsibility or liability for the report's recommendations if that engineer does not perform construction observation.*

A Geotechnical Engineering Report Is Subject to Misinterpretation

Other design team members' misinterpretation of geotechnical engineering reports has resulted in costly problems. Lower that risk by having your geotechnical engineer confer with appropriate members of the design team after submitting the report. Also retain your geotechnical engineer to review pertinent elements of the design team's plans and specifications. Contractors can also misinterpret a geotechnical engineering report. Reduce that risk by having your geotechnical engineer participate in prebid and preconstruction conferences, and by providing construction observation.

Do Not Redraw the Engineer's Logs

Geotechnical engineers prepare final boring and testing logs based upon their interpretation of field logs and laboratory data. To prevent errors or omissions, the logs included in a geotechnical engineering report should *never* be redrawn for inclusion in architectural or other design drawings. Only photographic or electronic reproduction is acceptable, *but recognize that separating logs from the report can elevate risk.*

Give Contractors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can make contractors liable for unanticipated subsurface conditions by limiting what they provide for bid preparation. To help prevent costly problems, give contractors the complete geotechnical engineering report, *but* preface it with a clearly written letter of transmittal. In that letter, advise contractors that the report was not prepared for purposes of bid development and that the report's accuracy is limited; encourage them to confer with the geotechnical engineer who prepared the report (a modest fee may be required) and/or to conduct additional study to obtain the specific types of information they need or prefer. A prebid conference can also be valuable. *Be sure contractors have sufficient time* to perform additional study. Only then might you be in a position to give contractors the best information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions.

Read Responsibility Provisions Closely

Some clients, design professionals, and contractors do not recognize that geotechnical engineering is far less exact than other engineering disciplines. This lack of understanding has created unrealistic expectations that have led to disappointments, claims, and disputes. To help reduce the risk of such outcomes, geotechnical engineers commonly include a variety of explanatory provisions in their reports. Sometimes labeled "limitations" many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely.* Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The equipment, techniques, and personnel used to perform a *geoenvironmental* study differ significantly from those used to perform a *geotechnical* study. For that reason, a geotechnical engineering report does not usually relate any geoenvironmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated environmental problems have led to numerous project failures.* If you have not yet obtained your own geoenvironmental information, ask your geotechnical consultant for risk management guidance. *Do not rely on an environmental report prepared for someone else.*

Obtain Professional Assistance To Deal with Mold

Diverse strategies can be applied during building design, construction, operation, and maintenance to prevent significant amounts of mold from growing on indoor surfaces. To be effective, all such strategies should be devised for the *express purpose* of mold prevention, integrated into a comprehensive plan, and executed with diligent oversight by a professional mold prevention consultant. Because just a small amount of water or moisture can lead to the development of severe mold infestations, a number of mold prevention strategies focus on keeping building surfaces dry. While groundwater, water infiltration, and similar issues may have been addressed as part of the geotechnical engineering study whose findings are conveyed in this report, the geotechnical engineer in charge of this project is not a mold prevention consultant; ***none of the services performed in connection with the geotechnical engineer's study were designed or conducted for the purpose of mold prevention. Proper implementation of the recommendations conveyed in this report will not of itself be sufficient to prevent mold from growing in or on the structure involved.***

Rely, on Your ASFE-Member Geotechncial Engineer for Additional Assistance

Membership in ASFE/The Best People on Earth exposes geotechnical engineers to a wide array of risk management techniques that can be of genuine benefit for everyone involved with a construction project. Confer with you ASFE-member geotechnical engineer for more information.

ASFE
THE BEST PEOPLE ON EARTH

8811 Colesville Road/Suite G106, Silver Spring, MD 20910
Telephone: 301/565-2733 Facsimile: 301/589-2017
e-mail: info@asfe.org www.asfe.org

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