

**Draft Initial Study and Notice of Intent to
Adopt a Mitigated Negative Declaration for the
Belmont Residential Subdivision Project –
Development Code Amendment 21-05 and
Subdivision No. 21-11 (Tentative Tract Map TTM 20421)**

**Southwest corner of W. Belmont Avenue and Olive Avenue,
San Bernardino, CA, 92407,
County of San Bernardino**

Lead Agency:
City of San Bernardino
290 North D St
San Bernardino, CA 92401

Applicant:
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September 2022

- This document is designed for double-sided printing -

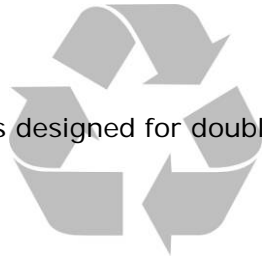


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1 Introduction

The City of San Bernardino (Lead Agency) received applications for Development Code Amendment 21-05 to modify the land use map to change the land use designation from RL (Residential Low - 3.1 du/net ac) with a minimum average lot size of 10,800 square feet to RS (Residential Suburban – 4.5 du/net ac) with a minimum lot size of 7,200 square feet and Subdivision 21-11 Tentative Tract Map 20421 (TTM) a subdivision of 6.10-gross acres/4.43 net acres into 25 residential lots for the future construction and use of single-family detached product. The site is located at the southwest corner of W. Belmont Avenue and Olive Avenue in the Verdemon area of the city of San Bernardino. The approval of the applications constitute a *project* that is subject to review under the California Environmental Quality Act (CEQA) 1970 (Public Resources Code, Section 21000 et seq.), and the State CEQA Guidelines (California Code of Regulations, Section 15000 et. seq.).

This Initial Study has been prepared to assess the short-term, long-term, and cumulative environmental impacts that could result from the proposed residential subdivision project.

This report has been prepared to comply with Section 15063 of the State CEQA Guidelines, which sets forth the required contents of an Initial Study. These include:

- A description of the project, including the location of the project (See Section 2);
- Identification of the environmental setting (See Section 2.9);
- Identification of environmental effects by use of a checklist, matrix, or other methods, provided that entries on the checklist or other form are briefly explained to indicate that there is some evidence to support the entries (See Section 4);
- Discussion of ways to mitigate significant effects identified, if any (See Section 4);
- Examination of whether the project is compatible with existing zoning, plans, and other applicable land use controls (See Section 4.11); and
- The name(s) of the person(s) who prepared or participated in the preparation of the Initial Study (See Section 5).

1.1 – Purpose of CEQA

The body of state law known as *CEQA* was originally enacted in 1970 and has been amended a number of times since then. The legislative intent of these regulations is established in Section 21000 of the California Public Resources Code, as follows:

The Legislature finds and declares as follows:

- a) The maintenance of a quality environment for the people of this state now and in the future is a matter of statewide concern.
- b) It is necessary to provide a high-quality environment that at all times is healthful and pleasing to the senses and intellect of man.
- c) There is a need to understand the relationship between the maintenance of high-quality ecological systems and the general welfare of the people of the state, including their enjoyment of the natural resources of the state.
- d) The capacity of the environment is limited, and it is the intent of the Legislature that the government of the state takes immediate steps to identify any critical thresholds for the health and safety of the people of the state and take all coordinated actions necessary to prevent such thresholds being reached.
- e) Every citizen has a responsibility to contribute to the preservation and enhancement of the environment.

Introduction

- f) The interrelationship of policies and practices in the management of natural resources and waste disposal requires systematic and concerted efforts by public and private interests to enhance environmental quality and to control environmental pollution.
- g) It is the intent of the Legislature that all agencies of the state government which regulate activities of private individuals, corporations, and public agencies which are found to affect the quality of the environment, shall regulate such activities so that major consideration is given to preventing environmental damage, while providing a decent home and satisfying living environment for every Californian.

The Legislature further finds and declares that it is the policy of the State to:

- a) Develop and maintain a high-quality environment now and in the future, and take all action necessary to protect, rehabilitate, and enhance the environmental quality of the state.
- b) Take all action necessary to provide the people of this state with clean air and water, enjoyment of aesthetic, natural, scenic, and historic environmental qualities, and freedom from excessive noise.
- c) Prevent the elimination of fish or wildlife species due to man's activities, insure that fish and wildlife populations do not drop below self-perpetuating levels, and preserve for future generations representations of all plant and animal communities and examples of the major periods of California history.
- d) Ensure that the long-term protection of the environment, consistent with the provision of a decent home and suitable living environment for every Californian, shall be the guiding criterion in public decisions.
- e) Create and maintain conditions under which man and nature can exist in productive harmony to fulfill the social and economic requirements of present and future generations.
- f) Require governmental agencies at all levels to develop standards and procedures necessary to protect environmental quality.
- g) Require governmental agencies at all levels to consider qualitative factors as well as economic and technical factors and long-term benefits and costs, in addition to short-term benefits and costs and to consider alternatives to proposed actions affecting the environment.

A concise statement of legislative policy, with respect to public agency consideration of projects for some form of approval, is found in Section 21002 of the Public Resources Code, quoted below:

The Legislature finds and declares that it is the policy of the state that public agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects, and that the procedures required by this division are intended to assist public agencies in systematically identifying both the significant effects of proposed projects and the feasible alternatives or feasible mitigation measures which will avoid or substantially lessen such significant effects. The Legislature further finds and declares that in the event specific economic, social, or other conditions make infeasible such project alternatives or such mitigation measures, individual projects may be approved in spite of one or more significant effects thereof.

1.2 – Public Comments

Comments from all agencies and individuals are invited regarding the information contained in this Initial Study. Such comments should explain any perceived deficiencies in the assessment of impacts, identify the information that is purportedly lacking in the Initial Study or indicate where the information may be found. All comments on the Initial Study are to be submitted to:

Travis Martin
Associate Planner
City of San Bernardino
Community and Economic Development
290 North D St, San Bernardino, CA 92401
O: 909-384-5313
martin_tr@sbcity.org

Following a 20-day period of circulation and review of the Initial Study, all comments will be considered by the City of San Bernardino prior to adoption.

1.3 – *Availability of Materials*

All materials related to the preparation of this Initial Study are available for public review. To request an appointment to review these materials, please contact:

Travis Martin
Associate Planner
City of San Bernardino
Community and Economic Development
290 North D St, San Bernardino, CA 92401
O: 909-384-5313
martin_tr@sbcity.org



2 Project Description

2.1 – Project Title

Belmont Residential Subdivision Project - Development Code Amendment 21-05 and Tentative Tract Map (Subdivision 21-11) (TTM 20421)

2.2 – Lead Agency Name and Address

City of San Bernardino
Community and Economic Department
290 North D Street
San Bernardino, CA 92401 (Mailing Address)

2.3 – Contact Person and Phone Number

Travis Martin, Associate Planner at 909-384-5313

2.4 – Project Location

The site is located on the south side of West Belmont Avenue at Olive Avenue in the Verdemont Hills subarea of the Verdemont Heights Area Plan. The project site is identified as Assessor Parcel Number 0261-151-10. The latitude and longitude is 34° 11' 48.33" North and 117° 21' 11.40" West (see Figure 1 Regional Map and Figure 2 Project Aerial). Regional access to the project site is generally via Interstate 215 at the Palm Avenue exit.

2.5 – Project Sponsor's Name and Address

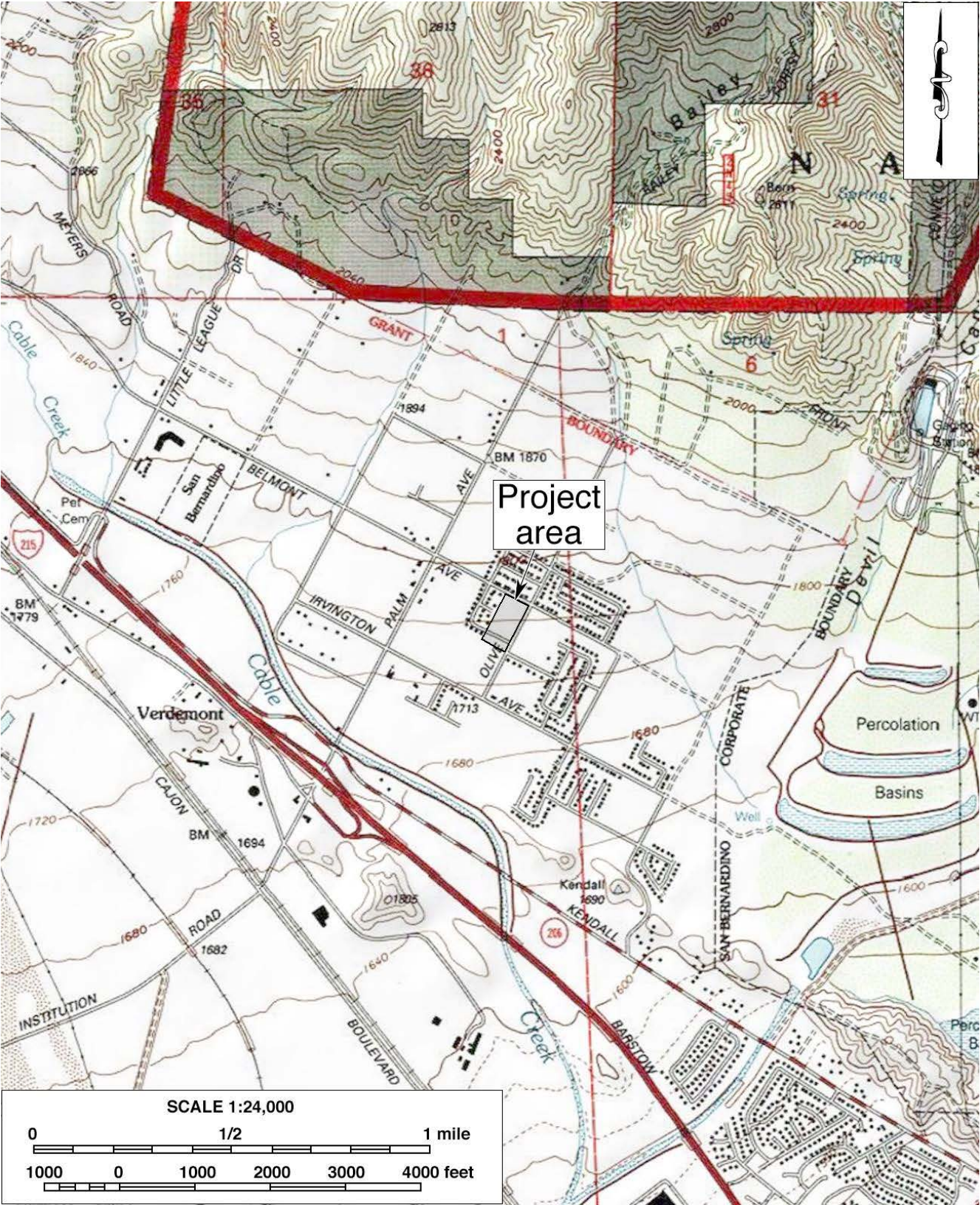
Mr. Rene Jacober
Inland Self Storage Management
PO Box 8008
Newport Beach, CA 92658

2.6 – General Plan Land Use Designation

The project site lies within the Verdemont Heights Area Plan of the City. Verdemont Heights is a residential community located in the northwestern most corner of the City, nestled in the foothills of the San Bernardino Mountains and overlooking the Cajon Creek Wash and the Glen Helen Regional Park. Verdemont Heights is bordered on the north by the San Bernardino National Forest, on the southwest by Kendall Drive, Interstate 215, and the Cajon Creek, and on the southeast by the Devil's Canyon Flood Control Basins and the East Branch of the California Aqueduct. Immediately southeast of these flood control basins is the California State University at San Bernardino. Verdemont Heights encompasses a gently north-south sloping hill at the base of the San Bernardino Mountains.

Project Description

Figure 1 Regional Location



Source: USGS San Bernardino North, Calif., 7.5' quadrangle [USGS 1996]

Figure 2 Project Aerial



Source: Google Earth Pro, April 19, 2021

Project Description

The site is located in the subarea known as the Verdemont Hills, which is a collection of suburban subdivisions located adjacent to I-215 and extending to the foothills east of Little League Drive. The Residential Low and Residential Suburban land use designations characterize this subarea.

The subject site has a land use designation of Residential Low (RL), which allows for a maximum of 3.1 dwelling units per acre and requires a minimum lot size of 10,800 square feet as identified by the Land Use Element of the City of San Bernardino General Plan. The intended use for this designation is single-family detached residences in a low-density setting.

2.7 – Zoning

The project site is currently zoned Residential Low [3.1 dwelling units per acre (10,800 minimum lot size)].

2.8 – Project Description

Development Code Amendment 21-05 to modify the land use map to change the land use designation from RL (Residential Low - 3.1 du/net ac) with a minimum average lot size of 10,800 square feet to RS (Residential Suburban – 4.5 du/net ac) with a minimum lot size of 7,200 square feet pursuant to Chapter 19.42 Development Code Amendments of the City of San Bernardino Development Code.

Subdivision 21-11 Tentative Tract Map 20421 (TTM) a request to allow the division of a parcel containing approximately 6.10-gross acres/4.43 net acres into 25 residential lots for the future construction and use of single-family detached product together with the construction of the required on-site infrastructure improvements. The lots sizes ranges from 7,372 to 9,377 square feet with an average lot size of 7,852 square feet at a density of 4.10 dwelling units per gross acre (see Figure 3 Tentative Tract Map No. 20421).

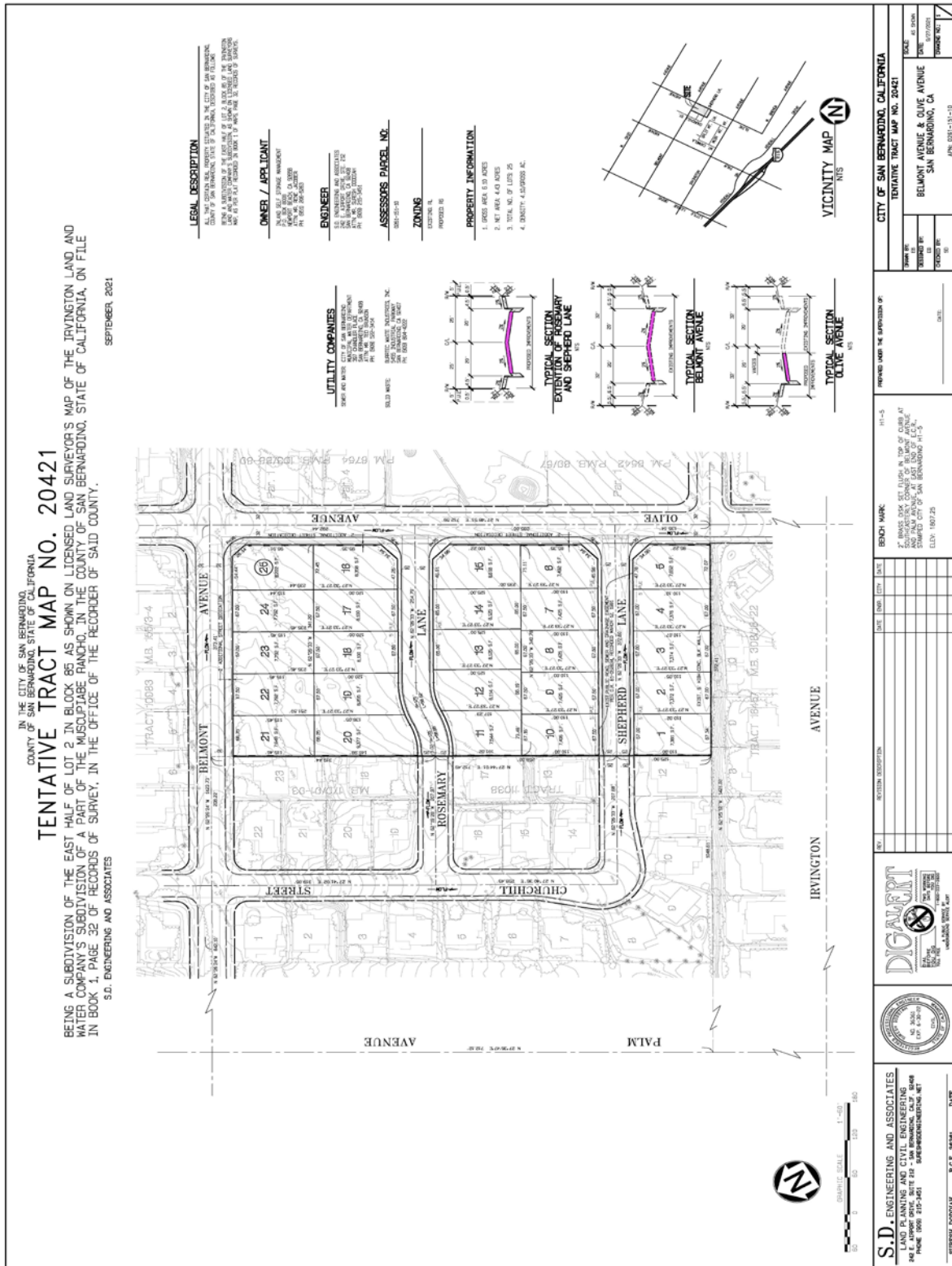
Proposed Improvements

The project will be providing an additional two-foot road right-of-way dedication of the south side of West Belmont Avenue and the west side of Olive Avenue along the project frontages. The proposed project also includes the construction of roads with curb and gutter.

Vehicular access will be provided via Shepherd Lane for lots 1 through 10, via Rosemary Lane for lots 11 through 20 and via West Belmont Avenue for Lots 21 through 25. The applicant prepared a Traffic Scoping form for the proposal, which was reviewed by the City's Traffic Engineer to determine whether or not a Traffic Impact Analysis was required. The City Engineer's determined that a Traffic Impact Analysis was not required because the vehicle trips generated by the proposal was less than 250 daily trips and less than 50 peak hour trips and would therefore not create negative traffic/transportation impacts. The project is located within a low Vehicle Miles Travelled (VMT) generating area per the San Bernardino County Transportation Analysis screening tool and does not require further study.

The proposed project is designed to connect to existing water and sewer systems and will comply with the National Pollution Discharge Elimination System (NPDES) and a Storm Water Pollution Prevention Plan (SWPPP) will be prepared, reviewed and implemented for construction activities.

Figure 3 Tentative Tract Map No. 20421



Source: S.D. Engineering and Associates, 2021

Project Description

A Preliminary Water Quality Control Plan will be prepared and reviewed by the Land Development Staff for the post-construction operational management of storm water runoff, and identify Best Management Practices to minimize pollutants entering the drainage system after construction and at the time when development plans are submitted for the construction of the residential dwellings. Wet and dry utility connections would be made to existing facilities within West Belmont Avenue and Olive Avenue.

Project Construction

The project is a subdivision to support the future development of 25 single-family detached residential dwelling units. The project is anticipated to be built in multiple phases, however was modeled as one phase, as a worst-case scenario, with construction beginning no sooner than October 2022 and taking approximately 12 months to complete. Opening year is 2023.

2.9 – Surrounding Land Uses and Setting

The 4.43-net acre project consists of a rectangular shaped tract of land surrounded by typical suburban residential neighborhoods. The terrain in the project area is generally flat, and slopes gently downward to the south and southwest. The elevations range from 1,746 feet to 1,785 feet above mean sea level. The surface soils are alluvial in nature, consisting of fine- to coarse-grained sands mixed with silt, small to large rocks, and small boulders. Most of the property is occupied by ruderal vegetation with an isolated stand of California buckwheat scrub along the paved road (Shepherd Lane) in the southern part of the property, and a double olive tree row is located along Belmont Avenue on the northern part of the property.

**Table 2.9-1
Existing General Plan and Zoning Designations**

Direction	General Plan Designation	Zoning District	Existing Land Use
Project Site	Foundation Component: Single Family Residential Land Use: Residential Low	Residential Low (RL)	Vacant land
North	Foundation Component: Single Family Residential Land Use: Residential Suburban	Residential Suburban (RS)	Single-family residences
South	Foundation Component: Single Family Residential Land Use: Residential Low	Residential Low (RL)	Single-family residences
East	Foundation Component: Single Family Residential Land Use: Residential Low	Residential Low (RL)	Single-family residences and vacant land
West	Foundation Component: Single Family Residential Land Use: Residential Suburban	Residential Suburban (RS)	Single-family residences

Source: City of San Bernardino Community Development Planning Division webpage, 2022

2.10 – Required Approvals

The City of San Bernardino is the only land use authority for this project requiring the following approvals:

- Development Code Amendment 21-05 to modify the land use map to change the land use designation from RL (Residential Low - 3.1 du/net ac) with a minimum average lot size of 10,800 square feet to RS (Residential Suburban – 4.5 du/net ac) with a minimum lot size of 7,200 square feet pursuant to Chapter 19.42 Development Code Amendments of the City of San Bernardino Development Code.
- Subdivision 21-11 Tentative Tract Map 20421 (TTM) a request to allow the division of a parcel containing approximately 6.10-gross acres/4.43 net acres into 25 residential lots for the future construction and use of single-family detached product together with the construction of the required on-site infrastructure improvements.

2.11 – Other Public Agencies Whose Approval is Required

Although land use authority is provided by the City of San Bernardino, the project may be subject to additional permits and/or fees by other public agencies. A summary of these additional requirements are as follows:

Standard permits through the State Water Resources Control Board for compliance with NPDES standards. These include the following: Construction Stormwater General Permit; Notice of Intent to Comply with Section 402 of the Clean Water Act, Construction Stormwater Pollution Prevention Plan (SWPPP); and Approval of O&M SWPPP.

A PM-10 Plan for compliance with Rule 401, Dust Control for the South Coast Air Basin will be required from the South Coast Air Quality Management District (SCAQMD) at the time of site disturbance.

The project will be subject to the regional Transportation Uniform Mitigation Fee (TUMF) as administered by the San Bernardino Associated Governments (SANBAG).

2.12 – Tribal Consultation

Have California Native American tribes traditionally and culturally affiliated with the project area requested consultation pursuant to Public Resources Code section 21080.3.1? If so, is there a plan for consultation that includes, for example, the determination of significance of impacts to tribal cultural resources, procedures regarding confidentiality, etc.?

Yes. The consultation process has been initiated. See Section 4.18 Tribal Cultural Resources for expanded discussion.

3 Determination

3.1 – 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.

<input type="checkbox"/>	Aesthetics	<input type="checkbox"/>	Agriculture & Forestry Resources	<input checked="" type="checkbox"/>	Air Quality
<input type="checkbox"/>	Biological Resources	<input checked="" type="checkbox"/>	Cultural Resources	<input type="checkbox"/>	Energy
<input type="checkbox"/>	Geology /Soils	<input type="checkbox"/>	Greenhouse Gas Emissions	<input type="checkbox"/>	Hazards & Hazardous Materials
<input type="checkbox"/>	Hydrology/Water Quality	<input type="checkbox"/>	Land Use / Planning	<input type="checkbox"/>	Mineral Resources
<input type="checkbox"/>	Noise	<input type="checkbox"/>	Population / Housing	<input type="checkbox"/>	Public Services
<input type="checkbox"/>	Recreation	<input type="checkbox"/>	Transportation	<input checked="" type="checkbox"/>	Tribal Cultural Resources
<input type="checkbox"/>	Utilities/Service Systems	<input type="checkbox"/>	Wildfire	<input checked="" type="checkbox"/>	Mandatory Findings of Significance

3.2 – Determination

<input type="checkbox"/>	I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
<input checked="" type="checkbox"/>	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.
<input type="checkbox"/>	I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
<input type="checkbox"/>	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.
<input type="checkbox"/>	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.

Name: Travis Martin, Associate Planner

Date

EVALUATION OF ENVIRONMENTAL IMPACTS:

- 1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). 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) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.
- 3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.
- 4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the 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 (mitigation measures from "Earlier Analyses," as described in (5) below, may be cross-referenced).
- 5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:
 - a) Earlier Analysis Used. Identify and state where they are available for review.
 - b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.
 - c) Mitigation Measures. For effects that are "Less than Significant with Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.
- 6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.
- 7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.
- 8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.
- 9) The explanation of each issue should identify:
 - a) the significance criteria or threshold, if any, used to evaluate each question; and
 - b) the mitigation measure identified, if any, to reduce the impact to less than significance.

Determination



4 Evaluation of Environmental Impacts

4.1 – Aesthetics

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Except as provided in Public Resources Code Section 21099, would the project:				
a) Have a substantial adverse effect on a scenic vista?			<input checked="" type="checkbox"/>	
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?				<input checked="" type="checkbox"/>
c) In nonurbanized areas, substantially degrade the existing visual character or quality of 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?			<input checked="" type="checkbox"/>	
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			<input checked="" type="checkbox"/>	

Sources

Information used to prepare the Aesthetics section is from the following sources: project plans, aerial and ground-level photographs of the project area, the City of San Bernardino Updated General Plan, Chapter 5, Community Design, 2005, the California Department of Transportation website identifying the California Scenic Highway Mapping System accessed on April 4, 2022 and the City of San Bernardino Development Code.

Environmental Setting

The project site is 6.10 gross acres/4.43-net acres of undeveloped land. The project site is adjacent to West Belmont Avenue and single family residential units. The site is visible from West Belmont Avenue and Olive Avenue. The site is not located in an area of a designated State scenic highway and does not contain identified scenic resources such as rock outcroppings or historic buildings. The site is currently vacant and is not considered to be a scenic resource by the City of San Bernardino.

Discussion

a) **Less Than Significant Impact.** Scenic vistas can be impacted by development in two ways. First, a structure may be constructed that blocks the view of a vista. Second, the vista itself may be altered (i.e., development on a scenic hillside). The City of San Bernardino's General

Plan Natural Resources and Conservation Element states that scenic resources in the City include views of the Kendall Hills, San Bernardino Mountains, the hillsides adjacent to Arrowhead Springs, Lytle Creek Wash, East Twin Creeks Wash, the Santa Ana River, Badger Canyon, Bailey Canyon, and Waterman Canyon. The project site and surrounding area have immediate views of the San Bernardino Mountains to the northeast and east. The proposed project is located within an urbanized area visually dominated by residential land uses and surface street features. This site is not considered to be within or to comprise a portion of a scenic vista.

The project, Development Code Amendment 21-05 to modify the land use map to change the land use designation from RL (Residential Low - 3.1 du/net ac) with a minimum average lot size of 10,800 square feet to RS (Residential Suburban – 4.5 du/net ac) with a minimum lot size of 7,200 square feet and Subdivision 21-11 Tentative Tract Map 20421 (TTM) a subdivision of 6.10-gross acres/4.43 net acres into 25 residential lots for the future construction and use of single-family detached product would have less than significant effect on a scenic vista. The proposed amendment, subdivision and future development are generally consistent in type and scale with the existing surrounding development. In addition, all trees located on-site would be removed prior to site development and would be replaced with appropriate landscaping in accordance with the Verdemon Heights Area Plan and the City's Development Code. With the approval of the Development Code Amendment, the proposed single-family units will have a maximum allowable height in conformance with proposed development standards of the RS Zone so as to not impede or hinder a scenic view. Therefore, the project will result in a less than significant impact on any scenic vista.

b) **No Impact.** The subdivision of land and the land use map change will not impact visual resources or scenic vistas. The project is not adjacent to a designated state scenic highway or eligible state scenic highway as identified on the California Scenic Highway Mapping System. Thus, the proposed project would not damage the integrity of existing visual resources or historic buildings located along a State Scenic Highway. A less than significant impact on scenic resources, including but not limited to, trees, rock outcroppings, and historic buildings within a State Scenic Highway, would result. The project site is located in a previously developed, urbanized area, and contains no scenic resources. Due to the absence of on-site scenic resources, no impact would occur.

c) **Less Than Significant Impact.** Development of the proposed project could result in a significant impact if it resulted in substantial degradation of the existing visual character or quality of the site and its surroundings. Future grading of the site and construction of the single-family residences would result in short-term impacts to the existing visual character and quality of the area. Construction activities would require the use of equipment and storage of materials within the project site. However, construction activities are temporary and would not result in any permanent visual impact. Construction of the proposed buildings would alter the existing visual character of the site. Development of 25 SFRs will be subject to separate approval of a Development Permit Type-P. Upon project completion, the proposed buildings would consist of 25 single-family residential units compliant with Residential Suburban (RS) standards. The project will not substantially degrade the surroundings, as the current residentially designated land is maintained in accordance with City standards. Therefore, visual impacts to existing visual character of the site are less than significant and no mitigation is required.

d) **Less Than Significant Impact.** Excessive or inappropriately directed lighting can adversely impact nighttime views by reducing the ability to see the night sky and stars. Glare can be caused from unshielded or misdirected lighting sources. Reflective surfaces (i.e., polished metal) can also cause glare. Impacts associated with glare range from simple nuisance to potentially dangerous situations (i.e., if glare is directed into the eyes of motorists).

There are lighting sources adjacent to this site, including freestanding street lights, light fixtures on buildings, and vehicle headlights. The City of San Bernardino has established standards for the design, placement, and operation of outdoor lighting within its Development Code. The Development Code identifies preferred lighting sources, intensities, and shielding requirements. These standards are imposed on all outdoor lighting sources and must be adhered to in order to obtain project approval. With adherence to the lighting standards established by the City, potential impacts related to light and glare would be less than significant.

Mitigation Measures

No mitigation is necessary because Aesthetic impacts will be less than significant.

Level of Significance After Mitigation

Not Applicable.

4.2 – Agriculture and Forest Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?				<input checked="" type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act Contract?				<input checked="" type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526) or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?				<input checked="" type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?				<input checked="" type="checkbox"/>
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 or conversion of forest land to non-forest use?				<input checked="" type="checkbox"/>

Sources

Information used to prepare this section is from the following sources: California Department of Conservation, Farmland Mapping and Monitoring Program of the California Resources Agency and California Department of Conservation Division Of Land Resource Protection, State of California Williamson Act Contract Land Map, 2017.

Environmental Setting

The proposed project site is located in a suburban area surrounded by residential neighborhoods. According to the California Department of Conservation, *Farmland Mapping and Monitoring Program Map*, the site is designated as urban and built up land. The site is vacant disturbed land and is zoned for residential use in the City of San Bernardino. The General Plan Foundation Component designates the site as Single-Family Residential with a land use of Residential Low. The site is not under the Williamson Act Contract as shown on the 2012 Williamson Act Lands map for San Bernardino County.

Discussion

a) **No Impact.** The proposed project will be located in a developed urbanized area. The map of Important Farmland in California (2010) prepared by the Department of Conservation does not identify the project site as being Prime Farmland, Unique Farmland, or Farmland of Statewide Importance. No Williamson Act contracts are active for the project site. The property is zoned Residential Low. Although the project site has existing vacant land, it is not under active cultivation and has not been cultivated for a number of years based on aerial mapping. The project site is currently designated as General Plan Foundation Component of Single-Family Residential with a land use of Residential Low. The proposed amendment will modify the land use designation to Residential Suburban. Therefore, because the site has not been designated as Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, there is no impact from the project on these types of farmland.

b) **No Impact.** Currently, the General Plan Foundation Component is Single-Family Residential with a land use designation of Residential Low. The proposed amendment will modify the land use designation to Residential Suburban. There are other residential developments in the vicinity so the project would be compatible with the existing surroundings. The project will be developed consistent with the City Design Guidelines, so it will be aesthetically compatible with surrounding development and as stated above, the property is not subject to a Williamson Act contract. Therefore, there will be no impacts to existing land use compatibility and no mitigation is required

c) **No Impact.** Public Resources Code Section 12220(g) identifies forest land as *land that can support 10-percent native tree cover of any species, including hardwoods, under natural conditions, and that allows for management of one or more forest resources, including timber, aesthetics, fish and wildlife, biodiversity, water quality, recreation, and other public benefits.* The project site and surrounding properties are not currently being managed or used for forest land as identified in Public Resources Code Section 12220(g). The USDA Forest Service vegetation maps for the project site identify it as *urban* type, indicating that it is not capable of growing industrial wood tree species. The project site is surrounded by residential uses, with no substantial vegetation onsite. Therefore, development of this project will have no impact to any timberland zoning.

d) **No Impact.** The project site is vacant; thus, there will be no loss of forest land or conversion of forest land to non-forest use as a result of this project. No impact will occur.

e) **No Impact.** The project site is a previously disturbed site within an urban environment. The project is surrounded by other residential uses. The project would not encroach onto agricultural land and would not encourage the conversion of existing farmland to non-agricultural uses. None of the surrounding sites contain existing forest uses. Development of this project will not change the existing environment in a manner that will result in the conversion of forest land to a non-forest use. No impact will occur.

Mitigation Measures

No mitigation measures are necessary because Agricultural and Forestry impacts will be less than significant.

Level of Significance After Mitigation

Not Applicable.

4.3 – Air Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management 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?			☑	

Sources

Information used to prepare this section is from the following sources: City of San Bernardino Updated General Plan, 2005 and California Emissions Estimator Model 2020.4.0.

Environmental Setting

Local jurisdictions, such as the City of San Bernardino, have the authority and responsibility to reduce air pollution through its police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation of air emissions resulting from its land use decisions. The City is also responsible for the implementation of transportation control measures as outlined in the 2016 Air Quality Management Plan (AQMP). Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, requires mitigation of potentially significant air quality impacts by conditioning discretionary permits and monitors and enforces implementation of such mitigation. In accordance with the CEQA requirements, the City does not, however, have the expertise to develop plans, programs, procedures, and methodologies to ensure that air quality within the City and region will meet federal and state standards. Instead, the City relies on the expertise of the South Coast Air Quality Management District (SCAQMD) and utilizes the SCAQMD CEQA Handbook as the guidance document for the environmental review of plans and development proposals within its jurisdiction.

Discussion

a) **Less Than Significant Impact.** The California Environmental Quality Act (CEQA) requires a discussion of any inconsistencies between a proposed project and applicable General Plans and Regional Plans (CEQA Guidelines Section 15125). The regional plan that applies to the proposed project includes the 2016 SCAQMD Air Quality Management Plan (AQMP). The Final 2016 AQMP was adopted by the South Coast AQMD Governing Board on March 3, 2017. The SCAQMD is currently preparing a 2022 update to the Final 2016 AQMP, however, it is in draft form and has not been adopted. Therefore, this section discusses any potential inconsistencies of the proposed project with the 2016 AQMP.

The purpose of this discussion is to set forth the issues regarding consistency with the assumptions and objectives of the AQMP and discuss whether the proposed project would interfere with the region's ability to comply with Federal and State air quality standards. If the decision-makers determine that the proposed project is inconsistent, the lead agency may consider project modifications or inclusion of mitigation to eliminate the inconsistency. The SCAQMD CEQA Handbook states that "New or amended General Plan Elements (including land use zoning and density amendments), Specific Plans, and significant projects must be analyzed for consistency with the AQMP." Strict consistency with all aspects of the plan is usually not required. A proposed project should be considered to be consistent with the AQMP if it furthers one or more policies and does not obstruct other policies. The SCAQMD CEQA Handbook identifies two key indicators of consistency:

(1) Whether the project will result in an increase in the frequency or severity of existing air quality violations or cause or contribute to new violations, or delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP.

(2) Whether the project will exceed the assumptions in the AQMP in 2016 or increments based on the year of project buildout and phase.

Both of these criteria are evaluated in the following sections.

A. Criterion 1 - Increase in the Frequency or Severity of Violations

Based on the air quality modeling analysis, neither short-term construction, nor long-term operation of the proposed project will result in significant impacts based on the SCAQMD regional and local thresholds of significance. Therefore, the proposed project is not projected to contribute to the exceedance of any air pollutant concentration standards and is found to be consistent with the AQMP for the first criterion.

B. Criterion 2 - Exceed Assumptions in the AQMP?

Consistency with the AQMP assumptions is determined by performing an analysis of the proposed project with the assumptions in the AQMP. The emphasis of this criterion is to insure that the analyses conducted for the proposed project are based on the same forecasts as the AQMP. The 2020-2045 Regional Transportation/Sustainable Communities Strategy (RTS/SCS), prepared by SCAG, 2020, includes chapters on: the plan, SoCal today, a path to greater access, mobility & sustainability, paying our way forward, measuring our progress and looking. These chapters currently respond directly to federal and state requirements placed on SCAG. Local governments are required to use these as the basis of their plans for purposes of consistency with applicable regional plans under CEQA.

The project site is currently designated as Single-Family Residential in the City of San Bernardino General Plan Land Use Element Foundation Component. The applicant is requesting approval of Development Code Amendment 21-05 to modify the land use map to change the land use designation from RL (Residential Low - 3.1 du/net ac) with a minimum average lot size of 10,800 square feet to RS (Residential Suburban – 4.5 du/net ac) with a minimum lot size of 7,200 square feet. The proposed project is expected to result in increased operational emissions from mobile sources and energy sources, compared to the current use as vacant land. However, as shown in the regional analysis, the project is below the SCAQMD thresholds of significant for cumulative impacts. The project meets the goals of the RTS/SCS to adapt to a changing climate and support an integrated regional development pattern and transportation network and encourage development of diverse housing types in areas that are supported by multiple transportation options. The project will construct adjacent roadways to their ultimate half-width right-of-way and will benefit from regional/local transit opportunities. Based on the above, the proposed project will not result in an inconsistency with the SCAQMD AQMP. Therefore, a less than significant impact will occur.

b) **Less Than Significant Impact.** A project may have a significant impact if project related emissions would exceed federal, state, or regional standards or thresholds, or if project-related emissions would substantially contribute to existing or project air quality violations. The proposed project is located within the South Coast Air Basin, where efforts to attain state and federal air quality standards are governed by the South Coast Air Quality Management District (SCAQMD). Both the State of California (State) and the Federal government have established health-based ambient air quality standards (AAQS) for seven air pollutants (known as 'criteria pollutants'). These pollutants include ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), inhalable particulate matter with a diameter of 10 microns or less (PM₁₀), fine particulate matter with a diameter of 2.5 microns or less (PM_{2.5}), and lead (Pb). The State has also established AAQS for additional pollutants. The AAQS are designed to protect the health and welfare of the populace within a reasonable margin of safety. Where the state and federal standards differ, California AAQS are more stringent than the national AAQS.

Air pollution levels are measured at monitoring stations located throughout the air basin. Areas that are in nonattainment with respect to federal or state AAQS are required to prepare plans and implement measures that will bring the region into attainment. Table 4.3-1 (South Coast Air Basin Attainment Status) summarizes the attainment status in the project area for the criteria

pollutants. Discussion of potential impacts related to short-term construction impacts and long-term area source and operational impacts are presented below.

**Table 4.3-1
South Coast Air Basin Attainment Status**

Pollutant	State Status ¹	National Status ²
Ozone	Nonattainment	Nonattainment
Carbon monoxide	Attainment	Attainment
Nitrogen dioxide	Attainment	Unclassified/Attainment
Sulfur dioxide	Attainment	Attainment
PM10	Nonattainment	Nonattainment
PM2.5	Unclassified	Attainment

Notes:

¹ Source of State status: California Air Resources Board June 2013.

² Source of National status: http://www3.epa.gov/airquality/greenbook/ca25_2012.html.

Emissions

Construction Emissions

The California Emissions Estimator Model (CalEEMod) version 2020.4.0 was utilized to estimate emissions from the proposed construction activities. This model was prepared by SCAQMD for use on projects occurring within the South Coast Air Basin and has been adopted by several other air districts within California. The model includes many default values which can be overridden to include site-specific data by the modeler, which requires appropriate documentation of the source. The model estimates the daily emissions for criteria pollutants and GHGs and has allowances for mitigation measures to be applied, if required.

The project inputs for the model were estimated based on site drawings and project descriptions provided by S.D. Engineering and Associates. Assumptions are documented in the model output and are discussed in the next section.

Table 4.3-2 *Construction-Related Criteria Pollutants* shows that none of the analyzed criteria pollutants would exceed the regional emissions thresholds. Furthermore, minimum requirements for SCAQMD's Rule 403 include the application of the best available dust control measures to be used for all grading operations and include the application of water or other soil stabilizers in sufficient quantity to prevent the generation of visible dust plumes. Implementation of best available dust control measures were assumed in the model to include watering of the site's exposed area two times per day, which significantly reduced PM₁₀ and PM_{2.5} construction emissions. Therefore, none of SCAQMD's thresholds would be exceeded during grading and construction after dust control measures and typical BMPs for the control of emissions are implemented. Because the model assumed compliance with SCAQMD Rules for the control of criteria pollutants, Conditions of Approval for the project will include compliance with SCAQMD's Rule 403 as a general condition.

The greatest potential for toxic air contaminant emissions would be related to diesel particulate emissions associated with heavy equipment operations during construction of the proposed project. According to SCAQMD's methodology, health effects from carcinogenic air toxics are usually described in terms of "individual cancer risk". "Individual Cancer Risk" is the likelihood

that a person exposed to concentrations of toxic air contaminants over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology.

**Table 4.3-2
Construction-Related Criteria Pollutants**

Activity	Pollutant Emissions (pounds/day)					
	ROG	NOx	CO	SO ₂	PM10	PM2.5
Site Preparation - 2022						
On-Site	3.17	33.08	19.69	0.03	21.26	11.58
Off-Site	0.06	0.04	0.62	0.00	0.20	0.05
Total	3.23	33.12	20.31	0.03	21.46	11.63
Grading - 2022						
On-Site	1.94	20.85	15.27	0.02	8.02	4.29
Off-Site	0.05	0.03	0.51	0.00	0.16	0.04
Total	1.99	20.88	15.78	0.02	8.18	4.33
Building Construction - 2022						
On-Site	1.70	15.61	16.36	0.02	0.80	0.76
Off-Site	0.03	0.16	0.36	0.00	0.12	0.03
Total	1.73	15.77	16.72	0.02	0.92	0.79
Building Construction - 2023						
On-Site	1.57	14.38	16.24	0.02	0.69	0.65
Off-Site	0.03	0.13	0.33	0.00	0.12	0.03
Total	1.60	14.51	16.57	0.02	0.81	0.68
Paving - 2023						
On-Site	1.03	10.19	14.58	0.02	0.51	0.46
Off-Site	0.05	0.03	0.47	0.00	0.16	0.04
Total	1.08	10.22	15.05	0.02	0.67	0.50
Architectural Coating - 2023						
On-Site	14.27	1.30	1.81	0.00	0.07	0.07
Off-Site	0.00	0.00	0.06	0.00	0.02	0.00
Total	14.27	1.30	1.87	0.00	0.09	0.07
SCAQMD Thresholds	75	100	550	150	150	55
Exceeds Thresholds	no	no	no	no	no	no

Source: CalEEMod Version 2020.4.0

Notes:

1. On-site emissions from equipment operated on-site that is not operated on public roads.
2. Off-site emissions from equipment operated on public roads.
3. Construction, paving and painting phases may overlap.
4. Maximum daily emission during winter.

Given the relatively limited number of heavy-duty construction equipment and the short-term construction schedule, the proposed project would not result in a long-term (i.e., 70 years) substantial source of toxic air contaminant emissions and corresponding individual cancer risk.

Therefore, no significant short-term toxic air contaminant impacts would occur during construction of the proposed project.

Operational Emissions

The worst-case winter emission rates from the CalEEMod model was used to determine operational emissions generated from the project and are shown in Table 4.3-3, *Operational Regional Criteria Air Pollutant Emissions*.

**Table 4.3-3
Operational Regional Pollutant Emissions**

Activity	Pollutant Emissions (pounds/day)					
	ROGs	NOx	CO	SO2	PM10	PM2.5
Area Sources	1.75	0.53	8.36	0.02	1.04	1.04
Energy Usage	0.02	0.17	0.07	0.00	0.01	0.01
Mobile Sources	0.70	0.85	7.21	0.01	1.72	0.46
Total Emissions	2.47	1.57	15.65	0.03	2.78	1.52
SCAQMD Thresholds	55	55	550	150	150	55
Exceeds Threshold?	no	no	no	no	no	no

Source: CalEEMod Version 2020.4.0

Notes:

1. Area sources consist of emissions from consumer products, architectural coatings, and landscaping equipment.
2. Energy usage consists of emissions from generation of electricity and on-site non-hearth natural gas usage.
3. Mobile sources consist of emissions from vehicles and road dust.

As shown in Table 4.3-3, none of the emissions thresholds are exceeded during the operation of the project. Therefore, Air Quality impacts associated with project operation would be less than significant.

Compliance with SCAQMD Rules 402 and 403

The Permittee/Owner would be required to comply with all applicable SCAQMD rules and regulations as the SCAB is in non-attainment status for ozone and suspended particulates (PM₁₀ and PM_{2.5}). The Permittee/Owner would be required to comply with Rules 402 nuisance, and 403 fugitive dust, which require the implementation of Best Available Control Measures (BACMs) for each fugitive dust source, and the AQMP, which identifies Best Available Control Technologies (BACTs) for area sources and point sources. The BACMs and BACTs would include, but not be limited to the following:

1. The Permittee/Owner shall ensure that any portion of the site to be graded shall be pre-watered prior to the onset of grading activities.
2. The Permittee/Owner shall ensure that watering of the site or other soil stabilization method shall be employed on an on-going basis after the initiation of any grading activity on the site. Portions of the site that are actively being graded shall be watered regularly (2x daily) to ensure that a crust is formed on the ground surface and shall be watered at the end of each workday.

3. The Permittee/Owner shall ensure that all disturbed areas are treated to prevent erosion until the site is constructed upon.
4. The Permittee/Owner shall ensure that landscaped areas are installed as soon as possible to reduce the potential for wind erosion.
5. The Permittee/Owner shall ensure that all grading activities are suspended during first and second stage ozone episodes or when winds exceed 25 miles per hour.

During construction, exhaust emissions from construction vehicles and equipment and fugitive dust generated by equipment traveling over exposed surfaces, would increase NO_x and PM₁₀ levels in the area. Although the proposed project does not exceed SCAQMD thresholds during construction, the Applicant/Contractor would be required to implement the following conditions as required by SCAQMD:

1. To reduce emissions, all equipment used in grading and construction must be tuned and maintained to the manufacturer's specification to maximize efficient burning of vehicle fuel.
2. The Permittee/Owner shall ensure that existing power sources are utilized where feasible via temporary power poles to avoid on-site power generation during construction.
3. The Permittee/Owner shall ensure that construction personnel are informed of ride sharing and transit opportunities.
4. All buildings on the project site shall conform to energy use guidelines in Title 24 of the California Administrative Code.
5. The operator shall maintain and effectively utilize and schedule on-site equipment in order to minimize exhaust emissions from truck idling.
6. The operator shall comply with all existing and future California Air Resources Board (CARB) and SCAQMD regulations related to diesel-fueled trucks, which may include among others: (1) meeting more stringent emission standards; (2) retrofitting existing engines with particulate traps; (3) use of low sulfur fuel; and (4) use of alternative fuels or equipment.

c) **Less Than Significant Impact.** Sensitive receptors are those segments of the population that are most susceptible to poor air quality such as children, the elderly, the sick, and athletes who perform outdoors. Land uses associated with sensitive receptors include residences, schools, playgrounds, childcare centers, outdoor athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The nearest land uses that considered *sensitive receptors* are the residential dwelling units located adjacent to the project site. The proposed residential subdivision and future development will not generate toxic pollutant emissions because the proposed residential use is characterized as typical residential uses that do not produce such emissions. The proposed residential development, therefore, would have a less than significant impact on sensitive receptors relating to toxic pollutant emissions.

A carbon monoxide (CO) hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. CO hotspots have the potential for violation of state and federal CO standards at study area intersections, even if the broader Basin is in attainment for federal and state levels. In general, SCAQMD and the California Department of Transportation Project-Level Carbon Monoxide Protocol (CO Protocol) recommend analyzing CO hotspots when a project has the potential to result in higher CO concentrations within the region and increase traffic congestion at an intersection operating at level of service (LOS) D or worse by more than two percent. There has been a decline in CO emissions over the past two decades even though vehicle miles traveled (VMT) on U.S. urban and rural roads have increased. Three major control programs have contributed to the reduced per vehicle CO emissions: exhaust standards, cleaner burning fuels, and motor vehicle inspection/maintenance

programs. There are no designated CO hotspots in the immediate vicinity of the project. Impacts related to CO hotspots will be less than significant.

d) **Less Than Significant Impact.** According to the CEQA Air Quality Handbook, land uses associated with odor complaints include agricultural operations, wastewater treatment plants, landfills, and certain industrial operations (such as manufacturing uses that produce chemicals, paper, etc.). Odors are typically associated with industrial projects involving the use of chemicals, solvents, petroleum products, and other strong-smelling elements used in manufacturing processes, as well as sewage treatment facilities and landfills. The proposed residential subdivision and future development does not include any of the above noted uses or process. The short-term construction sources may emit odors including the application of materials such as asphalt pavement, paints, and solvents and emissions from diesel equipment. However, SCAQMD Rule 1108 limits the amount of volatile organic compounds from asphalt paving; mandatory compliance with SCAQMD rules would ensure that no construction activities or materials would be included that would create a significant level of objectionable odors. Standard construction requirements would minimize odor impacts resulting from construction activity. It should be noted that any construction odor emissions generated would be temporary, short-term, and intermittent in nature and would cease upon completion of the respective phase of construction activity. It is expected that project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with the City of San Bernardino’s solid waste regulations. The project would be also required to comply with SCAQMD Rule 402 to prevent occurrences of public nuisances. Therefore, no significant adverse impacts are identified or are anticipated, and no mitigation measures are required.

Mitigation Measures

No mitigation measures are necessary because Air Quality impacts will be less than significant with standard conditions applied.

Level of Significance After Mitigation

Not Applicable.

4.4 – Biological Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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 Wildlife 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, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?				<input checked="" type="checkbox"/>
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?				<input checked="" type="checkbox"/>
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?				<input checked="" type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			<input checked="" type="checkbox"/>	
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?				<input checked="" type="checkbox"/>

Sources

Information used to prepare this section is from the following sources: USGS San Bernardino North, California Quadrangle (2016); United States Fish and Wildlife Service, National Wetlands Inventory, Wetlands Mapper; US Fish & Wildlife Services, Environmental Conservation Online System; California Department of Fish and Wildlife, California Regional Conservation Plans Map; City of San Bernardino General Plan, 2005 and General Biological Assessment Tentative Tract Map 20421 San Bernardino, California dated April 18, 2022, prepared by Natural Resources Assessment, Incorporated.

Environmental Setting

Residential dwellings are located immediately adjacent to the site to the north, south and west. The USGS San Bernardino North, California Quadrangle (2016) does not show any blue-line channels or other water features within the boundaries of the parcel. There is no wetland or riparian habitat on site. There are no drainages or evidence of water flow.

Discussion

a) **Less than Significant Impact.** The property supports three distinct vegetation types. Most of the property is occupied by ruderal vegetation. An isolated stand of California buckwheat scrub is along the paved road (Shepherd Lane) in the southern part of the property, and a double olive tree row is located along Belmont Avenue on the northern part of the property.

The ruderal plant community found on the property is comprised of a mix of mostly non-native (ruderal) weeds including Mediterranean beardgrass (*Schismus barbataus*), foxtail brome (*Bromus madritensis* ssp. *rubens*), and red-stemmed filaree (*Erodium cicutarium*). Native wildflowers such as telegraph weed (*Heterotheca grandiflora*), common fiddleneck (*Amsinckia intermedia*), hairy lupine (*Lupinus hirsutissimus*), pencil pectocarya (*Pectocarya pencillata*) and strigose lotus (*Lotus strigosus*) are scattered throughout the property.

The California buckwheat (*Eriogonum fasciculatum*) scrub is limited to a small stand on the slope along Shepherd Lane in the southern end of the property. The dominant plant is California buckwheat scrub. Also found here is medicago (*Medicago sativa*), graceful buckwheat (*Eriogonum gracile*), common fiddleneck, strigate lotus and hairy lupine.

There is a double row of European olive (*Oleo europea*) trees along Belmont Avenue in the northern part of the property. The undergrowth has been mostly removed by hikers and dirt bikes, but remnants of red brome (*Bromus rubens*) and Mediterranean grass.

Patches of bare ground occur at scattered locations throughout the site but are most common in high-use areas. These include a section between the oak rows and along Olive Avenue where informal off-street parking has been created. Other bare areas are present mainly because of off-road trespassing and foot traffic.

Natural Resources Assessment's field team did not observe any amphibian species. No water sources are found on the property that would be used by amphibians, and the relative lack of ground cover, rocks or shrub makes the site unsuitable for most reptile species. Side-blotched lizard (*Uta stansburiana*) and northwestern fence lizard (*Sceloporus occidentalis occidentalis*) were the only reptile species observed. Bird species seen or hear included house finch (*Haemorhous mexicanus*), Anna's hummingbird (*Calypte anna*), northern mockingbird (*Mimus polyglottos*), and common raven (*Corvus corax*). The field team observed Botta's gopher (*Thomomys bottae*) burrows throughout the site. They team did not find sign of other native mammal species.

All sensitive species were considered as potentially present on the project site if its known geographical distribution encompassed all or part of the project area or if its distribution was near the site and its general habitat requirements were present. There is no habitat for sensitive plants, fish, amphibians, reptiles or mammals that were listed as potentially present in the vicinity of the property.

The parcel had extremely limited and marginal nesting habitat for ground- and shrub-nesting bird species. The European olive tree double row running east-west along the northern boundary of the property may provide nesting habitat for birds. At the time of the survey, NRA observed apparent nesting behavior by at least one Anna's hummingbird (localized movements for foraging, continual returning to the same general location in the olive tree row). In addition, there is potential foraging habitat on site for the sensitive bird species, which includes suitable habitat on site (such as the double olive tree row) and on the adjacent properties. NRA recommends a condition be applied to the project that if construction is scheduled between February 1 and August 31 a qualified biologist conduct a breeding bird survey no more than three days prior to the start of construction to determine if nesting is occurring. If occupied nests are found, they shall not be disturbed unless the qualified biologist verifies through noninvasive methods that either (a) the adult birds have not begun egg-laying and incubation; or (b) the juveniles from the occupied nests are capable of independent survival. If the biologist is not able to verify one of the above conditions, then no disturbance shall occur within a distance specified by the qualified biologist for each nest or nesting site. The qualified biologist will determine the appropriate distance in consultation with the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service.

Due to the developed and disturbed nature of the study area, the potential for the presence of special-status species is very low. Future development activities are expected to result in the removal of all vegetation on the site; however, cumulative impacts to the general biological resources (plants and animals) are expected to be negligible. This assumption is based on the fact the site shows a significant level of past and ongoing disturbance, and the presence of a disturbed grassland community that supports only a few plant species. In addition, impacts to wildlife species are expected to be negligible. Future development activities are not expected to have any impact on any State or Federal listed or State special status plant or animal species. If any sensitive species are observed on the property during future activities, CDFW and USFWS (as applicable) will be contacted to discuss specific mitigation measures which may be required for the individual species. CDFW and USFWS are the only agencies which can grant authorization for the "take" of any special status species, and can approve the implementation of any applicable mitigation measures. The proposed project would, therefore, not have a substantial adverse effect on any species identified as a candidate, sensitive, or special-status species in local or regional plans or by the California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS). Considering the lack of habitat on the property, less than significant impact to wildlife species of concern will occur.

b) **No Impact.** The project site is located on land that has been previously disturbed in a primarily residential portion of the City. The site has very limited vegetation. There is no riparian habitat onsite. The USGS San Bernardino North, California Quadrangle (2016) does not show any blue-line channels or other water features within the boundaries of the parcels or in the immediate area. As such, no impact to riparian habitat or other sensitive natural habitat would occur.

c) **No Impact.** According to the federal National Wetlands Inventory, the project site does not contain any wetlands; furthermore, the proposed project would not disturb any offsite wetlands as no wetlands are adjacent to the project site. There is no vegetation or on-site water features indicative of potential wetlands. No impact will occur.

d) **No Impact.** The project site is currently vacant and is surrounded by existing residential development, preventing the use of the project site and surrounding area as a wildlife corridor. The project site contains very limited non-native vegetation, in the context of a completely urbanized setting located in the City of San Bernardino. There are no substantial vegetated areas or waterbodies located on-site. The project site does not provide for the movement of any native resident or migratory fish or wildlife. No impact will occur.

e) **Less Than Significant Impact.** The City has a tree removal policy that states that if more than five trees are to be removed, a tree removal permit application must be submitted to and approved by the City. The project will remove the double row of olive trees as part of site preparation activities. The project would comply with policies pertaining to tree removal. Therefore with the adherence to the tree removal policy, the project would have less than significant impacts related to this topic, and no mitigation is required.

f) **No Impact.** The proposed project would not conflict with the provisions of an adopted Habitat Conservation Plan because neither the City of San Bernardino nor the County of San Bernardino have adopted Habitat Conservation Plan areas in the vicinity of the site according to the US Fish & Wildlife Services, Environmental Conservation Online System (ECOS) mapping or any Natural Community Conservation Plan areas apply to the project site according to the California Department of Fish and Wildlife, California Regional Conservation Plans Map. Therefore, implementation of the proposed project would have no adverse impact. No impact would occur.

Mitigation Measures

No mitigation measures are necessary because Biological Resource impacts will be less than significant.

Level of Significance After Mitigation

Not Applicable.

4.5 – Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?				<input checked="" type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to § 15064.5?		<input checked="" type="checkbox"/>		
c) Disturb any human remains, including those interred outside of formal cemeteries?		<input checked="" type="checkbox"/>		

Sources

Information used to prepare this section is from the following sources: City of San Bernardino Updated General Plan, 2005; and CRM TECH, Historical/Archaeological Resources Survey Report Tentative Tract Map Number 20421 Assessor’s Parcel No. 0261-151-010, City of San Bernardino, San Bernardino County, California, dated May 6, 2022.

Environmental Setting

Between February and May 2022, CRM TECH performed a cultural resources study on approximately 6.1 acres of former agricultural land in the northwestern portion of the City of San Bernardino. 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 resources” as defined by CEQA, that may exist in or around the project area. In order to identify such resources, CRM TECH conducted a historical/archaeological resource records search, pursued historical background research, contacted Native American representatives, and carried out an intensive-level field survey.

Project archaeologist Deirdre Encarnación reviewed CRM TECH archives for recent studies on nearby properties and the records search results for those studies from the South Central Coastal Information Center (SCCIC), California State University, Fullerton. From these data, Encarnación

was able to construct a coverage of existing records pertaining to an approximate half-mile scope of the records search as of December 2018. As the SCCIC has not updated its collection since the beginning of the pandemic, the coverage was considered adequate for the study.

Historical background research for the study was conducted by CRM TECH principal investigator/historian Bai "Tom" Tang using published literature in local and regional history, historical maps of the Verdemon area, and aerial/satellite photographs of the project vicinity. The maps consulted were primarily USGS topographic quadrangles dated 1901-1996, which were accessible at the USGS website. The aerial and satellite photographs, taken between 1930 and 2021, are available from the online library of the University of California, Santa Barbara, at the Nationwide Environmental Title Research (NETR) website, and through the Google Earth software.

On February 17, 2022, CRM TECH archaeologist Daniel Ballester carried out the intensive-level field survey of the project area. The survey was completed by walking a series of parallel transects oriented northeast-southwest and spaced 10 meters (approximately 33 feet) apart. In this way, the ground surface of the entire project area was systematically and carefully examined for any evidence of human activities dating to the prehistoric or historic period (i.e., 50 years or older). Ground visibility was generally excellent (90-100%) due to the light vegetative cover.

Discussion

a) **Less Than Significant Impact.** The CRM TECH report found that historical sources indicate that the Verdemon area was settled, albeit sparsely, and developed for agricultural purposes at least by the late 19th century, but the only activity known to have taken place within the project boundaries during the historic period was farming, specifically horticulture. By the mid-1890s, the forerunners of present-day Olive Avenue and Belmont Avenue had been laid out along the project boundaries, while a few buildings, presumably farmsteads, were noted nearby but not within or adjacent to the project area. In the 1930s-1950s, the entire project area, much as the rest of the land in the surrounding area, was under cultivation as part of an extensive orchard, most likely a citrus grove. On the northeastern edge of the project area, three rows of trees, undoubtedly represented by the olive trees that remain extant today, had been planted along Belmont Avenue, apparently as a windbreak for the orchard. The three rows of trees originally extended some 700 feet in length, from Olive Avenue to the halfway point between that street and Palm Avenue, or twice the width of the current project area. By the late 1950s, the orchard in and near the project area had evidently been abandoned, and the land was subsequently cleared sometime before the mid-1960s. The olive windbreak along Belmont Avenue survived for two more decades before the northwestern half, outside the current project boundaries, was eventually removed between 1980 and 1984, during a residential development on the adjacent property. Since then, much of the land around the project location has been developed into suburban residential tracts, but the project area itself has remained undeveloped to the present time. A paved road that provides access to the adjacent neighborhood from Olive Avenue, now a part of Shepherd Lane, was built across the southern portion of the property in the 1980s, while the rest of the project area has been largely unused over the past few decades.

During the field survey, the surviving segment of the olive windbreak along Belmont Avenue was recorded into the California Historical Resources Inventory as a historical landscape feature and designated temporarily as Site 3837-1H, pending assignment of an official primary number by the SCCIC once the information center resumes normal operation. The site consists of two rows of olive trees extending the entire width of the project area and the remnants of the third row lying farther from Belmont Avenue. In total, there are approximately 50 trees at the site, and they appear to have been unkempt for many years. No other features or artifact deposits of prehistoric or historical origin were encountered within the project boundaries. The ground surface in the project area has been disturbed by many decades of agricultural operations, by recent

development on adjacent properties, and by the construction of Shepherd Lane across the southern portion. Scattered domestic refuse was found over much of the property, especially along the edges of the Belmont Avenue and Olive Avenue rights-of-way, but all of the items are clearly modern in origin, and none of them demonstrate any historical or archaeological interest.

In summary of the research results presented above, Site 3837-1H, consisting of the remaining portion of an olive tree windbreak that predated the 1930s, is the only potential "historical resource" identified within the project area. Having lost its northwestern reach to residential development on adjacent land in the 1980s, the segment of the windbreak remaining today represents roughly half of the original length, and some of the trees in this segment have been removed as well. Furthermore, with the end of all agricultural operations in the vicinity in the 1950s-1960s and the proliferation of residential development on surrounding properties since the 1980s, the agrarian setting of the windbreak no longer exists. As a ubiquitous and fragmented feature of the agricultural infrastructure that survives out of context, Site 3837-1H retains little integrity to relate to any persons or events in its history or to its period of origin, nor does it exhibit any notable aesthetic value or the potential to yield any important archaeological data. As such, Site 3837-1H does not appear to meet any of the criteria for listing in the California Register of Historical Resources and thus does not qualify of a "historical resource," as defined by CEQA and the associated regulations. Therefore, the development of the project site into a residential development would have no impact on historic resources and no mitigation is required.

b) **Less Than Significant Impact with Mitigation Incorporated.** The property is a previously disturbed site in an urbanized area. The CRM TECH field survey yielded completely negative results for potential cultural resources, and no buildings, structures, objects, sites, features, or artifacts of prehistoric or historical origin were encountered within or adjacent to the project area. Scattered modern refuse was observed on much of the property, especially along Belmont Avenue, but none of items was of any historical/archaeological interest. No known archaeological sites are documented.

The San Manuel Band of Mission Indians (SMBMI) Cultural Resources Department has commented that the proposed project area exists within Serrano ancestral territory and, therefore, is of interest to the Tribe. They noted that due to the nature and location of the proposed project, and given the CRM Department's present state of knowledge, SMBMI does not have any concerns with the project's implementation, as planned, at this time.

In accordance with standard City procedures, a halt-work condition would be in place in the unlikely event that archaeological resources are discovered during construction. The contractor would be required to halt work in the immediate area of the find and to retain a professional archaeologist to examine the materials to determine whether they are a "unique archaeological resource" as defined in Section 21083.2(g) of the State CEQA Statutes. If this determination is positive, the scientifically consequential information must be fully recovered by the archaeologist consistent with standard City protocol. However, if during grading, any archaeological resources are uncovered Mitigation Measures CR-1 and CR-2 will be implemented. See Mitigation Measures section below for the list of actions. Implementation of the Mitigation Measures CR-1 and CR-2 would reduce impacts to archaeological resources to a less than significant level.

c) **Less Than Significant Impact with Mitigation Incorporated.** It is unlikely that human remains could be uncovered during grading operations, considering that the project site was previously disturbed during past agricultural operations. Nonetheless, should suspected human remains be encountered, the contractor would be required to notify the County Coroner in accordance with Section 7050.5 of the California Health and Safety Code, who must then determine whether the remains are of forensic interest. If the Coroner, with the aid of a supervising archaeologist, determines that the remains are or appear to be of a Native American,

he/she would be required to contact the Native American Heritage Commission for further investigations and proper recovery of such remains, if necessary. Through this existing regulatory procedure, impacts to human remains would be avoided. Mitigation Measure CR-3 shall be implemented to ensure that impacts in regard to disturbance of human remains are reduced to less than significant. See Mitigation Measure section below for the action.

Mitigation Measures

SMBMI requests that the following language be made a part of the project/permit/plan conditions:

CR-1: In the event that cultural resources are discovered during project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be hired to assess the find. Work on the other portions of the project outside of the buffered area may continue during this assessment period. Additionally, the San Manuel Band of Mission Indians Cultural Resources Department shall be contacted regarding any pre-contact and/or historic-era finds and be provided information after the archaeologist makes his/her initial assessment of the nature of the find, so as to provide Tribal input with regards to significance and treatment.

CR-2: If significant pre-contact and/or historic-era cultural resources, as defined by CEQA (as amended, 2015), are discovered and avoidance cannot be ensured, the archaeologist shall develop a Monitoring and Treatment Plan, the drafts of which shall be provided to SMBMI for review and comment. The archaeologist shall monitor the remainder of the project and implement the Plan accordingly.

CR-3: If human remains or funerary objects are encountered during any activities associated with the project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code §7050.5 and that code enforced for the duration of the project.

Level of Significance After Mitigation

Less than significant.

4.6 – Energy

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?			<input checked="" type="checkbox"/>	

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

Information used to prepare this section is from the following sources: City of San Bernardino Updated General Plan, 2005, California Energy Commission (CEC) website, California Energy Commission, 2019 Building Energy Efficiency Standards For Residential and Nonresidential Buildings and California Emissions Estimator Model 2020.4.0.

Environmental Setting

Energy resources include electricity, natural gas and other fuels. The production of electricity requires the consumption or conversion of energy resources, including water, wind, oil, gas, coal, solar, geothermal, and nuclear resources, into energy. Energy production and energy use both result in the depletion of nonrenewable resources (e.g., oil, natural gas, coal, etc.) and emission of pollutants. Energy usage is typically quantified using the British Thermal Unit (BTU). The BTU is the amount of energy that is required to raise the temperature of one pound of water by one degree Fahrenheit. As points of reference, the approximate amount of energy contained in a gallon of gasoline, 100 cubic feet (one therm) of natural gas, and a kilowatt hour of electricity are 123,000 BTUs, 100,000 BTUs, and 3,400 BTUs, respectively.

Existing Electricity Consumption

Southern California Edison is the service provider for electric. The electricity generated is distributed through a network of transmission and distribution lines commonly called a power grid. Conveyance of electricity through transmission lines is typically responsive to market demands. The delivery of electricity involves a number of system components, including substations and transformers that lower transmission line power (voltage) to a level appropriate for on-site distribution and use. The site will be served via an underground electrical distribution system. According to the California Energy Commission (CEC), total system electric generation for California in 2021 was 277,764 gigawatt-hours (GWh). California’s non-CO2 emitting electric generation categories (nuclear, large hydroelectric, and renewable generation) accounted for more than 49 percent of total in-state generation for 2021. California’s electricity imports were 83,636 GWh.

Existing Natural Gas Consumption

Southern California Gas Company (SoCalGas) is responsible for providing natural gas supply to the City and is regulated by the California Public Utilities Commission and other state agencies. There are gas lines serving the project site within West Belmont Avenue. Natural gas is a combustible mixture of simple hydrocarbon compounds (primarily methane) that is used as a fuel source. Natural gas consumed in California is obtained from naturally occurring reservoirs and delivered through high-pressure transmission pipelines. The natural gas transportation system is a nationwide network. Natural gas is used in electricity generation, space heating, cooking, water heating, industrial processes, and as a transportation fuel. Natural gas is measured in terms of cubic feet. According to the CEC, nearly 45 percent of the natural gas burned in California was used for electricity generation, with the remainder consumed in the residential (21 percent), industrial (25 percent), and commercial (9 percent) sectors. In 2012, total natural gas demand in California for industrial, residential, commercial, and electric power generation was 2,313 billion cubic feet.

Existing Transportation Energy

According to the California Energy Commission, transportation accounts for a major portion of California's overall energy consumption and has a significant impact on air quality. It is also the single largest source of the state's greenhouse gas emissions. Since 1975, the California Energy Commission has promoted a secure, affordable, reliable, and environmentally sound transportation energy infrastructure by ensuring that the supply, production, distribution, and price of petroleum fuels and other blending components are available to meet demand; and viable alternative, low-carbon, and renewable fuel options exist. The proposed residential subdivision and future housing generates transportation energy demand from vehicles traveling to and from the site. Transportation fuels, primarily gasoline and diesel, would be provided by local or regional suppliers, vendors, and residents.

Discussion

a) **Less Than Significant Impact.** The future housing project would be constructed in a single phase with overlapping development activities. Building construction could commence as early as 2023, pending approval for housing plans, with full buildout and occupancy of the project anticipated by 2024.

Electricity Consumption

Based on the air quality modeling, the proposed project has an average annual electricity demand of approximately 199,117 kilowatt hour (kWh) per year. Electrical power would be consumed to construct the project. The demand would be supplied from existing electrical services adjacent to the project site and local extensions. Construction of the proposed project would require the use of construction equipment for grading, hauling, and building activities. Equipment proposed for these types of activities during construction would vary during different phases of construction—the majority of construction equipment during grading would be gas powered or diesel powered, and the later construction phases would require electricity-powered equipment, such as interior construction and architectural coatings. Construction also includes the vehicles of construction workers traveling to and from the project site and haul trucks for the export of materials from site clearing and the export and import of soil for grading. Since the project site area is already served by onsite electrical infrastructure by SCE, adequate infrastructure capacity is available to accommodate the electricity demand for construction activities and would not require expanded infrastructure. The construction contractors are also anticipated to minimize idling of construction equipment during construction and reduce construction waste by recycling. These required practices would limit wasteful and unnecessary electrical energy consumption. Furthermore, there are no unusual project characteristics that would necessitate the use of construction equipment that would be less energy efficient than at comparable construction sites in other parts of the state. Therefore, the proposed short-term construction activities would not result in inefficient, wasteful, or unnecessary fuel consumption and impacts on electricity supply and infrastructure associated with short-term construction activities would be less than significant.

Natural Gas Consumption

Based on the air quality modeling, the proposed project has an average annual natural gas demand of 707,174 thousand British thermal units (kBtu) per year. Southern California Gas Company (SCGC) provides natural gas service for residential, commercial, and industrial uses. SCGC purchases natural gas from several bordering states. Most of the major natural gas transmission pipelines within the City are owned and operated by SCGC. The CPUC regulates SCGC, who is the default provider required by state law, for natural gas delivery to the City. SCGC has the capacity and resources to deliver gas except in certain situations that are noted in

state law. As development occurs, SCGC will continue to extend its service to accommodate development and supply the necessary gas lines. SCGC does not base its service levels on the demands of the City; rather, it makes periodic upgrades to provide service for particular projects and new development. SCGC is continuously expanding its network of gas pipelines to meet the needs of new commercial and residential developments in Southern California. SCGC can provide additional connections if necessary once utility plans are finalized for the proposed project. Impacts to natural gas services would be less than significant and would not result in inefficient, wasteful, or unnecessary natural gas consumption. Natural gas is not expected to be consumed in any substantial quantities during construction of the project. Therefore, project impacts on energy and gas associated with construction activities would be less than significant.

Transportation Energy

Site preparation, grading, paving, and building construction would consume energy in the form of gasoline and diesel fuel through the operation of heavy off-road equipment, trucks, and worker traffic. Consumption of such resources would be temporary and would cease upon the completion of construction. Due to the limited scale of the proposed project and the provision to limit idling, construction activities would not result in inefficient energy consumption during construction. As such, construction-related energy impacts would be less than significant. Operation Long-term operational energy use associated with the project includes electricity and natural gas consumption associated with the new buildings (e.g., lighting, electronics, heating, air conditioning, refrigeration), energy consumption related to water usage and solid waste disposal, and fuel consumption (gasoline and diesel) by vehicles associated with the project through the generation of new vehicle trips. The California Emissions Estimator Model (CalEEMod) Version 2020.4.0 was used to estimate energy use at project operation. At operation, the proposed project would result in the consumption of approximately 199,117 kWh of electricity per year. At operation, the proposed project would result in the consumption of approximately 707,174 kBtu of natural gas per year. At operation, the proposed project would result in the consumption of petroleum- and diesel fuel related to vehicular travel quantified as vehicle miles traveled (VMT) to and from the project site with the projected annual estimate of 796,807 VMT (unmitigated) for the project. The project's consumption of gasoline and diesel would represent an insignificant fraction of statewide consumption. Therefore, the project would not result in the wasteful, inefficient, and unnecessary consumption of petroleum-based fuel during project operation. As such, operational-related energy impacts related to the consumption of petroleum-based fuel would be less than significant.

The project would also result in energy consumption for the provision of potable water to the residences through supply, treatment, and distribution. The project would comply with the Green Code, which includes standards to reduce potable water demand for both indoor and outdoor use. By limiting water demand on-site through efficient irrigation of landscaping and water-efficient fixtures and appliances indoors, the wasteful or inefficient use of water would be reduced. Therefore, energy consumption associated with water use would be minimized. The greenhouse gas emissions analysis described in Section 4.8 Greenhouse Gas Emissions shows that the project's total emissions from all energy use, including solid waste management and water conveyance, will not exceed the SCAQMD threshold. The GHG analysis concludes that the project's emissions will be below the established threshold, which supports a conclusion that the project's use of energy will not be wasteful or inefficient. The proposed project will also be required to comply with Title 24 standards to improve energy efficiency of the future structures. The future housing will conform to San Bernardino's Development Code which specifies lighting standards for all new exterior lighting, such as the requirement that outdoor lighting fixtures utilize energy-efficient fixtures and lamps. The future housing development will also conform to landscaping plant materials being selected for energy efficiency and drought tolerance, and that the landscape plan be designed to minimize energy demand. As such, the proposed project would

not result in the wasteful, inefficient, and unnecessary consumption of electricity and natural gas during project operation. Therefore, operational-related energy impacts related to electricity and natural gas would be less than significant. In conclusion, energy would be consumed through daily activities the future buildings, the delivery of water for potable and irrigation purposes, solid waste management, and daily vehicle use. While the long-term operation of the project would result in an increase in energy consumption compared to existing conditions, the project will incorporate design measures (related to electricity, natural gas and water use) in compliance with Title 24, the Updated General Plan, and Development Code to minimize energy consumption. As such, the project would promote energy efficiency. Therefore, operation of the proposed project would not result in the wasteful, inefficient, and unnecessary consumption of energy.

b) **Less Than Significant Impact.** The project would be designed in a manner that is consistent with relevant energy conservation plans designed to encourage development that results in the efficient use of energy resources. The project would comply with the San Bernardino Green Building Code to reduce energy consumption by implementing energy efficient building designs, reducing indoor and outdoor water demand, and installing energy-efficient appliances and equipment. These measures are consistent with the City's sustainability and smart-growth goals of improving energy and water efficiency in buildings, decreasing per-capita water use, using energy efficient appliances and equipment, and creating a more livable city. When implemented, the planned City actions may further decrease energy consumption from the project. These actions are not under the control of the project; however, they would nonetheless further reduce project-related energy use from nonrenewable sources.

The future housing project would also implement features that would result in energy reductions beyond those specified by regulation by incorporating energy efficient design features. The project would incorporate water conservation, energy conservation, tree-planting, and other features for energy conservation. Therefore, the project would be consistent with the City's applicable plans for conserving energy and impacts would be less than significant.

The project would utilize construction contractors who demonstrate compliance with applicable CARB regulations restricting the idling of heavy-duty diesel motor vehicles and governing the accelerated retrofitting, repowering, or replacement of heavy duty diesel on- and off-road equipment. CARB has adopted an 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. The measure prohibits diesel-fueled commercial vehicles greater than 10,000 pounds from idling for more than 5 minutes at any given time. While intended to reduce construction emissions, compliance with the above anti-idling and emissions regulations would also result in energy savings from the use of more fuel efficient engines. According to the CARB staff report that was prepared at the time the anti-idling Airborne Toxic Control Measure was being proposed for adoption in late 2004/early 2005, the regulation was estimated to reduce non-essential idling and associated emissions of diesel particulate matter and nitrogen oxide (NOX) emissions by 64 and 78 percent respectively in analysis year 2009. These reductions in emissions are directly attributable to overall reduced idling times and the resultant reduced fuel consumption.

CARB has also adopted emission standards for off-road diesel construction equipment of greater than 25 hp. The emissions standards are referred to as "tiers" with Tier 4 being the most stringent (i.e., less polluting). The requirements are phased in, with full implementation for large and medium fleets by 2023 and for small fleets by 2028. Field testing from construction equipment manufacturers has shown that higher tier equipment results in lower fuel consumption. For example, Tier 4 interim engines have shown a 5 percent reduced fuel consumption compared to a Tier 3 engine. Similar reductions in fuel consumption have been shown for Tier 3 engines compared to a Tier 2 engine.

The daily operation of the project would generate demand for electricity, natural gas, and water supply, as well as generating wastewater requiring conveyance, treatment and disposal off-site and municipal solid waste requiring collection and transport off-site. The project would comply with or exceed the applicable provisions of Title 24 and the Green Code in effect at the time of building permit issuance. The 2019 Building Energy Efficiency Standards focused on several key areas to improve the energy efficiency of newly constructed buildings. The most significant efficiency improvements to the residential Standards includes the introduction of photovoltaic into the prescriptive package, improvements for attics, walls, water heating, and lighting. The future housing project would be designed to include numerous energy and waste reduction features that would allow the project to comply with and exceed the Title 24 standards and achieve greater energy savings than required by state regulations. Therefore, future construction and operation of the project would be consistent with State and federal energy standards and would be designed to include numerous energy and waste saving features as well as waste reduction features that would achieve greater energy savings than required. The project would also be sited in a transportation-efficient location and achieve reductions in VMT from private automobiles traveling to and from the site consistent with the 2020 RTP/SCS. As a result, impacts would be less than significant.

Mitigation Measures

With the compliance with existing regulations, the project would not result in significant impacts associated with Energy.

Level of Significance After Mitigation

Not Applicable.

4.7 – Geology and Soils

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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 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?			<input checked="" type="checkbox"/>	
iv) Landslides?				<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?			<input checked="" type="checkbox"/>	
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?			<input checked="" type="checkbox"/>	
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?				<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?				<input checked="" type="checkbox"/>
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			<input checked="" type="checkbox"/>	

Sources

Information used to prepare this section is from the following sources: City of San Bernardino General Plan, 2005, Chapter 10 Safety; SoCal Professional Engineers, Preliminary Geotechnical Investigation Proposed Twenty-Five Lot, Tentative Tract Map Assessor's Parcel No. 0261-151-010 ± 5.3 Acres Belmont Avenue, San Bernardino, San Bernardino County, California dated September 20, 2021; UC Davis Soil Resource Laboratory, SoilWeb, accessed April 4, 2022; and CRM TECH, Paleontological Resources Assessment Report Tentative Tract Map Number 20421 Assessor's Parcel No. 0261-151-010, City of San Bernardino, San Bernardino County, California, dated May 9, 2022.

Environmental Setting

The site is situated within the southern Peninsular Ranges Geomorphic Province in Southern California. Geologic structures within this Province trend mostly northwest, in contrast to the prevailing east-west trend in the neighboring Transverse Ranges Geomorphic Province to the north. The Peninsular Range Province extend into lower California, and is bounded by the Colorado Desert to the east, the Pacific Ocean to the west and the San Gabriel and San Bernardino mountains to the north. The elevations range from 1,746 feet to 1,785 feet above mean sea level. Topographically, the terrain in the project area is generally flat, and slopes gently downward to the south and southwest. Local development adjacent to the site is residential. The property is currently undeveloped open land with non-native vegetation. Olive trees were noted in the northern area of the site.

The paleontological records search service for the CRM TECH Paleontological Resources Assessment Report was provided by the Western Science Center (WSC) in Hemet, California. The WSC maintains files of regional paleontological localities as well as supporting maps and

documents. The records search results were used to identify previously performed paleontological resource assessments as well as known paleontological localities within a one-mile radius of the project area. In conjunction with the records searches, CRM TECH report writer Deirdre Encarnación reviewed geological literature pertaining to the project vicinity under the direction of project geologist/paleontologist Harry M. Quinn, California Professional Geologist #3477. Sources consulted during the review include primarily topographic, geologic, and soil maps of the San Bernardino area, published geological literature on regional geology, and other materials in the CRM TECH library, including unpublished reports produced during similar surveys in the vicinity.

On February 17, 2022, CRM TECH paleontological surveyor Daniel Ballester carried out the field survey of the project area under Harry M. Quinn's direction. The survey was completed by walking a series of parallel transects oriented northeast-southwest and spaced 10 meters (approximately 33 feet) apart. In this way, the ground surface in the entire project area was systematically and carefully examined to determine the soil types, to verify the geologic formations, and to look for any indications of paleontological remains. Ground visibility was generally excellent (90-100%) due to the light vegetative cover.

Discussion

a.i) **Less Than Significant Impact.** The project site is located in the highly seismic Southern California region within the influence of several fault systems. However, the site does not lie within the boundaries of an Earthquake Fault Zone as defined by the State of California in the Alquist-Priolo Earthquake Fault Zoning Act.

Risks associated with surface rupture are low and there is no impact expected. However, because the project site is located in the seismically active Southern California, all habitable structures including single family homes must be built to seismic standards established in the California Building Code (CBC). The CBC sets the standards in the State for the development of all buildings including residential buildings and sets requirements for structural design, plumbing and mechanical fixtures, fire and smoke protection, construction materials, interior finishes, and any other elements that make up construction of habitable structures. The City's Building and Safety Department is responsible for implementing not only the CBC but any additional code requirements that the City may have. Adherence to all code requirements for the future construction of the 25 houses will ensure that impacts associated with seismic activity are less than significant and no additional mitigation is required

a.ii) **Less Than Significant Impact.** Although there are no known active surface faults within or adjacent to the site that will significantly impact the project, the project is located in a region with active earthquakes and strong seismic motion of those earthquakes could affect the project. The future structures that will be constructed on the site will be required to meet and comply with all applicable city and State building codes to reduce seismic ground shaking at the site to less-than-significant.

a.iii) **Less Than Significant Impact.** Liquefaction is a mode of ground failure that results from the generation of high pore water pressures during earthquake ground shaking, causing loss of shear strength. Liquefaction is typically a hazard where loose sandy soils exist below groundwater. The California Geological Survey (CGS) has designated certain areas within southern California as potential liquefaction hazard zones. These are areas considered at a risk of liquefaction-related ground failure during a seismic event, based upon mapped surficial deposits and the presence of a relatively shallow water table. According to the Preliminary Geotechnical Investigation, owing to the depth to groundwater (+100-ft) and the dense compacted building pad and medium dense alluvial deposits underlying the subject site, liquefaction on the subject site is anticipated to be low and further analysis appears to be unwarranted at this time. Other geologic

hazards related to liquefaction, such as lateral spreading, are therefore also considered low. Impacts would be less than significant.

a.iv) **No Impact.** Structures built below or on slopes subject to failure or landslides may expose people and structures to harm. The subject property is in an area of flat gently sloping terrain, with no slopes within 1km of the subject site. The site elevation is approximately from 1,746 feet to 1,785 feet above mean sea level. Topographically, the site is generally flat. The site is not located in an Earthquake-Induced Landslide Zone. This indicates a low probability for landslides. The project report concluded that the site is not considered susceptible to static slope instability or seismically induced landslides. Grading and construction would be performed in compliance with State and local codes and the recommendations of the geotechnical report. There is no potential impact to future residents from landslides.

b) **Less Than Significant Impact.** Topsoil is used to cover surface areas for the establishment and maintenance of vegetation due to its high concentrations of organic matter and microorganisms. Little, if any, native topsoil is likely to occur on site. The Preliminary Geologic Map of the San Bernardino 30'x60' Minute Quadrangle, (Doug M. Morton & Fred K. Miller, 2003) indicates the formational earth materials underlying the subject site to be Quaternary Aged Young Alluvial Fan Deposits, (map symbol Qyf3). Soils were visually classified according to the Unified Soil Classification System as silty Sand (Unified Soil Classification – SM). This unit was immediately beneath the undocumented fill and extended to the total depth explored of 12-ft bgs. During project construction, fill materials will be overexcavated to reveal underlying soils within the building footprint area. The project has the potential to expose surficial soils to wind and water erosion during construction activities.

Wind erosion will be minimized through soil stabilization measures required by South Coast Air Quality Management District (SCAQMD) Rule 403 (Fugitive Dust), such as daily watering. Construction of the project will be required to have a PM₁₀ Dust Control Plan to identify best management practices for the control fugitive dust. The intent of SCAQMD Rule 403 is to reduce the amount of particulate matter entrained in the ambient air as a result of anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce or mitigate fugitive dust emissions. Elements of the Dust Control Plan may appear as notes on the grading plan that must be approved by the City prior to any site disturbance.

Water erosion will be prevented through the City's standard erosion control practices required pursuant to the California Building Code and the National Pollution Discharge Elimination System (NPDES), such as silt fencing or sandbags. Construction of the project will be required to have a Stormwater Pollution Prevention Plan (SWPPP). Any project involving grading of an area greater than one acre is required to apply for an NPDES permit from the Regional Water Quality Control Board (RWQCB). The project's SWPPP would identify typical best management practices specific towards fugitive dust and containment of sediment discharge and transport from the site. Once construction is completed, a Water Quality Management Plan (WQMP) must be implemented during the life of the project that includes best management practices (BMPs) specific towards maintenance of vegetative landscaping, drainage culverts/channels and drainage inlets. Following project construction, the site would be covered completely by paving, structures, and landscaping. Compliance with regulatory requirements of the RWQCB and of SCAQMD would ensure that impacts with regard to soil erosion or loss of topsoil are less than significant and no mitigation is required.

c) **Less Than Significant Impact.** Impacts related to liquefaction and landslides are discussed above in Section 4.7.a. Lateral spreading is the downslope movement of surface sediment due to liquefaction in a subsurface layer. The downslope movement is due to gravity and earthquake

shaking combined. Such movement can occur on slope gradients of as little as one degree. Lateral spreading typically damages pipelines, utilities, bridges, and structures.

Lateral spreading of the ground surface during a seismic activity usually occurs along the weak shear zones within a liquefiable soil layer and has been observed to generally take place toward a free face (i.e. retaining wall, slope, or channel) and to lesser extent on ground surfaces with a very gentle slope. Due to the absence of any substantial change in grade or channel within or near the subject site, and the subsurface soil conditions that are not conducive to liquefaction, the potential for lateral spread occurring within the site is considered to be low. The project-specific geotechnical investigation report concludes that site soils would be capable of supporting proposed structures after grading and compaction. The project will require mass grading and a grading plan that identifies best grading practices for cut and fill, compaction and drainage will be prepared prior to any site disturbance. The project is required to be constructed in accordance with the CBC and the requirements of the project soils investigation report. The CBC includes a requirement that any City-approved recommendations contained in the soil report be made conditions of the building permit. Based on the considerations of the project soil report, soils can be prepared to maintain stability sufficient to support the proposed project. The recommendations of the report will be implemented through the City's routine plan check and permitting processes. Impacts will be less than significant.

d) **No Impact.** The CBC requires special design considerations for foundations of structures built on soils with expansion indices greater than 20. The geotechnical investigation report included testing of site soil samples within the proposed building footprint for expansion potential. Based on laboratory testing, the upper foundation soil is classified as low in expansion potential. Therefore, there would be no impact

e) **No Impact.** The proposed project will be connected to the City of San Bernardino Public Work's sewer system and no septic system or any alternative wastewater treatment is proposed. Therefore, there will be no impact in terms of soil support for septic tanks.

f) **Less Than Significant Impact.** The property is in an urbanized area. Records of the WSC identified no fossil localities within the project area or within a one-mile radius (Stoneburg 2022). The WSC states that the geologic units underlying the project area are primarily alluvial fan gravel and sand from the Holocene Epoch, while surrounding soils include Pleistocene-age alluvial fan gravel, sand, and boulder gravel, mica schist of Mesozoic age, Cretaceous granitic rocks, and Precambrian gneiss. Although the Holocene-age alluvial soils have high preservation value, they are unlikely to contain fossil material based on the relatively recent age of the deposits. In light of the sediments present within the project area, the WSC concludes that fossil material is unlikely to be present within the depth to be impacted by the proposed development (Stoneburg 2022). However, the WSC further observes that, should the project require a substantial depth of disturbance, the sensitivity of the subsurface soils for paleontological remains would increase with the likelihood of reaching deeply buried Pleistocene alluvial sediments. The WSC therefore recommends that "caution during development should be observed".

No paleontological localities were previously reported within the project area, and no indications of any fossil remains were found in the surface sediments during the CRM TECH study. The records search identified no fossil localities within one mile of the project area, and both the literature review and records search suggest that the entire project area is situated upon surface exposures of relatively recent alluvium that is unlikely to contain fossil material. Excavations within the project area would have to be of substantial depths to impact potentially fossiliferous Pleistocene sediments. Based on these findings, the proposed project's potential to impact significant, nonrenewable paleontological resources appears to be low within the typical depth of disturbance for residential development but potentially high at a greater but unknown depth. Therefore, no

paleontological resource impact mitigation program is recommended for the proposed project unless a greater depth of disturbance is anticipated than typical surface grading and underground utility installation would require. However, if any potential paleontological remains are unearthed during the project, all work in the immediate area should be halted or diverted until a qualified paleontologist can evaluate the nature and significance of the finds.

In accordance with standard City procedures, a halt-work condition would be in place in the unlikely event that paleontological resources are discovered during construction. The contractor would be required to halt work in the immediate area of the find and to retain a professional paleontologist to examine the materials to determine whether they are a unique paleontological resource. If this determination is positive, the scientifically consequential information must be fully recovered by the paleontologist consistent with standard City protocol. However, if during grading, any paleontological resources are uncovered Condition of Approval G-1 will be implemented. See Conditions Section below for the list of actions.

Conditions of Approval

G-1: If subsurface paleontological resources are encountered during grading or construction, all ground-disturbing activity will cease within 100 feet of the resource. A qualified paleontologist will be retained by the City/applicant to assess the find, and to determine whether the resource requires further study. No further grading will occur in the area of the discovery until the City approves the measures to protect the resources. Any archaeological artifacts or paleontological resources recovered as a result of mitigation will be donated to a qualified scientific institution approved by the City where they would be afforded long-term preservation to allow future scientific study.

Mitigation Measures

No mitigation measures are necessary because impacts to Geology and Soils will be less than significant.

Level of Significance After Mitigation

Not Applicable.

4.8 – Greenhouse Gas Emissions

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			<input checked="" type="checkbox"/>	
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?				<input checked="" type="checkbox"/>

Sources

Information used to prepare this section is from the following source: California Emissions Estimator Model 2020.4.0.

Environmental Setting

Constituent gases of the Earth's atmosphere, called atmospheric greenhouse gases (GHG), play a critical role in the Earth's radiation amount by trapping infrared radiation emitted from the Earth's surface, which otherwise would have escaped to space. Prominent greenhouse gases contributing to this process include carbon dioxide (CO₂), methane (CH₄), ozone, water vapor, nitrous oxide (N₂O), and chlorofluorocarbons (CFCs). This phenomenon, known as the Greenhouse Effect, is responsible for maintaining a habitable climate. Anthropogenic (caused or produced by humans) emissions of these greenhouse gases in excess of natural ambient concentrations are responsible for the enhancement of the Greenhouse Effect and have led to a trend of unnatural warming of the Earth's natural climate, known as global warming or climate change. Emissions of gases that induce global warming are attributable to human activities associated with industrial/manufacturing, agriculture, utilities, transportation, and residential land uses. Transportation is responsible for 41 percent of the State's greenhouse gas emissions, followed by electricity generation. Emissions of CO₂ and nitrous oxide (NO_x) are byproducts of fossil fuel combustion. Methane, a potent greenhouse gas, results from off-gassing associated with agricultural practices and landfills. Sinks of CO₂, where CO₂ is stored outside of the atmosphere, include uptake by vegetation and dissolution into the ocean.

The project is within the South Coast Air Basin, which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD).

SCAQMD Regulation XXVII, Climate Change. SCAQMD Regulation XXVII currently includes three rules:

- The purpose of Rule 2700 is to define terms and post global warming potentials.
- The purpose of Rule 2701, SoCal Climate Solutions Exchange, is to establish a voluntary program to encourage, quantify, and certify voluntary, high quality certified greenhouse gas emission reductions in the SCAQMD.
- Rule 2702, Greenhouse Gas Reduction Program, was adopted on February 6, 2009. The purpose of this rule is to create a Greenhouse Gas Reduction Program for greenhouse gas emission reductions in the SCAQMD. The SCAQMD will fund projects through contracts in response to requests for proposals or purchase reductions from other parties.

Varieties of agencies have developed greenhouse gas emission thresholds and/or have made recommendations for how to identify a threshold. However, the thresholds for projects in the jurisdiction of the SCAQMD remain in flux. The California Air Pollution Control Officers Association explored a variety of threshold approaches, but did not recommend one approach (2008). The ARB recommended approaches for setting interim significance thresholds (California Air Resources Board 2008b), in which a draft industrial project threshold suggests that non-transportation related emissions under 7,000 MTCO_{2e} per year would be less than significant; however, the ARB has not approved those thresholds and has not published anything since then. The Bay Area Air Quality Management District and the San Joaquin Valley Air Pollution Control District have both developed greenhouse gas thresholds. However, those thresholds are not applicable to the project since the project is under the jurisdiction of the SCAQMD. The SCAQMD is in the process of developing thresholds, as discussed below.

SCAQMD Threshold Development. On December 5, 2008, the SCAQMD Governing Board adopted an interim greenhouse gas significance threshold for stationary sources, rules, and plans where the SCAQMD is lead agency (SCAQMD permit threshold). The SCAQMD permit threshold consists of five tiers. However, the SCAQMD is not the lead agency for this project. Therefore, the five permit threshold tiers do not apply to the proposed project. The SCAQMD is in the process of preparing recommended significance thresholds for greenhouse gases for local lead agency consideration (“SCAQMD draft local agency threshold”); however, the SCAQMD Board has not approved the thresholds as of the date of preparation of this document. The current draft thresholds consist of the following tiered approach:

- Tier 1 consists of evaluating whether or not the project qualifies for any applicable exemption under CEQA.
- Tier 2 consists of determining whether the project is consistent with a greenhouse gas reduction plan. If a project is consistent with a qualifying local greenhouse gas reduction plan, it does not have significant greenhouse gas emissions.
- Tier 3 consists of screening values, which the lead agency can choose, but must be consistent with all projects within its jurisdiction. A project’s construction emissions are averaged over 30 years and are added to a project’s operational emissions. If a project’s emissions are under one of the following screening thresholds, then the project is less than significant:
 - All land use types: 3,000 MTCO₂e per year
 - Based on land use type: residential: 3,500 MTCO₂e per year; commercial: 1,400 MTCO₂e per year; or mixed use: 3,000 MTCO₂e per year.
- Tier 4 has the following options:
 - Option 1: Reduce emissions from business as usual (BAU) by a certain percentage; this percentage is currently undefined (City of Moreno Valley CAP calls for a community-wide reduction of 15 % from 2007 BAU emissions by 2020).
 - Option 2: Early implementation of applicable AB 32 Scoping Plan measures.
 - Option 3, 2020 target for service populations (SP), which includes residents and employees: 4.8 MTCO₂e/SP/year for projects and 6.6 MTCO₂e/SP/year for plans;
 - Option 3, 2035 target: 3.0 MTCO₂e/SP/year for projects and 4.1 MTCO₂e/SP/year for plans.
- Tier 5 involves mitigation offsets to achieve target significance threshold.

The SCAQMD’s draft threshold uses the Executive Order S-3-05 goal as the basis for the Tier 3 screening level. Achieving the Executive Order’s objective would contribute to worldwide efforts to cap carbon dioxide concentrations at 450 ppm, thus stabilizing global climate.

City of San Bernardino. As of the date of this report, the City of San Bernardino has not adopted a Climate Action Plan.

Through the San Bernardino County Transportation Authority (SBCTA) formerly known as San Bernardino Associated Governments (SANBAG), the City of San Bernardino forms the San Bernardino Chapter of the San Bernardino County Regional GHG Reduction Plan. Released in March, 2014, the Plan has been prepared to assist the City in conforming to the GHG emissions reductions as mandated under AB 32. Based on the CARB Scoping Plan, reducing GHG emissions to 1990 levels by 2020 means cutting approximately 30 percent from business-as-usual (BAU) emissions levels, or about 15 percent from year 2008 levels, which is the baseline year for the GHG Reduction Plan. Consistent with the CARB Scoping Plan, the City of San Bernardino has chosen a reduction target of 15 percent below 2008 GHG emissions levels by 2020. If the project exceeds the GHG Reduction Plan screening threshold of 3,000 MTCO₂e per year for all land use types, then the project’s year 2020 emissions will be compared to the project’s baseline GHG emissions.

The proposed project would result in the subdivision of 6.10 gross acres of land and the future development and on-going use of 25 single-family detached residential dwelling units. The proposed project is anticipated to generate GHG emissions from area sources, energy usage, mobile sources, waste disposal, water usage, and construction equipment.

Discussion

a) **Less Than Significant Impact.** GHG emissions for the project were quantified utilizing the California Emissions Estimator Model (CalEEMod) version 2020.4.0 to determine if the project could have a cumulatively considerable impact related to greenhouse gas emissions and summarized in Table 4.7-1. The GHG emissions have been calculated for opening year 2023 without mitigation. The emissions inventory accounts for GHG emissions from construction activities and operational activities.

Operation emissions associated with the future residential housing would include GHG emissions from mobile sources (transportation), energy, water use and treatment, waste disposal, and area sources. GHG emissions from electricity use are indirect GHG emissions from the energy (purchased energy) that is produced offsite. Area sources are owned or controlled by the project (e.g., natural gas combustion and furnaces) and produced onsite. Construction activities are short term and cease to emit greenhouse gases upon completion, unlike operational emissions that are continuous year after year until operation of the use ceases. Because of this difference, SCAQMD recommends amortizing construction emissions over a 30-year operational lifetime. This normalizes construction emissions so that they can be grouped with operational emissions in order to generate a precise project-based GHG inventory.

**Table 4.7-1
Greenhouse Gas Emissions Inventory**

Category	Greenhouse Gas Emissions (Metric Tons/Year)					
	Bio-CO2	NonBio-C	CO2	CH4	N2O	CO2e
Area Sources	1.67	6.42	8.09	0.00	0.00	8.33
Energy Usage	0.00	73.04	73.04	0.00	0.00	73.45
Mobile Sources	0.00	269.53	269.53	0.01	0.01	273.50
Waste	5.99	0.00	5.99	0.35	0.00	14.84
Water	0.51	5.78	6.30	0.05	0.00	8.03
Construction	0.00	262.90	262.90	0.06	0.00	264.71
Sequestration						17.70
Total Emissions	8.17	617.67	625.85	0.47	0.01	660.56
SCAQMD and GHG Reduction Plan Screening Threshold						3,000
Exceeds Threshold?						No

Source: CalEEMod Version 2020.4.0. Year 2023 emissions (opening year).

Table 4.7-1 shows that the proposed project in year 2023 would generate approximately 660.56 metric tons of CO2e per year of GHG emissions. According to the thresholds of significance established above, a cumulative global climate change impact would not occur since the GHG emissions created from the on-going operations would not exceed the screening threshold of 3,000 metric tons per year of CO2e. Therefore, the project will have less than significant impacts due to GHG contribution at operation. No mitigation will be required.

The project is also subject to the requirements of the California Green Building Standards Code. The Code is a comprehensive and uniform regulatory code for all residential, commercial and school buildings. The California Green Building Standards Code does not prevent a local jurisdiction from adopting a more stringent code as state law provides methods for local enhancements. The Code recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum 50-percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard that buildings need to meet in order to be certified for occupancy. Enforcement is generally through the local building official.

The California Green Building Standards Code (code section in parentheses) requires:

- Water Efficiency and Conservation [Indoor Water Use (4.303.1)]. Fixtures and fixture fittings reducing the overall use of potable water within the building by at least 20 percent shall be provided. The 20 percent reduction shall be demonstrated by one of the following methods:
 - Prescriptive Method: Showerheads (≤ 2.0 gpm @ 80 psi); Residential Lavatory Faucets (≤ 1.5 gpm @ 60 psi); Nonresidential Lavatory Faucets ($\leq .4$ gpm @ 60 psi); Kitchen Faucets (≤ 1.8 gpm @ 60 psi); Toilets (≤ 1.28 gal/flush); and urinals (≤ 0.5 gal/flush).
 - Performance Method: Provide a calculation demonstrating a 20% reduction of indoor potable water using the baseline values set forth in Table 4.303.1. The calculation will be limited to the total water usage of showerheads, lavatory faucets, water closets and urinals within the dwelling.
- Water Efficiency and Conservation [Outdoor Water Use (4.304.1)]. Irrigation Controllers. Automatic irrigation system controllers for landscaping provided by the builder and installed at the time of final inspection shall comply with the following:
 - Controllers shall be weather- or soil moisture-based controllers that automatically adjust irrigation in response to changes in plants' watering needs as weather or soil conditions change.
 - Weather-based controllers without integral rain sensors or communication systems that account for rainfall shall have a separate wired or wireless rain sensor which connects or communicates with the controller(s).
- Construction Waste Reduction of at least 50 percent (4.408.1). Recycle and/or salvage for reuse a minimum of 50 percent of the nonhazardous construction and demolition waste in accordance with either Section 4.408.2, 4.408.3 or 4.408.4; OR meet a more stringent local construction and demolition waste management ordinance. Documentation is required per Section 4.408.5. Exceptions:
 - Excavated soil and land-clearing debris.
 - Alternate waste reduction methods developed by working with local enforcing agencies if diversion or recycle facilities capable of compliance with this item do not exist or are not located reasonably close to the jobsite.
 - The enforcing agency may make exceptions to the requirements of this section when jobsites are located in areas beyond the haul boundaries of the diversion facility.

- Materials pollution control (4.504.1 – 4.504.6). Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring and particleboard.
- Installer and Special Inspector Qualifications (702.1-702.2). Mandatory special installer inspector qualifications for installation and inspection of energy systems (e.g., heat furnace, air conditioner, mechanical equipment).

Compliance with Green Building Standards and 2019 Title 24 Standards will further reduce project-related greenhouse emissions.

b) **No Impact.** San Bernardino has adopted the 2019 edition of the California Building Code (Title 24), including the California Green Building Standards Code. The project would be subject to the California Green Building Standards Code, which requires new buildings to reduce water consumption, employ building commissioning to increase building system efficiencies for large buildings, divert construction waste from landfills, and install low pollutant-emitting finish materials. The project does not include any feature (i.e. substantially alter energy demands) that would interfere with implementation of these State and City codes and plans. The City of San Bernardino does not have any additional plans, policies, standards, or regulations related to climate change and GHG emissions. Also, no other government-adopted plans or regulatory programs in effect at this time have established a specific performance standard to reduce GHG emissions from a single building project. As discussion under Section 4.3, Air Quality above, the project meets the goals of the RTS/SCS to adapt to a changing climate and support an integrated regional development pattern and transportation network and encourages development of diverse housing types in areas that are supported by multiple transportation options. The project will construct adjacent roadways to their ultimate half-width right-of-way and will benefit from regional/local transit opportunities. Development of the property will be consistent with the CARB scoping plan as outlined above in Section 4.6 Energy. In conclusion, the project does not conflict with a local plan adopted for the purpose of reducing GHG emissions. No impact will occur.

Mitigation Measures

No mitigation measures are necessary because impacts to Greenhouse Gas Emissions will be less than significant.

Level of Significance After Mitigation

Not Applicable.

4.9 – Hazards and Hazardous Materials

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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 reasonable foreseeable upset and accident condition involving the release of hazardous materials into the environment?			<input checked="" type="checkbox"/>	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?			<input checked="" type="checkbox"/>	
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?				<input checked="" type="checkbox"/>
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 or excessive noise for people residing or working in the project area?				<input checked="" type="checkbox"/>
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			<input checked="" type="checkbox"/>	
g) Expose people or structures, directly or indirectly to a significant risk of loss, injury or death involving wildland fires, including where wildlands?			<input checked="" type="checkbox"/>	

Sources

Information used to prepare this section is from the following sources: City of San Bernardino General Plan Update, 2005, Chapter 10 Safety and Chapter 14 Noise; California Department of Toxic Substances Control, EnviroStor; California State Water Resources Control Board, GeoTracker; California State Water Resources Control Board, Sites Identified with Waste Constituents Above Hazardous Waste Levels Outside the Waste Management Unit; California State Water Resources Control Board, List of Active CDO and CAO; California Department of Toxic Substances Control., Hazardous Facilities Subject to Corrective Action; California Department of Forestry and Fire Protection, Incorporated Fire Hazard Severity Zone: City of San Bernardino, Very High Fire Hazard Severity Zones in LRA (Local Responsibility Area), Recommended, October 2008; and California Department of Transportation, Division of Aeronautics website, California Public Use Airport list.

Environmental Setting

Hazardous Waste Site

The proposed project site is not on the State of California Hazardous Waste and Substances Site List pursuant to Government Code Section 65962.5. California Department of Toxic Substances Control Envirostar database accessed April 4, 2022.

Local Schools

The nearest school to the site is Palm Elementary School, located at the northeast corner of Belmont Avenue and Palm Avenue (6565 Palm Avenue, San Bernardino) approximately 0.4 mile to the northwest. Cesar Chavez Middle School at the southwest corner of West Belmont Avenue and North Magnolia Avenue (6650 North Magnolia Avenue) is approximately 0.9 miles away. The nearest high school is Cajon High School located at 1200 W Hill Drive, San Bernardino, approximately 3.8 miles away.

Public Airports/Private Airstrips

There are no private or public airports located within two miles of the project site. San Bernardino International Airport is approximately 11.7 miles southeast of the project site at 225 North Leland Norton Way, San Bernardino, CA 92408 and Ontario International Airport is approximately 21 miles southwest of the project site at 2500 East Airport Drive, Ontario, CA 91761.

Discussion

a) **Less Than Significant Impact.** The proposed project could result in a significant hazard to the public if the project includes the routine transport, use, or disposal of hazardous materials or places housing near a facility which routinely transports, uses, or disposes of hazardous materials. The proposed project is located within a primarily residential area within the city. The routine use, transport, or disposal of hazardous materials is primarily associated with industrial uses which require such materials for manufacturing operations or produce hazardous wastes as by-products of production applications. The proposed project does not propose or facilitate any activity involving significant use, routine transport, or disposal of hazardous substances as part of the subdivision and future 25 single-family homes.

During construction, there would be a minor level of transport, use, and disposal of hazardous materials and wastes that are typical of construction projects. This would include fuels and lubricants for construction machinery, coating materials, etc. This requirement would be spelled out in detail in the SWPPP that must be prepared by the applicant prior to any site disturbance. The SWPPP is discussed further in the next section (Hydrology and Water Quality). Routine construction control measures and best management practices for hazardous materials storage, application, waste disposal, accident prevention and clean-up, etc. would be sufficient to reduce potential impacts to a less than significant level.

With regard to project operation, a limited amount of widely used hazardous materials, including paints and other solvents, cleaners, and pesticides would be anticipated. The remnants of these and other products are disposed of as household hazardous waste (HHW) that includes used dead batteries, electronic wastes, and other wastes that are prohibited or discouraged from being disposed of at local landfills. Regular operation and cleaning of the residential structures would not result in significant impacts involving use, storage, transport or disposal of hazardous wastes and substances. Use of common household hazardous materials and their disposal does not present a substantial health risk to the community. Impacts associated with the routine transport, use of hazardous materials or wastes will be less than significant.

b) **Less Than Significant Impact.** Construction of the future 25 housing units will require the use and transport of hazardous materials such as asphalt, paints, and other solvents. Construction activities could also produce hazardous wastes associated with the use of such products. The future construction of proposed residential development requires ordinary construction activities and will not require a substantial or uncommon amount of hazardous

materials to complete. All hazardous materials are required to be utilized and transported in accordance with their labeling pursuant to federal and state law. Routine construction practices include good housekeeping measures to prevent/contain/clean-up spills and contamination from fuels, solvents, concrete wastes and other waste materials. During construction, BMPs would be required to be implemented by the City as well as standard construction controls and safety procedures that would avoid or minimize the potential for accidental release of these substances. Standard construction practices would be observed such that any materials released are appropriately contained and remediated as required by the San Bernardino City Fire Department, the local Certified Unified Program Agency for hazardous materials in the region. With implementation of standard conditions, hazard to the public or the environment through reasonable foreseeable upset and accident condition involving the release of hazardous materials into the environment would be less than significant.

c) **Less than Significant Impact.** There are no schools within 0.25 miles of the proposed project site. The nearest school to the site is Palm Elementary School, located at the northeast corner of Belmont Avenue and Palm Avenue (6565 Palm Avenue, San Bernardino), approximately 0.4 miles away. Cesar Chavez Middle School at the southwest corner of West Belmont Avenue and North Magnolia Avenue (6650 North Magnolia Avenue) is approximately 0.9 miles away. As discussed in Section 4.9.b, existing regulations address potential off-site construction-related hazards associated with demolition of the existing onsite structures. Impact would be less than significant with implementation of existing regulations. The project consists of a code amendment, and the subdivision of 6.10 gross acres into 25 single-family residential lots which do not emit or generate significant hazardous materials. Therefore, the project would not result in impacts to schools due to hazardous materials handling or emissions and no mitigation is required

d) **No Impact.** A review of known electronic database listings for possible hazardous waste generating establishments in the vicinity of the subject property, as well as adjacent sites with known environmental concerns was conducted. Facilities were identified by county, state, or federal agencies that generate, store, or dispose of hazardous materials. The project is not located on the State of California Hazardous Waste and Substances Site List pursuant to Government Code Section 65962.5. California Department of Toxic Substances Control Envirostar database, accessed April 4, 2022. The project would have no impact in this regard.

e) **No Impact.** There are no private or public airports located within 2 miles of the project site. San Bernardino International Airport is approximately 11.7 miles southeast of the project site at 225 North Leland Norton Way, San Bernardino, CA 92408 and Ontario International Airport is approximately 21 miles southwest of the project site at 2500 East Airport Drive, Ontario, CA 91761. Therefore, the project would not result in safety hazards from proximity to airports for people living in the project area or excessive noise for people residing or working in the project area. No impact will occur.

f) **Less Than Significant Impact.** The proposed project is a code amendment, the subdivision of 6.10 gross acres into 25 single-family residential lots and the future construction of the 25 single-family homes. It is a residential infill project. Per State Fire and Building Codes, sufficient space will have to be provided around the structures for emergency personnel and equipment access and emergency evacuation. All project elements, including landscaping, would be sited with sufficient clearance from existing and proposed structures so as not to interfere with emergency access to and evacuation from the facility. The project would comply with the California Fire Code (Title 24, California Code of Regulations, Section 9).

The project driveways would allow emergency access and evacuation from the site, and would be constructed to San Bernardino Code specifications. Over the long term, the project would not

impair implementation of or physically interfere with an adopted emergency response plan or evacuation plan because no permanent public street or lane closures are proposed. Construction work in the street associated with the project would be limited to lateral utility connections, undergrounding of utility lines and installation of street trees; all of which would be limited to nominal potential traffic diversion. Traffic control would be provided for any lane closures. Project impacts would be less than significant.

g) **No Impact.** The project site is located within an urbanized area of the City of San Bernardino and is not located within a fire hazard zone, as identified on the latest Fire Hazard Severity Zone (FHSZ) maps prepared by the California Department of Forestry and Fire Protection (CALFIRE). There are no wildland conditions in the urbanized area that the project site is located. No impact would occur.

Mitigation Measures

No mitigation measures are necessary because impacts to Hazards and Hazardous Materials will be less than significant.

Level of Significance After Mitigation

Not applicable.

4.10 – Hydrology and Water Quality

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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;			<input checked="" type="checkbox"/>	
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			<input checked="" type="checkbox"/>	
iv) impede or redirect flood flows?			<input checked="" type="checkbox"/>	
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?			<input checked="" type="checkbox"/>	
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?			<input checked="" type="checkbox"/>	

Sources

Information used to prepare this section is from the following sources: City of San Bernardino General Plan Update, 2005; San Bernardino Municipal Code; Flood Insurance Rate Maps (FIRM), Panel 06071C7930J, September 2, 2016; SoCal Professional Engineers, Preliminary Geotechnical Investigation Proposed Twenty-Five Lot, Tentative Tract Map Assessor’s Parcel No. 0261-151-010 ± 5.3 Acres Belmont Avenue, San Bernardino, San Bernardino County, California dated September 20, 2021; and SoCal Professional Engineers, Onsite Stormwater Infiltration Systems Investigation Proposed Tentative Tract Map Assessor’s Parcel No. 0261-151-010 ± 5.3 Acres Belmont Avenue, San Bernardino County, California dated September 10, 2021.

Environmental Setting

The City of San Bernardino lies within the Santa Ana River Basin (Region 8) of the Regional Water Quality Control Board. Region 8 extends from the San Bernardino and San Gabriel Mountains in the north and east to Newport Bay along the coast. This Santa Ana River Basin is geographically the smallest region, at 2,800 square miles, yet contains one of the largest populations with almost five million people. The region contains 460 miles of streams, 21,090 acres of lakes and 24 miles of coastline. The Santa Ana River is the largest stream system in southern California, and is also the region’s main surface water body. The Santa Ana River transports more than 125 million gallons per day of reclaimed water from Riverside and San Bernardino Counties for recharge into the Orange County Groundwater Basin. This recharge provides 40 percent of the Orange County water demand. The Santa Ana River has a number of tributaries in the vicinity of San Bernardino that contribute flow to the main stem of the river including Lytle Creek, East Twin Creek, East Warm Creek and San Timoteo Creek.

Storm drains and flood control facilities within the planning area include natural and man-made channels, storm drains, street waterways, natural drainage courses, dams, basins, and levees. Storm drain and flood control facilities are administered by City of San Bernardino, San Bernardino County Flood Control District, Army Corps of Engineers, and San Bernardino International Airport and Trade Center. Design and construction of storm drain and flood control facilities are the responsibility of the City Public Works Department. The Public Services Department is responsible for the operation and maintenance of storm drain and flood control facilities. San Bernardino’s

planning area encompasses 71 square miles, much of which is paved and impervious to stormwater.

The San Bernardino County Flood Control District divides the City into subareas for planning purposes pursuant to the District's Comprehensive Storm Drain Plans No. 3, 4, 6, and 7. The City uses the Flood Control District's Comprehensive Storm Drain Plans for the development of the City's storm drain system. The City of San Bernardino requires all 10-year frequency storm waters, except for street flows at intersection points, be contained in the underground drain system. Storm flows in excess of the 10-year frequency storm flow, but less than or equal to the 25-year storm flow, will be carried in the curbed portion of the street. Storm flows associated with 100-year storms may be carried in the street right-of-way. One-hundred-year storm flows may also be conveyed via a combination of storm drains sized to convey a 25-year storm in the curbed part of the street with the balance of the flow conveyed in the street section.

The City of San Bernardino has established design criteria for both major and local drains within the City. Major drains are systems using 36-inch or larger pipes (or equivalent channels) and are identified on the comprehensive storm drain plans. Local drains are systems using less than 36-inch-diameter conduits. Storm drains and flood control facilities within the City include: channels, storm drains, street waterways, natural drainage courses, dams, basins, and levees. Some streets in the City of San Bernardino are specifically designed to accommodate storm flow. Flows carried within the street right-of-way may cause localized flooding during storms, possibly making some roads impassable during the storm event.

Federal and State Oversight

The federal Clean Water Act (CWA) is the principal federal law that provides for the protection of water quality. The primary objectives of the CWA are to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters," and to make all surface waters "fishable" and "swimmable." The U.S. Environmental Protection Agency (EPA) is the designated federal agency responsible for implementing the CWA and it has further delegated authority to the State Water Resources Control Board (SWRCB) and associated Regional Water Quality Control Boards (RWQCB) for compliance with the CWA. Relevant programs identified in the CWA include the National Pollution Discharge Elimination System (NPDES) program which regulates discharge of pollutants from known sources (point sources), as well as non-point sources, into waters of the United States through the issuance of permits. As part of the NPDES program, a Storm Water Pollution Prevention Plan (SWPPP) must be prepared for construction activities affecting greater than one acre because the discharge of stormwater during construction is considered a non-point source of water pollution.

Stormwater Pollution Prevention Plans

According to the Storm Water Program run by the State Water Resources Control Board (SWRCB), any developer engaging in construction activities which disturb one acre or more of land shall apply for coverage under the general stormwater permit for construction activity with the SWRCB. In addition, the owner shall also prepare a SWPPP in accordance with state requirements. All construction projects which could potentially have an adverse impact on the City's municipal separate storm sewer system or waters of the State shall install and/or implement appropriate construction and post-construction BMPs, as listed in their SWPPP. The City of San Bernardino, along with other cities in the San Bernardino Valley, is a co-permittee with the County of San Bernardino, in the County's Area-Wide Urban Stormwater Runoff Management Program in order to comply with the Santa Ana Regional Water Quality Control Board Waste Discharge Requirements issued in 2010 for the County's MS4 Permit. Under this permit, all development projects are subject to the NPDES requirements which include the preparation, approval, and implementation of a SWPPP.

Water Quality Management Plans

According to San Bernardino Municipal Code 8.80.501, prior to the issuance of any grading or building permit, all qualifying land development projects shall submit and have approved a storm water quality management plan (SWQMP) to the city engineer on a form provided by the City. The SWQMP shall identify all BMPs that will be incorporated into the operation of the project to control stormwater and non-stormwater pollutants during and after construction and shall be revised as necessary during the life of the project. The SWQMP submittal applies to construction projects covered by the NPDES general construction permit as well as construction projects less than five acres. Following the approval of the SWQMP by the city engineer, the owner of the qualifying project and the city shall enter into a recordable Storm Water Quality Management Plan Agreement which shall contain enforceable mechanisms to ensure that the operations and maintenance costs of post-construction BMPs are paid in perpetuity.

Discussion

a) **Less Than Significant Impact.** A project normally would have an impact on surface water quality if discharges associated with the project would create pollution, contamination, or nuisance as defined in Section 13050 of the California Water Code (CWC), or that cause regulatory standards to be violated as defined in the applicable National Pollutant Discharge Elimination System (NPDES) stormwater permit or Water Quality Control Plan for the receiving water body. For the purpose of this specific issue, a significant impact could occur if the project would discharge water that does not meet the quality standards of the agencies which regulate surface water quality and water discharge into stormwater drainage systems. Significant impacts could also occur if the project does not comply with all applicable regulations with regard to surface water quality as governed by the State Water Resources Control Board (SWRCB). These regulations include preparation of a Storm Water Quality Management Plan (SWQMP) to reduce potential post-construction water quality impacts.

Discharges into stormwater drains or channels from construction sites of one acre or larger are regulated by the General Permit for Storm Water Discharges Associated with Construction Activity issued by the State Water Quality Control Board. The General Permit was issued pursuant to National Pollutant Discharge Elimination System (NPDES) regulations of the Environmental Protection Agency (EPA), as authorized by the Clean Water Act. Compliance with the General Permit involves developing and implementing a Storm Water Pollution Prevention Plan (SWPPP) specifying best management practices (BMPs) that the project would use to minimize pollution of stormwater. The SWPPP BMPs would follow the guidelines set forth by the State Water Resources Control Board (SWRCB).

The project applicant will be required to comply with NPDES permit requirements through the preparation and implementation of a SWPPP for construction activities. The City's Engineer will review the application for compliance with applicable regulations and to ensure that no water quality standards or discharge requirements are violated. A Notice of Intent (NOI) to the SWRCB will be required who will issue a Waste Discharge Identification Number (WDID) for the project. Prior to obtaining any City-issued grading and/or construction permits, the developer/owner shall provide evidence of compliance with the general construction permit by providing a copy of the WDID to the City's Development Services Department. Plans for stormwater treatment are required to meet City and regional standards. Given required compliance with existing laws, project impacts on water quality standards would be less than significant, and no additional mitigation is required.

b) **Less Than Significant Impact.** If the project removed an existing groundwater recharge area or substantially reduced runoff that results in groundwater recharge, a potentially significant impact could occur.

No groundwater or perched water was observed in the exploratory borings conducted by SoCal Professional Engineers to a depth of 50 feet. Based on available ground water data from the County of San Bernardino, the depths of ground water is 100 feet plus (100'+) below ground in the project area. Project-related grading would not reach these depths and no disturbance of groundwater is anticipated. The future building footprint areas and paved streets would increase impervious surface coverage on the site. As such, the total amount of infiltration on site would be decreased over existing conditions. Since this site is currently disturbed and is not managed for groundwater supplies, this change in infiltration would not have a significant effect on groundwater supplies or recharge.

The project would be required to comply with the City of San Bernardino Municipal Code, Chapter 17.06 for water wise landscape requirements, which would lessen the project's demand for water resources. Also, finally, CBC Title 24 water efficiency measures require a demonstrated 20 percent reduction in the use of potable water. The project's landscaping plans will include drought tolerant landscaping materials. Compliance with Title 24 and the City's Water Wise Landscaping standards will reduce the proposed project's impacts to groundwater supplies to a level of less than significant. Water supply is further discussed in Checklist Section 4.19.

c.i) **Less Than Significant Impact.** Potentially significant impacts to the existing drainage pattern of the site or area could occur if development of the project results in substantial on- or off-site erosion or siltation. There are no streams cross the project site; thus, the project would not alter any stream course. The project will collect and convey run-off from upstream areas and convey these flows through the site, to the storm drainage system. A site drainage plan is required by the City of San Bernardino and would be reviewed by the City Engineer. The final grading and drainage plan would be approved by the City Engineer during plan check review. Erosion and siltation reduction measures would be implemented during construction consistent with an approved SWPPP, which will demonstrate compliance with the City's NPDES permit. At the completion of construction, the project would consist of impervious surfaces and landscaped areas, and would therefore not be prone to substantial erosion. No streams cross the project site; thus, the project would not alter any stream course. Impacts will be less than significant.

c.ii) **Less Than Significant Impact.** With regard to project operation, on-site drainage will continue to function through sheet flow to the driveways, discharging into streets and drainage systems. The project will not substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite. Impacts will be less than significant.

c.iii) **Less Than Significant Impact.** The 25-lot subdivision will not 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. During construction, the project applicant would be required to develop and implement a SWPPP as required by law; this would prevent polluted runoff from leaving the construction site. Adherence to all code requirements for the future construction of the 25 single-family houses will ensure that impacts associated with drainage activities are less than significant and no additional mitigation is required.

c.iv) **Less Than Significant Impact.** The Federal Emergency Management Agency (FEMA) produces maps (Flood Insurance Rate Map) that identify areas that are located in flood zones. The map that addresses this portion of the City of San Bernardino is FIRM Panel 06071C7930J, September 2, 2016, which shows that the project site is located within Zone X. This zone designates areas of 0.2 percent annual chance flood, areas of 1 percent annual chance flood with average depths of 1 foot or with drainage areas less than 1 square mile, and areas protected by levees from 1 percent annual chance flood. Therefore, there will be a less than significant impact as the project will not impede or redirect flood flows.

d) **Less Than Significant Impact.** According to the General Plan Update, the project site is not located within a flood hazard, tsunami, or seiche zones. The project will not result in a risk release of pollutants due to project inundation. Therefore, the project will be a less than significant impact.

e) **Less Than Significant Impact.** During construction, the project applicant would be required to develop and implement a SWPPP as required by law; this would prevent polluted runoff from leaving the construction site. The project by design will not conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. The future structures to be constructed on the site will be required to meet and comply with all applicable city and State building codes to reduce impacts to water quality to less-than-significant level.

Mitigation Measures

No mitigation measures are necessary because Hydrology impacts will be less than significant.

Level of Significance After Mitigation

Not Applicable.

4.11 – Land Use and Planning

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a) Physically divide an established community?				<input checked="" type="checkbox"/>
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?			<input checked="" type="checkbox"/>	

Sources

Information used to prepare this section is from the following sources: City of San Bernardino General Plan Update, 2005.

Environmental Setting

The proposed project site is in an area that is mainly developed with residential uses with limited institutional uses. The General Plan Foundation Component is Single Family Residential with a land use designation of Residential Low (RL), which allows for a maximum of 3.1 dwelling units per acre and requires a minimum lot size of 10,800 square feet as identified by the Land Use Element of the City of San Bernardino General Plan. The intended use for this designation is

single-family detached residences in a low-density setting. The project site is currently zoned Residential Low [3.1 dwelling units per acre (10,800 minimum lot size)].

Discussion

a) **No Impact.** The proposed infill project is surrounded by residential uses and vacant land. The project is compatible with the surrounding land uses along West Belmont Avenue, Shepherd Lane, Rosemary Lane, Churchill Street and Split Mountain Lane and will not divide an established community. The project does not propose construction of any roadway, flood control channel, or other structure that would physically divide any portion of the community. The project will provide connections to Olive Avenue by constructing a continuation of Rosemary Lane. Therefore, no impact will occur.

b) **Less than Significant Impact.** The project site is designated as Residential in the City's General Plan Foundation Component. The applicant is requesting Development Code Amendment 21-05 to modify the land use map to change the land use designation from RL (Residential Low - 3.1 du/net ac) with a minimum average lot size of 10,800 square feet to RS (Residential Suburban – 4.5 du/net ac) with a minimum lot size of 7,200 square feet pursuant to Chapter 19.42 Development Code Amendments of the City of San Bernardino Development Code.

The proposed project also includes Subdivision 21-11 Tentative Tract Map 20421 (TTM) a request to allow the division of a parcel containing approximately 6.10-gross acres/4.43 net acres into 25 residential lots for the future construction and use of single-family detached product together with the construction of the required on-site infrastructure improvements. The lots sizes ranges from 7,372 to 9,377 square feet with an average lot size of 7,852 square feet at a density of 4.10 dwelling units per gross acre.

The proposed site is located on the south side of West Belmont Avenue at Olive Avenue with single-family residential development directly to the north, west and south and scattered residential to the east. The project would be in character with the intent of the RS zone. The project would not conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Therefore, a less than significant impact on the established land use plan would apply.

Mitigation Measures

No mitigation measures are necessary because impacts to Land Use and Planning will be less than significant.

Level of Significance After Mitigation

Not Applicable.

4.12 – Mineral Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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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?				<input checked="" type="checkbox"/>
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?				<input checked="" type="checkbox"/>

Sources

Information used to prepare this section is from the City of San Bernardino General Plan Update, 2005, Chapter 12 Natural Resources and Conservation.

Environmental Setting

According to the City’s General Plan Update, Figure NRC-3 Mineral Resources, the City contains several areas within the San Bernardino region have been classified as Mineral Resource Zone 2 (MRZ-2). MRZ-2 areas indicate the existence of a construction aggregate deposit that meets certain State criteria for value and marketability based solely on geologic factors. The project site is located in the MRZ-3 zone, which designates areas containing mineral resources where the significance cannot be evaluated from available data.

Discussion

a-b) **No Impact.** The project site, located within an urbanized area of the City of San Bernardino, is predominately surrounded by residential uses. The General Plan, Natural Resources and Conservation chapter describes the importance of conservation of significant mineral deposits. The project site and adjacent lands are located within an MRZ-3 zone, where the significance of mineral deposits cannot be determined. These properties are fully developed with residential uses. Mineral production is not compatible with the project area due to urbanization and location of residential uses near the project site. Development would not result in the loss of a known mineral resource. No impact would occur.

Mitigation Measures

No mitigation measures are necessary because Mineral impacts will be less than significant.

Level of Significance After Mitigation

Not Applicable.

4.13 – Noise

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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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 applicable standards of other agencies?		<input checked="" type="checkbox"/>		
b) Generation of excessive groundborne vibration or groundborne noise levels?			<input checked="" type="checkbox"/>	
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?				<input checked="" type="checkbox"/>

Sources

Information used to prepare this section is from the following sources: *City of San Bernardino General Plan Update, 2005*; and *City of San Bernardino Municipal Code*

Environmental Setting

The project proposes to amend the Development Code from RL to RS, to subdivide 6.10 gross acres into 25 single-family residential lots for the future development and construction of 25 single-family detached residential dwelling units. The project site is bordered by West Belmont Avenue and Olive Avenue. There are single-family detached residential dwelling units to the north, west and south with scattered residences to the east. The main noise sources in the area that could affect the project site would be associated with traffic along W. Belmont Avenue and Olive Avenue. The General Plan based exterior/interior traffic noise level projections on average daily traffic volumes (ADTs), topography, and the centerline distances from the subject roadways. Secondary noise sources would be associated with residences, such as air conditioning units and various maintenance activities including landscaping or home improvement.

Noise Terminology

The unit of measurement used to describe a noise level is the decibel (dB). The human ear is not equally sensitive to all frequencies within the sound spectrum. Therefore, the “A-weighted” noise scale, which weights the frequencies to which humans are sensitive, is used for measurements. Noise levels using A- weighted measurements are written dB(A) or dBA. Decibels are measured on a logarithmic scale, which means a doubling of the energy of a noise source, such as a doubled traffic volume, would increase the noise levels by 3 dBA; halving of the energy would result in a 3 dBA decrease.

Average noise levels over a period of minutes or hours are usually expressed as dBA Leq, or the equivalent noise level for that period of time. For example, Leq(3) would represent a 3-hour average. When no period is specified, a one-hour average is assumed.

It is widely accepted that the average healthy ear can barely perceive changes of 3 dBA; that a change of 5 dBA is readily perceptible, and that an increase (decrease) of 10 dBA sounds twice (half) as loud. This definition is recommended by Caltrans publication, *Transportation’s Traffic Noise Analysis Protocol for New Highway and Reconstruction Projects*.

Vibration

Groundborne vibrations consist of rapidly fluctuating motions within the ground that have an average motion of zero. The effects of groundborne vibrations typically only cause a nuisance to people, but at extreme vibration levels, damage to buildings may occur. Although groundborne vibration can be felt outdoors, it is typically only an annoyance to people indoors where the associated effects of the shaking of a building can be notable. Groundborne noise is an effect of groundborne vibration and only exists indoors, since it is produced from noise radiated from the motion of the walls and floors of a room and may also consist of the rattling of windows or dishes on shelves.

Noise Standards

State Regulations

State standards regulate noise levels of motor vehicles, sound transmission through buildings, occupational noise control, and noise insulation. Title 24 of the California Code of Regulations, also known as the California Building Standards Code, establishes building standards applicable to all occupancies throughout the state. The code provides acoustical regulations for both exterior-to-interior sound insulation, as well as sound and impact isolation between adjacent spaces of various occupied units. Title 24 regulations state that interior noise levels generated by exterior noise sources shall not exceed 45 dBA Ldn/CNEL, with windows closed, in any habitable room for general residential uses.

City of San Bernardino General Plan

The San Bernardino Noise Guidelines for land Use planning reflects the City's interpretation of noise guidelines promulgated by the California Office of Noise Control. The guidelines provide the City with an integral tool to gauge the compatibility of land uses relative to existing and future noise levels. Based on guidelines, single-family detached residential dwelling units are considered to be normally acceptable in noise environments of up to 60 dBA CNEL and conditionally acceptable in noise environments that reach up to 70 dBA CNEL. New construction projects in areas where future noise levels are expected to range between 60-70 dBA CNEL should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features are included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

City of San Bernardino Municipal Code

The City's Municipal Code in Chapter 8.54 addresses noise controls. It prohibits any person from engaging in the following activities other than between the hours of 8:00 a.m. and 8:00 p.m. in residential zones.

- A. Operate or permit the use of powered model vehicles and planes.
- B. Load or unload any vehicle, or operate or permit the use of dollies, carts, forklifts, or other wheeled equipment that causes any impulsive sound, raucous, or unnecessary noise within one thousand (1,000) feet of a residence.
- C. Operate or permit the use of domestic power tools, or machinery or any other equipment or tool in any garage, workshop, house, or any other structure.
- D. Operate or permit the use of gasoline or electric powered leaf blowers, such as commonly used by gardeners and other persons for cleaning lawns, yards, driveways, gutters, and other property.

- E. Operate or permit the use of privately operated street/parking lot sweepers or vacuums, except that emergency work and/or work necessitated by unusual conditions may be performed with the written consent of the City Manager.
- F. Operate or permit the use of electrically operated compressor, fan, and other similar devices.
- G. Operate or permit the use of any motor vehicle with a gross vehicle weight rating in excess of ten thousand (10,000) pounds, or of any auxiliary equipment attached to such a vehicle, including, but not limited to, refrigerated truck compressors for a period longer than fifteen (15) minutes in any hour while the vehicle is stationary and on a public right-of-way or public space except when movement of said vehicle is restricted by other traffic.
- H. Repair, rebuild, reconstruct, or dismantle any motor vehicle or other mechanical equipment or devices in a manner so as to be plainly audible across property lines

Vibration Standards

The City of San Bernardino does not have a published vibration impact criterion. The California Department of Transportation (Caltrans) has published one of the seminal works for the analysis of groundborne noise and vibration relating to transportation- and construction-induced vibrations and although the project is not subject to the regulations, it serves as a useful tool to evaluate vibration impacts. A vibration impact would generally be considered significant if it involves any construction-related or operations-related impacts in excess of 0.2 +inches per second (in/sec) PPV.

Discussion

a) Less Than Significant Impact with Mitigation Incorporated.

Construction Noise Impacts

The project site lies adjacent to single-family residential dwellings that may be affected by short-term noise impacts associated with the transport of workers, the movement of construction materials to and from the project site, ground clearing, excavation, grading, and building activities. Project generated construction noise will vary depending on the construction process, type of equipment involved, location of the construction site with respect to sensitive receptors, the schedule proposed to carry out each task (e.g., hours and days of the week) and the duration of the construction work. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Site grading is expected to produce the highest sustained construction noise levels. Typical operating cycles for these types of construction equipment may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. A likely worst-case construction noise scenario during grading assumes the use of a grader, a dozer, a water truck (modeled as a dump truck), and a backhoe. Construction noise will have a temporary or periodic increase in the ambient noise levels above existing within the project vicinity. However, it is anticipated to occur during the permissible hours according to the City's Municipal Code. Any construction activities that occur outside the allowable time would be considered significant. Adherence to the allowed hours of operation, and implementation of the measure N-1 presented in below, will minimize construction noise impacts.

The proposed project will be consistent with the City's exterior noise/land use compatibility criteria based on the Residential Suburban designation as it relates the West Belmont Avenue and Olive Avenue. The proposed project is expected to generate approximately 236 average daily trips (ADT). In no case will project generated vehicle traffic result in increases of more than 1 dBA along affected road segments. Project generated vehicular traffic volumes will not result in

substantial increases in ambient noise levels. No mitigation is required. Compliance with City Municipal Code Chapter 8.54, which limits the hours, allowed for construction activities, construction noise impacts will be minimized.

b) **Less Than Significant Impact.** A significant impact would occur if project construction or operation results in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.

Construction activity can result in varying degrees of ground vibration, depending on the equipment used on the site. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings respond to these vibrations with varying results ranging from no perceptible effects at the low levels to slight damage at the highest levels. The City allows vibration from temporary construction. There are several types of construction equipment that can cause vibration levels high enough to annoy persons in the vicinity and/or result in architectural or structural damage to nearby structures and improvements. For example, operation of a large bulldozer could reach up to 0.089 PPV at a distance of 25 feet. Groundborne vibration at sensitive receptors associated with this equipment would drop off as the equipment moves away. For example, as a bulldozer moves further than 100 feet from the sensitive receptors, the vibration associated with it would drop below 0.019 PPV. It should be noted that these vibration levels are reference levels and may vary slightly depending upon soil type and specific usage of each piece of equipment.

The primary effect of perceptible vibration is often a concern. However, secondary effects, such as the rattling of a china cabinet, can also occur, even when vibration levels are well below perception. Any effect (primary perceptible vibration, secondary effects, or a combination of the two) can lead to annoyance. The degree to which a person is annoyed depends on the activity in which they are participating at the time of the disturbance. For example, someone sleeping or reading will be more sensitive than someone who is running on a treadmill. Reoccurring primary and secondary vibration effects often lead people to believe that the vibration is damaging their home, although vibration levels are well below minimum thresholds for damage potential. Vibration can be annoying to people in buildings at a peak particle velocity (PPV) of 0.20. Due to the proximity of adjacent single-family detached residential dwelling units (as close as ten-feet), project construction activities within 15 feet of the dwelling units may result in groundborne vibration that is annoying. Annoyance is expected to be short-term, occurring only during site grading and preparation. The following reduction measures shall be implemented to reduce the potential vibration related annoyances. The contractor shall limit the use of vibratory and/or heavy equipment along the project boundaries to the greatest degree possible.

Vibration generated by construction activity has the potential to damage structures. This damage could be structural damage, such as cracking of floor slabs, foundations, columns, beams, or wells, or cosmetic architectural damage, such as cracked plaster, stucco, or tile. PPV levels between 0.4 and 0.6 as vibration levels greater than normally expected from traffic volumes, but may cause "architectural" damage and possible minor structural damage. Hence, use of a large bulldozer or equivalent within 6 feet of adjacent residential dwelling units and improvements could result in architectural damage. The nearest structure to the property line is at approximately 10 feet. Impacts associated with construction vibration are not expected. Compliance with City Municipal Code Chapter 8.54, which limits the hours allowed for construction activities, construction-vibration impacts will be minimized.

c) **No Impact.** No airport land use plans apply to the area, and the proposed project site is not located within two miles of an airport. The project falls outside any airport's noise contours for excessive noise. Therefore, residents or workers would not be exposed to excessive airport noise levels and there would be no impact.

Mitigation Measures

N-1: Prior to the issuance of grading and building permits, the contractor shall establish a Construction Management Plan that includes the following standards:

- Construction shall adhere to the allowable operable hours as denoted within the SBMC Chapter 8.54.
- During all project site excavation and grading on-site, construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturer standards.
- The contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the project site.
- Equipment shall be shut off and not left to idle when not in use.
- The contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and sensitive receptors nearest the project site during all project construction.
- The contractor shall limit the use of vibratory and/or heavy equipment along the project boundaries to the greatest degree possible.

Level of Significance After Mitigation

Less than significant level.

4.14 – Population and Housing

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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			☑	
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?			☑	

Sources

Information used to prepare this section is from the following sources: State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State — 2021-2022 with 2020 Census Benchmark, May 2022; City of San Bernardino General Plan Update, 2005 and *City of San Bernardino 2013-2021 Housing Element*, January 2014.

Environmental Setting

Estimated population of San Bernardino for April 1, 2020 is 223,445 and has an estimated 3.41 persons per household. According to the City's General Plan Housing Element Table H-30 *Capacity to Accommodate the RHNA*, the City estimates that a total of 4,384 new housing units are needed in varying income levels. These are based on SCAG's *Regional Housing Needs Assessment* for San Bernardino. The project site is currently designated as Residential in the City's General Plan and is zoned as RL (Residential Low). The applicant is requesting a change to RS (Residential Suburban).

Discussion

a) **Less Than Significant Impact.** The project consists of Development Code Amendment 21-05 to modify the land use map to change the land use designation from RL (Residential Low - 3.1 du/net ac) with a minimum average lot size of 10,800 square feet to RS (Residential Suburban – 4.5 du/net ac) with a minimum lot size of 7,200 square feet pursuant to Chapter 19.42 Development Code Amendments of the City of San Bernardino Development Code and Subdivision 21-11 Tentative Tract Map 20421 (TTM) a request to allow the division of a parcel containing approximately 6.10-gross acres/4.43 net acres into 25 residential lots for the future construction and use of single-family detached product together with the construction of the required on-site infrastructure improvements.

Using the State's factor of 3.41 persons per household, the project would generate 85 new residents in the City. The project site is an infill project in an area where existing residential already exists. The 85 new residents would represent a less than one percent increase to the City's current population. Therefore, the proposed project would not induce substantial population growth in the area either by building a large number of new dwellings or by extending infrastructure into an area not previously served. The project is directly bringing jobs during construction. Project employment represents approximately less than one percent of the city's project growth which is not substantial and is within the employment growth assumptions for the city. Due to the urban nature of the City and surrounding area, this potential minimal increase in population is expected to be accommodated by existing housing in the City and neighboring communities. Impacts will be less than significant.

b) **No Impact.** Replacement housing will not need to be constructed elsewhere as the proposal will not result in the displacement of substantial numbers of existing housing. No impacts to replacement housing will occur.

Mitigation Measures

No mitigation measures are necessary because impacts to Population and Housing will be less than significant.

Level of Significance After Mitigation

Not Applicable.

4.15 – Public Services

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
a) 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:				
Fire Protection?			<input checked="" type="checkbox"/>	
Police Protection?			<input checked="" type="checkbox"/>	
Schools?			<input checked="" type="checkbox"/>	
Parks?			<input checked="" type="checkbox"/>	
Other public facilities?			<input checked="" type="checkbox"/>	

Sources

Information used to prepare this section is from the following sources: City of San Bernardino General Plan Update, Chapter 7, Public Facilities and Services, and Chapter 8, Parks, Recreation, and Trails, 2005; San Bernardino City Unified School District Website, www.sbcusd.com; State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State — 2021-2022 with 2020 Census Benchmark, May 2022. Available online at <https://www.dof.ca.gov/Forecasting/Demographics/Estimates/e-5/>; and Great!Schools website, www.greatschools.org/school-district-boundaries-map.

Environmental Setting

Fire Protection

Fire protection and emergency medical response services are being provided by the San Bernardino County Fire District (SBCFD). The Valley Regional Service Zone was formed through a reorganization process effective July 1, 2008 per Local Agency Formation Commission Resolution 2997. This regional service zone provides fire protection and paramedic services to the City of San Bernardino (Stations #221, #222, #224, #225, #226, #227, #228, #229, #231, #232 and #233). Additionally, there are two voter approved special tax fire protection service zones for the Cities of San Bernardino and Upland, and three Community Facilities Districts that levy special taxes to fund fire protection services in the City of San Bernardino, Fontana Fire Protection District, and Glen Helen area. Service Zone FP-5 San Bernardino special tax was originally approved by the Board of Supervisors in April 2006 (originally under CSA 70 Zone FP-5). With the approval of LAFCO 3198, the City of San Bernardino's Fire Department was annexed into County

Fire's Valley Regional Service Zone. The annexation included a special tax to fund fire protection and emergency medical response services within the City of San Bernardino. This special tax includes an annual inflationary increase of up to 3%. For 2018-19, the FP-5 special tax rate is \$157.26 per parcel, with budgeted revenue of \$7.7 million. Services are provided through Stations #221, #222, #224, #225, #226, #227, #228, #229, #231, #232 and #233. In 2004, Community Facilities District (CFD) 1033 was formed by the City of San Bernardino to provide funding for fire protection services in the City's Verdemon area through special taxes assessed on commercial parcels within the CFD. The administration of CFD 1033 was transferred from the City of San Bernardino to County Fire by issuance of the Certificate of Compliance for LAFCO 3198 in June 2016. For 2018-19, \$1.0 million of revenue is budgeted from special taxes generated within this CFD. Services are provided through Fire Station #232.

The SBCFD serves a San Bernardino resident population of over 221,130 and covers a diverse City service area of 60 square miles. In the City service area there are approximately 19 miles of wildland interface area, a major rail yard, an international airport, the County Seat, a correctional facility, two major mall complexes, and two major interstate freeways. The closest fire station (Station 232) is located at 6065 Palm Avenue, San Bernardino, approximately 0.8 miles southwest from the project site. The fire department also supplies emergency response personnel, firefighters/paramedics, and a Hazardous Materials Response Team.

The Department tries to adhere to standards recommended by the National Fire Insurance organization as well as the National Fire Protection Association. Those standards allow one minute alarm time, one minute turnout time (time it takes personnel to put on their turnout gear), and first units to respond to a fire or medical emergency within four minutes; the remaining equipment must respond within eight minutes.

Police Protection

The City of San Bernardino operates its own police force, providing a full range of law enforcement and community safety programs, including: field patrol, K-9, School Resource Officer (SRO), Drug Abuse Resistance Education (DARE), Street Crime Attack Team, investigations, traffic, narcotics, training/backgrounds, Strategic Weapons and Tactics, and crisis negotiations. The Police Department headquarters is located at 710 North D Street San Bernardino. The Northern District Office is located at 941 Kendall Drive. The project area is within the Northwest Division, Baker Beat B-1.

Schools

The Verdemon area of San Bernardino is served by the San Bernardino City Unified School District (SBCUSD). The District serves over 53,027 students. SBCUSD has 50 elementary schools, 11 middle schools, 10 high schools, and one adult education facility. The district provides kindergarten through 12th grade educational services and facilities to the City of San Bernardino. Schools that would serve the site are Palm Elementary School, located at the northeast corner of Belmont Avenue and Palm Avenue (6565 Palm Avenue, San Bernardino), Cesar Chavez Middle School at the southwest corner of West Belmont Avenue and North Magnolia Avenue (6650 North Magnolia Avenue) approximately 0.9 miles away and Cajon High School at 1200 Hill Drive, San Bernardino approximately 3.8 miles away. SBCUSD currently charges Developer fees to offset impacts on influx of students from new developments. The residential developer fee is currently \$4.08 per square foot.

Parks

See Section 4.16, Recreation for discussion on parks.

Other Public Services

Library services in San Bernardino are provided by the San Bernardino County Library System. The Baker Family Learning Center at 2818 Macy Street, Muscoy is the closest library facility to the Verdemont area. It is approximately 4.9 miles south of the project site. The library provides a full range of resources, including: books, movies, computers, and internet access.

Discussion

a) **Less Than Significant Impact.** The project would have a less than significant impact on San Bernardino County Fire Department's ability to provide fire protection services to the project site. The Development Code Amendment and 25-lot subdivision project is an infill development in an area with residential development adjacent to the property. The San Bernardino County Fire Department currently has a service response goal of one minute alarm time, one minute turnout time (time it takes personnel to put on their turnout gear), and first units to respond to a fire or medical emergency within four minutes; the remaining equipment must respond within eight minutes, based on the NFPA 1710 standards.

The nearest Fire Station (Station 232) is located at 6065 Palm Avenue, San Bernardino, approximately 0.9 miles southwest from the project site. The Station has a current operating apparatus of: one brush engine, and one medic engine. Based on the project's close proximity to Station 232, service response goals for San Bernardino County Fire Department in respect to the project location will be met. The developer will be required to pay the City's development impact fees for Fire Service which will help fund fire services necessary to protect the City of San Bernardino. The project is a proposed infill site. The project is within 5-minute proximity to a fire station. Therefore, the project would not have a significant impact on fire response times and would not otherwise create a substantially greater need for fire protection services than already exists. No new or expanded fire protection facilities would be required as a result of this project. Impacts related to expansion of fire protection services will be less than significant.

b) **Less Than Significant Impact.** The Development Code Amendment and 25-lot subdivision project is an infill development in an area that is primarily residential development. The San Bernardino Police Department headquarters is located at 710 North D Street San Bernardino. The Northern District Office is located at 941 Kendall Drive. The department consists of 255 sworn positions and 150 civilian support staff, according to the City's Police Department website. Generally, the desired officer to resident ratio is 1:1000. Currently, based on the California Department of Finance E-5 Report, the population of San Bernardino is estimated to be 223,445 people. The officer-to-1000 resident ratio is currently estimated to be 1.14 [$255/(223,445/1000)=1.14$].

Based on a family of 3.41 persons in each home, the proposed project has the potential to increase the population of the City by 85 residents. Funding for services by the Department is derived from the City's General Fund, and state and federal grants. The proposed residential subdivision and development will not result in any unique or more extensive crime problems that cannot be handled with the existing level of police resources. No new or expanded police facilities would need to be constructed as a result of this project. Impacts related to expansion of police protection services will be less than significant.

c) **Less Than Significant Impact.** The Verdemon area of San Bernardino is served by the San Bernardino City Unified School District (SBCUSD). The district provides kindergarten through 12th grade educational services and facilities to the City of San Bernardino. Schools that would serve the site are Palm Elementary School, located at the northeast corner of Belmont Avenue and Palm Avenue (6565 Palm Avenue, San Bernardino), Cesar Chavez Middle School at the southwest corner of West Belmont Avenue and North Magnolia Avenue (6650 North Magnolia Avenue) approximately 0.9 miles away and Cajon High School at 1200 Hill Drive, San Bernardino approximately 3.8 miles away.

Based on the estimated student generation rates provided by the SBCUSD, it is estimated that the project could generate 20 students. There would be 11 elementary aged children (0.4451×25), 4 middle school students (0.1577×25) and 5 high school students (0.1859×25) generated by this proposed project. These students may or may not be totally new to the district; families may relocate to the proposed development from other parts of the district, merely shifting the student population from other areas of the District.

Pursuant to the Leroy F. Green School Facilities Act (AB 2926), the project proponent will be required to pay developer fees prior to the issuance of building permits. The SBCUSD charges a Residential Developer Fee in the amount of \$4.08 per square foot (May 16, 2020) to mitigate for students generated from new residential developments. This fee will help support provision of school services for the community as a whole. According to AB 2926, payment of developer fees constitutes adequate mitigation for any project-related impacts to school facilities. Impacts to the school facilities will be less than significant.

d) **Less Than Significant Impact.** Demand for park and recreational facilities are generally the direct result of residential development. The project will contribute a total of 85 new residents. The nearest park to the project site is Tom Minor Park at the northwest corner of Palm Avenue and Irvington Avenue. This neighborhood park is 5.4 acres with open play areas and play equipment. No substantial demand for park and recreation facilities will result from the project. Impacts will be less than significant.

e) **Less Than Significant Impact.** The proposed code amendment and 25-lot subdivision project will result in a limited population growth, however, will not require expansion of any other public services such as libraries or hospitals. The closest public library to the project site is the Baker Family Learning Center at 2818 Macy Street, Muscoy which is approximately 4.9 miles southwest of the site. Library services in San Bernardino are provided by the San Bernardino County Library System. The project is not anticipated to impact the libraries in the community because an increase in the population of up to 85 people would represent less than one percent of the City's estimated 2022 population. No substantial demand for other services or facilities will result. Impacts will be less than significant.

Mitigation Measures

No mitigation measures are necessary because impacts to Public Services will be less than significant.

Level of Significance After Mitigation

Not Applicable.

4.16 – Recreation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?			☑	

Sources

Information used to prepare this section is from the following sources: City of San Bernardino General Plan Update, Chapter 8, Parks, Recreation, and Trails, 2005; and State of California, Department of Finance, E-5 Population and Housing Estimates for Cities, Counties and the State — 2021-2022 with 2020 Census Benchmark, May 2022. Available online at <https://www.dof.ca.gov/Forecasting/Demographics/Estimates/e-5/>.

Environmental Setting

According to the City's Parks, Recreation and Community Services Department, the city has 34 parks and fields located throughout the City. The nearest park to the project is Tom Minor City Park, which is located at 6300 North Palm Avenue, San Bernardino. The park is approximately 5.4 acres in size with amenities including open area, and playground area.

The San Bernardino Parks, Recreation and Community Services Department also operate community and recreation centers for residents. Verdemon Community Center is located at 3664 Little League Park, approximately 1.6 miles west of the project site. The community centers that offer a variety of leisure and social activities for all ages and cultural interest such as youth and adult sports, summer and off track lunch program, teen and youth clubs, tutoring, arts and crafts, senior nutrition, family night, etc. The centers also act as a focal point for collaboration and partnership with other organizations and agencies to provide specialized services and resources such as the HeartSmart Program, ESL, teen pregnancy prevention programs, immunization, health screenings, food distribution, and Headstart.

Discussion

a) **Less Than Significant Impact.** Implementation of the proposed 25-lot subdivision project could result in an increase in population of approximately 85 persons based on a family of 3.41 persons (2022 State Department of Finance E-5 Report). Therefore, the demand for recreation facilities will grow. This project will incrementally increase the use of some types of recreational facilities in the city of San Bernardino. The developer must pay development impact fees for the

City's parks based on the number of dwelling units in the subdivision. The Quimby Act of 1975 requires cities to pass ordinances requiring that developers set aside land, donate conservation easements, or pay fees for park improvements. Revenues generated through the Quimby Act cannot be used for the operation and maintenance of park facilities. In addition to fees for future park land, the City's Parks, Recreation and Community Services Department offers programs that can be used by residents for a fee (the cost is dependent on the type of class/program and length of the class/program). Therefore, the project's impact on the City's park and recreation facilities and programs would be less than significant and no mitigation is required.

b) **Less Than Significant Impact.** The proposed project is 25-lot residential subdivision and Development Code Amendment. It does not necessitate expansion of existing outdoor recreational facilities. Therefore, there will be no adverse physical effect on the environment caused by expansion or construction of outdoor recreational facilities. Impacts would not be considered significant.

Mitigation Measures

No mitigation measures are necessary because Recreation impacts will be less than significant.

Level of Significance After Mitigation

Not Applicable.

4.17 – Transportation

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a) Conflict with an applicable program plan, ordinance or policy establishing measures of effectiveness for the performance of addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?			<input checked="" type="checkbox"/>	
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?			<input checked="" type="checkbox"/>	
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				<input checked="" type="checkbox"/>
d) Result in inadequate emergency access?			<input checked="" type="checkbox"/>	

Sources

Information used to prepare this section is from the following sources: San Bernardino Associated Governments, San Bernardino County Congestion Management Program 2016 Update, June 2016; California Emissions Estimator Model 2020.4.0; City of San Bernardino General Plan Update, 2005; and City of San Bernardino Public Works/Traffic Engineering Department Traffic Scope Approval Form dated March 31, 2022.

Environmental Setting

The proposed project is the subdivision of a 6.10-acre site for the future development of 25 single-family homes (under Tentative Tract Map (TTM) 20421) located on West Belmont Avenue at Olive Avenue in the Verdemonst area of the City of San Bernardino. The project is estimated to generate a net total of approximately 236 daily vehicle trips.

The General Plan designates the entire area as Residential. Primary access to the site will be from West Belmont Avenue, which has been designated as a Collector with a 64-foot right-of-way. The designation of the street as a Collector and the existing configuration of the travel lanes, intersections, etc. are consistent with the General Plan Circulation Element and Map. Secondary access will be from Olive Avenue, which has been designated as a Collector. Accessibility to the new development will be provided via a connection to Rosemary Lane, a 50-foot local road from Olive Avenue, as illustrated on TTM 20421.

According to the General Plan Circulation Element, there is public transit within proximity that could potentially service future residents within the project. There is an Omnitrans bus route

(Route 2) at Kendall Avenue and Palm Avenue and a sbX Green Line route at the same location.

Discussion

a) **Less than Significant Impact.** Vehicular access will be provided via Shepherd Lane for lots 1 through 10, via Rosemary Lane for lots 11 through 20 and via West Belmont Avenue for Lots 21 through 25. The applicant prepared a Traffic Scoping form for the proposal, which was reviewed by the City's Traffic Engineer to determine whether or not a Traffic Impact Analysis was required. The City Engineer's determined that a Traffic Impact Analysis was not required because the vehicle trips generated by the proposal was less than 250 daily trips and less than 50 peak hour trips and would therefore not create negative traffic/transportation impacts. The project is located within a low Vehicle Miles Travelled (VMT) generating area per the San Bernardino County Transportation Analysis screening tool and does not require further study. The project is estimated to generate a net total of approximately 236 daily vehicle trips. As the project is consistent with the General Plan designation, it is forecast to result in no significant traffic impacts for project completion traffic conditions, with implementation of the identified improvements. Incremental but not significant impacts are noted at the study intersections with completion of the proposed project. Because there are no significant impacts, no direct traffic mitigation measures are required or recommended for the project.

The project applicant will be responsible for the construction of the following improvements as part of on-site improvements including the construction of West Belmont Avenue and Olive Avenue along the property frontage at their ultimate half-section width. The proposed project driveways shall be constructed in conformance with City of San Bernardino standards, including provisions for sight distance requirements. On-site traffic signing and striping shall be submitted for City approval in conjunction with detailed construction plans for the project. Off-street parking shall be provided to meet City of San Bernardino Development Code requirements.

Based on the agency thresholds of significance the addition of project generated trips is forecast to result in no significant impacts at the study intersections for project opening year (2020) with project conditions. As such, impacts associated with new traffic impacts would be less than significant.

b) **Less than Significant Impact.** Trip generation is a measure or forecast of the number of trips that begin or end at a particular site, and is a function of the extent and types of land use proposed as part of a project. Vehicular traffic generation characteristics for projects are estimated based on established rates. These rates identify the probable traffic generation of various land uses based on studies of developments in comparable settings. Vehicle miles traveled exceeding an applicable threshold of significance may indicate a significant impact. Generally, projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact. Projects that decrease vehicle miles traveled in the project area compared to existing conditions should be considered to have a less than significant transportation impact.

The trip generation rates used in this analysis were determined based on the TJW Engineering estimates. The project is estimated to generate a net total of approximately 236 daily vehicle trips. Based on the zoning classification of Residential Suburban, the property could yield a maximum of 27 dwelling units. The applicant prepared a Traffic Scoping form for the proposal, which was reviewed by the City's Traffic Engineers to determine whether or not a Traffic Impact Analysis was required. The City Engineer's determined that a Traffic Impact Analysis was not required because the vehicle trips generated by the proposal was less than 250 daily trips and less

than 50 peak hour trips and would therefore not create negative traffic/transportation impacts. The project was assessed using the San Bernardino County Transportation Authority's (SBCTA) screening tool. The result found that the project is within a low VMT generating area per the SBCTA screening tool and does not require further study. There is an Omnitrans bus route (Route 2) at Kendall Avenue and Palm Avenue and a sbX Green Line route at the same location that is within 1 mile of the project site. Accordingly, proposed project VMT impacts related to transportation projects would be less than significant and the project will not conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b).

c) **No Impact.** A significant impact would occur if the proposed project substantially increased an existing hazardous geometric design feature or introduced incompatible uses to the existing traffic pattern. The project will be providing an additional two-foot road right-of-way dedication of the south side of West Belmont Avenue and the west side of Olive Avenue along the project frontages. The proposed project also includes the construction of roads with curb and gutter. Vehicular access will be provided via Shepherd Lane for lots 1 through 10, via Rosemary Lane for lots 11 through 20 and via West Belmont Avenue for Lots 21 through 25.

The design of the proposed project would comply with all applicable City regulations. Furthermore, the proposed project does not involve changes in the alignment of West Belmont Avenue or Olive Avenue, which are adjacent to the project site. Where the project site meets West Belmont Avenue and Olive Avenue, the roadways are nearly at grade with the project site. No line of sight issues will occur due to undulations in the road. Sight distance at the project access shall comply with standard California Department of Transportation and City of San Bernardino sight distance standards. The final grading, landscaping, and street improvement plans shall demonstrate that sight distance standards are met. Such plans must be reviewed by the City and approved as consistent with this measure prior to issue of grading permits. The applicant will be constructing West Belmont Avenue and Olive Avenue at its ultimate half-section width including landscaping and parkway improvements in conjunction with development, as necessary. The project design will be in accordance with City standards and, therefore, there will be no impact caused by hazardous design features.

d) **Less Than Significant Impact.** A significant impact would occur if the design of the proposed project would not satisfy emergency access requirements of the San Bernardino Fire Department or in any other way threaten the ability of emergency vehicles to access and serve the project site or adjacent uses. The proposed project would not result in inadequate emergency access. As discussed above, access to the project site is proposed via West Belmont Avenue and Olive Avenue. The roadways are of sufficient length to provide access to fire and emergency vehicles and are consistent with the California Fire Code. All access features are subject to and must satisfy the City of San Bernardino and San Bernardino County Fire Department design requirements. This project would not result in adverse impacts with regard to emergency access.

Mitigation Measures

No mitigation measures are necessary because Transportation impacts will be less than significant.

Level of Significance After Mitigation

Not Applicable.

4.18 – Tribal Cultural Resources

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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), or?			<input checked="" type="checkbox"/>	
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 Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.		<input checked="" type="checkbox"/>		

Sources

Information used to prepare this section is from the following sources: CRM TECH, Historical/Archaeological Resources Survey Report Tentative Tract Map Number 20421 Assessor's Parcel No. 0261-151-010, City of San Bernardino, San Bernardino County, California, dated May 6, 2022; and City of San Bernardino General Plan Update, 2005.

Environmental Setting

As of July 1, 2015, California Assembly Bill 52 (AB 52) was enacted and expanded CEQA by establishing a formal consultation process for California tribes within the CEQA process. The bill specified that any project may affect or cause a substantial adverse change in the significance of a tribal cultural resource would require a lead agency to "begin consultation with a California Native American tribe that is traditional and culturally affiliated with the geographic area of the proposed project." Section 21074 of AB 52 also defined a new category of resources under CEQA called "tribal cultural resources." Tribal cultural resources are defined as "sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe" and is either listed on or eligible for the California Register of Historical Resources or a local historic register, or if the lead agency chooses to treat the resource as a tribal cultural resource.

On February 19, 2016, the California Natural Resources Agency proposed to adopt and amend regulations as part of AB 52 implementing Title 14, Division 6, Chapter 3 of the California Code of Regulations, CEQA Guidelines, to include consideration of impacts to tribal cultural resources

pursuant to Government Code Section 11346.6. On September 27, 2016, the California Office of Administrative Law approved the amendments to Appendix G of the CEQA Guidelines, and these amendments are addressed within this environmental document.

Between February and May 2022, CRM TECH performed a cultural resources study on approximately 6.1 acres of former agricultural land in the northwestern portion of the City of San Bernardino. 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 resources” as defined by CEQA, that may exist in or around the project area. In order to identify such resources, CRM TECH conducted a historical/archaeological resource records search, pursued historical background research, contacted Native American representatives, and carried out an intensive-level field survey.

Project archaeologist Deirdre Encarnación reviewed CRM TECH archives for recent studies on nearby properties and the records search results for those studies from the South Central Coastal Information Center (SCCIC), California State University, Fullerton. From these data, Encarnación was able to construct a coverage of existing records pertaining to an approximate half-mile scope of the records search as of December 2018. As the SCCIC has not updated its collection since the beginning of the pandemic, the coverage was considered adequate for the study.

On February 17, 2022, CRM TECH archaeologist Daniel Ballester carried out the intensive-level field survey of the project area. The survey was completed by walking a series of parallel transects oriented northeast-southwest and spaced 10 meters (approximately 33 feet) apart. In this way, the ground surface of the entire project area was systematically and carefully examined for any evidence of human activities dating to the prehistoric or historic period (i.e., 50 years or older). Ground visibility was generally excellent (90-100%) due to the light vegetative cover.

Chapter 532 Statutes of 2014 (i.e., AB 52) requires that lead agencies evaluate a project’s potential impact on “tribal cultural resources.” Such resources include “sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are eligible for inclusion in the California Register of Historical Resources or included in a local register of historical resources.” AB 52 also gives lead agencies the discretion to determine, based on substantial evidence, whether a resource qualifies as a “tribal cultural resource.”

In compliance with AB 52, the City of San Bernardino distributed letters to numerous Native American tribes notifying each tribe of the opportunity to consult with the City regarding the proposed project. The tribes were identified based on previous requests to be notified of future projects proposed by the City.

Discussion

a) **Less Than Significant Impact.** Historical background research for this study was conducted by CRM TECH historian Bai “Tom” Tang. Sources consulted included published literature in local and regional history, historical maps of the Verdernont area, and aerial/satellite photographs of the project vicinity. The maps consulted were primarily USGS topographic quadrangles dated 1901-1996, which were accessible at the USGS website. The aerial and satellite photographs, taken between 1930 and 2021, are available from the online library of the University of California, Santa Barbara, at the Nationwide Environmental Title Research (NETR) website, and through the Google Earth software

Historical sources consulted for the study suggests that project area has are relatively low in sensitivity for cultural resources from the historic period. The field survey yielded completely negative results for potential cultural resources, and no buildings, structures, objects, sites,

features, or artifacts of prehistoric or historical origin were encountered within or adjacent to the project area. Scattered modern refuse was observed on much of the property, especially along Belmont and Olive Avenues, but none of items was of any historical/archaeological interest.

CEQA establishes that a project that may cause a substantial adverse change in the significance of a "historical resource" or a "tribal cultural resource" is a project that may have a significant effect on the environment (PRC §21084.1-2). "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." The CRM TECH study encountered no "historical resources" within or adjacent to the project area. Based on these findings, CRM TECH presents the following recommendations to the City of San Bernardino:

- The proposed project will not cause a substantial adverse change to any known "historical resources."
- No further cultural resources investigation will be necessary for the project unless development plans undergo such changes as to include areas not covered by this study.
- If any buried cultural materials are encountered during earth-moving operations associated with the project, all work in the immediate area should be halted or diverted until a qualified archaeologist can evaluate the nature and significance of the finds.

Therefore, the proposed project would not have a significant impact to a historical resource, as defined in PRC Section 5020.1(k). Thus, impacts to a listed or eligible resource under the California Register of Historical Resources or a local register as defined under Public Resources Code section 5020.1(k) are anticipated to be less than significant.

b) Less Than Significant Impact with Mitigation Incorporated. According to the *Historical/Archaeological Resources Survey Report*, the NAHC reported in a letter dated March 28, 2022, that the Sacred Lands File search identified unspecified Native American cultural resource(s) in the project vicinity. The NAHC recommended contacting local Native American groups and provided a referral list of potential contacts in the region. Upon receiving the NAHC's reply, CRM TECH sent written requests for comments to all 12 of the tribal groups on the referral list. The 12 tribal representatives contacted are listed below:

Patricia Garcia-Plotkin, Tribal Historic Preservation Office Director, Agua Caliente Band of Cahuilla Indians;
Andrew Salas, Chairperson, Gabrieleño Band of Mission Indians-Kizh Nation;
Sandonne Goad, Chairperson, Gabrieliño Tongva Nation;
Christina Conley, Tribal Administrator, Gabrielino Tongva Indians of California Tribal Council;
Anthony Morales, Chairperson, Gabrieleño/Tongva San Gabriel Band of Mission Indians;
Charles Alvarez, Chairperson, Gabrielino-Tongva Tribe;
Ann Brierty, Tribal Historic Preservation Officer, Morongo Band of Mission Indians;
Jill McCormick, Historic Preservation Officer, Quechan Tribe of the Fort Yuma Reservation;
Jessica Mauck, Cultural Resources Analyst, San Manuel Band of Mission Indians;
Vanessa Minott, Tribal Administrator, Santa Rosa Band of Cahuilla Indians;
Mark Cochrane, Co-Chairperson, Serrano Nation of Mission Indians;
Joseph Ontiveros, Tribal Historic Preservation Officer, Soboba Band of Luiseño Indians.

To CRM TECH's inquiry, four of the 12 tribes responded. Among them, the San Manuel Band of Mission Indians stated that they were not aware of any Native American cultural resources near the project location but that the area was still of concern to the tribe. The San Manuel Band is interested in further consultation with the City of San Bernardino on this project as a part of the AB52 process. The other three tribes who responded, namely the Agua Caliente Band of Cahuilla Indians, the Quechan Tribe of the Fort Yuma Reservation, and the Santa Rosa Band of Cahuilla

Indians, had no concerns or comments regarding this project. Instead, the Agua Caliente Band and the Quechan Tribe deferred to other Native American groups in closer proximity to the project location.

On March 10, 2022, the City of San Bernardino sent out letters compliance with AB52 to the following Tribes:

Andrew Salas, Chairperson, Gabrieleño Band of Mission Indians-Kizh Nation;
Jessica Mauck, Cultural Resources Analyst, San Manuel Band of Mission Indians;
Joseph Ontiveros, Tribal Historic Preservation Officer, Soboba Band of Luiseño Indians.

No response was received from the Soboba Band of Luiseño Indians. The San Manuel Band of Mission Indians (SMBMI) responded pursuant to AB52. They indicated that the proposed project area exists within their ancestral territory and, therefore, is of interest to the Tribe. However, due to the nature and location of the proposed project, and given the CRM Department's present state of knowledge, SMBMI does not have any concerns with the project's implementation, as planned, at this time. SMBMI requested that the language be made a part of the project/permit/plan conditions. See Mitigation Measures below.

The Gabrieleño Band of Mission Indians – Kizh Nation responded pursuant to AB52. They provided a written request for consultation regarding the project as the project lies within their ancestral tribal territory, meaning belonging to or inherited from, which is a higher degree of kinship than traditional or cultural affiliation. AB 52 mandates that the lead agency begin consultation within thirty days of the formal request to consult. The Kizh Nation established a date of June 7, 2022 to have a discussion to consult. On June 7, 2022, the Tribe determined that the language set by the San Manuel tribe would suffice, and asked to defer the project to San Manuel Band of Mission Indians.

Given the level of previous disturbance within the project site, it is not expected that any tribal cultural resources as defined in Public Resources Code Section 21074 would occur within the project area. There are no known site, feature, place, cultural landscape, sacred place, or object with cultural value to a California Native American Tribe has been identified as a Tribal Cultural Resource within the project limits. The site is within an urbanized area of the City. However, there is the potential for the project to affect previously unidentified Native American tribal cultural resources. Mitigation Measure TCR-1 and TCR-2 have been identified to mitigate this potential impact to tribal cultural resources.

Mitigation Measures

TCR-1: The San Manuel Band of Mission Indians Cultural Resources Department (SMBMI) shall be contacted of any pre-contact cultural resources discovered during project implementation, and be provided information regarding the nature of the find, so as to provide Tribal input with regards to significance and treatment. Should the find be deemed significant, as defined by CEQA (as amended, 2015), a cultural resources monitoring and treatment Plan shall be created by the archaeologist, in coordination with SMBMI, and all subsequent finds shall be subject to this plan. This plan shall allow for a monitor to be present that represents SMBMI for the remainder of the project, should SMBMI elect to place a monitor on-site.

TCR-2: Any and all cultural documents created as a part of the project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the applicant and Lead Agency for dissemination to SMBMI. The Lead Agency and/or applicant shall, in good faith, consult with SMBMI throughout the life of the project.

Level of Significance After Mitigation

Compliance with MM TCR-1 and TCR-2 would mitigate potential impacts to tribal cultural resources to a less than significant level.

4.19 – Utilities and Service Systems

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
Would the project:				
a) Require or result in the relocation or construction of new or expanded water, or wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?			<input checked="" type="checkbox"/>	
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			<input checked="" type="checkbox"/>	
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?			<input checked="" type="checkbox"/>	
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?			<input checked="" type="checkbox"/>	
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?				<input checked="" type="checkbox"/>

Sources

Information used to prepare this section is from the following sources: CalRecycle Website (<http://www.calrecycle.ca.gov/>); Water Systems Consulting, Inc. and Woodard & Curran, June 2021, 2020 Upper Santa Ana River Watershed Integrated Regional Urban Water Management Plan; and City of San Bernardino General Plan Update, 2005.

Environmental Setting

Water

The City of San Bernardino Department of Public Works Water Division provides water services to Verdemonst area of the City of San Bernardino. The proposed project site is located in the area served by the San Bernardino Water District.

Wastewater

The City of San Bernardino owns, operates, and maintains the local public sanitary sewer system, which includes a wastewater collection system and treatment plant that serve most properties within the City limits. The sewer system serves all of the City's incorporated areas and accepts wastewater from outside the city limits.

Solid Waste Service

The City of San Bernardino has contracted Burrtec with solid waste collection services. Burrtec provides curbside pickup for regular trash, green waste, and recyclables. According to the Burrtec website, they also offer bulky item pick-up, Christmas tree recycling, electronic waste, and used motor oil collection upon request. Solid waste that is collected from the City is routed to the Mid-Valley Sanitary Landfill, located within City limits north of the 210 Freeway. The Mid-Valley Sanitary Landfill is owned and operated by the County of San Bernardino Solid Waste Management Division. The landfill encompasses 498 acres, 222 of which are being used for waste disposal activities. The landfill is permitted to accept 7,500 ton/day of solid waste.

Discussion

a) thru c) **Less Than Significant Impact.** The City operates its own municipal water supply and distribution system, which provides water service to much of the City of San Bernardino, including the project site. Sections 10910-10915 of the State Water Code require the preparation of a water supply assessment (WSA) demonstrating sufficient water supplies for any subdivision that involves the construction of more than 500 dwelling units, or the equivalent thereof. As the project is below the established thresholds, no WSA is required. The project would not alter or impact any existing water treatment facilities, and would not substantially increase demand so as to require expansion of existing or new facilities.

All wastewater generated by the proposed project would be routed to and treated by the San Bernardino Water Reclamation Plant (SBWRP). The SBWRP is considered to be a Publicly Owned Treatment Works (POTW), so operational discharge flows treated at the SBWRP would be required to comply with waste discharge requirements contained within the WDRs for that facility. Compliance with condition or permit requirements established by the City, and waste discharge requirements at the SBWRP would ensure that discharges into the wastewater treatment facility system from the operation of the proposed project would not exceed applicable Santa Ana Regional Water Quality Control Board wastewater treatment requirements. Expected wastewater flows from the proposed project will not exceed the capabilities of the serving treatment plant, so no significant impact related to this issue would occur. No mitigation is required.

The project is proposing to connect to the sewer main in West Belmont Avenue. There are existing 8-inch water lines in West Belmont Avenue. Connections to local water and sewer mains would involve temporary and less than significant construction impacts that would occur in conjunction with other on-site improvements. No additional improvements are anticipated to either sewer lines or treatment facilities to serve the proposed project. Standard connection fees will address

any incremental impacts of the proposed project. Therefore, the project will result in less than significant impacts as a result of new or expanded water and wastewater treatment facilities.

The future development of 25 houses would use approximately 10,000 gallons per day (gpd) of water, estimating 400 gpd per household, or 3,650,000 gallons per year. It would generate a marginal increase in additional demand for water, relative to overall existing citywide demand. As the Integrated Regional Urban Water Management Plan anticipates an overall increase in demand associated with development in the area over 2020 conditions, and the water demand for this project is within that demand assumption, impacts would be less than significant. There are sufficient water supplies in the City to meet the project's estimated water demand. The project would not substantially deplete water supplies, and the project would have a less than significant impact on entitled water supplies.

The project would be required to comply with Water Wise Landscaping of the City of San Bernardino Municipal Code, which would lessen the project's demand for water resources. Also, CBC Title 24 water efficiency measures require a demonstrated 20 percent reduction in the use of potable water. The project's landscaping plans will include drought tolerant landscaping materials. Compliance with Title 24 and the City's Water Wise standards will reduce the proposed project's impacts to groundwater supplies to a level of less than significant.

d) and e) **Less Than Significant Impact.** Significant impacts could occur if the proposed project will exceed the existing permitted landfill capacity or violates federal, state, and local statutes and regulations.

Solid waste generated during construction and post construction will be managed by the applicant's contractor. A waste management plan will be developed with the General Contractor and appropriate third party recycling vendor for the project so that 50 percent of construction wastes are recycled or salvaged. The future 25 single-family homes that would be built after the land is subdivided would have solid waste service provided. The USEPA has estimated that in the United States, a typical person will generate 4.4 pounds of solid waste per day. Using the average of 3.41 persons per household for the 25 future new homes, approximately 375 pounds per day would be generated. The USEPA has also estimated that approximately 1.53 pounds of every 4.4 pounds generated are recycled. The remaining solid waste would go to the landfill. The City of San Bernardino is committed to meeting the goals of SB 939 with regard to meeting the State's goal of 50 percent diversion of solid waste from landfills. In order to meet this goal and also continue to accommodate additional population growth in the region, cities counties and waste managers must increase the amount of source reduction, recycling and composting that can be done. Therefore this impact would be less than significant and no mitigation is required. The proposed project is required to comply with all applicable Federal, State, County, and City statutes and regulations related to solid waste as a standard project condition of approval. Therefore, no impact would occur.

Mitigation Measures

No mitigation measures are necessary because impacts to Utilities will be less than significant.

Level of Significance After Mitigation

Not Applicable.

4.20 – Wildfire

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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 wildfire or the uncontrolled spread of 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 result temporary or ongoing impacts to the environment?			☑	
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?			☑	

Sources

Information used to prepare this section is from the following sources: City of San Bernardino General Plan Update, 2005 and California Department of Forestry and Fire Protection, Incorporated Fire Hazard Severity Zone: City of San Bernardino, Very High Fire Hazard Severity Zones in LRA (Local Responsibility Area), Recommended, October 2008.

Environmental Setting

The project site is located within an urbanized area of the City of San Bernardino and is not located within a fire hazard zone, as identified on the latest Fire Hazard Severity Zone (FHSZ) maps prepared by the California Department of Forestry and Fire Protection (CALFIRE).

Discussion

a) thru d) **Less Than Significant Impact.** The proposed subdivision project for the development of 25-dwelling units is a residential infill project. Per State Fire and Building Codes, sufficient

space will have to be provided around the structures for emergency personnel and equipment access and emergency evacuation. All project elements, including landscaping, would be sited with sufficient clearance from existing and proposed structures so as not to interfere with emergency access to and evacuation from the facility. The project would comply with the California Fire Code (Title 24, California Code of Regulations, Section 9).

The project driveways would allow emergency access and evacuation from the site, and would be constructed to San Bernardino Code specifications. Over the long term, the project would not impair implementation of or physically interfere with an adopted emergency response plan or evacuation plan because no permanent public street or lane closures are proposed. Construction work in the street associated with the project would be limited to lateral utility connections, undergrounding of utility lines and installation of street trees; all of which would be limited to nominal potential traffic diversion. Traffic control would be provided for any lane closures. Project impacts would be less than significant.

The project site is located within an urbanized area of the City of San Bernardino and is not located within a fire hazard zone, as identified on the latest Fire Hazard Severity Zone (FHSZ) maps prepared by the California Department of Forestry and Fire Protection (CALFIRE). There are no wildland conditions in the urbanized area that the project site is located. The project would not be expected to impair emergency plans, exacerbate wildfire risks or expose project occupants to pollutant concentrations from a wildfire or the uncontrolled spread of wildfire. The project would not require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may result temporary or ongoing impacts to the environment. The project would not expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes. The project area is relatively flat and characterized with slopes that are not high (less than 10 percent) or steep. Therefore this impact would be less than significant and no mitigation is required

g) **No Impact.**

Mitigation Measures

No mitigation measures are necessary because impacts to Wildfires will be less than significant.

Level of Significance After Mitigation

Not Applicable.

4.21 – Mandatory Findings of Significance

	Potentially Significant Impact	Less than Significant with Mitigation Incorporated	Less than Significant Impact	No Impact
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?			✓	

Sources

Information used to prepare this section is from Sections 4.1 through 4.20 above.

Discussion

a) **Less Than Significant with Mitigation Incorporated.** The proposed project would not substantially impact any scenic vistas, scenic resources, or the visual character of the area, as discussed in Section 4.1, and would not result in excessive light or glare. The project site is located within an urbanized area with limited natural habitat. The project would not significantly impact any sensitive plants, plant communities, fish, wildlife or habitat for any sensitive species, as discussed in Section 4.4. The environmental analysis provided in Section 4.2 concludes that impacts related to emissions of criteria pollutants and other air quality impacts will be less than significant. Section 4.5 identifies measures to mitigate potential impacts to inadvertent archaeological finds and human remains. Sections 4.8 and 4.10 conclude that impacts related to climate change and hydrology and water quality will be less than significant. Section 4.18 identifies measures to mitigate potential impacts to tribal cultural resources. Based on the preceding analysis of potential impacts in the responses to items 4.1 thru 4.20, no evidence is presented that this project would degrade the quality of the environment. The City hereby finds that impacts related to degradation of the environment, biological resources and cultural resources will be less than significant with mitigation incorporated.

b) **Less Than Significant.** Cumulative impacts can result from the interactions of environmental changes resulting from one proposed project with changes resulting from other past, present, and future projects that affect the same resources, utilities and infrastructure systems, public services, transportation network elements, air basin, watershed, or other physical conditions. Such impacts could be short-term and temporary, usually consisting of overlapping construction impacts, as well as long term, due to the permanent land use changes involved in the project. The proposed development will generally result in less than significant environmental impacts, as discussed herein. Short-term impacts related to noise will be less than significant and therefore will not

contribute substantially to any other concurrent construction programs that may be occurring in the vicinity. Short-term impacts related to pollutant emissions will be less than significant and will not exceed maximum thresholds.

The proposed project would not significantly cumulatively affect the environment. Water supplies have been studied in the Urban Water Management Plan, and the above cumulative projects are consistent with UWMP level of development assumptions. Continued efforts towards water conservation, as required by State law, would reduce water demands; the project would result in a less than significant cumulative impact on water supply and other resources. As indicated in Section 4.17 herein, the proposed project would not result in any significant traffic impacts to transportation. Based on the air quality modeling, air quality could be affected in the short-term during construction, but long-term cumulative effects will have a less than significant impact on air quality. Adherence to all conditions recommended, the cumulative impacts can be less than significant.

c) **Less Than Significant.** Based on the analysis of the proposed project's impacts in the responses to items 4.1 thru 4.20, there is no indication that this project could result in substantial adverse effects on human beings. While there would be a variety of temporary adverse effects during construction related to noise and criteria pollutant emission these would be minimized to acceptable levels through implementation of routine construction control measures. Long-term effects would include increased vehicular traffic, traffic-related noise, periodic on-site operational noise, minor changes to on-site drainage, and changing of the visual character of the site. Projected emission levels would be below the thresholds of significance recommended by the South Coast Air Quality Management District. Project-related traffic would represent a small percentage increase in traffic volumes along nearby roadways and would have a less-than-significant impact on roadway noise levels. Based on the analysis in this Initial Study, the City finds that direct and indirect impacts to human beings will be less than significant.

5.1 – List of Preparers

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5.2 – Persons and Organizations Consulted

California Air Pollution Control Officers Association (CAPCOA), 2010. Quantifying Greenhouse Gas Mitigation Measures. August 2010.

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6 Summary of Mitigation Measures

Cultural Resources

CR-1: In the event that cultural resources are discovered during project activities, all work in the immediate vicinity of the find (within a 60-foot buffer) shall cease and a qualified archaeologist meeting Secretary of Interior standards shall be hired to assess the find. Work on the other portions of the project outside of the buffered area may continue during this assessment period. Additionally, the San Manuel Band of Mission Indians Cultural Resources Department shall be contacted regarding any pre-contact and/or historic-era finds and be provided information after the archaeologist makes his/her initial assessment of the nature of the find, so as to provide Tribal input with regards to significance and treatment.

CR-2: If significant pre-contact and/or historic-era cultural resources, as defined by CEQA (as amended, 2015), are discovered and avoidance cannot be ensured, the archaeologist shall develop a Monitoring and Treatment Plan, the drafts of which shall be provided to SMBMI for review and comment. The archaeologist shall monitor the remainder of the project and implement the Plan accordingly.

CR-3: If human remains or funerary objects are encountered during any activities associated with the project, work in the immediate vicinity (within a 100-foot buffer of the find) shall cease and the County Coroner shall be contacted pursuant to State Health and Safety Code §7050.5 and that code enforced for the duration of the project.

Noise

N-1: Prior to the issuance of grading and building permits, the contractor shall establish a Construction Management Plan that includes the following standards:

- Construction shall adhere to the allowable operable hours as denoted within the SBMC Chapter 8.54.
- During all project site excavation and grading on-site, construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturer standards.
- The contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the project site.
- Equipment shall be shut off and not left to idle when not in use.
- The contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and sensitive receptors nearest the project site during all project construction.
- The contractor shall limit the use of vibratory and/or heavy equipment along the project boundaries to the greatest degree possible.

Tribal Cultural Resources

TCR-1: The San Manuel Band of Mission Indians Cultural Resources Department (SMBMI) shall be contacted of any pre-contact cultural resources discovered during project implementation, and be provided information regarding the nature of the find, so as to provide Tribal input with regards to significance and treatment. Should the find be deemed significant, as defined by CEQA (as amended, 2015), a cultural resources monitoring and treatment Plan shall be created by the

Summary of Mitigation Measures

archaeologist, in coordination with SMBMI, and all subsequent finds shall be subject to this plan. This plan shall allow for a monitor to be present that represents SMBMI for the remainder of the project, should SMBMI elect to place a monitor on-site.

TCR-2: Any and all cultural documents created as a part of the project (isolate records, site records, survey reports, testing reports, etc.) shall be supplied to the applicant and Lead Agency for dissemination to SMBMI. The Lead Agency and/or applicant shall, in good faith, consult with SMBMI throughout the life of the project.



Appendix Materials

Appendix A CalEEMod Runs

Appendix B General Biological Assessment

Appendix C Preliminary Geotechnical Evaluation

Appendix D Paleontological Resources Assessment Report

Appendix E Onsite Stormwater Infiltration Systems Investigation

Appendix F Traffic Scope Approval Form

Appendix G Historical/Archaeological Resources Survey (Confidential)

Appendix A CalEEMod Runs

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

**Belmont-Olive, a 25 lot subdivision
South Coast AQMD Air District, Summer**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	25.00	Dwelling Unit	6.10	45,000.00	72

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	31
Climate Zone	10			Operational Year	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	390.98	CH4 Intensity (lb/MWhr)	0.033	N2O Intensity (lb/MWhr)	0.004

1.3 User Entered Comments & Non-Default Data

- Project Characteristics -
- Land Use - 6.10 gross acres and 4.43 net acres
- Construction Phase -
- Woodstoves - Gas fireplaces only
- Land Use Change -
- Sequestration -
- Construction Off-road Equipment Mitigation -
- Mobile Land Use Mitigation -
- Area Mitigation -
- Energy Mitigation -
- Water Mitigation -
- Waste Mitigation -

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	PhaseEndDate	12/22/2023	11/24/2023
tblConstructionPhase	PhaseEndDate	10/27/2023	9/29/2023
tblConstructionPhase	PhaseEndDate	12/9/2022	11/11/2022
tblConstructionPhase	PhaseEndDate	11/24/2023	10/27/2023
tblConstructionPhase	PhaseEndDate	11/11/2022	10/14/2022
tblConstructionPhase	PhaseStartDate	11/25/2023	10/30/2023
tblConstructionPhase	PhaseStartDate	12/10/2022	11/14/2022
tblConstructionPhase	PhaseStartDate	11/12/2022	10/17/2022
tblConstructionPhase	PhaseStartDate	10/28/2023	10/2/2023
tblConstructionPhase	PhaseStartDate	10/29/2022	10/3/2022
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	21.25	25.00
tblFireplaces	NumberWood	1.25	0.00
tblLandUse	LotAcreage	8.12	6.10
tblSequestration	NumberOfNewTrees	0.00	25.00

2.0 Emissions Summary

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.2321	33.1271	20.3848	0.0399	19.8582	1.6138	21.4720	10.1558	1.4847	11.6405	0.0000	3,871.3084	3,871.3084	1.1970	0.0112	3,902.5446
2023	14.2769	14.5131	16.6034	0.0284	0.1677	0.7009	0.8207	0.0445	0.6596	0.6918	0.0000	2,704.1991	2,704.1991	0.7176	0.0105	2,722.6420
Maximum	14.2769	33.1271	20.3848	0.0399	19.8582	1.6138	21.4720	10.1558	1.4847	11.6405	0.0000	3,871.3084	3,871.3084	1.1970	0.0112	3,902.5446

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					
2022	3.2321	33.1271	20.3848	0.0399	9.0469	1.6138	10.6606	4.5995	1.4847	6.0841	0.0000	3,871.3083	3,871.3083	1.1970	0.0112	3,902.5446
2023	14.2769	14.5131	16.6034	0.0284	0.1677	0.7009	0.8207	0.0445	0.6596	0.6918	0.0000	2,704.1991	2,704.1991	0.7176	0.0105	2,722.6419
Maximum	14.2769	33.1271	20.3848	0.0399	9.0469	1.6138	10.6606	4.5995	1.4847	6.0841	0.0000	3,871.3083	3,871.3083	1.1970	0.0112	3,902.5446

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	53.99	0.00	48.50	54.47	0.00	45.06	0.00	0.00	0.00	0.00	0.00	0.00

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.7536	0.5385	8.3670	0.0228		1.0446	1.0446		1.0446	1.0446	147.5410	533.1256	680.6665	0.7034	9.7100e-003	701.1449
Energy	0.0209	0.1786	0.0760	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.9367	227.9367	4.3700e-003	4.1800e-003	229.2912
Mobile	0.7284	0.7957	7.4975	0.0168	1.7171	0.0119	1.7290	0.4576	0.0111	0.4687		1,732.5314	1,732.5314	0.1039	0.0704	1,756.0981
Total	2.5028	1.5127	15.9405	0.0407	1.7171	1.0709	2.7880	0.4576	1.0701	1.5276	147.5410	2,493.5936	2,641.1346	0.8117	0.0843	2,686.5342

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	1.0303	0.0238	2.0630	1.1000e-004		0.0114	0.0114		0.0114	0.0114	0.0000	3.7138	3.7138	3.5700e-003	0.0000	3.8031
Energy	0.0209	0.1786	0.0760	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.9367	227.9367	4.3700e-003	4.1800e-003	229.2912
Mobile	0.7768	0.8807	8.3476	0.0190	1.9455	0.0134	1.9589	0.5184	0.0125	0.5309		1,958.1450	1,958.1450	0.1142	0.0779	1,984.2049
Total	1.8280	1.0830	10.4866	0.0203	1.9455	0.0392	1.9847	0.5184	0.0383	0.5567	0.0000	2,189.7955	2,189.7955	0.1221	0.0821	2,217.2991

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	26.96	28.40	34.21	50.22	-13.30	96.34	28.81	-13.30	96.42	63.56	100.00	12.18	17.09	84.96	2.62	17.47

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	10/3/2022	10/14/2022	5	10	
2	Grading	Grading	10/17/2022	11/11/2022	5	20	
3	Building Construction	Building Construction	11/14/2022	9/29/2023	5	230	
4	Paving	Paving	10/2/2023	10/27/2023	5	20	
5	Architectural Coating	Architectural Coating	10/30/2023	11/24/2023	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 20

Acres of Paving: 0

Residential Indoor: 91,125; Residential Outdoor: 30,375; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	231	0.29
Grading	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

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
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

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	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	9.00	3.00	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	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
Total	3.1701	33.0835	19.6978	0.0380	19.6570	1.6126	21.2696	10.1025	1.4836	11.5860		3,686.0619	3,686.0619	1.1922		3,715.8655

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0620	0.0436	0.6871	1.8200e-003	0.2012	1.2000e-003	0.2024	0.0534	1.1100e-003	0.0545		185.2465	185.2465	4.8100e-003	4.4000e-003	186.6790
Total	0.0620	0.0436	0.6871	1.8200e-003	0.2012	1.2000e-003	0.2024	0.0534	1.1100e-003	0.0545		185.2465	185.2465	4.8100e-003	4.4000e-003	186.6790

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

3.2 Site Preparation - 2022

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					8.8457	0.0000	8.8457	4.5461	0.0000	4.5461			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	3.1701	33.0835	19.6978	0.0380	8.8457	1.6126	10.4582	4.5461	1.4836	6.0297	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0620	0.0436	0.6871	1.8200e-003	0.2012	1.2000e-003	0.2024	0.0534	1.1100e-003	0.0545		185.2465	185.2465	4.8100e-003	4.4000e-003	186.6790
Total	0.0620	0.0436	0.6871	1.8200e-003	0.2012	1.2000e-003	0.2024	0.0534	1.1100e-003	0.0545		185.2465	185.2465	4.8100e-003	4.4000e-003	186.6790

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656		2,872.046 4	2,872.046 4	0.9289		2,895.268 4
Total	1.9486	20.8551	15.2727	0.0297	7.0826	0.9409	8.0234	3.4247	0.8656	4.2903		2,872.046 4	2,872.046 4	0.9289		2,895.268 4

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0517	0.0363	0.5726	1.5200e-003	0.1677	1.0000e-003	0.1687	0.0445	9.2000e-004	0.0454		154.3721	154.3721	4.0100e-003	3.6700e-003	155.5659
Total	0.0517	0.0363	0.5726	1.5200e-003	0.1677	1.0000e-003	0.1687	0.0445	9.2000e-004	0.0454		154.3721	154.3721	4.0100e-003	3.6700e-003	155.5659

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

3.3 Grading - 2022

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					3.1872	0.0000	3.1872	1.5411	0.0000	1.5411			0.0000			0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656	0.0000	2,872.046 4	2,872.046 4	0.9289		2,895.268 4
Total	1.9486	20.8551	15.2727	0.0297	3.1872	0.9409	4.1280	1.5411	0.8656	2.4067	0.0000	2,872.046 4	2,872.046 4	0.9289		2,895.268 4

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0517	0.0363	0.5726	1.5200e-003	0.1677	1.0000e-003	0.1687	0.0445	9.2000e-004	0.0454		154.3721	154.3721	4.0100e-003	3.6700e-003	155.5659
Total	0.0517	0.0363	0.5726	1.5200e-003	0.1677	1.0000e-003	0.1687	0.0445	9.2000e-004	0.0454		154.3721	154.3721	4.0100e-003	3.6700e-003	155.5659

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

3.4 Building Construction - 2022

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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.4700e-003	0.1396	0.0479	5.7000e-004	0.0192	1.4600e-003	0.0207	5.5300e-003	1.4000e-003	6.9300e-003		61.7008	61.7008	2.0700e-003	8.9500e-003	64.4182
Worker	0.0310	0.0218	0.3435	9.1000e-004	0.1006	6.0000e-004	0.1012	0.0267	5.5000e-004	0.0272		92.6232	92.6232	2.4100e-003	2.2000e-003	93.3395
Total	0.0365	0.1614	0.3914	1.4800e-003	0.1198	2.0600e-003	0.1219	0.0322	1.9500e-003	0.0342		154.3240	154.3240	4.4800e-003	0.0112	157.7577

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

3.4 Building Construction - 2022

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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.4700e-003	0.1396	0.0479	5.7000e-004	0.0192	1.4600e-003	0.0207	5.5300e-003	1.4000e-003	6.9300e-003		61.7008	61.7008	2.0700e-003	8.9500e-003	64.4182
Worker	0.0310	0.0218	0.3435	9.1000e-004	0.1006	6.0000e-004	0.1012	0.0267	5.5000e-004	0.0272		92.6232	92.6232	2.4100e-003	2.2000e-003	93.3395
Total	0.0365	0.1614	0.3914	1.4800e-003	0.1198	2.0600e-003	0.1219	0.0322	1.9500e-003	0.0342		154.3240	154.3240	4.4800e-003	0.0112	157.7577

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

3.4 Building Construction - 2023

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.3200e-003	0.1089	0.0429	5.5000e-004	0.0192	6.3000e-004	0.0198	5.5300e-003	6.1000e-004	6.1400e-003		58.8093	58.8093	1.9800e-003	8.5100e-003	61.3958
Worker	0.0288	0.0193	0.3166	8.8000e-004	0.1006	5.7000e-004	0.1012	0.0267	5.2000e-004	0.0272		90.1799	90.1799	2.1600e-003	2.0300e-003	90.8401
Total	0.0321	0.1282	0.3594	1.4300e-003	0.1198	1.2000e-003	0.1210	0.0322	1.1300e-003	0.0333		148.9892	148.9892	4.1400e-003	0.0105	152.2359

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.3200e-003	0.1089	0.0429	5.5000e-004	0.0192	6.3000e-004	0.0198	5.5300e-003	6.1000e-004	6.1400e-003		58.8093	58.8093	1.9800e-003	8.5100e-003	61.3958
Worker	0.0288	0.0193	0.3166	8.8000e-004	0.1006	5.7000e-004	0.1012	0.0267	5.2000e-004	0.0272		90.1799	90.1799	2.1600e-003	2.0300e-003	90.8401
Total	0.0321	0.1282	0.3594	1.4300e-003	0.1198	1.2000e-003	0.1210	0.0322	1.1300e-003	0.0333		148.9892	148.9892	4.1400e-003	0.0105	152.2359

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

3.5 Paving - 2023

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0479	0.0322	0.5276	1.4700e-003	0.1677	9.4000e-004	0.1686	0.0445	8.7000e-004	0.0453		150.2999	150.2999	3.6000e-003	3.3900e-003	151.4002
Total	0.0479	0.0322	0.5276	1.4700e-003	0.1677	9.4000e-004	0.1686	0.0445	8.7000e-004	0.0453		150.2999	150.2999	3.6000e-003	3.3900e-003	151.4002

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

3.5 Paving - 2023

Mitigated Construction On-Site

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

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0479	0.0322	0.5276	1.4700e-003	0.1677	9.4000e-004	0.1686	0.0445	8.7000e-004	0.0453		150.2999	150.2999	3.6000e-003	3.3900e-003	151.4002
Total	0.0479	0.0322	0.5276	1.4700e-003	0.1677	9.4000e-004	0.1686	0.0445	8.7000e-004	0.0453		150.2999	150.2999	3.6000e-003	3.3900e-003	151.4002

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	14.0788					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	14.2705	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.3900e-003	4.2900e-003	0.0704	2.0000e-004	0.0224	1.3000e-004	0.0225	5.9300e-003	1.2000e-004	6.0400e-003		20.0400	20.0400	4.8000e-004	4.5000e-004	20.1867
Total	6.3900e-003	4.2900e-003	0.0704	2.0000e-004	0.0224	1.3000e-004	0.0225	5.9300e-003	1.2000e-004	6.0400e-003		20.0400	20.0400	4.8000e-004	4.5000e-004	20.1867

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

3.6 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	14.0788					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	14.2705	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.3900e-003	4.2900e-003	0.0704	2.0000e-004	0.0224	1.3000e-004	0.0225	5.9300e-003	1.2000e-004	6.0400e-003		20.0400	20.0400	4.8000e-004	4.5000e-004	20.1867
Total	6.3900e-003	4.2900e-003	0.0704	2.0000e-004	0.0224	1.3000e-004	0.0225	5.9300e-003	1.2000e-004	6.0400e-003		20.0400	20.0400	4.8000e-004	4.5000e-004	20.1867

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Walkability Design

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive 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	0.7768	0.8807	8.3476	0.0190	1.9455	0.0134	1.9589	0.5184	0.0125	0.5309		1,958.1450	1,958.1450	0.1142	0.0779	1,984.2049
Unmitigated	0.7284	0.7957	7.4975	0.0168	1.7171	0.0119	1.7290	0.4576	0.0111	0.4687		1,732.5314	1,732.5314	0.1039	0.0704	1,756.0981

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	236.00	238.50	213.75	796,807	902,768
Total	236.00	238.50	213.75	796,807	902,768

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0209	0.1786	0.0760	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.9367	227.9367	4.3700e-003	4.1800e-003	229.2912
NaturalGas Unmitigated	0.0209	0.1786	0.0760	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.9367	227.9367	4.3700e-003	4.1800e-003	229.2912

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	1937.46	0.0209	0.1786	0.0760	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.9367	227.9367	4.3700e-003	4.1800e-003	229.2912
Total		0.0209	0.1786	0.0760	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.9367	227.9367	4.3700e-003	4.1800e-003	229.2912

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					
Single Family Housing	1.93746	0.0209	0.1786	0.0760	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.9367	227.9367	4.3700e-003	4.1800e-003	229.2912
Total		0.0209	0.1786	0.0760	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.9367	227.9367	4.3700e-003	4.1800e-003	229.2912

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

Use Low VOC Paint - Residential Exterior

No Hearths Installed

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0303	0.0238	2.0630	1.1000e-004		0.0114	0.0114		0.0114	0.0114	0.0000	3.7138	3.7138	3.5700e-003	0.0000	3.8031
Unmitigated	1.7536	0.5385	8.3670	0.0228		1.0446	1.0446		1.0446	1.0446	147.5410	533.1256	680.6665	0.7034	9.7100e-003	701.1449

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0771					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8910					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.7233	0.5147	6.3040	0.0226		1.0331	1.0331		1.0331	1.0331	147.5410	529.4118	676.9527	0.6999	9.7100e-003	697.3419
Landscaping	0.0622	0.0238	2.0630	1.1000e-004		0.0114	0.0114		0.0114	0.0114		3.7138	3.7138	3.5700e-003		3.8031
Total	1.7536	0.5385	8.3670	0.0228		1.0446	1.0446		1.0446	1.0446	147.5410	533.1256	680.6665	0.7034	9.7100e-003	701.1449

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0771					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8910					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0622	0.0238	2.0630	1.1000e-004		0.0114	0.0114		0.0114	0.0114		3.7138	3.7138	3.5700e-003		3.8031
Total	1.0303	0.0238	2.0630	1.1000e-004		0.0114	0.0114		0.0114	0.0114	0.0000	3.7138	3.7138	3.5700e-003	0.0000	3.8031

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
- Use Water Efficient Irrigation System

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Summer

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Applied**8.0 Waste Detail**

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

Fire Pumps and Emergency Generators

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

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

Equipment Type	Number
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11.0 Vegetation

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

**Belmont-Olive, a 25 lot subdivision
South Coast AQMD Air District, Winter**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	25.00	Dwelling Unit	6.10	45,000.00	72

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	31
Climate Zone	10			Operational Year	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	390.98	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

- Project Characteristics -
- Land Use - 6.10 gross acres and 4.43 net acres
- Construction Phase -
- Woodstoves - Gas fireplaces only
- Land Use Change -
- Sequestration -
- Construction Off-road Equipment Mitigation -
- Mobile Land Use Mitigation -
- Area Mitigation -
- Energy Mitigation -
- Water Mitigation -
- Waste Mitigation -

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	PhaseEndDate	12/22/2023	11/24/2023
tblConstructionPhase	PhaseEndDate	10/27/2023	9/29/2023
tblConstructionPhase	PhaseEndDate	12/9/2022	11/11/2022
tblConstructionPhase	PhaseEndDate	11/24/2023	10/27/2023
tblConstructionPhase	PhaseEndDate	11/11/2022	10/14/2022
tblConstructionPhase	PhaseStartDate	11/25/2023	10/30/2023
tblConstructionPhase	PhaseStartDate	12/10/2022	11/14/2022
tblConstructionPhase	PhaseStartDate	11/12/2022	10/17/2022
tblConstructionPhase	PhaseStartDate	10/28/2023	10/2/2023
tblConstructionPhase	PhaseStartDate	10/29/2022	10/3/2022
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	21.25	25.00
tblFireplaces	NumberWood	1.25	0.00
tblLandUse	LotAcreage	8.12	6.10
tblSequestration	NumberOfNewTrees	0.00	25.00

2.0 Emissions Summary

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2022	3.2354	33.1312	20.3189	0.0398	19.8582	1.6138	21.4720	10.1558	1.4847	11.6405	0.0000	3,860.5368	3,860.5368	1.1970	0.0113	3,891.8547
2023	14.2772	14.5203	16.5747	0.0283	0.1677	0.7009	0.8208	0.0445	0.6596	0.6918	0.0000	2,699.0719	2,699.0719	0.7176	0.0107	2,717.5589
Maximum	14.2772	33.1312	20.3189	0.0398	19.8582	1.6138	21.4720	10.1558	1.4847	11.6405	0.0000	3,860.5368	3,860.5368	1.1970	0.0113	3,891.8547

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					
2022	3.2354	33.1312	20.3189	0.0398	9.0469	1.6138	10.6606	4.5995	1.4847	6.0841	0.0000	3,860.5368	3,860.5368	1.1970	0.0113	3,891.8547
2023	14.2772	14.5203	16.5747	0.0283	0.1677	0.7009	0.8208	0.0445	0.6596	0.6918	0.0000	2,699.0719	2,699.0719	0.7176	0.0107	2,717.5589
Maximum	14.2772	33.1312	20.3189	0.0398	9.0469	1.6138	10.6606	4.5995	1.4847	6.0841	0.0000	3,860.5368	3,860.5368	1.1970	0.0113	3,891.8547

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	53.99	0.00	48.50	54.47	0.00	45.06	0.00	0.00	0.00	0.00	0.00	0.00

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	1.7536	0.5385	8.3670	0.0228		1.0446	1.0446		1.0446	1.0446	147.5410	533.1256	680.6665	0.7034	9.7100e-003	701.1449
Energy	0.0209	0.1786	0.0760	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.9367	227.9367	4.3700e-003	4.1800e-003	229.2912
Mobile	0.7025	0.8553	7.2160	0.0160	1.7171	0.0119	1.7291	0.4576	0.0111	0.4687		1,651.7238	1,651.7238	0.1068	0.0732	1,676.2009
Total	2.4769	1.5723	15.6590	0.0399	1.7171	1.0709	2.7880	0.4576	1.0701	1.5277	147.5410	2,412.7860	2,560.3270	0.8146	0.0871	2,606.6370

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	1.0303	0.0238	2.0630	1.1000e-004		0.0114	0.0114		0.0114	0.0114	0.0000	3.7138	3.7138	3.5700e-003	0.0000	3.8031
Energy	0.0209	0.1786	0.0760	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.9367	227.9367	4.3700e-003	4.1800e-003	229.2912
Mobile	0.7512	0.9467	8.0016	0.0181	1.9455	0.0134	1.9589	0.5184	0.0125	0.5309		1,866.5202	1,866.5202	0.1170	0.0810	1,893.5685
Total	1.8024	1.1490	10.1406	0.0194	1.9455	0.0393	1.9847	0.5184	0.0383	0.5567	0.0000	2,098.1707	2,098.1707	0.1249	0.0851	2,126.6628

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	27.23	26.92	35.24	51.49	-13.30	96.33	28.81	-13.30	96.42	63.56	100.00	13.04	18.05	84.67	2.23	18.41

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	10/3/2022	10/14/2022	5	10	
2	Grading	Grading	10/17/2022	11/11/2022	5	20	
3	Building Construction	Building Construction	11/14/2022	9/29/2023	5	230	
4	Paving	Paving	10/2/2023	10/27/2023	5	20	
5	Architectural Coating	Architectural Coating	10/30/2023	11/24/2023	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 20

Acres of Paving: 0

Residential Indoor: 91,125; Residential Outdoor: 30,375; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	231	0.29
Grading	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

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
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

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	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	9.00	3.00	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	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

3.2 Site Preparation - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					19.6570	0.0000	19.6570	10.1025	0.0000	10.1025			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836		3,686.0619	3,686.0619	1.1922		3,715.8655
Total	3.1701	33.0835	19.6978	0.0380	19.6570	1.6126	21.2696	10.1025	1.4836	11.5860		3,686.0619	3,686.0619	1.1922		3,715.8655

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0652	0.0477	0.6211	1.7200e-003	0.2012	1.2000e-003	0.2024	0.0534	1.1100e-003	0.0545		174.4750	174.4750	4.8700e-003	4.6700e-003	175.9891
Total	0.0652	0.0477	0.6211	1.7200e-003	0.2012	1.2000e-003	0.2024	0.0534	1.1100e-003	0.0545		174.4750	174.4750	4.8700e-003	4.6700e-003	175.9891

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

3.2 Site Preparation - 2022

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					8.8457	0.0000	8.8457	4.5461	0.0000	4.5461			0.0000			0.0000
Off-Road	3.1701	33.0835	19.6978	0.0380		1.6126	1.6126		1.4836	1.4836	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655
Total	3.1701	33.0835	19.6978	0.0380	8.8457	1.6126	10.4582	4.5461	1.4836	6.0297	0.0000	3,686.0619	3,686.0619	1.1922		3,715.8655

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0652	0.0477	0.6211	1.7200e-003	0.2012	1.2000e-003	0.2024	0.0534	1.1100e-003	0.0545		174.4750	174.4750	4.8700e-003	4.6700e-003	175.9891
Total	0.0652	0.0477	0.6211	1.7200e-003	0.2012	1.2000e-003	0.2024	0.0534	1.1100e-003	0.0545		174.4750	174.4750	4.8700e-003	4.6700e-003	175.9891

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

3.3 Grading - 2022

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0826	0.0000	7.0826	3.4247	0.0000	3.4247			0.0000			0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656		2,872.046 4	2,872.046 4	0.9289		2,895.268 4
Total	1.9486	20.8551	15.2727	0.0297	7.0826	0.9409	8.0234	3.4247	0.8656	4.2903		2,872.046 4	2,872.046 4	0.9289		2,895.268 4

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0544	0.0398	0.5176	1.4300e-003	0.1677	1.0000e-003	0.1687	0.0445	9.2000e-004	0.0454		145.3958	145.3958	4.0600e-003	3.8900e-003	146.6576
Total	0.0544	0.0398	0.5176	1.4300e-003	0.1677	1.0000e-003	0.1687	0.0445	9.2000e-004	0.0454		145.3958	145.3958	4.0600e-003	3.8900e-003	146.6576

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

3.3 Grading - 2022

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					3.1872	0.0000	3.1872	1.5411	0.0000	1.5411			0.0000			0.0000
Off-Road	1.9486	20.8551	15.2727	0.0297		0.9409	0.9409		0.8656	0.8656	0.0000	2,872.046 4	2,872.046 4	0.9289		2,895.268 4
Total	1.9486	20.8551	15.2727	0.0297	3.1872	0.9409	4.1280	1.5411	0.8656	2.4067	0.0000	2,872.046 4	2,872.046 4	0.9289		2,895.268 4

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0544	0.0398	0.5176	1.4300e-003	0.1677	1.0000e-003	0.1687	0.0445	9.2000e-004	0.0454		145.3958	145.3958	4.0600e-003	3.8900e-003	146.6576
Total	0.0544	0.0398	0.5176	1.4300e-003	0.1677	1.0000e-003	0.1687	0.0445	9.2000e-004	0.0454		145.3958	145.3958	4.0600e-003	3.8900e-003	146.6576

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

3.4 Building Construction - 2022

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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612		2,554.3336	2,554.3336	0.6120		2,569.6322

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.3700e-003	0.1457	0.0496	5.7000e-004	0.0192	1.4600e-003	0.0207	5.5300e-003	1.4000e-003	6.9300e-003		61.7317	61.7317	2.0600e-003	8.9600e-003	64.4524
Worker	0.0326	0.0239	0.3106	8.6000e-004	0.1006	6.0000e-004	0.1012	0.0267	5.5000e-004	0.0272		87.2375	87.2375	2.4300e-003	2.3400e-003	87.9946
Total	0.0380	0.1696	0.3601	1.4300e-003	0.1198	2.0600e-003	0.1219	0.0322	1.9500e-003	0.0342		148.9692	148.9692	4.4900e-003	0.0113	152.4469

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

3.4 Building Construction - 2022

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	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322
Total	1.7062	15.6156	16.3634	0.0269		0.8090	0.8090		0.7612	0.7612	0.0000	2,554.3336	2,554.3336	0.6120		2,569.6322

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	5.3700e-003	0.1457	0.0496	5.7000e-004	0.0192	1.4600e-003	0.0207	5.5300e-003	1.4000e-003	6.9300e-003		61.7317	61.7317	2.0600e-003	8.9600e-003	64.4524
Worker	0.0326	0.0239	0.3106	8.6000e-004	0.1006	6.0000e-004	0.1012	0.0267	5.5000e-004	0.0272		87.2375	87.2375	2.4300e-003	2.3400e-003	87.9946
Total	0.0380	0.1696	0.3601	1.4300e-003	0.1198	2.0600e-003	0.1219	0.0322	1.9500e-003	0.0342		148.9692	148.9692	4.4900e-003	0.0113	152.4469

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

3.4 Building Construction - 2023

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.1700e-003	0.1143	0.0443	5.5000e-004	0.0192	6.4000e-004	0.0199	5.5300e-003	6.1000e-004	6.1400e-003		58.9156	58.9156	1.9700e-003	8.5400e-003	61.5087
Worker	0.0304	0.0211	0.2865	8.3000e-004	0.1006	5.7000e-004	0.1012	0.0267	5.2000e-004	0.0272		84.9464	84.9464	2.1900e-003	2.1600e-003	85.6441
Total	0.0335	0.1354	0.3307	1.3800e-003	0.1198	1.2100e-003	0.1210	0.0322	1.1300e-003	0.0333		143.8620	143.8620	4.1600e-003	0.0107	147.1528

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

3.4 Building Construction - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061
Total	1.5728	14.3849	16.2440	0.0269		0.6997	0.6997		0.6584	0.6584	0.0000	2,555.2099	2,555.2099	0.6079		2,570.4061

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.1700e-003	0.1143	0.0443	5.5000e-004	0.0192	6.4000e-004	0.0199	5.5300e-003	6.1000e-004	6.1400e-003		58.9156	58.9156	1.9700e-003	8.5400e-003	61.5087
Worker	0.0304	0.0211	0.2865	8.3000e-004	0.1006	5.7000e-004	0.1012	0.0267	5.2000e-004	0.0272		84.9464	84.9464	2.1900e-003	2.1600e-003	85.6441
Total	0.0335	0.1354	0.3307	1.3800e-003	0.1198	1.2100e-003	0.1210	0.0322	1.1300e-003	0.0333		143.8620	143.8620	4.1600e-003	0.0107	147.1528

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

3.5 Paving - 2023

Unmitigated Construction On-Site

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

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0506	0.0352	0.4775	1.3800e-003	0.1677	9.4000e-004	0.1686	0.0445	8.7000e-004	0.0453		141.5774	141.5774	3.6500e-003	3.6000e-003	142.7402
Total	0.0506	0.0352	0.4775	1.3800e-003	0.1677	9.4000e-004	0.1686	0.0445	8.7000e-004	0.0453		141.5774	141.5774	3.6500e-003	3.6000e-003	142.7402

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

3.5 Paving - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.584 1	2,207.584 1	0.7140		2,225.433 6
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	1.0327	10.1917	14.5842	0.0228		0.5102	0.5102		0.4694	0.4694	0.0000	2,207.584 1	2,207.584 1	0.7140		2,225.433 6

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	0.0506	0.0352	0.4775	1.3800e-003	0.1677	9.4000e-004	0.1686	0.0445	8.7000e-004	0.0453		141.5774	141.5774	3.6500e-003	3.6000e-003	142.7402
Total	0.0506	0.0352	0.4775	1.3800e-003	0.1677	9.4000e-004	0.1686	0.0445	8.7000e-004	0.0453		141.5774	141.5774	3.6500e-003	3.6000e-003	142.7402

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	14.0788					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690
Total	14.2705	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708		281.4481	281.4481	0.0168		281.8690

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7400e-003	4.6900e-003	0.0637	1.8000e-004	0.0224	1.3000e-004	0.0225	5.9300e-003	1.2000e-004	6.0400e-003		18.8770	18.8770	4.9000e-004	4.8000e-004	19.0320
Total	6.7400e-003	4.6900e-003	0.0637	1.8000e-004	0.0224	1.3000e-004	0.0225	5.9300e-003	1.2000e-004	6.0400e-003		18.8770	18.8770	4.9000e-004	4.8000e-004	19.0320

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

3.6 Architectural Coating - 2023

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	14.0788					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.1917	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690
Total	14.2705	1.3030	1.8111	2.9700e-003		0.0708	0.0708		0.0708	0.0708	0.0000	281.4481	281.4481	0.0168		281.8690

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.7400e-003	4.6900e-003	0.0637	1.8000e-004	0.0224	1.3000e-004	0.0225	5.9300e-003	1.2000e-004	6.0400e-003		18.8770	18.8770	4.9000e-004	4.8000e-004	19.0320
Total	6.7400e-003	4.6900e-003	0.0637	1.8000e-004	0.0224	1.3000e-004	0.0225	5.9300e-003	1.2000e-004	6.0400e-003		18.8770	18.8770	4.9000e-004	4.8000e-004	19.0320

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Walkability Design

Improve Pedestrian Network

	ROG	NOx	CO	SO2	Fugitive 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	0.7512	0.9467	8.0016	0.0181	1.9455	0.0134	1.9589	0.5184	0.0125	0.5309		1,866.5202	1,866.5202	0.1170	0.0810	1,893.5685
Unmitigated	0.7025	0.8553	7.2160	0.0160	1.7171	0.0119	1.7291	0.4576	0.0111	0.4687		1,651.7238	1,651.7238	0.1068	0.0732	1,676.2009

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	236.00	238.50	213.75	796,807	902,768
Total	236.00	238.50	213.75	796,807	902,768

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0209	0.1786	0.0760	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.9367	227.9367	4.3700e-003	4.1800e-003	229.2912
NaturalGas Unmitigated	0.0209	0.1786	0.0760	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.9367	227.9367	4.3700e-003	4.1800e-003	229.2912

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	1937.46	0.0209	0.1786	0.0760	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.9367	227.9367	4.3700e-003	4.1800e-003	229.2912
Total		0.0209	0.1786	0.0760	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.9367	227.9367	4.3700e-003	4.1800e-003	229.2912

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					
Single Family Housing	1.93746	0.0209	0.1786	0.0760	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.9367	227.9367	4.3700e-003	4.1800e-003	229.2912
Total		0.0209	0.1786	0.0760	1.1400e-003		0.0144	0.0144		0.0144	0.0144		227.9367	227.9367	4.3700e-003	4.1800e-003	229.2912

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

Use Low VOC Paint - Residential Exterior

No Hearths Installed

Use Low VOC Cleaning Supplies

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0303	0.0238	2.0630	1.1000e-004		0.0114	0.0114		0.0114	0.0114	0.0000	3.7138	3.7138	3.5700e-003	0.0000	3.8031
Unmitigated	1.7536	0.5385	8.3670	0.0228		1.0446	1.0446		1.0446	1.0446	147.5410	533.1256	680.6665	0.7034	9.7100e-003	701.1449

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0771					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8910					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.7233	0.5147	6.3040	0.0226		1.0331	1.0331		1.0331	1.0331	147.5410	529.4118	676.9527	0.6999	9.7100e-003	697.3419
Landscaping	0.0622	0.0238	2.0630	1.1000e-004		0.0114	0.0114		0.0114	0.0114		3.7138	3.7138	3.5700e-003		3.8031
Total	1.7536	0.5385	8.3670	0.0228		1.0446	1.0446		1.0446	1.0446	147.5410	533.1256	680.6665	0.7034	9.7100e-003	701.1449

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0771					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8910					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0622	0.0238	2.0630	1.1000e-004		0.0114	0.0114		0.0114	0.0114		3.7138	3.7138	3.5700e-003		3.8031
Total	1.0303	0.0238	2.0630	1.1000e-004		0.0114	0.0114		0.0114	0.0114	0.0000	3.7138	3.7138	3.5700e-003	0.0000	3.8031

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
- Use Water Efficient Irrigation System

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Winter

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

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

9.0 Operational Offroad

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

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Annual

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

**Belmont-Olive, a 25 lot subdivision
South Coast AQMD Air District, Annual**

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	25.00	Dwelling Unit	6.10	45,000.00	72

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	31
Climate Zone	10			Operational Year	2023
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	390.98	CH4 Intensity (lb/MW hr)	0.033	N2O Intensity (lb/MW hr)	0.004

1.3 User Entered Comments & Non-Default Data

- Project Characteristics -
- Land Use - 6.10 gross acres and 4.43 net acres
- Construction Phase -
- Woodstoves - Gas fireplaces only
- Land Use Change -
- Sequestration -
- Construction Off-road Equipment Mitigation -
- Mobile Land Use Mitigation -
- Area Mitigation -
- Energy Mitigation -
- Water Mitigation -
- Waste Mitigation -

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Annual

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

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	PhaseEndDate	12/22/2023	11/24/2023
tblConstructionPhase	PhaseEndDate	10/27/2023	9/29/2023
tblConstructionPhase	PhaseEndDate	12/9/2022	11/11/2022
tblConstructionPhase	PhaseEndDate	11/24/2023	10/27/2023
tblConstructionPhase	PhaseEndDate	11/11/2022	10/14/2022
tblConstructionPhase	PhaseStartDate	11/25/2023	10/30/2023
tblConstructionPhase	PhaseStartDate	12/10/2022	11/14/2022
tblConstructionPhase	PhaseStartDate	11/12/2022	10/17/2022
tblConstructionPhase	PhaseStartDate	10/28/2023	10/2/2023
tblConstructionPhase	PhaseStartDate	10/29/2022	10/3/2022
tblFireplaces	FireplaceWoodMass	1,019.20	0.00
tblFireplaces	NumberGas	21.25	25.00
tblFireplaces	NumberWood	1.25	0.00
tblLandUse	LotAcreage	8.12	6.10
tblSequestration	NumberOfNewTrees	0.00	25.00

2.0 Emissions Summary

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Annual

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

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2022	0.0666	0.6509	0.5525	1.0100e-003	0.1738	0.0317	0.2055	0.0860	0.0294	0.1155	0.0000	87.8551	87.8551	0.0237	2.4000e-004	88.5178
2023	0.3100	1.5311	1.7863	3.0400e-003	0.0133	0.0742	0.0875	3.5800e-003	0.0697	0.0733	0.0000	262.9019	262.9019	0.0608	9.9000e-004	264.7156
Maximum	0.3100	1.5311	1.7863	3.0400e-003	0.1738	0.0742	0.2055	0.0860	0.0697	0.1155	0.0000	262.9019	262.9019	0.0608	9.9000e-004	264.7156

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					
2022	0.0666	0.6509	0.5525	1.0100e-003	0.0808	0.0317	0.1125	0.0394	0.0294	0.0688	0.0000	87.8550	87.8550	0.0237	2.4000e-004	88.5177
2023	0.3100	1.5311	1.7863	3.0400e-003	0.0133	0.0742	0.0875	3.5800e-003	0.0697	0.0733	0.0000	262.9016	262.9016	0.0608	9.9000e-004	264.7153
Maximum	0.3100	1.5311	1.7863	3.0400e-003	0.0808	0.0742	0.1125	0.0394	0.0697	0.0733	0.0000	262.9016	262.9016	0.0608	9.9000e-004	264.7153

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.00	0.00	0.00	0.00	49.70	0.00	31.75	52.03	0.00	24.70	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	10-3-2022	1-2-2023	0.6805	0.6805
2	1-3-2023	4-2-2023	0.5183	0.5183
3	4-3-2023	7-2-2023	0.5238	0.5238
4	7-3-2023	9-30-2023	0.5123	0.5123
		Highest	0.6805	0.6805

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	0.1935	9.4100e-003	0.3367	3.0000e-004		0.0143	0.0143		0.0143	0.0143	1.6731	6.4246	8.0977	8.3400e-003	1.1000e-004	8.3390
Energy	3.8100e-003	0.0326	0.0139	2.1000e-004		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	73.0499	73.0499	3.7000e-003	1.0500e-003	73.4563
Mobile	0.1232	0.1542	1.2997	2.8800e-003	0.3000	2.1200e-003	0.3021	0.0801	1.9700e-003	0.0820	0.0000	269.5305	269.5305	0.0172	0.0119	273.5019
Waste						0.0000	0.0000		0.0000	0.0000	5.9923	0.0000	5.9923	0.3541	0.0000	14.8457
Water						0.0000	0.0000		0.0000	0.0000	0.5168	5.7847	6.3014	0.0536	1.3100e-003	8.0316
Total	0.3205	0.1962	1.6502	3.3900e-003	0.3000	0.0191	0.3190	0.0801	0.0189	0.0990	8.1821	354.7896	362.9717	0.4369	0.0144	378.1745

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

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.1845	2.9700e-003	0.2579	1.0000e-005		1.4300e-003	1.4300e-003		1.4300e-003	1.4300e-003	0.0000	0.4211	0.4211	4.0000e-004	0.0000	0.4313
Energy	3.8100e-003	0.0326	0.0139	2.1000e-004		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	72.3046	72.3046	3.6400e-003	1.0500e-003	72.7071
Mobile	0.1319	0.1708	1.4424	3.2600e-003	0.3398	2.3800e-003	0.3422	0.0907	2.2100e-003	0.0929	0.0000	304.5939	304.5939	0.0188	0.0132	308.9851
Waste						0.0000	0.0000		0.0000	0.0000	2.9962	0.0000	2.9962	0.1771	0.0000	7.4228
Water						0.0000	0.0000		0.0000	0.0000	0.4134	4.9090	5.3224	0.0429	1.0500e-003	6.7080
Total	0.3202	0.2064	1.7142	3.4800e-003	0.3398	6.4400e-003	0.3463	0.0907	6.2700e-003	0.0970	3.4096	382.2286	385.6381	0.2428	0.0153	396.2543

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction	0.11	-5.18	-3.87	-2.65	-13.30	66.27	-8.54	-13.29	66.90	2.05	58.33	-7.73	-6.24	44.43	-6.27	-4.78

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Annual

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

2.3 Vegetation

Vegetation

	CO2e
Category	MT
New Trees	17.7000
Vegetation Land Change	-26.2910
Total	-8.5910

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	10/3/2022	10/14/2022	5	10	
2	Grading	Grading	10/17/2022	11/11/2022	5	20	
3	Building Construction	Building Construction	11/14/2022	9/29/2023	5	230	
4	Paving	Paving	10/2/2023	10/27/2023	5	20	
5	Architectural Coating	Architectural Coating	10/30/2023	11/24/2023	5	20	

Acres of Grading (Site Preparation Phase): 15

Acres of Grading (Grading Phase): 20

Acres of Paving: 0

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

Residential Indoor: 91,125; Residential Outdoor: 30,375; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Architectural Coating	Air Compressors	1	6.00	78	0.48
Building Construction	Cranes	1	7.00	231	0.29
Grading	Excavators	1	8.00	158	0.38
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Grading	Graders	1	8.00	187	0.41
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
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45

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	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	9.00	3.00	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	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

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

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Site Preparation - 2022

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					0.0983	0.0000	0.0983	0.0505	0.0000	0.0505	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	0.0159	0.1654	0.0985	1.9000e-004	0.0983	8.0600e-003	0.1064	0.0505	7.4200e-003	0.0579	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549

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

3.2 Site Preparation - 2022

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	2.4000e-004	3.1900e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8036	0.8036	2.0000e-005	2.0000e-005	0.8105
Total	3.0000e-004	2.4000e-004	3.1900e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8036	0.8036	2.0000e-005	2.0000e-005	0.8105

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					0.0442	0.0000	0.0442	0.0227	0.0000	0.0227	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0159	0.1654	0.0985	1.9000e-004		8.0600e-003	8.0600e-003		7.4200e-003	7.4200e-003	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549
Total	0.0159	0.1654	0.0985	1.9000e-004	0.0442	8.0600e-003	0.0523	0.0227	7.4200e-003	0.0302	0.0000	16.7197	16.7197	5.4100e-003	0.0000	16.8549

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

3.2 Site Preparation - 2022

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-004	2.4000e-004	3.1900e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8036	0.8036	2.0000e-005	2.0000e-005	0.8105
Total	3.0000e-004	2.4000e-004	3.1900e-003	1.0000e-005	9.9000e-004	1.0000e-005	9.9000e-004	2.6000e-004	1.0000e-005	2.7000e-004	0.0000	0.8036	0.8036	2.0000e-005	2.0000e-005	0.8105

3.3 Grading - 2022

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					0.0708	0.0000	0.0708	0.0343	0.0000	0.0343	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0195	0.2086	0.1527	3.0000e-004		9.4100e-003	9.4100e-003		8.6600e-003	8.6600e-003	0.0000	26.0548	26.0548	8.4300e-003	0.0000	26.2654
Total	0.0195	0.2086	0.1527	3.0000e-004	0.0708	9.4100e-003	0.0802	0.0343	8.6600e-003	0.0429	0.0000	26.0548	26.0548	8.4300e-003	0.0000	26.2654

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

3.3 Grading - 2022

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	5.0000e-004	4.1000e-004	5.3200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3393	1.3393	4.0000e-005	4.0000e-005	1.3509
Total	5.0000e-004	4.1000e-004	5.3200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3393	1.3393	4.0000e-005	4.0000e-005	1.3509

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					0.0319	0.0000	0.0319	0.0154	0.0000	0.0154	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0195	0.2086	0.1527	3.0000e-004		9.4100e-003	9.4100e-003		8.6600e-003	8.6600e-003	0.0000	26.0547	26.0547	8.4300e-003	0.0000	26.2654
Total	0.0195	0.2086	0.1527	3.0000e-004	0.0319	9.4100e-003	0.0413	0.0154	8.6600e-003	0.0241	0.0000	26.0547	26.0547	8.4300e-003	0.0000	26.2654

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Annual

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

3.3 Grading - 2022

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	5.0000e-004	4.1000e-004	5.3200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3393	1.3393	4.0000e-005	4.0000e-005	1.3509
Total	5.0000e-004	4.1000e-004	5.3200e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3393	1.3393	4.0000e-005	4.0000e-005	1.3509

3.4 Building Construction - 2022

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	0.0299	0.2733	0.2864	4.7000e-004		0.0142	0.0142		0.0133	0.0133	0.0000	40.5519	40.5519	9.7200e-003	0.0000	40.7948
Total	0.0299	0.2733	0.2864	4.7000e-004		0.0142	0.0142		0.0133	0.0133	0.0000	40.5519	40.5519	9.7200e-003	0.0000	40.7948

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Annual

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

3.4 Building Construction - 2022

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	9.0000e-005	2.5600e-003	8.5000e-004	1.0000e-005	3.3000e-004	3.0000e-005	3.6000e-004	1.0000e-004	2.0000e-005	1.2000e-004	0.0000	0.9798	0.9798	3.0000e-005	1.4000e-004	1.0229
Worker	5.3000e-004	4.3000e-004	5.5900e-003	2.0000e-005	1.7300e-003	1.0000e-005	1.7400e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.4062	1.4062	4.0000e-005	4.0000e-005	1.4184
Total	6.2000e-004	2.9900e-003	6.4400e-003	3.0000e-005	2.0600e-003	4.0000e-005	2.1000e-003	5.6000e-004	3.0000e-005	5.9000e-004	0.0000	2.3860	2.3860	7.0000e-005	1.8000e-004	2.4414

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	0.0299	0.2733	0.2864	4.7000e-004		0.0142	0.0142		0.0133	0.0133	0.0000	40.5519	40.5519	9.7200e-003	0.0000	40.7948
Total	0.0299	0.2733	0.2864	4.7000e-004		0.0142	0.0142		0.0133	0.0133	0.0000	40.5519	40.5519	9.7200e-003	0.0000	40.7948

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3.4 Building Construction - 2022

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	9.0000e-005	2.5600e-003	8.5000e-004	1.0000e-005	3.3000e-004	3.0000e-005	3.6000e-004	1.0000e-004	2.0000e-005	1.2000e-004	0.0000	0.9798	0.9798	3.0000e-005	1.4000e-004	1.0229
Worker	5.3000e-004	4.3000e-004	5.5900e-003	2.0000e-005	1.7300e-003	1.0000e-005	1.7400e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.4062	1.4062	4.0000e-005	4.0000e-005	1.4184
Total	6.2000e-004	2.9900e-003	6.4400e-003	3.0000e-005	2.0600e-003	4.0000e-005	2.1000e-003	5.6000e-004	3.0000e-005	5.9000e-004	0.0000	2.3860	2.3860	7.0000e-005	1.8000e-004	2.4414

3.4 Building Construction - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.1533	1.4025	1.5838	2.6300e-003		0.0682	0.0682		0.0642	0.0642	0.0000	226.0096	226.0096	0.0538	0.0000	227.3537
Total	0.1533	1.4025	1.5838	2.6300e-003		0.0682	0.0682		0.0642	0.0642	0.0000	226.0096	226.0096	0.0538	0.0000	227.3537

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

3.4 Building Construction - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2000e-004	0.0111	4.2400e-003	5.0000e-005	1.8400e-003	6.0000e-005	1.9100e-003	5.3000e-004	6.0000e-005	5.9000e-004	0.0000	5.2057	5.2057	1.7000e-004	7.5000e-004	5.4348
Worker	2.7400e-003	2.1000e-003	0.0287	8.0000e-005	9.6300e-003	6.0000e-005	9.6800e-003	2.5600e-003	5.0000e-005	2.6100e-003	0.0000	7.6285	7.6285	1.9000e-004	1.9000e-004	7.6912
Total	3.0600e-003	0.0132	0.0330	1.3000e-004	0.0115	1.2000e-004	0.0116	3.0900e-003	1.1000e-004	3.2000e-003	0.0000	12.8342	12.8342	3.6000e-004	9.4000e-004	13.1260

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	0.1533	1.4025	1.5838	2.6300e-003		0.0682	0.0682		0.0642	0.0642	0.0000	226.0094	226.0094	0.0538	0.0000	227.3535
Total	0.1533	1.4025	1.5838	2.6300e-003		0.0682	0.0682		0.0642	0.0642	0.0000	226.0094	226.0094	0.0538	0.0000	227.3535

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

3.4 Building Construction - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	3.2000e-004	0.0111	4.2400e-003	5.0000e-005	1.8400e-003	6.0000e-005	1.9100e-003	5.3000e-004	6.0000e-005	5.9000e-004	0.0000	5.2057	5.2057	1.7000e-004	7.5000e-004	5.4348
Worker	2.7400e-003	2.1000e-003	0.0287	8.0000e-005	9.6300e-003	6.0000e-005	9.6800e-003	2.5600e-003	5.0000e-005	2.6100e-003	0.0000	7.6285	7.6285	1.9000e-004	1.9000e-004	7.6912
Total	3.0600e-003	0.0132	0.0330	1.3000e-004	0.0115	1.2000e-004	0.0116	3.0900e-003	1.1000e-004	3.2000e-003	0.0000	12.8342	12.8342	3.6000e-004	9.4000e-004	13.1260

3.5 Paving - 2023

Unmitigated Construction On-Site

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

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

3.5 Paving - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.6000e-004	4.9100e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3040	1.3040	3.0000e-005	3.0000e-005	1.3147
Total	4.7000e-004	3.6000e-004	4.9100e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3040	1.3040	3.0000e-005	3.0000e-005	1.3147

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	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0268	20.0268	6.4800e-003	0.0000	20.1888
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0103	0.1019	0.1458	2.3000e-004		5.1000e-003	5.1000e-003		4.6900e-003	4.6900e-003	0.0000	20.0268	20.0268	6.4800e-003	0.0000	20.1888

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

3.5 Paving - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.7000e-004	3.6000e-004	4.9100e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3040	1.3040	3.0000e-005	3.0000e-005	1.3147
Total	4.7000e-004	3.6000e-004	4.9100e-003	1.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.3040	1.3040	3.0000e-005	3.0000e-005	1.3147

3.6 Architectural Coating - 2023

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1408					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	0.1427	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571

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

3.6 Architectural Coating - 2023

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	5.0000e-005	6.5000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1739	0.1739	0.0000	0.0000	0.1753
Total	6.0000e-005	5.0000e-005	6.5000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1739	0.1739	0.0000	0.0000	0.1753

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	0.1408					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.9200e-003	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571
Total	0.1427	0.0130	0.0181	3.0000e-005		7.1000e-004	7.1000e-004		7.1000e-004	7.1000e-004	0.0000	2.5533	2.5533	1.5000e-004	0.0000	2.5571

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

3.6 Architectural Coating - 2023

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	5.0000e-005	6.5000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1739	0.1739	0.0000	0.0000	0.1753
Total	6.0000e-005	5.0000e-005	6.5000e-004	0.0000	2.2000e-004	0.0000	2.2000e-004	6.0000e-005	0.0000	6.0000e-005	0.0000	0.1739	0.1739	0.0000	0.0000	0.1753

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Density

Improve Walkability Design

Improve Pedestrian Network

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1319	0.1708	1.4424	3.2600e-003	0.3398	2.3800e-003	0.3422	0.0907	2.2100e-003	0.0929	0.0000	304.5939	304.5939	0.0188	0.0132	308.9851
Unmitigated	0.1232	0.1542	1.2997	2.8800e-003	0.3000	2.1200e-003	0.3021	0.0801	1.9700e-003	0.0820	0.0000	269.5305	269.5305	0.0172	0.0119	273.5019

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	236.00	238.50	213.75	796,807	902,768
Total	236.00	238.50	213.75	796,807	902,768

4.3 Trip Type Information

Land Use	Miles			Trip %			Trip Purpose %		
	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
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.543139	0.060749	0.184760	0.130258	0.023830	0.006353	0.011718	0.009137	0.000812	0.000509	0.024193	0.000750	0.003791

5.0 Energy Detail

Historical Energy Use: N

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

5.1 Mitigation Measures Energy

Install Energy Efficient Appliances

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	34.5671	34.5671	2.9200e-003	3.5000e-004	34.7454
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	35.3124	35.3124	2.9800e-003	3.6000e-004	35.4946
NaturalGas Mitigated	3.8100e-003	0.0326	0.0139	2.1000e-004		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	37.7375	37.7375	7.2000e-004	6.9000e-004	37.9617
NaturalGas Unmitigated	3.8100e-003	0.0326	0.0139	2.1000e-004		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	37.7375	37.7375	7.2000e-004	6.9000e-004	37.9617

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					
Single Family Housing	707174	3.8100e-003	0.0326	0.0139	2.1000e-004		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	37.7375	37.7375	7.2000e-004	6.9000e-004	37.9617
Total		3.8100e-003	0.0326	0.0139	2.1000e-004		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	37.7375	37.7375	7.2000e-004	6.9000e-004	37.9617

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Annual

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

5.2 Energy by Land Use - Natural Gas

Mitigated

	Natural Gas 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					
Single Family Housing	707174	3.8100e-003	0.0326	0.0139	2.1000e-004		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	37.7375	37.7375	7.2000e-004	6.9000e-004	37.9617
Total		3.8100e-003	0.0326	0.0139	2.1000e-004		2.6300e-003	2.6300e-003		2.6300e-003	2.6300e-003	0.0000	37.7375	37.7375	7.2000e-004	6.9000e-004	37.9617

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	199117	35.3124	2.9800e-003	3.6000e-004	35.4946
Total		35.3124	2.9800e-003	3.6000e-004	35.4946

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

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	194914	34.5671	2.9200e-003	3.5000e-004	34.7454
Total		34.5671	2.9200e-003	3.5000e-004	34.7454

6.0 Area Detail

6.1 Mitigation Measures Area

- Use Low VOC Paint - Residential Interior
- Use Low VOC Paint - Residential Exterior
- No Hearths Installed
- Use Low VOC Cleaning Supplies

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

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1845	2.9700e-003	0.2579	1.0000e-005		1.4300e-003	1.4300e-003		1.4300e-003	1.4300e-003	0.0000	0.4211	0.4211	4.0000e-004	0.0000	0.4313
Unmitigated	0.1935	9.4100e-003	0.3367	3.0000e-004		0.0143	0.0143		0.0143	0.0143	1.6731	6.4246	8.0977	8.3400e-003	1.1000e-004	8.3390

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	0.0141					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1626					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	9.0400e-003	6.4300e-003	0.0788	2.8000e-004		0.0129	0.0129		0.0129	0.0129	1.6731	6.0034	7.6765	7.9400e-003	1.1000e-004	7.9077
Landscaping	7.7700e-003	2.9700e-003	0.2579	1.0000e-005		1.4300e-003	1.4300e-003		1.4300e-003	1.4300e-003	0.0000	0.4211	0.4211	4.0000e-004	0.0000	0.4313
Total	0.1935	9.4000e-003	0.3367	2.9000e-004		0.0143	0.0143		0.0143	0.0143	1.6731	6.4246	8.0977	8.3400e-003	1.1000e-004	8.3390

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

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0141					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1626					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	7.7700e-003	2.9700e-003	0.2579	1.0000e-005		1.4300e-003	1.4300e-003		1.4300e-003	1.4300e-003	0.0000	0.4211	0.4211	4.0000e-004	0.0000	0.4313
Total	0.1845	2.9700e-003	0.2579	1.0000e-005		1.4300e-003	1.4300e-003		1.4300e-003	1.4300e-003	0.0000	0.4211	0.4211	4.0000e-004	0.0000	0.4313

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
- Use Water Efficient Irrigation System

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

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	5.3224	0.0429	1.0500e-003	6.7080
Unmitigated	6.3014	0.0536	1.3100e-003	8.0316

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.62885 / 1.02688	6.3014	0.0536	1.3100e-003	8.0316
Total		6.3014	0.0536	1.3100e-003	8.0316

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

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.30308 / 0.964244	5.3224	0.0429	1.0500e-003	6.7080
Total		5.3224	0.0429	1.0500e-003	6.7080

8.0 Waste Detail

8.1 Mitigation Measures Waste

Institute Recycling and Composting Services

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	2.9962	0.1771	0.0000	7.4228
Unmitigated	5.9923	0.3541	0.0000	14.8457

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

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	29.52	5.9923	0.3541	0.0000	14.8457
Total		5.9923	0.3541	0.0000	14.8457

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	14.76	2.9962	0.1771	0.0000	7.4228
Total		2.9962	0.1771	0.0000	7.4228

9.0 Operational Offroad

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

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Annual

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number
----------------	--------

11.0 Vegetation

	Total CO2	CH4	N2O	CO2e
Category	MT			
Unmitigated	-8.5910	0.0000	0.0000	-8.5910

Belmont-Olive, a 25 lot subdivision - South Coast AQMD Air District, Annual

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

11.1 Vegetation Land Change

Vegetation Type

	Initial/Final	Total CO2	CH4	N2O	CO2e
	Acres	MT			
Grassland	6.1 / 0	-26.2910	0.0000	0.0000	-26.2910
Total		-26.2910	0.0000	0.0000	-26.2910

11.2 Net New Trees

Species Class

	Number of Trees	Total CO2	CH4	N2O	CO2e
		MT			
Miscellaneous	25	17.7000	0.0000	0.0000	17.7000
Total		17.7000	0.0000	0.0000	17.7000

Appendix B General Biological Assessment



NATURAL RESOURCES ASSESSMENT, INC.

**General Biological Assessment
Tentative Tract Map 20421
San Bernardino, California**

Prepared for:

**Inland Self Storage Management
P.O. Box 8008
Newport Beach, CA 92658**

Prepared by:

**Natural Resources Assessment, Inc.
3415 Valencia Hill Drive
Riverside, California 92507**

April 18, 2022

Project Number: PPI20-101

3415 Valencia Hill Drive, Riverside, California 92507 Telephone: 951 686 4483 Fax: 951 686 8418

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CERTIFICATION

I hereby certify that the statements furnished below and in the attached exhibits present data and information required for this biological evaluation, and that the facts, statements, and information presented are true and correct to the best of my knowledge and belief.



Karen Kirtland

NATURAL RESOURCES ASSESSMENT, INC.

April 18, 2022

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Appendices

Appendix A. Plant and Animal Species Observed

Appendix B. Sensitive Biological Resources

1.0 Introduction

Natural Resources Assessment, Inc. (NRAI) was contracted by Inland Self Storage Management to provide biological services for a proposed 25-lot residential subdivision in San Bernardino, California. The project approval process requires a biological resource assessment.

2.0 Site Location and Project Description

The property consists of one parcel (APN 0261-151-10) located on the southwest corner of Belmont Avenue and Olive Avenue in the Verdemon area of San Bernardino (Figures 1 and 2). The 6.10-acre property is in an unsectioned area of Township 1 North, Range 5 West on the San Bernardino North USGS 7.5-minute quadrangle, San Bernardino Base and Meridian (Figure 2).

Review of historic aerial photographs indicated that the property has been a vacant lot since at least 1985 (Google Earth, accessed March 24, 2022).

There are two actions being requested from the City of San Bernardino. The first action is Development Code Amendment 21-05 to modify the land use map to change the land use designation from RL (Residential Low -3.1 du/net ac) with a minimum average lot size of 10,800 square feet to RS (Residential Suburban -4.5 du/net ac) with a minimum lot size of 7,200 square feet. The second action is approval of Tentative Tract Map No. 20421 (SUB 21-11), a subdivision of 6.10-gross acres into 25 residential lots for a single-family detached product type (Figure 3).

3.0 Methods

3.1 Data Review

NRAI conducted a data search for information on plant and wildlife species known occurrences within the vicinity of the project. This review included biological texts on general and specific biological resources, and those resources considered to be sensitive by various wildlife agencies, local governmental agencies and interest groups. Information sources included but are not limited to the following:

- Data from Calflora, California Native Plant Society (CNPS) Inventory; the California Consortium of Herbaria; the Information, Planning, and Conservation System (IPaC); the Biogeographic Information & Observation System (BIOS); and the California Natural Diversity Data Base (CNDDB).
- U.S. Fish and Wildlife Service (USFWS), U.S. Army Corps of Engineers (Corps), Santa Ana Regional Water Quality Control Board (RWQCB), and California Department of Fish and Wildlife (CDFW) regulations on sensitive biological resources and jurisdictional waters.
- Other texts relevant to this area of San Bernardino and information from regional experts and previous studies for this area.

NRAI used the information in our survey efforts. Please see Section 5.0 for a complete listing of documents reviewed.

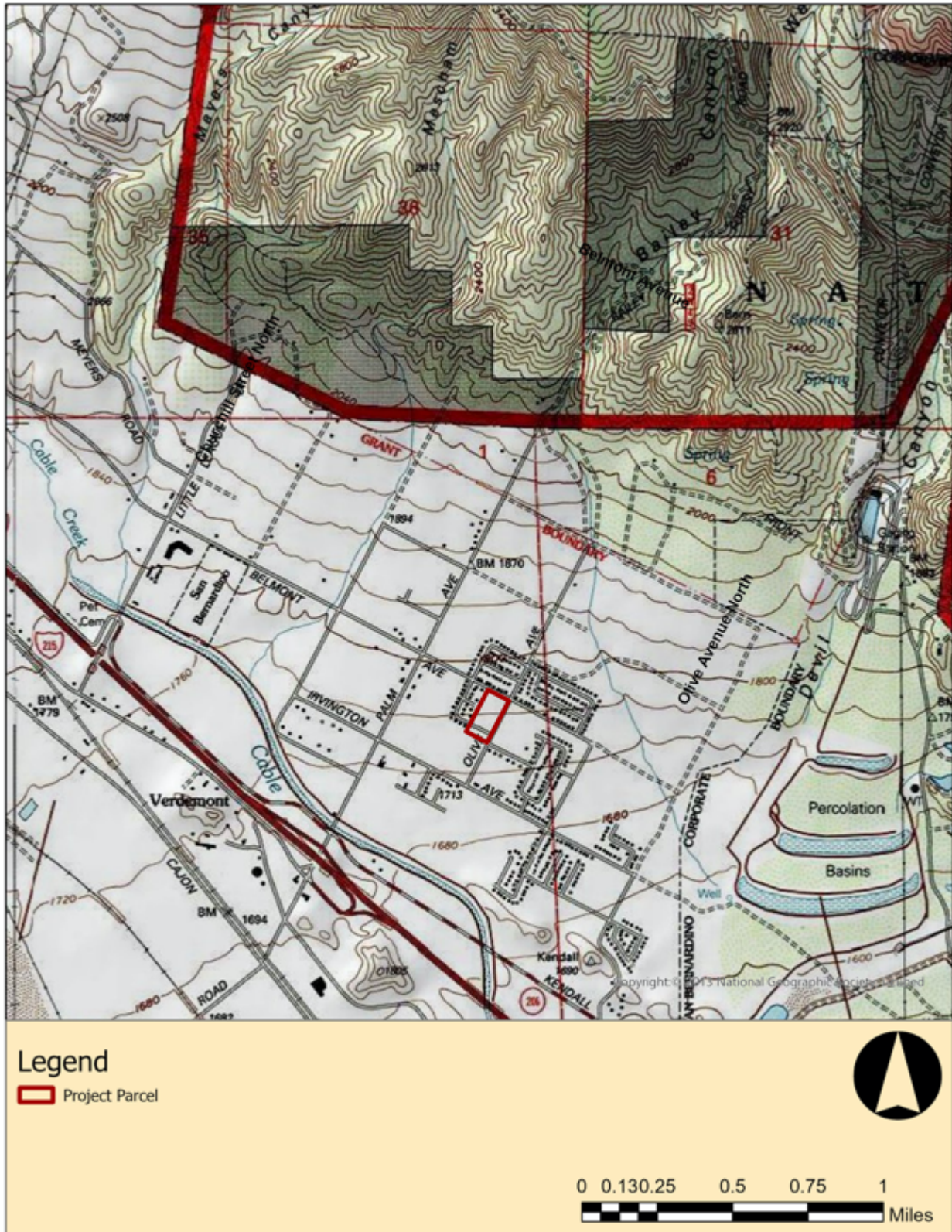


Figure 1. Regional location and topography of the project site. Date Unknown.



Figure 2. Aerial of the project site.

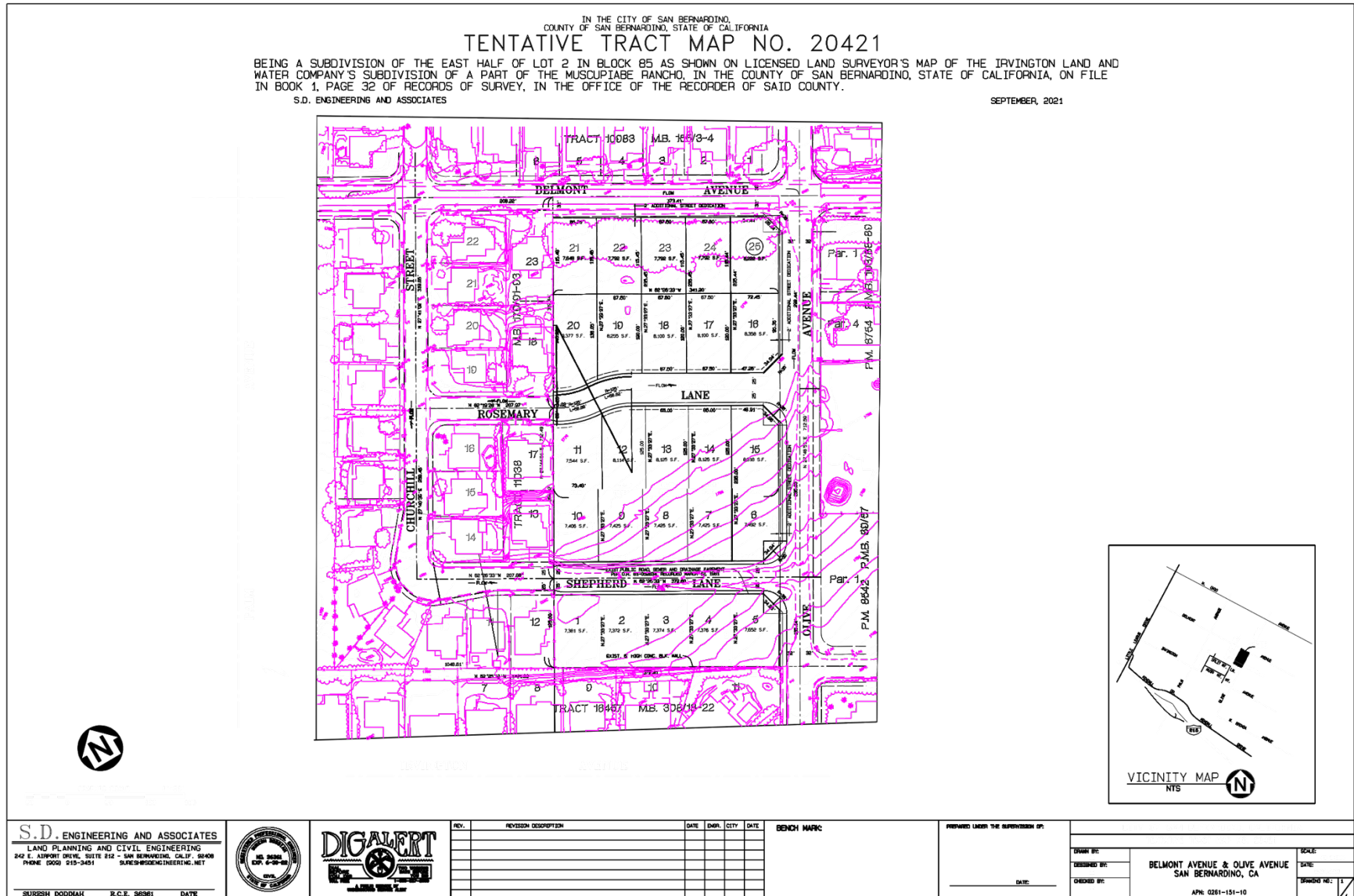


Figure 3. Project Layout

3.2 Field Assessment

Ms. Karen Kirtland of NRAI and Mr. Ricardo Montijo conducted a biological assessment of the development area March 2, 2022. The field team evaluated the property habitats, making notes on the general and sensitive biological resources present and taking representative photographs.

The field team evaluated the property for drainages subject to the authority of the U. S. Army Corps of Engineers (Corps) under Section 404 of the Clean Water Act, CDFW under Sections 1600 et seq. of the California Fish and Game Code, and the water act regulations of the State Water Resources Control Board.

4.0 Results

4.1 Weather, Topography and Soils

Weather at the beginning of the general biological assessment field survey was 67 degrees Fahrenheit, with clear skies southwest winds at 0.7 miles per hour. By the end of the survey, the temperature was 73 degrees Fahrenheit, with clear skies and winds of one to two miles per hour.

The property has a flat topography (Figure 1).

Tujunga gravelly loamy sand (TvC) is the only soil found on the property (Figure 4, Natural Resources Conservation Service 2022). Tujunga gravelly loamy sand (TvC) occurs on zero to nine percent slopes. It is made up of alluvium derived from granite found on alluvial fans. Tujunga gravelly loamy sand is non-hydric and non-saline. Water rarely floods on this soil and never ponds. It is classified as a somewhat excessively drained soil.

The soil has been impacted by weeding and some trespassing use, and are mass compacted.

4.2 Land Uses

A review of aerial imagery from Google Earth indicates that the property has been a vacant lot since at least 1985. Current disturbances foot traffic and minor trash dumping. The disturbances have continued up to the time of our survey.

4.3 Vegetation

The property supports three distinct vegetation types. Most of the property is occupied by ruderal vegetation (Photo 1). An isolated stand of California buckwheat scrub is along the paved road in the southern part of the property, and a double olive tree row is located along Belmont Avenue on the northern part of the property (Photo 3).

4.3.1 Ruderal/Wildflower

The ruderal plant community found on the property is comprised of a mix of mostly non-native (ruderal) weeds including Mediterranean beardgrass (*Schismus barbataus*), foxtail brome (*Bromus madritensis* ssp. *rubens*), and red-stemmed filaree (*Erodium cicutarium*)

Native wildflowers such as telegraph weed (*Heterotheca grandiflora*), common fiddleneck (*Amsinckia intermedia*), hairy lupine (*Lupinus hirsutissimus*), pencil pectocarya (*Pectocarya pencillata*) and strigose lotus (*Lotus strigosus*) are scattered throughout the property.



Figure 4. Property soils.



Photo 1. Ruderal habitat. Looking north from the southern part of the property.



Photo 2. Stand of California buckwheat scrub.

4.3.2 California Buckwheat Scrub

The California buckwheat (*Eriogonum fasciculatum*) scrub is limited to a small stand on the slope along the paved road in the southern end of the property. The dominant plant is California buckwheat scrub. Also found here is medicago (*Medicago sativa*), graceful buckwheat (*Eriogonum gracile*), common fiddleneck, strigate lotus and hairy lupine.

4.3.3 Olive Tree Row

There is a double row of European olive (*Oleo europea*) trees along Belmont Avenue in the northern part of the property. The undergrowth has been mostly removed by hikers and dirt bikes, but remnants of red brome (*Bromus rubens*) and Mediterranean grass.

4.3.4 Bare Ground

Patches of bare ground occur at scattered locations throughout the site but are most common in high-use areas. These include a section between the oak rows and along Olive Avenue where informal off-street parking has been created. Other bare areas are present mainly because of off-road trespassing and foot traffic.

4.3.5 Wildlife

The field team did not observe any amphibian species. No water sources are found on the property that would be used by amphibians, and the relative lack of ground cover, rocks or shrub makes the site unsuitable for most reptile species.

Side-blotched lizard (*Uta stansburiana*) and northwestern fence lizard (*Sceloporus occidentalis occidentalis*) were the only reptile species observed.

Bird species seen or hear included house finch (*Haemorhous mexicanus*), Anna's hummingbird (*Calypte anna*), northern mockingbird (*Mimus polyglottos*), and common raven (*Corvus corax*).

The field team observed Botta's gopher (*Thomomys bottae*) burrows throughout the site. They team did not find sign of other native mammal species.

A list of all wildlife species observed is provided in Appendix A.

4.4 Sensitive Biological Resources

All sensitive species were considered as potentially present on the project site if its known geographical distribution encompassed all or part of the project area or if its distribution was near the site and its general habitat requirements were present.

There is no habitat for sensitive plants, fish, amphibians, reptiles or mammals that were listed as potentially present in the vicinity of the property (Appendix B).

A list of all plant species observed is provided in Appendix A.



Photo 3. Olive tree rows along the northern border.



Photo 4. Foot path between olive tree rows.

4.5 Jurisdictional Waters

4.5.1 Army Corps of Engineers

The Corps regulates discharges of dredged or fill material into waters of the United States. These watersheds include wetlands and non-wetland bodies of water that meet specific criteria. The lateral limit of Corps jurisdiction extends to the Ordinary High-Water Mark (OHWM) and to any wetland areas extending beyond the OHWM; thus, the maximum jurisdictional area is represented by the OHWM or wetland limit, whichever is greater.

Corps regulatory jurisdiction pursuant to Section 404 of the Clean Water Act is founded on a connection or nexus between the water body in question and interstate (waterway) commerce. This connection may be direct, through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce, or may be indirect, through a nexus identified in the Corps regulations.

4.5.2 Regional Water Quality Control Board

The Corps has delegated the authority for use of 404 permits to each individual state. The use of a 404 permit in California is regulated by the State Water Resources Control Board (SWRCB) under Section 401 of the Clean Water Act regulations. The Board has authority to issue a 401 permit that allows the use of a 404 permit in the state, with the authority in the state being vested in regional offices known as Regional Water Quality Control Boards (RWQCB).

Under the Porter-Cologne Act of 2003, the SWRCB has extended its responsibilities to include impacts to water quality from non-point source pollution.

In addition, the SWRCB has the responsibility to require that projects address ground water and water quality issues, which would be evaluated as part of the geotechnical and hydrology studies. Their authority extends to all waters of the State (of California).

4.5.3 California Department of Fish and Wildlife

The California Department of Fish and Wildlife (CDFW), through provisions of the State of California Administrative Code, is empowered to issue agreements for any alteration of a river, stream or lake where fish or wildlife resources may adversely be affected. Streams (and rivers) are defined by the presence of a channel bed and banks, and at least an intermittent flow of water. Lateral limits of jurisdiction are not clearly defined, but generally include any riparian resources associated with a stream or lake, CDFW regulates wetland areas only to the extent that those wetlands are part of a river, stream or lake as defined by CDFW.

Findings

There is no wetland or riparian habitat on site. There are no drainages or evidence of water flow. Ruderal, olive groves, California buckwheat scrub and bare ground are the only habitats present on the property. The project site has been subject to historical disturbance and shows signs of recent weeding activities.

4.6 Raptors, Migratory Birds, and Habitat

Most of the raptor species (eagles, hawks, falcons and owls) are experiencing population declines because of habitat loss. Some, such as the peregrine falcon, have also experienced population losses because of environmental toxins affecting reproductive success, animals destroyed as pests or collected for falconry,

and other direct impacts on individuals. Only a few species, such as the red-tailed hawk and barn owl, have expanded their range despite or a result of human modifications to the environment. As a group, raptors are of concern to state and federal agencies.

Raptors and all migratory bird species, whether listed or not, also receive protection under the Migratory Bird Treaty Act (MBTA) of 1918¹. The MBTA prohibits individuals to kill, take, possess or sell any migratory bird, bird parts (including nests and eggs) except per regulations prescribed by the Secretary of the Department (16 U. S. Code 7032).

Additional protection is provided to all bald and golden eagles under the Bald and Golden Eagle Protection Act of 1940, as amended³. State protection is extended to all birds of prey by the California Fish and Game Code, Section 2503.54. No take is allowed under these provisions except through the approval of the agencies or their designated representatives.

No take is allowed under these provisions except through the approval of the agencies or their designated representatives.

Findings

The parcel had extremely limited and marginal nesting habitat for ground- and shrub-nesting bird species. The European olive tree double row running east-west along the northern boundary of the property may provide nesting habitat for birds. At the time of the survey, we observed apparent nesting behavior by at least one Anna's hummingbird (localized movements for foraging, continual returning to the same general location in the olive tree row). In addition, there is potential foraging habitat on site for the sensitive bird species listed in Table 1, which includes suitable habitat on site (such as the double olive tree row) and on the adjacent properties.

Table 1. Sensitive Bird Species Possible Use of Property Habitats

Species	Foraging Habitat	Nesting Habitat
Sharp-shinned Hawk	Sparse	None
Cooper's Hawk	Sparse	None
Golden Eagle	Sparse	None
Ferruginous Hawk	Sparse	None
Merlin	Limited/Seasonal	None
American Peregrine	Limited/Seasonal	None
Prairie Falcon	Limited/Seasonal	None
Loggerhead Shrike	Low	None

1 <https://www.fws.gov/birds/policies-and-regulations/laws-legislations/migratory-bird-treaty-act.php>

2 <https://www.fws.gov/le/USStatutes/MBTA.pdf>

3 <https://www.fws.gov/le/USStatutes/BEPA.pdf>

4 <https://law.justia.com/codes/california/2015/code-fgc/division-4/part-2/chapter-1/section-3513>

We recommend that if construction⁵ is scheduled between February 1 and August 31 a qualified biologist conduct a breeding bird survey no more than three days prior to the start of construction to determine if nesting is occurring.

If occupied nests are found, they shall not be disturbed unless the qualified biologist verifies through non-invasive methods that either (a) the adult birds have not begun egg-laying and incubation; or (b) the juveniles from the occupied nests are capable of independent survival.

If the biologist is not able to verify one of the above conditions, then no disturbance shall occur within a distance specified by the qualified biologist for each nest or nesting site. The qualified biologist will determine the appropriate distance in consultation with the California Department of Fish and Wildlife and the U.S. Fish and Wildlife Service.

⁵ Construction" includes selection of staging areas, demolition, tree, trash and debris removal, placement of equipment and machinery on to the site preparatory to grading, and any other project-related activity that increases noise and human activity on the project site beyond existing levels. Emergency measures are exempt from this definition

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Appendix A. Plant and Animal Species Observed

PLANTS

DICOTYLEDONS

AMARANTHACEAE

Amaranthus albus *

Amaranthus blitoides

ASTERACEAE

Centaurea melitensis *

Helianthus annuus

Lactuca serriola *

Oncosiphon pilulifer *

Sylibum marianum

BORAGINACEAE

Amsinckia intermedia

Amsinckia menziesii

Heliotropium curassavicum

Pectocarya penicilata

Plagiobothrys collinus

BRASSICACEAE

Brassica tournefortii

Descurainia pinnata

Hirschfeldia incana *

Lobularia maritimum *

Sisymbrium irio *

FABACEAE

Acacia longifolia *

Lupinus bicolor

Melilotus indica *

Parkinsonia aculeata *

GERANIACEAE

Erodium cicutarium *

LAMIACEAE

Henbit

MALVACEAE

Malva parvifolia *

OLEACEAE

Olea europea

SALICACEAE

Salix laevigata

SOLANACEAE

Datura wrightii

Nicotiana glauca

Physalis acutifolia

DICOTS

AMARANTH FAMILY

Tumbleweed

Prostrate pigweed

SUNFLOWER FAMILY

Yellow Star Thistle

Hairy leaved sunflower

Prickly Lettuce

Stinknet

Marian Milk Thistle

BORAGE FAMILY

Common Fiddleneck

Fiddleneck

Chinese parsley

Shortleaf Combseed

California Popcorn Flower

MUSTARD FAMILY

Mustard

Yellow tansy mustard

Mustard

Sweet Alyssum

London rocket

PEA FAMILY

Golden Wattle

Lupine

Sweet Yellow Clover

Jerusalem Thorn

GERANIUM FAMILY

Red-stemmed Filaree

MINT FAMILY

Lamium amplexicaule

MALLOW FAMILY

Cheeseweed

OLIVE FAMILY

Eurasian Olive

WILLOW FAMILY

Red Willow

NIGHTSHADE FAMILY

Jimsonweed

Tree tobacco

Sharp leaf ground cherry

MONOCOTYLEDONS	MONOCOTS
POACEAE	GRASS FAMILY
<i>Avena barbata</i> *	Slim oat
<i>Bromus diandrus</i> *	Ripgut Brome
<i>Bromus rubens</i> *	Foxtail brome
<i>Cynodon dactylon</i> *	Crabgrass
<i>Distichlis spicata</i>	Saltgrass
<i>Hordeum murinum</i>	Barley
<i>Festuca octoflora</i>	Six-weeks Fescue
<i>Schismus barbatus</i> *	Mediterranean Beardgrass

*Non-native Plants

Animals

REPTILES

COMMON NAME	SCIENTIFIC NAME
ZEBRA-TAILED, EARLESS, FRINGE-TOED, SPINY, TREE, SIDE-BLOTCHED, AND HORNED LIZARDS	PHRYNOSOMATIDAE
Northwestern Fence Lizard	<i>Sceloporus occidentalis occidentalis</i>
Western Side-blotched Lizard	<i>Uta stansburiana elegans</i>

BIRDS

COMMON NAME	SCIENTIFIC NAME
HAWKS AND EAGLES	ACCIPITRIDAE
Red-tailed Hawk	<i>Buteo jamaicensis</i>
EGRETS AND HERONS	ARDEIDAE
Great Egret	<i>Ardea alba</i>
DOVES AND PIGEONS	COLUMBIDAE
Mourning Dove	<i>Zenaida macroura</i>
CROWS, RAVENS, AND JAYS	CORVIDAE
American Crow	<i>Corvus brachyrhynchos</i>
Common Raven	<i>Corvus corax</i>
NEW WORLD SPARROWS	EMBERIZIDAE
Lark Sparrow	<i>Chondestes grammacus</i>
White-crowned Sparrow	<i>Zonotrichia leucophrys</i>
FALCONS	FALCONIDAE
American Kestrel	<i>Falco sparverius</i>
FINCHES	FRINGILLIDAE
House Finch	<i>Haemorhous mexicanus</i>
Lesser Goldfinch	<i>Spinus psaltria</i>
SWALLOWS	HIRUDINIDAE
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>

COMMON NAME	SCIENTIFIC NAME
MIMICS	MIMIDAE
Northern Mockingbird	<i>Mimus polyglottos</i>
NEW WORLD WARBLERS	PARULIDAE
Yellow-rumped Warbler	<i>Setophaga coronata</i>
WOODPECKERS	PICIDAE
Nuttall's Woodpecker	<i>Picoides nuttallii</i>
KINGLETS	REGULIDAE
Ruby-crowned Kinglet	<i>Regulus calendula</i>
STARLINGS	STURNIDAE
European Starling*	<i>Sturnus vulgaris</i>
HUMMINGBIRDS	TROCHILIDAE
Black-chinned Hummingbird	<i>Archilochus alexandri</i>
Anna's Hummingbird	<i>Calypte anna</i>
WRENS	TROGLODYTIDAE
Bewick's Wren	<i>Thryomanes bewickii</i>

*Non-native birds

+Active Nest

MAMMALS

COMMON NAME	SCIENTIFIC NAME
GOPHERS	GEOMYIDAE
Botta's Pocket Gopher	<i>Thomomys bottae</i>
HARES	LEPORIDAE
Black-tailed Jackrabbit	<i>Lepus californicus</i>
SQUIRRELS	SCIURIDAE
California Ground Squirrel	<i>Spermophilus beecheyi</i>
DOGS	CANIDAE
Domesticated Dog	<i>Canis lupus familiaris</i>
Coyote	<i>Canis latrans</i>

Appendix B. Sensitive Biological Resources

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Plants				
Singlehorl burrobush <i>Ambrosia monogyra</i>	Perennial shrub. Found on sandy soils in chaparral and Sonoran desert scrub. Elevation range is from 35 feet to 1640 feet. Known from California, Arizona, New Mexico, Nevada and Texas. Also in Baja California and Sonora, Mexico.	August - November, flowering period	FED: ND STATE: ND CNPS: 2B.2	None. Site does not support suitable habitat for this species.
Marsh sandwort <i>Arenaria paludicola</i>	Perennial plant from rhizome. Occasionally in boggy meadows, swamps and freshwater marshes. Found in sandy openings, 10 to 560 feet elevation. San Bernardino, Los Angeles, Santa Barbara counties. To Washington State. In San Bernardino., mostly along Santa Ana River.	May - Aug flowering period	FED: END STATE: END CNPS: 1B.1	None. Site does not support suitable habitat for this species
Coulter's saltbush <i>Atriplex coulteri</i>	Perennial herb. Somewhat alkaline low places, open sites, Los Angeles County to western San Bernardino County and Baja California.	March – October	FED: ND STATE: ND CNPS: 1B.2	None. Site does not support suitable habitat for this species
South coast saltscale <i>Atriplex pacifica</i>	Annual herb. Found in coastal scrub, coastal bluff scrub along bluffs and cliffs. It also occurs in alkali soils, on playas dominated by chenopod scrub. Known elevational distribution ranges from 1 to 500 meters (9 to 460 feet) elevation. Los Angeles Co. south to Baja Calif. (including Channel Islands).	March – October	FED: C2* STATE: ND CNPS: 1B.2	None. Site does not support suitable habitat for this species

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Parish's brittle scale <i>Atriplex parishii</i>	Annual herb. Alkali flats largely in valley or annual grassland. 80 - 6235 feet elevation From cismontane California to the edge of the desert, extending into the Central Valley.	June - Oct	FED: C2* STATE: ND CNPS: 1B.1	None. Site does not support suitable habitat for this species
Davidson's salt scale <i>Atriplex serenana</i> var. <i> davidsonii</i>	Annual herb. Alkaline soils in low elevations. Coastal bluffs, coastal scrub. 35 – 655 feet elevation.	April – October	FED: ND STATE: ND CNPS: 1B.2	None. Site does not support suitable habitat for this species
Nevin's barberry <i>Berberis nevinii</i>	Perennial. Sandy and gravelly places 230 - 2705 feet elevation. Coastal scrub, chaparral, riparian woodland, riparian scrub Hills south of Loma Linda, San Bernardino. Co. and in the area around Vail Lake, Riverside Co.	Year round. Blooms February through June.	FED: END STATE: END CNPS: 1B.1	None. Species is a perennial shrub and would have been observable during the survey. It was not found.
Palmer's mariposa lily <i>Calochortus palmeri</i> var. <i> palmeri</i>	Bulbiferous herb. Meadows and moist places. 2330 – 7480 feet elevation. Chaparral and yellow pine forest. San Bernardino Mts. to Tehachapi Mts. East San Luis Obispo.	April - July	FED: C2* STATE: ND CNPS: List 1B.2	None. The project site does not support meadows or moist places.
Plummer's mariposa lily <i>Calochortus plummerae</i>	Bulbiferous herb. Granitic rocky areas in valley and foothill grasslands. coastal scrub, chaparral cismontane woodland and yellow pine forest. 330 – 5580 feet elevation. Santa Monica Mtns. to San Jacinto Mtns.	May - July	FED: C2* STATE: ND CNPS: 4.2	None. Site does not support suitable habitat for this species

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Intermediate mariposa lily <i>Calochortus weedii</i> var. <i>intermedius</i>	Dry, rocky, open slopes. Usually calcareous soils. Chaparral, coastal scrub, valley & foothill grasslands. 345 - 2805 feet elevation. Los Angeles, Orange, and Riverside Counties.	May - July	FED: C2* STATE: ND CNPS: 1B.2	None. Soils are not suitable and site is too highly disturbed.
Bristly sedge <i>Carex comosa</i>	Perennial. Marshes and swamps, coastal prairie, valley and foothill grasslands. San Bernardino Valley. 0 – 2050 feet elevation. Central California to Washington.	Year round, flowering period May - September	FED: ND STATE: ND CNPS: 2B.1	None. Site does not support suitable habitat for this species
San Bernardino Mountains owl's clover <i>Castilleja lasiorhyncha</i>	Annual. Mesic sites. Meadows and seeps. Riparian woodland and upper montane coniferous forest. 4265 - 7840 feet elevation. San Bernardino Mountains to Cuyamaca Mountains.	May - August	FED: C2* STATE: ND CNPS: 1B.2	None. Site does not support suitable habitat for this species
Southern tarplant <i>Centromadia parryi</i> ssp. <i>australis</i>	Often in disturbed sites near the coast. Also found on alkaline soils at the edges of marshes and swamps. Found in valley and foothill grasslands, and sometimes vernal pools margins. Southern California and Baja California.	June - September	FED: ND STATE: ND CNPS: 1B.1	None. Site lacks mesic soils.
Smooth tarplant <i>Centromadia pungens</i> ssp. <i>laevis</i>	Often in disturbed sites near the coast. 0 – 1575 feet elevation. Also found on alkaline soils at the margins of marshes, swamps, and playas. Found in mesic sites in valley and foothill grasslands, and sometimes vernal pool margins. Southern California and Baja California.	May - September	FED: C2* STATE: ND CNPS: 1B.1	None. Although this species tolerates disturbance, mesic soils are lacking.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Parry's spineflower <i>Chorizanthe parryi</i> var. <i>parryi</i>	Found on dry sandy soils and dry slopes and flats. Sometimes at the interface of two vegetation types such as chaparral and oak woodland. Sandy openings in coastal sage scrub and chaparral, 130 to 5600 ft. Elevation, east Los Angeles Co. to San Gorgonio Pass and west Riverside Co.	April - June flowering period	FED: C2* STATE: ND CNPS: 1B.1	None. Site lacks sandy soils.
San Miguel savory <i>Clinopodium chandleri</i>	Shrub. Rocky canyons in chaparral. Sometimes on rocky or gabbroic soils. Santa Ana Mountains near Murrieta and San Miguel and San Jamul Mtns. in San Diego County. 395 - 3525 feet elevation	March – July blooming period	FED: ND STATE: ND CNPS: 1B.2	None. As a shrub, this species would have been observed if present.
Summer holly <i>Comarostaphylis diversifolia</i> ssp. <i>diversifolia</i>	Shrub. Cismontane woodland, mixed chaparral, often following a burn. 100 - 2590 feet elevation. Southern California to northern Baja California.	April - June	FED: ND STATE: ND CNPS: 1B.2	None. As a shrub, this species would have been observed if present.
Catalina crossosoma <i>Crossosoma californicum</i>	Shrub. Chaparral, coastal scrub. Found in rocky areas. Occurs from 0 - 1640 feet elevation.	February – May	FED: ND STATE: END CNPS: 1B.2	None. As a shrub, this species would have been observed if present.
Peruvian dodder <i>Cuscuta obtusiflora</i> var. <i>glandulosa</i>	Annual vine. Occurs in marshes and swamps. 50 - 920 feet elevation.	July – October	FED: ND STATE: ND CNPS: 2B.2	None. Marsh and swamp habitat lacking on site.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Slender-horned spineflower <i>Dodecahema leptoceras</i>	Sandy and gravelly soils on alluvial fans and old floodplains. Coastal scrub, chaparral and cismontane woodland. 655 - 2495 feet elevation. Los Angeles, Riverside, and San Bernardino Counties.	Apr - Jun	FED: END STATE: END CNPS: 1B.1	None. Site is located on alluvial fan; however, the flood scouring action required for this species to persist is absent.
Many-stemmed dudleya <i>Dudleya multicaulis</i>	Annual. In heavy, often clayey soils on grassy slopes in chaparral, coastal sage scrub, valley and foothill grassland. Riverside, San Bernardino, and Orange counties 50 - 2590 feet elevation.	April - July	FED: C2* STATE: ND CNPS: 1B.2	None. Site does not support suitable habitat for this species
Santa Ana River woolly star <i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>	Perennial subshrub found in alluvial fan sage scrub, coastal sage scrub on alluvial deposits along the Santa Ana River, San Bernardino Co.	April - September flowering period	FED: END STATE: END CNPS: 1B.1	None. As a shrub, this species would have been observed if present.
Palmer's grapplinghook <i>Harpagonella palmeri</i>	Chaparral, coastal scrub, valley & foothill grassland in clay soils on dry slopes & mesas 65 - 3135 feet elevation. Cismontane s. Calif. from Los Angeles Co. to NW Baja Calif., including Santa Catalina Island. One population at Dana Point Headlands.	March - May	FED: C2* STATE: ND CNPS: 4.2	None. Site is too heavily disturbed for this species.
Los Angeles sunflower <i>Helianthus nuttalli</i> ssp. <i>parishii</i>	Rhizomatous herb. Found in marshes and swamps. Both coastal salt marshes and freshwater marshes. 35 - 5005 feet elevation.	August - October	FED: ND STATE: ND CNPS: 1A	None. Site lacks mesic habitats.
Mesa horkelia <i>Horkelia cuneata</i> var. <i>puberula</i>	Perennial herb. Found in chaparral, cismontane woodland, and coastal scrub. Grows on sandy or gravelly soils. 230 - 2660 feet elevation.	February – July (occasionally September)	FED: ND STATE: ND CNPS: 1B.1	None. The survey was done during the flowering season and this species was not observed.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Coulter's goldfields <i>Lasthenia glabrata</i> <i>ssp. coulteri</i>	Annual herb. Coastal salt marshes, alkali playas, valley & foothill grasslands, and vernal pools. 5 - 4005 feet elevation. Inland so. Calif. and along coast from San Luis Obispo Co. to Baja Calif.	Feb - Jun	FED: C2* STATE: ND CNPS: 1B.1	None. Site lacks mesic conditions preferred by this species.
Robinson's pepper-grass <i>Lepidium virginicum</i> ssp. <i>robinsonii</i>	Annual. Chaparral, coastal sage scrub habitats, primarily on dry soils. 5 - 2905 feet elevation. From Los Angeles County south to Baja California.	Jan - July	FED: ND STATE: ND CNPS: 4.3	None. The survey was done during the flowering season and this species was not observed.
Lemon lily <i>Lilium parryi</i>	Springy places and wet banks; 4005 - 9005 feet elevation. Montane coniferous forest. San Gabriel Mtns. To San Diego County.	July - Aug	FED: C2* STATE: ND CNPS: 1B.2	None. Site lacks mesic conditions preferred by this species.
Parish's desert-thorn <i>Lycium parishii</i>	Perennial shrub. Sandy to rocky slopes and canyons. 445 - 3280 feet elevation. Possibly coastal sage scrub, def. In creosote bush scrub. San Bernardino Valley and western Colorado Desert.	March - April flower period	FED: ND STATE: ND CNPS: 2B.3	None. As a shrub, this species would have been observed if present
Pringle's monardella <i>Monardella pringlei</i>	Annual herb. Sandy places, coastal sage scrub near Colton 985 - 1310 feet elevation.	May - June	FED: C2* STATE: ND CNPS: 1A	NOTE: This species is presumed extinct. None. Site lacks suitable sandy areas.
Mud nama <i>Nama stenocarpa</i>	Annual. Marshes and swamps. 15 - 1640 feet elevation. Los Angeles to San Diego counties and into Baja California. Extends across the Colorado Desert to Texas.	January - July	FED: ND STATE: ND CNPS: 2B.2	None. Site lacks mesic conditions preferred by this species.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Prostrate vernal pool navarretia <i>Navarretia prostrata</i>	Annual herb. Occurs in mesic habitats in coastal scrub, meadows and seeps alkaline areas in valley and foothill grassland, vernal pools. 10 - 3970 feet elevation.	April – July	FED: ND STATE: ND CNPS: 1B.2	None. Site lacks mesic conditions preferred by this species.
California beardtongue <i>Penstemon californicus</i>	Perennial. Chaparral, lower montane coniferous forest and pinyon juniper woodland. On stony slopes and in shrubby openings on sandy or granitic soils. 3840 - 7545 feet elevation. Riverside, San Diego cos. and Baja California.	May - June	FED: ND STATE: ND CNPS: 1B.2	None. Site lacks suitable habitat.
Lyon's pentachaeta <i>Pentachaeta lyonii</i>	Annual herb. Rocky, clay substrate. Chaparral, valley and foothill grassland. Edges of clearings in scrub at the ecotone between grassland and chaparral or edges of firebreaks. 100 - 2265 feet elevation.	March – August	FED: END STATE: END CNPS: 1B.1	None. Site lacks suitable habitat.
Brand's star phacelia <i>Phacelia stellaris</i>	Annual herb. Occurs in open areas within coastal dunes and coastal sage scrub, usually on sandy soils. 5 - 1310 feet elevation.	March - June	FED: C2* STATE: ND CNPS: 1B.1	None. Site lacks suitable habitat.
Parish's gooseberry <i>Ribes divaricatum</i> var. <i>parishii</i>	Perennial. Riparian woodland, willow thickets, swamps, similar moist and damp sites. Coastal sage scrub. San Bernardino region and Los Angeles County. 215 - 985 feet elevation.	February - April flowering period	FED: C2* STATE: ND CNPS: 1A	None. Site lacks suitable mesic habitats.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Gambel's water cress <i>Nasturtium gambelii</i>	Perennial. Marshes and swamps (brackish and freshwater), streambanks and lake margins. Ventura to San Diego counties, including Riverside and San Bernardino counties. 15 - 1085 feet elevation.	April - October	FED: END STATE: THR CNPS: 1B.1	None. Site lacks suitable mesic habitats.
Sanford's arrowhead <i>Sagittaria sanfordii</i>	Emergent from a perennial rhizomatous base. Shallow freshwater habitats such as marshes and swamps. 0 - 2135 feet elevation.	May – October, sometimes November	FED: C2* STATE: ND CNPS: 1B.2	None. No suitable marshy habitats.
Black bog-rush <i>Schoenus nigricans</i>	Perennial herb. Marshes and swamps (often alkaline). Scattered localities in San Bernardino and Inyo counties. 490 - 6560 feet elevation.	August - September	FED: ND STATE: ND CNPS: 2B.2	None. Site lacks suitable mesic habitats.
Southern skullcap <i>Scutellaria bolanderi</i> ssp. <i>austromontana</i>	Damp places at 1395 - 6560 feet elevation. In chaparral cismontane woodland, coniferous forest Interior southern California.	June - August	FED: ND STATE: ND CNPS: 1B.2	None. Site lacks suitable mesic habitats.
Rayless ragwort <i>Senecio aphanactis</i>	Annual wildflower. On drying alkaline flats. Cismontane woodland, chaparral, coastal scrub. Elevations of 50 - 2625 feet elevation.	Jan-Apr(May)	FED: ND STATE: ND CNPS: 2B.2	None. Site lacks alkaline flat habitats.
Hammitt's clay-cress <i>Sibaropsis hammittii</i>	Annual herb. Clay soils in openings in chaparral, valley and foothill grassland. 2360 - 3495 feet elevation.	March – April	FED: ND STATE: ND CNPS: 1B.2	None. Site lacks suitably clay soil habitats.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Salt spring checkerbloom <i>Sidalcea neomexicana</i>	Alkaline, usually wet places. Coastal sage scrub, chaparral, lower montane coniferous, playas in creosote bush scrub. Los Angeles, Orange, San Bernardino, Riverside Counties. 50 - 5020 feet elevation.	March to June	FED: ND STATE: ND CNPS: 2B.2	None. Site lacks alkaline and/or mesic habitats.
Prairie wedge grass <i>Sphenopholis obtusata</i>	Perennial bunchgrass. Found in meadows and seep, chaparral, cismontane woodlands. Occurs on mesic soils. Sometimes found in disturbed areas such as flood-scoured or road cuts, streambanks. 985 - 6560 feet elevation range	April – July blooming period	FED: ND STATE: ND CNPS: 2B.2	None. Site lacks mesic habitats.
Laguna Mountains jewel-flower <i>Streptanthus bernardinus</i>	Mostly perennial. Dry slopes 2200 - 8205 feet elevation. Chaparral and lower montane coniferous forest, San Gabriel Mountains to Laguna Mountains.	May - August blooming period	FED: ND STATE: ND CNPS: 4.3	None. Site is not located at known elevations for this species, and lacks suitable habitat.
San Bernardino aster <i>Symphotrichum defoliatum</i>	Perennial rhizomatous herb. Found in meadow and seeps, marshes and swamps in coastal scrub, cismontane woodland, lower montane coniferous forest, Valley and foothill grassland (vernally mesic) or near ditches, streams and springs, disturbed habitats. 5 - 6695 feet elevation.	July - November	FED: END STATE: ND CNPS: 1B.2	None. Site lacks suitable mesic habitats.
Parry's tetraococcus <i>Tetraococcus dioicus</i>	Shrub. Coastal sage scrub and chaparral. 540 - 3280 feet elevation.	April – May flowering period	FED: ND STATE: ND CNPS: 1B.2	None. As a shrub, this species would have been observed if present.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Sonoran maiden fern <i>Thelypteris puberula</i> var. <i>sonorensis</i>	Occasional in meadows and seeps, wet shaded canyons. 165 - 2000 feet elevation. Chaparral, creosote bush scrub. Lower slopes of Peninsular and Transverse mountains to Baja California.	January - September	FED: ND STATE: ND CNPS: 2B.2	None. Site lacks mesic habitats
Wright's trichocoronis <i>Trichocoronis wrightii</i>	Alkaline conditions. It grows in meadows and seeps, marshes and swamps, riparian scrub and vernal pools. It also occurs in alkali scrub and alkali grasslands. At Mystic Lake in Riverside County and occasionally in the Central Valley. Also found in south Texas and northern Mexico. Elevations ranging from 15 to 660 m (50 to 2200 feet).	May - September	FED: ND STATE: ND CNPS: 2B.1	None site lacks alkaline/mesic habitats.
Amphibians				
San Gabriel slender salamander <i>Batrachoseps gabrieli</i>	Known only from the San Gabriel Mountains. Found under rocks, wood, fern frond and on soils found at the base of talus slopes.	Most active on the surface in winter and early spring	FED: ND STATE: ND	None. Site lacks preferred habitat for this species.
Western spadefoot <i>Spea hammondi</i>	Grasslands and occasionally hardwood woodlands; largely terrestrial but for breeding, requires rain pools or other ponded water for 3+ weeks; burrows in loose soils during dry season; Central Valley and foothills, coast ranges, inland valleys, to Baja Calif.	October - April (following onset of winter rains)	FED: ND STATE: SSC	None. Site does not have suitable water habitats.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Arroyo toad <i>Bufo microscaphus</i>	Washes and arroyos with open water; sand or gravel beds; for breeding, pools with sparse overstory vegetation. Coastal and a few desert streams from Santa Barbara Co. to Baja Calif. Ranges up to 1 kilometer (0.6 miles) from streambed.	Mar - Jul	FED: END STATE: SSC	None. No suitable habitat present on site.
California red-legged frog <i>Rana aurora draytonii</i>	Streams with slow-moving water and deep pools; dense, shrubby riparian vegetation at pool edges. Coastal streams from Marin Co. to Ventura Co.; between Ventura Co. and Mexican border, known from only four small populations including Santa Rosa Plateau (Riverside Co.).	Dec - Apr	FED: THR STATE: SSC SSC	None. No suitable habitat present on site.
Mountain yellow-legged frog <i>Rana muscosa</i>	Always encountered within a few feet of water. Rocky stream courses in southern California. Tadpoles may require up to two years to complete aquatic development.	Mar – May breeding period	FED: PE STATE: SSC	None. No suitable habitat present on site.

Reptiles

Southwestern pond turtle <i>Clemmys marmorata pallida</i>	Permanent or nearly permanent water in a wide variety of habitats; requires basking sites such as partially submerged logs, rocks, or open mud banks. Central California to northwestern Baja California.	Year-round with reduced activity Nov. - Mar.	FED: ND STATE: SSC	None. No suitable habitat present on site
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Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
San Diego banded gecko <i>Coleonyx variegatus abbotti</i>	Occurs in coastal and cismontane southern California. Found in granite or rocky outcrops in coastal scrub and chaparral habitats.	Year round	FED: ND STATE: ND	None. Rocky or granite outcrop habitat not present on site.
Blainville's horned lizard <i>Phrynosoma blainvillii</i>	Wide variety of habitats including coastal sage scrub, grassland, riparian woodland; typically on or near loose sandy soils; coastal and inland areas from Ventura Co. to Baja Calif.	April - July (with reduced activity Aug. - Oct.)	FED: ND STATE: SSC	Unknown. Marginally suitable habitat onsite; however, disturbance of the site has probably removed or destroyed any local populations.
Coronado skink <i>Plestiodon skiltonianus interparietalis</i>	Early successional stages or open areas in grassland, chaparral, pinyon-juniper and juniper sage woodland, pine oak and pine forests in the coastal ranges of southern California. Also found in rocky areas close to streams, and on dry hillsides.	Active year round	FED: ND STATE: SSC	Unknown. Marginally suitable habitat onsite; however, disturbance of the site has probably removed or destroyed any local populations. Site also lacks plant cover preferred by this species for protection.
Orange-throated whiptail <i>Aspidoscelis tigris stejnegeri</i>	Floodplains and terraces with perennial plants and open areas nearby; sea level to 3000 feet elevation; inland and coastal valleys of Riverside, Orange, and San Diego Counties. to Baja Calif.	March - July (with reduced activity Aug. - Feb.)	FED: ND STATE: SSC	None. Site lacks perennial plant cover.
Coastal western whiptail <i>Aspidoscelis hyperythra</i>	Firm, sandy or rocky soils in deserts and semiarid areas with sparse vegetation and open areas. Also found in woodland and riparian areas.	Year round	FED: ND STATE: ND	None. This site lacks sufficient shrub cover for this species.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
<p>Silvery legless lizard <i>Anniella pulchra pulchra</i></p>	<p>Found predominantly in the Coast Ranges, Transverse Mountains, and Peninsular Ranges and in northwest Baja California. Also found in scattered occurrences on the floor of the San Joaquin Valley, in the southern Sierra, Walker Basin and in the Piute, Scodie and Tehachapi Mountains. Desert-edge localities are recorded at the eastern end of Walker Pass in Kern County, Morongo Pass, in San Bernardino County, in the Little San Bernardino Mountains at Whitewater, Riverside County, and on the eastern slopes of the Peninsular Ranges. Prefers areas with sandy or loose organic soils or with abundant leaf litter.</p>	<p>Active year round - some winter activity</p>	<p>FED: ND STATE: SSC</p>	<p>None. Although sandy soils occur on site, abundant leaf litter (providing a humid microclimate) does not exist on site.</p>
<p>Rosy boa <i>Lichanura trivirgata</i></p>	<p>Mix brushy cover and rocky soils. Desert and chaparral, found from the coast to the Mojave and Colorado deserts. Prefers moderate to dense vegetation.</p>	<p>Year round</p>	<p>FED: ND STATE: ND</p>	<p>None. Site lacks brushy cover and does not have rocky soils.</p>
<p>Coast patch-nosed snake <i>Salvadora hexalepis virgultea</i></p>	<p>Widely distributed from the lowlands up to 7000 feet. Found in grasslands, coastal sage scrub, and chaparral. On both rocky and sandy substrate. The coastal race is largely confined to coastal sage scrub and alluvial sage scrub habitats.</p>	<p>Year round</p>	<p>FED: ND STATE: SSC</p>	<p>None. Site lacks suitable habitat conditions.</p>

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
San Bernardino ring-necked snake <i>Diadophis punctatus modestus</i>	Wet meadows, rocky hillsides, gardens, farmland, grassland, chaparral, mixed coniferous forests, woodlands. Prefers moist habitats.	Year round	FED: ND STATE: SSC Forest Service Sensitive Species	None. Site lacks suitable moist habitats.
Two-striped garter snake <i>Thamnophis hammondi</i>	Highly aquatic. Only in or near permanent sources of water. Streams with rocky beds supporting willows or other riparian vegetation. From Monterey Co. to northwest Baja Calif.	Year round	FED: ND STATE: SSC	None. Site lacks suitable aquatic habitats.
Northern red-diamond rattlesnake <i>Crotalus exsul</i>	Occurs in rocky areas & dense vegetation. Needs rodent burrows cracks in rocks or other surface material. Chaparral, woodland, grassland and desert areas. Coastal San Diego County to the eastern slopes of the mountains.	Year round	FED: C2* STATE: SSC	None. Site lacks rocky areas and dense vegetation cover.
Birds				
Great blue heron <i>Ardea herodias</i>	Fairly common resident in most of southern California, becoming more numerous in warmer areas in winter. Found in a variety of aquatic habitats. Peak abundance in coastal estuaries. In the desert, mostly seen during migrations; winters locally in suitable habitats.	Year round	FED: ND STATE: ND	None. No nesting habitat, although resting habitat may be present.
Great egret <i>Casmerodius albus</i>	Fairly common winter visitor along the coast, commonly resident and a breeder at the Salton Sea and the Colorado River. An uncommon transient in the rest of southern California.	Year round in the desert; seasonal in other areas.	FED: ND STATE: ND	Present. Observed resting/foraging habitat site; no nesting habitat.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Snowy egret <i>Egretta thula</i>	Common winter visitor along the coast, occasionally remaining throughout the summer. Common resident at the Salton Sea and the Colorado River. Uncommon transient elsewhere in southern California.	Year round in the desert; seasonal in other areas	FED: ND STATE: ND	Low. May visit the site for rest or foraging.
Black-crowned night heron <i>Nycticorax nycticorax</i>	Common but local resident along the coastal and the Salton Sea. Uncommon transient and rare winter visitor in the desert.	Year round in the coast and along the Salton Sea. Winters in the desert.		None. Suitable habitat not present.
White-faced ibis <i>Plegadis chihi</i>	Fairly common transient and summer visitor at the Salton Sea. Irregular and local breeder. Uncommon in winter. Primarily transient throughout the rest of southern California, as well as a local visitor along the coast.	Most spring and summer in the desert; winter along the coast	FED: ND STATE: WL	None. Suitable habitat not present.
Brown pelican <i>Pelecanus occidentalis</i>	Common along the coast, with breeding colonies on Anacapa, Santa Barbara and Santa Cruz Islands. Regular post-breeding visitor to the Salton Sea, sometimes in numbers. Rare elsewhere in the interior areas of California.	Year-round coast; summer inland	FED: END STATE: END (nesting colonies), CFP	None. Suitable habitat not present.
Aleutian Canada goose <i>Branta canadensis leucoparaeia</i>	The Canada goose is a common winter visitant throughout southern California; the Aleutian is known only from the Salton Sea area.	Winter	FED: THR	None. Suitable habitat not present.
White-tailed kite <i>Elanus leucurus</i>	Open country in South America and southern North America.	Year-round	FED: ND STATE: ND (nesting) CFP	None. Species may forage over the site, but does not nest onsite.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Bald eagle <i>Haliaeetus leucocephalus</i>	Winters locally at deep lakes and reservoirs feeding on fish and waterfowl. Locally rare throughout North America.	Nov - Feb	FED: END STATE: END. CFP	None. During winter, could fly over site but no sensitive habitat present.
Northern harrier <i>Circus cyaneus</i>	Grassland and marshy habitats in Southern California. Uncommonly in open desert and brushlands.	Year round	FED: ND STATE: SSC	None. Not observed during the surveys. Forages over a wide range of open habitat and can be expected to occur throughout most of Southern California. Although no nesting habitat was found, foraging habitat exists on site.
Sharp-shinned hawk <i>Accipiter striatus</i>	Nests in woodland, coniferous deciduous forest. Winter visitor and migrant to coastal Southern California. Forages over a variety of habitats.	Fall & winter; scarce in summers	FED: ND STATE: SSC	None. Not observed during the surveys, but are expected to forage infrequently over the property during migration and in winter.
Cooper's hawk <i>Accipiter cooperi</i>	Woodland and semi-open habitats, riparian groves and mountain canyons. Uncommon permanent resident in coastal, mountains, and deserts of Southern California. Transients fairly common on coast in fall.	Year round; predominant in summer	FED: ND STATE: WL	None. Not observed during the surveys, but are expected to forage infrequently over the property during migration and in winter.
Golden eagle <i>Aquila chrysaetos</i>	Grasslands, brushlands, deserts, oak savannas, open coniferous forests and montane valleys. Nesting primarily in rugged mountainous country. Uncommon resident in Southern California.	Year round diurnal	FED: ND STATE: SSC (nesting and wintering). CFP	None. Not observed during the surveys. Foraging habitat for this species exists over the entire property No suitable nesting habitat occurs on site.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Ferruginous hawk <i>Buteo regalis</i>	Fairly common in winter in open grassland and agricultural regions in the interior, as well as some valleys along the coast. Rare and uncommon along the coast and in the desert.	Winter	FED: C2* STATE: WL	None. Not observed during the surveys. Poor quality foraging habitat for this species exists on site. No suitable nesting habitat occurs on site.
Merlin <i>Falco columbarius</i>	Frequents several habitats including coastal sage scrub and annual grassland. Forages along the coast, and in montane valleys and open deserts with scattered clumps of trees. Rare fall migrant and winter visitor to Southern California.	Fall & winter	FED: ND STATE: SSC	None. Not observed during the surveys. Can be expected to forage over the site during migration and in winter. They are expected to use the area very infrequently.
American peregrine falcon <i>Falco peregrinus anatum</i>	Wetlands near high cliffs; few known to nest in urban settings on tall buildings. Scattered locations in North America; in California coastal areas and inland mountains.	Fall & Winter (in migration and as winter visitor)	FED: ND STATE: END. CFP	None. Species passes through region during migration and may winter in region; during migration or winter, could fly over site, perch in riparian woodland, and/or forage in surrounding habitats including site.
Prairie falcon <i>Falco mexicanus</i>	Nest in cliffs or rocky outcrops; forage in open arid valleys, agricultural fields. Throughout the desert and arid interior portions of coastal counties. Uncommon resident in Southern California.	Year round diurnal	FED: ND STATE: SSC	None. Not observed during the surveys. Foraging habitat exists for this species over the property, but there is no suitable nesting habitat.
Burrowing owl <i>Athene cunicularia hypugea</i>	Grasslands and rangelands, usually occupying ground squirrel burrows. Resident over most of Southern California. Found in agricultural areas.	Year round	FED: ND STATE: SSC	None. No burrows were observed on site, but this species may forage on site and nest in adjacent areas.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
California spotted owl <i>Strix occidentalis occidentalis</i>	Mature forests with dense, multilayered canopy. Hardwood understory species such as oak also form part of the habitat. Elevation range from below 1000 feet to over 8500 feet. All major mountains ranges of southern California.	Year round	FED: SSC STATE: SSC	None. Suitable habitat not present.
Long-eared owl <i>Asio otus</i>	Rare resident in coastal Southern California and uncommon resident in desert areas. Dense willow-riparian woodland and oak woodland. Breeds from valley foothill hardwood up to ponderosa pine habitat.	Nocturnal year round	FED: ND STATE: SSC	None. Foraging habitat exists on the property, but no nesting habitat.
Short-eared owl <i>Asio flammeus</i>	Primarily a rare and local winter visitant to the coast, and a rare fall transient and winter visitant in the desert, including the Salton Sea and the Colorado River. Also recorded at Mystic Lake in the San Jacinto Valley, Riverside County, in summer 1992, and Harper Dry Lake, San Bernardino County, summer 1993.	Fall - Winter	FED: ND STATE: SSC	None. Available information states that short-eared owls are rare fall transients in the desert and, therefore, may forage on the property.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Black swift <i>Cypseloides niger</i>	Rare and very local summer resident in the foothill canyons of mountains. Most birds arrive after May. Rare and irregular transient (mainly in spring) away from breeding areas, principally west of the deserts. Breeding localities include Santa Anita Canyon, San Gabriel Mtns., Fallsvale in Mill Creek Canyon, San Bernardino Mtns. And Tahquitz Creek, San Jacinto Mtns.	Spring - Fall	FED: ND STATE: SSC	None. Suitable breeding habitat not present.
Southwestern willow flycatcher <i>Empidonax traillii extimus</i>	Breeds and nests in willow riparian forest. Rare and local in So. Calif.	May - Sept.	FED: END STATE: END (nesting)	None. No riparian woodland habitat on site.
California horned lark <i>Eremophila alpestris actia</i>	Found in coastal regions, chiefly from Sonoma County to San Diego County. Also found in the main part of the San Joaquin Valley and east to the foothills. Prefers short-grass prairie, "bald" hills, mountain meadows, open coastal plains, fallow grain fields, and alkali flats.	Variable, year round	FED: ND STATE: SSC	None. The site does not provide nesting habitat.
Bank swallow <i>Riparia riparia</i>	Nesting habitat is vertical banks of fine textured soils, most commonly along streams and rivers. In Southern California, fairly common spring and fall transient in interior; very uncommon spring transient and rare fall transient along coast. Casual in winter.	Variable year round	FED: BCC STATE: THR	None. The site does not provide nesting habitat. Surface area of the property does not provide actual foraging habitat. May be transient in migration.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Coastal cactus wren <i>Campylorhynchus brunneicapillus couesi</i>	Tall <i>Opuntia</i> required for nesting and roosting. Coastal sage scrub. Southern California.	Year round	FED: ND STATE: SSC	None. Site lacks suitable habitat.
California gnatcatcher <i>Polioptila californica californica</i>	Coastal sage scrub; occurs only in cismontane Southern California and northwestern Baja California in low-lying foothills and valleys.	Year-round	FED: THR STATE: ND	None. Site lacks suitable habitat.
Loggerhead shrike <i>Lanius ludovicianus</i>	Open fields with scattered trees, open woodland, scrub. Fairly common resident throughout southern California.	Year round	FED: ND STATE: SSC	None. Site lacks suitable habitat.
Least Bell's vireo <i>Vireo bellii pusillus</i>	Riparian forests and willow thickets. Breeds and nests only in southwestern California; winters in Baja Calif.	Apr - Sept	FED: END STATE: END	None. Site lacks suitable habitat.
Yellow-breasted chat <i>Icteria virens</i>	Riparian thickets of willow, brushy tangles near watercourses. Nests in riparian woodland throughout much of western North America. Winters in Central America.	Year round. Nocturnal migrant	FED: ND STATE: SSC	None. Site lacks suitable habitat.
Yellow warbler <i>Setophagus petechia brewsteri</i>	Nesting habitat is protected. Riparian plant associations. Prefers willows, cottonwoods, aspens, sycamores, and alders for nesting and foraging. Also found in montane shrubbery in open conifer forests.	Spring and summer for breeding	FED: ND STATE: SSC	None. Site lacks suitable habitat.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Southern California rufous-crowned sparrow <i>Aimophila ruficeps canescens</i>	Fairly common resident along the coast of California; breeds very locally on desert mountain ranges. Preferred habitat is slopes with sparse shrubs and open grassy areas intermixed. Coastal sage scrub is the most common plant community used.	Year round	FED: ND STATE: WL	None. Site lacks suitable shrub habitat.
Bell's sage sparrow <i>Amphispiza belli belli</i>	Uncommon to common resident. Nests in chaparral dominated by fairly dense stands of chamise. Fairly common in coastal sage scrub in the south portion of its range. Nests are located on the ground beneath a shrub or in a shrub six to eight inches above the ground. Individual territories are about 50 yards apart.	Year round	FED: ND STATE: SSC	None. Site lacks suitable shrub habitat.
Grasshopper sparrow <i>Ammodramus savannarum</i>	Occupies grassland habitats across North America. They are found in a variety of tall- and mixed-grass habitats including native prairies, hayfields, pastures, and grassy fallow fields.	Year round	FED: ND STATE: SSC	None. No suitable grassland habitat present on site.
Lawrence's goldfinch <i>Spinus lawrencei</i>	Dry woodlands and brushy areas near areas with some water and riparian habitats.	Year-round Mar 20 to Sep 20 breeding period	FED: BCC throughout its range STATE: ND	None. No suitable habitat and no riparian habitat present.
Tri-colored blackbird <i>Aegialius tricolor</i>	Resident year round in the coast and eastern edge of the desert. Occurs in all coastal counties including interior areas west of the deserts. Breeds in dense colonies is reed beds.	Year-round Mar 15 to Aug 10 breeding.	FED: ND STATE: THR	None. No suitable reed habitats present.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Mammals				
California leaf-nosed bat <i>Macrotus californicus</i>	In California, these bats primarily occupy low-lying desert areas, where they roost in caves, mines, and old buildings. Historic records extend west to near Chatsworth, Los Angeles County, but most populations from the California coastal basins are believed to have disappeared. Occurs from northern Nevada, Southern California, and western Arizona south to southern Baja California and Sonora.	Year round nocturnal	FED: ND STATE: SSC	None. There are no suitable roost sites in the property. However, it may forage over the property if there are roosting sites such as caves in the nearby mountains.
Townsend's western big-eared bat <i>Corynorhinus townsendii</i>	Requires caves, mines, tunnels, buildings or other similar structures for roosting. May use separate sites for night, day, hibernation or maternity roosts. Found in all but subalpine and alpine habitats throughout California.	Year round Nocturnal	FED: ND STATE: SSC	None. There are no suitable roost sites in the property limits. it may forage over the property if there are roosting sites such as caves in the nearby mountains
Pallid bat <i>Antrozous pallidus</i>	Day roost in caves, crevices, mines and occasionally hollow trees and buildings. Night roosts may be more open sites, such as porches and open buildings. Hibernation sites are probably rock crevices. Grasslands, shrublands, woodlands and forest from sea level through to mixed conifer. Throughout Southern California.	Spring, Summer, Fall Nocturnal Hibernates in Winters	FED: ND STATE: SSC	Low. Because there are no suitable roost sites in the property limits, this species does not roost on the property. However, it may forage over the property if there are roosting sites such as caves in the nearby mountains.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Spotted bat <i>Euderma maculatum</i>	Found in the western North America from southern British Columbia to the Mexican border, at a small number of widely scattered localities. Habitats range from arid deserts and grasslands through mixed conifer forest up to 10,600 foot elevation. Prefers rock crevices in cliffs, also uses caves and buildings.	Spring, Summer, Fall Nocturnal Hibernates in Winters	FED: ND STATE: SSC	Low. Because there are no suitable roost sites in the property limits, this species does not roost on the property. However, it may forage over the property if there are roosting sites such as caves in the nearby mountains.
Western yellow bat <i>Lasiurus xanthinus</i>	Found in valley foothill riparian, desert riparian, desert palm oasis and desert wash. Roosts in trees, particularly palms. This species forages over water and among trees.	Spring, Summer, Fall Nocturnal Hibernates in Winters	FED: ND STATE: ND	Unknown. There are trees on site, and they may roost in these trees.
California mastiff bat <i>Eumops perotis californicus</i>	Historically from north-central California south to northern Baja California, eastward across the southwestern United States, and northwestern Mexico to west Texas and Coahuila (Hall, 1981; Williams, 1986). In California, most records are from rocky areas at low elevations where roosting occurs primarily in crevices.	Spring, Summer, Fall Nocturnal Hibernates in Winters	FED: ND STATE: SSC	None. Site lacks rocky areas on or near the site. None.
Pocketed free-tailed bat <i>Nyctinomops femorasaccus</i>	Spotty distribution in California, ranging from Southern California south to the Baja Peninsula, and through southwestern Arizona to at least central Mexico (Williams, 1986). In California, pocketed free-tailed bats are typically found in rocky, desert areas with relatively high cliffs.	Warmer months. Nocturnal	FED: ND STATE: SSC	None. Not located during the survey. No suitable foraging or nesting habitat occurs within the project area or the surrounding mountains.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Big free-tailed bat <i>Nyctinomops macrotis</i>	Found from northern South America and the Caribbean Islands northward to the western United States. In the southwestern U.S., populations appear to be scattered. Known breeding localities are in parts of Arizona, New Mexico, and Texas. Prefers rocky, rugged terrain. Roosts in crevices in high cliffs or rocky outcrops. Ranges up to 8000 foot elevation.	Nocturnal spring - fall Hibernates in Winters	FED: ND STATE: SSC	None. Site lacks rocky, rugged terrain preferred by this species.
San Diego black-tailed jackrabbit <i>Lepus californicus bennettii</i>	Variety of habitats including herbaceous and desert scrub areas, early stages of open forest and chaparral. Most common in relatively open habitats. Restricted to the cismontane areas of Southern California, extending from the coast to the Santa Monica, San Gabriel, San Bernardino and Santa Rosa mountain ranges.	Year round, diurnal and Crepuscular activity	FED: ND STATE: SSC	None. Site lacks foraging habitat for this species.
American badger <i>Taxidea taxus</i>	Most abundant in drier, open stages of most shrub, forest and herbaceous habitats. Friable soils for digging, food for foraging and uncultivated ground.	More active in spring and summer	FED: ND STATE: SSC	Site lacks plant habitats preferred by this species.
Los Angeles pocket mouse <i>Perognathus longimembris brevinasus</i>	Prefers sandy soil for burrowing, but has been found on gravel washes and stony soils. Found in coastal scrub. Los Angeles, Riverside, and San Bernardino Counties.	Nocturnal; active late spring to early fall.	FED: ND STATE: SSC	None. Soils on site have bene compacted and site lacks suitable scrub habitats.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
San Bernardino flying squirrel <i>Glaucomys sabrinus californicus</i>	San Bernardino Mountains, historically in the San Jacinto Mountains. Mid to upper elevation coniferous forest plant communities. Mature, dense conifer forest, typically with white fir close to riparian areas. 5200 to 8500 feet in elevation.	Year round	FED: ND STATE: SSC Forest Service Sensitive Species	None. No canopy cover suitable for this species. Site is not at the elevation where this species is found.
Northwestern San Diego pocket mouse <i>Chaetodipus fallax fallax</i>	Sandy herbaceous areas, usually with rocks or coarse gravel. Arid coastal areas in grassland, coastal scrub and chaparral. San Diego, San Bernardino, Los Angeles, and Riverside Counties.	Nocturnal; active year round.	FED: ND STATE: SSC	None. Suitable habitat not present.
San Bernardino kangaroo rat <i>Dipodomys merriami parvus</i>	Primary and secondary alluvial fan scrub habitats, with sandy soils deposited by fluvial (water) rather than aeolian (wind) processes. The preferred substrate appears to be sandy and sandy loam soils and very little herbaceous ground cover. In isolated populations along the Santa Ana and San Jacinto drainage systems.	Nocturnal; active year round	FED: END STATE: ND	None. Suitable habitat not present.
San Diego desert woodrat <i>Neotoma lepida intermedia</i>	Moderate to dense canopies, particularly in rocky areas. Coastal sage scrub and chaparral. Coastal southern California.	Nocturnal; active year-round	FED: ND STATE: SSC	None. Suitable scrub habitat not present.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Grasshopper mouse <i>Onychomys torridus ramona</i>	In the more arid regions of southern California. Especially prefers sandy areas of the Mojave and Sonoran deserts, especially friable soils for digging. Prefers low to moderate shrub cover. Feeds almost exclusively on arthropods, especially scorpions and orthopteran insects.	Year round	FED: ND STATE: SSC	None. Site has no suitable shrub cover.
Invertebrates				
Vernal pool fairy shrimp <i>Branchinecta lynchi</i>	Grasslands and ponded areas such as vernal pools, cattle watering holes, basins, etc. In Southern California, species found primarily in the interior of western Riverside Co., central Santa Barbara Co., and eastern Orange Co. Also, more recently discovered in Los Angeles Co.	Spring	FED: THR STATE: ND	None. Suitable habitat not present.
Simple hydroporus diving beetle <i>Hydroporus simplex</i>	Aquatic habitats; known only from the Pinecrest area of Tuolumne Co. and the Holcomb Valley area of the San Bernardino Mountains.	Unknown	FED: C2* STATE: ND	None. Suitable aquatic habitat not present.
Greenest tiger beetle <i>Cicindela tranquebarica viridissima</i>	Inhabits the woodlands adjacent to the Santa Ana River basin. Usually found in open spots between trees.	All year	FED: ND STATE: ND	None. Suitable habitat not present.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Quino checkerspot butterfly <i>Euphydryas editha quino</i>	Open grassy sites on grasslands and in open areas in coastal sage scrub. Areas must contain food plants (plantain and owl's clover) with low levels of non-native vegetation, open or bare soils with sparse shrub cover. Historic range was western Riverside County and n. San Diego co; range recently extended to include inland and coastal San Bernardino, L.A., Orange, Ventura and San Diego counties.	Spring	FED: END STATE: ND	None. Suitable habitat not present.
Monarch butterfly <i>Danaus plexippus</i>	On migration, anywhere from alpine summits to cities. Breeding habitats include habitats with milkweed, esp. meadows weedy fields and watercourses. Overwinters in coastal Monterey pine, Monterey cypress and eucalyptus groves in California, and fir forests in Mexico.	Year round	FED: ND STATE: ND Demonstrably secure globally, though it may be quite rare in parts of its range, especially at the periphery.	None. Suitable habitat not present.
Andrew's marble butterfly <i>Euchloe hyantis andrewsi</i>	West Coast of North America from southern Oregon south through California west of the Sierra Nevada crest to northern Baja California, Mexico. The habitat consists of rocky canyons, cliffs, moraines and gravelly flats. Preferentially feed on <i>Brassica</i> , especially <i>Streptanthus</i> spp.	Year round	FED: ND STATE: ND Globally imperiled	None. Suitable rocky and gravel habitats not present.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Delhi sands flower-loving fly <i>Rhaphiomidas terminatus abdominalis</i>	Limited information suggests this species is found on "fine, sandy soils, often with wholly or partially consolidated dunes. These soil types are generally classified as the "Delhi" series (primarily Delhi fine sand)" (U.S. Fish and Wildlife Service, 1992). Restricted to western Riverside and San Bernardino Counties.	Above ground emergence August and Sep. Not visible during the rest of the year.	FED: END STATE: ND	None. Suitable soils not present.

Sensitive Habitats and Plant Communities

Southern California arroyo chub/Santa Ana sucker stream	From Mount Rubidoux downstream to northeastern Anaheim, including tributaries, Chino, Aliso and Sunnyslope Creeks. Best habitat found below Riverside Narrows where groundwater is forced to the surface & flows become more perennial and stable, Santa Ana sucker and arroyo chub are the only native fish that still occur.	Year round	Protected by the presence of listed species.	Not present.
Riversidian alluvial fan sage scrub	Creeks, rivers, canyons and drainages in Peninsular and Transverse Ranges. Riverside, San Bernardino Counties.	Year round	Declining plant community	Not present.
Southern riparian scrub	Mid- to large-order streams below 4,000 feet.	Year round	Distribution patchy due to development and disturbance.	Not present.
Canyon live oak ravine forest	Steep, narrow canyons in steep mountain areas.	Year round	Declining plant community	Not present.
Southern riparian forest	Steep canyons and drainages in the foothills of local mountain ranges.	Year round	Declining plant community	Not present.

Resource	Habitat and Distribution	Activity Period	Status Designation	Occurrence Probability
Southern mixed riparian forest	Steep canyons and drainages in the foothills of local mountain ranges.	Year round	Declining plant community	Not present.
Southern coast live oak riparian forest	Steep canyons and drainages in the foothills of local mountain ranges.	Year round	Declining plant community	Not present.
Southern cottonwood willow riparian forest	Steep, narrow and shallow, broad canyons and drainages in the foothills of local mountain ranges.	Year round	Declining plant community	Not present.
Southern willow scrub	Small, shallow drainages leading into larger streams and rivers.	Year round	Declining plant community	Not present.
Southern sycamore alder riparian woodland	Steep, narrow and shallow, broad canyons and drainages in the foothills of local mountain ranges.	Year round	Declining plant community	Not present.
California walnut woodland	Present along broad drainages and alluvial fans where surface water is available or where groundwater is shallow.	Year round	Declining plant community	Not present.
Valley needlegrass grassland	Flat or gently rolling terrain of the interior valleys of southern California; occasionally found in mountains on plateaus and similar level areas. Declining due to agricultural and urban development.	Year round	Declining plant community	Not present.
Coastal and valley freshwater marsh	Flat or rolling terrain, with depressions and low spots at or near water table. Declining due to draining and alteration for agriculture.	Year round, although size can change with available surface water and groundwater levels.	Declining plant community	Not present.

Legend

FED: Federal Classifications

END Taxa listed as endangered

THR Taxa listed as threatened

PE Taxa proposed to be listed as endangered

PT Taxa proposed to be listed as threatened

C2* The U.S. Fish and Wildlife Service (USFWS) revised its classifications of candidate taxa (species, subspecies, and other taxonomic designations). Species formerly designated as "Category 1 Candidate for listing" are now known simply as "Candidate". The former designation of "Category 2 Candidate for listing" has been discontinued. The USFWS will continue to assess the need for protection of these taxa and may, in the future, designate such taxa as Candidates. NRAI has noted the change in species status by marking with an asterisk (*) those C2 candidates that were removed from the list.

C Candidate for listing. Refers to taxa for which the USFWS has sufficient information to support a proposal to list as Endangered or Threatened and issuance of the proposal is anticipated but precluded at this time.

BCC Bird of Conservation Concern

ND Not designated as a sensitive species

STATE: State Classifications

END Taxa listed as endangered

THR Taxa listed as threatened

CE Candidate for endangered listing

CT Candidate for threatened listing

CFP California Fully Protected. Species legally protected under special legislation enacted prior to the California Endangered Species Act.

SSC Species of Special Concern. Taxa with populations declining seriously or that are otherwise highly vulnerable to human development.

SA Special Animal. Taxa of concern to the California Natural Diversity Data Base regardless of their current legal or protected status.

WL Watch list.

ND Not designated as a sensitive species

CNPS: California Native Plant Society Classifications

1A Plants presumed by CNPS to be extinct in California

1B Plants considered by CNPS to be rare or endangered in California and elsewhere

2P Plants considered by CNPS to be rare, threatened or endangered in California, but which are more common elsewhere.

3 Review list of plants suggested by CNPS for consideration as endangered but about which more information is needed.

4 Watch list of plants of limited distribution whose status should be monitored

CNPS: Threat Codes (new as of 2006)

.1 Seriously endangered in California (over 80% of occurrences threatened / high degree and immediacy of threat)

.2 Fairly endangered in California (20-80% occurrences threatened)

.3 Not very endangered in California (<20% of occurrences threatened or no current threats known)

Occurrence Probabilities

Occurs	Observed on the site during this study or recorded on site by other qualified biologists.
Expected	Not observed or recorded on site, but likely to be present at least during a portion of the year.
High	Known to occur in the vicinity of the project site. Suitable habitat exists on site.
Moderate	Known to occur in the vicinity of the project site. Small areas or marginally suitable habitat exist on site.
Low	No reported sightings within the vicinity of the project. Available habitat limited and rarely used.
None	Focused surveys did not locate the species, or suitable habitat does not exist on site.
Unknown	No data is available on whether species is on or in the vicinity of the site, and information about the species is insufficient to make an accurate assessment of probability occurrence to make an accurate assessment of probability occurrence.

Appendix C Preliminary Geotechnical Evaluation



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909.271.3135

September 20, 2021

Rene Jacober
Inland Self Storage Management, Inc.
2999 W. Kendall Dr. Suite 208
San Bernardino, CA 92407

SUBJECT: PRELIMINARY GEOTECHNICAL INVESTIGATION
Proposed Twenty-Five Lot, Tentative Tract Map
APN 0261-151-10, \pm 5.3 Acres
Belmont Avenue
San Bernardino, San Bernardino County, California
Work Order No. 0842101.00

Sir:

Pursuant to your authorization, a preliminary geotechnical investigation was conducted on the subject site in accordance with the 2019 California Building Code, Section 1803.5.11. Attached as **Plate 1**, the **Geotechnical Map** is a 60-scale, "Tentative Tract Map" prepared by S.D. Engineering & Associates, indicating the approximate location of the exploration trenches, and pertinent geotechnical information.

Scope of Work

The scope of work performed for this study included the following:

1. Onsite observation and documentation of existing site geometry with respect to the location of the proposed building pads and streets, in the City of San Bernardino.
2. Advancement of seven (7) exploratory trenches/borings to the total depth explored of 15.0-ft (T-1) below the ground surface (bgs) for sample recovery for laboratory testing and observation of subsurface conditions.
3. Engineering analysis of test results to develop specifications for grading and preliminary foundation design.

4. Research of Geologic literature to develop design specifications for hazards such as seismic shaking and related effects.
5. Preparation of report of findings, including conclusions and recommendations for grading and minimum foundation design.

Introduction

This investigation has been conducted resulting from a 2019 California Building Code Chapter 18 requirement for preliminary geotechnical investigation being conducted for all projects in Seismic Category D. This investigation will address geotechnical conditions existing on the site as they may pertain to the proposed buildings. It is our understanding that the buildings will be typical slab on grade wood or metal framed. Contained herein also are preliminary recommendations for foundation design for the proposed construction.

Site Description

Attached as **Plate 1**, the “Geotechnical Map” utilized the 60-scale, “Tentative Tract Map” prepared by S.D. Engineering & Associates, California, showing the test location(s) on the site. The subject site is a vacant 5.3±-acre nearly rectangular shaped parcel that slopes ±5% to the southeast. The subject site is located on the south side of Belmont Avenue, city of San Bernardino, San Bernardino County, California. The geographical relationships of the site and surrounding area are depicted on our Site Location Map, **Figure 1**.

Vegetation onsite was a scattered growth of weeds and grasses. Gradients on the subject site are less than ±5% to the southeast.

Proposed Development

It is understanding that the site will be developed as twenty-five single-family residences with associated streets. Attached as **Plate 1**, the Geotechnical Map utilized the 60-scale, “Tentative Tract Map” prepared by S.D. Engineering & Associates, California, showing the proposed building location on the site. Please refer to **Plate 1, Geotechnical Map**, for proposed site geometry and location of the proposed building pads. Foundations are anticipated to consist of continuous spread and isolated column footings to carry structural loads.

Field Work

Field work on the site consisted of observation and logging of seven (7) exploratory trenches advanced with a CAT excavator equipped with 24-inch bucket. Representative bulk and in-situ samples of earth materials were obtained for laboratory testing and observing the conditions of the soils on the site. Subsurface exploration of the subject site was performed on September 9, 2021, and the exploratory trench logs are presented in **Appendix B**. The approximate location of our exploratory trenches is presented on our **Geotechnical Map, Plate 1**. Observation and sampling of the exploratory trenches were performed by our field personnel, who logged the formational earth materials underlying the site to be Quaternary Aged Young Alluvial Fan Deposits, (map symbol Qyf3), (D. M. Morton & F. K. Miller, 2003). This unit was immediately beneath the undocumented fill and extended to the total depth explored of 15-ft bgs (B-1).

Laboratory Testing

The results of laboratory testing are presented in **Appendix C**. It should be noted test results are preliminary and generally representative for the purposes of demonstrating feasibility of design for proposed construction. Additional testing recommended by this report may result in changes of minimum design requirements.

Subsurface Conditions

The Preliminary Geologic Map of the San Bernardino 30'x60' Minute Quadrangle, (Doug M. Morton & Fred K. Miller, 2003) indicates the formational earth materials underlying the subject site to be Quaternary Aged Young Alluvial Fan Deposits, (map symbol Qyf3). Soils were visually classified according to the Unified Soil Classification System as silty Sand (Unified Soil Classification – SM). This unit was immediately beneath the undocumented fill and extended to the total depth explored of 12-ft bgs (B-1). A brief description of the geologic units underlying the site that are considered pertinent to proposed development follows:

Undifferentiated Topsoil (Map Symbol – Qut)

Up to approximately 1-ft+ of topsoil across the site. This unit, for the most part, consists of silty Sand (Unified Soil Classification-SM) that can be described as brown, fine grained, gravelly, moist, loose

Young Alluvial Valley Deposits, (map symbol Qva5))

Onsite Quaternary Aged Young Alluvial Fan Deposits, (map symbol Qyf3) (Doug M. Morton & Fred K. Miller, 2003). Soils were visually classified according to the Unified Soil Classification System as silty Sand (Unified Soil Classification – SM) described as light brown silty Sand, fine to course grained, abundant fines, abundant gravel slightly moist, and loose to dense alluvial deposits from 1 to 15-ft. Detailed descriptions of the onsite units are presented on our exploratory trench logs included in **Appendix B**.

Groundwater

Groundwater was not encountered within our exploratory trenches, which were advanced to a maximum depth of 15-ft bgs in area of the proposed building pads. Historic high groundwater in the area is reported at depths of ± 100 -ftbgs (Carson & Matti, 1985), Fluctuations can and will likely occur in moisture or free water content of the soil owing to rainfall and irrigation over time. No mottling of the soil was observed. Minor to moderate fluctuations can and will likely occur in moisture or free water content of the soil owing to rainfall and irrigation over time.

Excavation Characteristics

We anticipate that the onsite topsoils and Quaternary Aged Young Alluvial Fan Deposits, (Doug M. Morton & Fred K. Miller, 2003), can be excavated with moderate ease to moderate difficulty to the proposed depths utilizing conventional grading equipment in proper working condition.

Seismicity

There are no potentially active or inactive faults transecting the site (Doug M. Morton & Fred K. Miller, 2003). The subject site is not located within the presently defined boundaries of a State of California Alquist-Priolo Earthquake Fault Zone (Hart, 2000) and a County of San Bernardino fault hazard zone (SB County, 2021).

Active fault zones regional to the site include the San Andreas fault (San Bernardino segment), the San Jacinto (San Bernardino segment), and the Cucamonga Fault, Chino Central, which are located 2.5-kilometers north, 4.0-km south, 5.0-km northwest, 11.5-km southwest, respectively. The following table lists the known faults that would have the most significant impact on the site:

FAULT	MAXIMUM PROBABLE EARTHQUAKE (MOMENT MAGNITUDE)	SLIP RATE	FAULT TYPE
San Andreas (San Bernardino Segment) (2.5-km N)	7.4	24 mm/year	A
San Jacinto (San Bernardino Segment) (4.0-km S)	6.7	12 mm/year	B
Cucamonga (5-km NW)	7.0	5 mm/year	A
Chino Central (11.5-km SW)	6.7	1 mm/year	A

2019 California Building Code (CBC) -Seismic Parameters:

Based on the geologic setting and soil conditions encountered, the soils underlying the site are classified as “Site Class D, “Stiff Soil Profile”, according to the CBC. The seismic parameters according to the CBC are summarized in the ASCE 7 Hazards Report presented in **Appendix E**. The corresponding value for peak ground acceleration from the design response spectrum based on the 2019 CBC seismic parameters is 1.231g.

SEISMIC EFFECTS

Ground Accelerations

The most significant earthquake to affect the property is a 6.9 Richter magnitude earthquake on the San Andres fault zone (San Bernardino segment). Based on Section 1803.5.12 of the 2019 California Building Code, peak ground accelerations modified for site class effects (PG_{AM}) of approximately **1.231g** are possible for the design earthquake. The seismic parameters according to the CBC are summarized in the ASCE 7 Hazards Report presented in **Appendix E**.

Ground Cracks

The risk of surface rupture because of active faulting is considered low based on the location of known active faulting near the site (Doug M. Morton & Fred K. Miller, 2003). Ground cracks can and do appear on sites for a variety of reasons including, but not limited to, strong seismic shaking, imperfections in subsurface strata (either man-made or natural), and the expansive nature of some soils near the ground surface. Therefore, the possibility of minor cracks at the ground surface for the life of the project cannot be fully eliminated.

Landslides

The subject property is in an area of flat gently sloping terrain, with no slopes within 1km of the subject site. The risk of seismically induced landsliding to impact the proposed development is low.

Liquefaction

The site is mapped by San Bernardino County as having no liquefaction susceptibility. Soil liquefaction is the loss of soil strength due to increased pore water pressures caused by a significant ground shaking (seismic) event. Liquefaction typically consists of the re-arrangement of the soil particles into a denser condition resulting, in this case, in localized areas of settlement, sand boils, and flow failures. Areas underlain by loose to medium dense cohesionless soils, where groundwater is within 30 to 40 feet of the surface, are particularly susceptible when subject to ground accelerations such as those due to earthquake motion. The liquefaction potential is generally considered greatest in saturated loose, poorly graded fine sands with a mean grain size (D_{50}) in the range of 0.075 to 0.2mm. Typically, liquefaction has a relatively low potential at depths greater than 45-ft and is virtually unknown below a depth of 60-ft.

Procedures outlined in two publications, 1) The Guidelines for Evaluation and Mitigation of Seismic Hazards in California, Special Publication 117: Department of Conservation, Division of Mines and Geology (1997); and 2) Recommendations for Implementation of DMG Special Publication 117: Guidelines of Analyzing and Mitigation, Liquefaction Hazards in California: Southern California

Earthquake Center University of Southern California (1997), provide for a “screening study” in lieu of a complete liquefaction analysis.

It is our opinion that, owing to the depth to groundwater (+100-ft) and the dense compacted building pad and medium dense Alluvial Deposits underlying the subject site, liquefaction on the subject site is anticipated to be **low** and further analysis appears to be unwarranted at this time.

Seismically Induced Soil Settlement

The proposed footings are anticipated to be founded in medium dense to dense engineered fill overlying medium dense to dense alluvial deposits. The settlement potential, under seismic loading conditions for these onsite materials, in our opinion, is low.

Seiches and Tsunami

Considering the location of the site in relation to large bodies of water, seiches and tsunamis are not considered potential hazards of the site.

Rockfall Potential

The subject residence is in an area of relatively flat gently sloping terrain with no boulder outcroppings near the subject site. The potential for rockfall is anticipated to be negligible.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

General

The development of the site as proposed is both feasible and safe from a geotechnical standpoint provided that the recommendations contained herein are implemented during design and construction.

1. According to the 60-scale, “Tentative Tract Map” prepared by S.D. Engineering & Associates, California, the twenty-five proposed building pad and associated streets will be constructed on the site following remedial grading. The subject site is located south of Belmont Avenue and west of Olive Avenue. in the City of San Bernardino, San Bernardino County, California.
2. Observation of excavations indicates that suitable material for support of fill and/or structures is near the surface on the site. Earth materials on the site are also suitable for use as compacted structural fill provided, they are free of demolition debris, organics, oversized and deleterious material.
3. Observation, classification, and testing indicate that the near surface soils “non-Expansive” with an expansion potential (EI=11) consisting of silty Sand (SM).
4. Based on our exploratory trenches, Quaternary Aged Young Alluvial Fan Deposits underlie

the topsoil at the ground surface and extended to the total depth explored of 15-ft bgs.

RECOMMENDATIONS

Site Grading

General

The 60-scale, “Tentative Tract Map” prepared by S.D. Engineering & Associates, California, show the proposed building locations on the site. Owing to the flat nature of the subject site, maximum 5-ft high fill and/or cut slopes are anticipated. Cut generated from overexcavation of the site will likely be utilized as fill materials. It is important to note that all imported soils must be observed and approved by the soil engineer prior to use as fill to verify compliance with project specifications and consistency with onsite soils with respect to expansion potential and structural contact pressure.

Site Specific Grading

A representative of this firm shall be present to observe the bottoms of all excavations. A representative of this firm shall be present during all fill placement operations to monitor and test as the earth materials are being placed. This observation and testing are intended to assure compliance with the recommendations of this report as well as project specifications as they relate to earthwork construction, County and State ordinances and Table 1705.6 of the 2019 California Building Code.

Following demolition of the any existing improvements in the area of the proposed building pads and pavement or where structural fill is to be placed, all undocumented fill and loose alluvial soils near the ground surface shall be removed to competent earth, i.e., competent alluvial materials that are free of roots and pinpoint pores. It is anticipated that the building pads will require overexcavation and recompaction. Overexcavation of the building pad should extend a minimum of 5-ft below the existing ground surface, 5-ft below proposed pad grade, or a minimum of 2-ft below the deepest footings, whichever is deepest. Removals should extend to include the entire building pad, the limits of fill or a minimum of 5-ft beyond the building footprint or a distance equal to depth of removal where possible, and whichever is greater. Deep root systems or buried systems may require deeper removals and should be evaluated during demolition and rough grading operations. Exposed bottoms should be suitably processed by moisture conditioning to near optimum moisture content, then compacted in the upper 12-inches to the minimum compaction requirement prior to placing fill.

No structural fill shall be placed within the building area or on any ground without first being observed by a representative of the company providing this report and then providing written certification that the ground is competent and prepared to receive fill.

Onsite soils derived from excavations will be suitable for use as structural fill provided, they are free of large rock (6-inches or larger) and organic debris or construction waste. Approved fill material should be placed in 6 to 8-inch loose lifts, brought to optimum moisture content, and compacted to a minimum of 90% of the maximum laboratory dry density, as determined by the ASTM D 1557-12 test method. No rocks larger than 6-inches in diameter should be used as fill

material as they inhibit the compaction process. Rocks larger than 6-inches may be removed or crushed and used as fill material. Rocks larger than 6-inches that cannot be crushed, organic materials, concrete, asphaltic concrete or oil-bearing surface aggregate should be removed from the graded area and in the case of oil-bearing materials, removed and taken to an appropriate dump site that is designed to handle such.

All earthwork should be done in accordance with the specifications contained in **Appendix D**. Additionally, it will be the responsibility of the owner and or the grading contractor to provide this firm with schedule information for grading activities that require observation and testing. It is preferred that we have a minimum of 48 hours of notice for such.

It will also be recommended that at the completion of rough grading, additional testing of engineering characteristics such as expansion potential and ancillary testing should take place to determine final design requirements for foundations, slabs and concrete used.

Bearing Value and Footing Geometry

A safe allowable bearing value of 1,800 psf for foundations embedded into observed competent compacted fill soils. Continuous footings, for single-story or equivalent structures should have a minimum width of 15-inches and depth of 12-inches, or for two-story or equivalent structures, should have a minimum width of 15-inches and depth of 18-inches and conform to the minimum criteria of the 2019 CBC for non-expansive soils ($EI \leq 20$). The use of isolated column footings is not discouraged, however, where utilized, should have a minimum embedment of 18-inches below lowest soil grade. The minimum distance of the bottom outside edge of all footings and any slope face shall be 5-ft. All footings should be embedded a minimum of 12-inches into observed competent engineered materials, regardless of depth below the adjacent ground surface.

From a Geotechnical standpoint, continuous footings should be reinforced with a minimum of four number 4 steel bars placed two at the top and two at the bottom. In no case should the content of steel in concrete footings be less than the recommended minimums of the appropriate sections of the A.C.I. standards.

Settlement

The bearing value recommended above reflects a total settlement of 0.5-inches and a differential settlement of 0.5-inches within a horizontal distance of 20-ft ($L/480$). Most of this settlement is expected to occur during construction and as the loads are being applied.

Concrete Slabs

All concrete slabs on grade should be 4 inches thick, minimum. A structural engineer should review the floor loads to provide recommendations for thicker slabs if warranted. They should be underlain by 2-inches of sand or approved non-expansive onsite materials. Imported or approved onsite materials may be utilized for this purpose. Slabs should be reinforced with a minimum of number 3 steel bars placed at the center of thickness at 24-inch centers both ways (CBC 2019). Contractors should be advised that when pouring during hot or windy weather conditions, they should provide large slabs with sufficiently deep weakened plane joints to inhibit the development

of irregular or unsightly cracks. Also, slabs should be jointed in panels not exceeding 8-ft in both directions to augment proper crack direction and development.

Moisture Barrier

When the intrusion of moisture through concrete slabs is objectionable, particularly with interior slabs where flooring is moisture sensitive, a vapor barrier should be installed onto the subgrade prior to the pouring of concrete. It should consist of a minimum 10 mil visqueen lapped and sealed, protected from puncture with 2-inches of sand above and 2-inches of sand below. This is considered a minimum recommendation as there are other devices that provide as good as or better moisture protection. The project architect and or structural engineer may recommend alternative devices for moisture protection.

These are considered minimums and additional requirements may be imposed by other structural engineering design requirements. In addition, at the completion of grading, testing of the near surface soils may indicate that different or more stringent reinforcing schedule minimums may be appropriate.

Careful consideration should be given to the recommendations that will be contained in the final report of compaction test results and foundation design requirements.

Concrete

Based on nearby corrosivity testing, (Sampson & Associates 2018), Type II Portland cement concrete can be utilized for the subject site. Laboratory analysis results, which are included in **Appendix C**, indicated that the percentage by weight of soluble sulfates were reported as less than 50 (ppm), which equates to a **Negligible** sulfate exposure per American Concrete Institute (ACI), 318, Table 4.3.1 (2005). Soluble sulfate content testing should be conducted within the building pad at the completion of rough grading to confirm concentration of sulfite ions within the onsite earth materials.

Lateral Loads

The bearing value of the soil may be increased by one third for short duration loading (wind, seismic). Lateral loads may be resisted by passive forces developed along the sides of concrete footings or by friction along the bottom of concrete footings. The value of the passive resistance for level ground may be computed using an equivalent fluid density of 250 pcf for level ground. The total force should not exceed 2,000 psf. A coefficient of friction of .25 may be used for the horizontal soil/concrete interface for resistance of lateral forces. If friction and passive forces are combined, then the passive values should be reduced by one third.

Earthwork Factors

Shrinkage results when a volume of material removed at one density is compacted to a higher density. A shrinkage factor of 25 to 30 percent for the upper 0 to 3-ft of the topsoil and upper alluvium, 10 to 15 percent for the deeper alluvial deposits should be anticipated when excavating and compacting the onsite soils to an average relative compaction of 92 percent. An increase in relative compaction, or deeper removals, could correspond to an increase in shrinkage values. Subsidence, as a result of ground preparation, may also be anticipated on the order of 0.15-ft, occurring mostly during site

construction.

Cut/Fill Transitions

Based on the recommended overexcavation and recompaction of the proposed building pads (see “Site Specific Grading” section), it is anticipated that any cut-to-fill transitions will be eliminated.

Oversize Rock

Owing to the minor amount of oversize material within our exploratory trenches, little oversize rock is anticipated. If any oversize material is generated during site development, it should be disposed of off-site, utilized in landscaping, or placed in an approved rock fill in accordance with **Appendix D** of this report.

Utility Trench Backfill

All trench excavations should be conducted in accordance with Cal-OSHA standards as a minimum. The soils encountered within our exploratory trenches are generally classified as Type “C” soil in accordance with the CAL/OSHA (2013) excavation standards. Based upon a soil classification of Type “C”, the temporary excavations should not be inclined steeper than 1.5:1 (h: v) for a maximum depth of 20-ft. For temporary excavations, deeper than 20-ft or for conditions that differ from those described for Type “C” in the CAL/OSHA excavation standards, the project geotechnical engineer should be contacted.

Utility trench backfill should be compacted to a minimum of 90 percent of the maximum dry density determined in laboratory testing by the ASTM D 1557-12 test method. It is our opinion that utility trench backfills consisting of onsite or approved sandy soils can best be placed by mechanical compaction to a minimum of 90 percent of the maximum dry density. The upper 1-ft of utility trench excavations located within pavement areas should be compacted to a minimum of 95 percent of the maximum dry density.

Fine Grading and Site Drainage

Fine grading of areas outside of the residential structures should be accomplished such that positive drainage exists away from all footings in accordance with 2019 CBC and local governing agency requirements. Run-off should be conducted in a non-erosive manner toward approved drainage devices per approved plans. No run-off should be allowed to concentrate and flow over the tops of slopes.

Construction

SoCal Professional Engineers, or a duly designated representative, should be present during all earthwork construction in accordance with the standard specifications contained at the back of this report, to test and or confirm the conditions encountered during this study. In addition, post earthwork construction monitoring should be conducted at the following stages:

- At the completion of final grading of the building pads moisture content near optimum will necessarily need to be maintained, both to maintain proper compaction and to prevent wind erosion of the pads.
- At the completion of foundation excavations, but prior to the placement of steel and or other construction materials in them. As a requirement of this report, the undersigned must, in writing, certify that the foundations meet the minimum requirements of this report and the building plans for depth and width along with the earth materials being the appropriate moisture content and compaction. Backfilling of over deepened footings with earth materials will not be allowed and must be poured with concrete. Consequential changes and differences may exist throughout the earth materials on the site. It may be possible that certain excavations may have to be deepened slightly if earth materials are found to be loose or weak during these observations.
- Any other pertinent post construction activity where soils are excavated or manipulated or relied upon in any way for the performance of buildings or hardscape features.

Supplemental Recommendations

If at any time during grading or construction on this site, conditions are found to be different than those indicated in this report, it is essential that the soil engineer be notified. The soil engineer reserves the right to modify in any appropriate way the recommendations of this report if site conditions are found to be different than those indicated in this report.

- The earth unit exposed at the surface was observed to be topsoil and loose to medium dense alluvial deposits. It is moderately erosive. It is medium dense at shallow depths, on the order of 10-ft and water percolates well into the onsite soils in their in-situ condition.
- Following grading cuts to 5-ft, or slightly more will stand vertical for normal time periods associated with construction of backcuts for fill slopes or retaining walls. Time periods for unsupported cuts 5-ft or greater vertical should be limited to 60 days in the non-rainy season and 30 days in the rainy season.

Grading and Foundation Plan Reviews

Once grading and foundation plans are finalized, both a Grading Plan and Foundation Plan Reviews should be performed to review plans and confirm that the plans are in general conformance with recommendations presented in this report.

Construction Monitoring

Observation and testing by SoCal Professional Engineers is necessary to verify compliance with recommendations contained in this report and to confirm that the geotechnical conditions encountered are consistent with those encountered. SoCal Professional Engineers should conduct construction monitoring during any fill placement and subgrade preparation prior to placement of fill or construction materials.

LIMITATIONS

Our investigation was performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable Geotechnical Engineers and Geologists practicing in this or similar localities. No other warranty, expressed or implied, is made as to the conclusions and professional advice included in this report.

The report is issued with the understanding that it is used only by the owner and it is the sole responsibility of the owner or their representative to ensure that the information and recommendations contained herein are brought to the attention of the architect, engineer, and appropriate jurisdictional agency for the project and incorporated into the plans; and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations contained herein during construction and in the field.

The samples taken and used for testing and the observations made are believed representative; however, soil and geologic conditions can vary significantly between test locations. The evaluation or identification of the potential presence of hazardous or corrosive materials was not part of the scope of services provided by **SoCal Professional Engineers**, or its assigns.

The findings of this report are valid as of the present date. However, changes in the condition of a property can occur with the passage of time, whether due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and revision as changed conditions are identified.

The firm that performed the geotechnical investigation for this project should be retained to provide testing observation services during construction to maintain continuity of geotechnical interpretation and to check that the recommendations presented herein are implemented during site grading, excavation of foundations and construction of improvements.

If another geotechnical firm is selected to perform the testing and observation services during construction operations, that firm should prepare a letter indicating their intent to assume the responsibilities of project geotechnical engineer of record. Selection of another firm to perform any of the recommended activities or failure to retain the undersigned to perform the recommended activities wholly absolves **SoCal Professional Engineers**, the undersigned, and its assigns from all liability arising directly or indirectly from any aspects of this project.

CLOSURE

We appreciate the opportunity to be of service. Limitations and conditions contained in reference documents are considered in full force and applicable. If you have any questions, please do not hesitate to call our office.

Respectfully submitted,

SoCal Professional Engineers

KHALED

Digitally signed by KHALED FARAH
DN: cn=KHALED FARAH, o=SOCAL
PROFESSIONAL ENGINEERS,
email=info@socal-pe.com, c=US
Date: 2021.09.20 13:16:38 -07'00'

FARAH

Khaled S. Farah
Civil Engineer, C-83128




ATTACHMENTS

- Figure 1 - Site Location Map (2,000-scale)
- Plate 1 - Geotechnical Map (60-scale)
- Appendix A - References
- Appendix B - Exploratory Trench Logs
- Appendix C - Laboratory Test Results
- Appendix D – Standards of Grading
- Appendix E – ASCE 7 Hazard Report

SITE LOCATION MAP

WO0842101.00 SEPTEMBER 2021 FIGURE 1

Legend

 SITE

 SITE



2000 ft

Google Earth

Image © 2021 Maxar Technologies

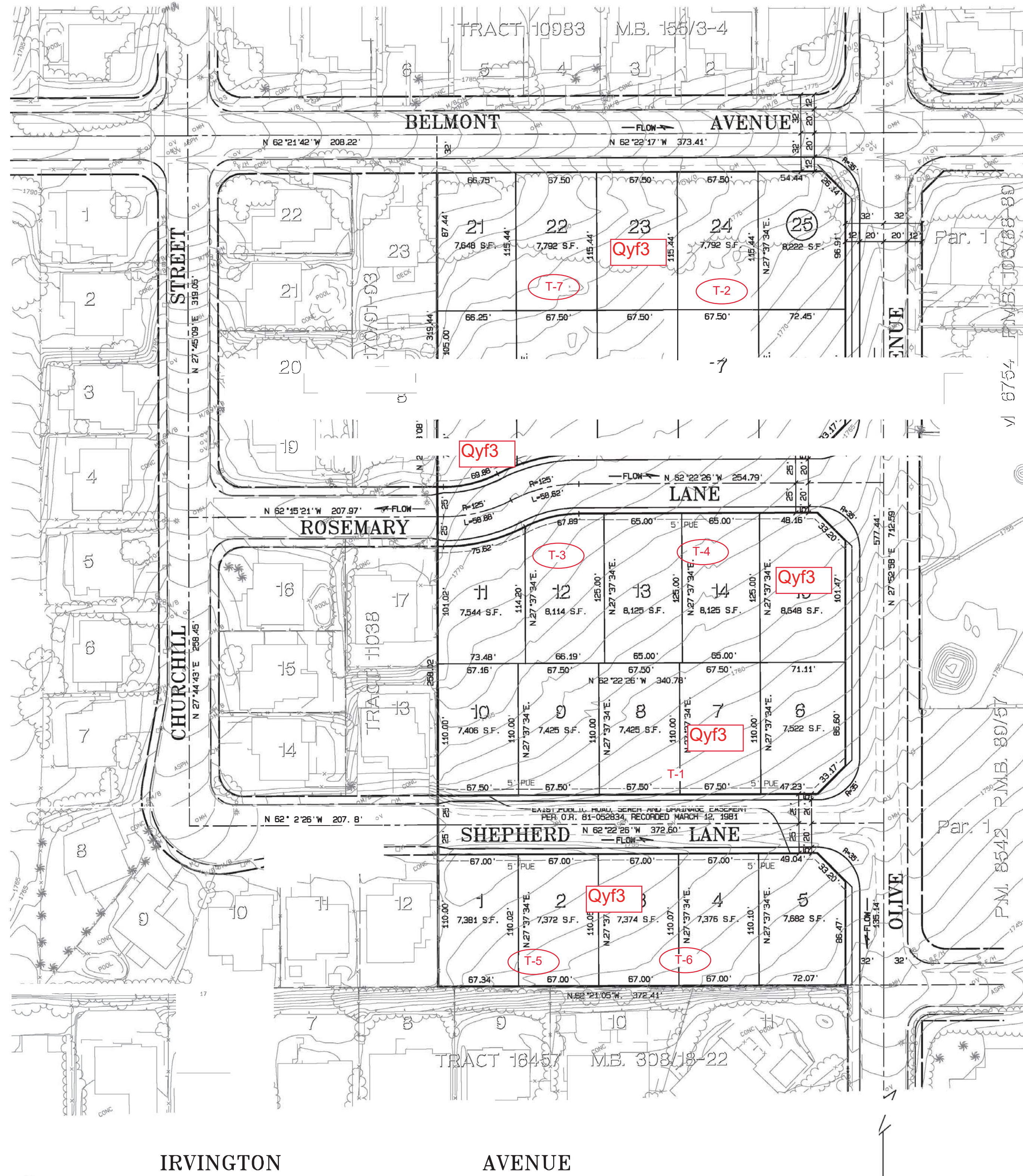
IN THE CITY OF SAN BERNARDINO,
COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA
TENTATIVE TRACT MAP NO. 20421

BEING A SUBDIVISION OF THE EAST HALF OF LOT 2 IN BLOCK 85 AS SHOWN ON LICENSED LAND SURVEYOR'S MAP OF THE IRVINGTON LAND AND WATER COMPANY'S SUBDIVISION OF A PART OF THE MUSCUIPABE RANCHO, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ON FILE IN BOOK 1, PAGE 32 OF RECORDS OF SURVEY, IN THE OFFICE OF THE RECORDER OF SAID COUNTY.

S.D. ENGINEERING AND ASSOCIATES

JUNE, 2021

SoCal Professional Engineers
Geotechnical Map
WO0842101.00 September 2021 Plate 1
T-7 - Approximate Location Exploratory Trench
Qyf3 - Quaternary Aged Young Alluvial Fan Deposits



UTILITY COMPANIES
SEWER AND WATER: CITY OF SAN BERNARDINO MUNICIPAL WATER DEPARTMENT
397 CHANDLER PLACE
SAN BERNARDINO, CA 92408
ATTN: MR. TED BRUNSON
PH: (909) 522-3414
SOLID WASTE: BURETEC WASTE INDUSTRIES, INC.
5455 INDUSTRIAL PARKWAY
SAN BERNARDINO, CA 92407
PH: (909) 804-4222

LEGAL DESCRIPTION

ALL THAT CERTAIN REAL PROPERTY SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:
BEING A SUBDIVISION OF THE EAST HALF OF LOT 2, BLOCK 85 OF THE IRVINGTON LAND AND WATER COMPANY'S SUBDIVISION, AS SHOWN ON LICENSED LAND SURVEYOR'S MAP, AS PER PLAT RECORDED IN BOOK 1 OF MAPS, PAGE 32, RECORDS OF SURVEYS.

OWNER / APPLICANT

INLAND SELF STORAGE MANAGEMENT
P.O. BOX 8009
NEWPORT BEACH, CA 92658
ATTN: MR. RENE JACOBER
PH: (951) 206-5263

ENGINEER

S.D. ENGINEERING AND ASSOCIATES
242 E. AIRPORT DRIVE, STE. 212
SAN BERNARDINO, CA 92408
ATTN: MR. SURESH DODDIAH
PH: (909) 215-3451

ASSESSORS PARCEL NO:

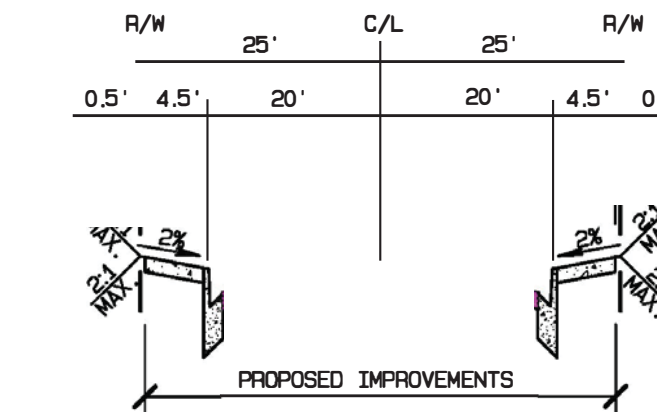
0261-151-10

ZONING

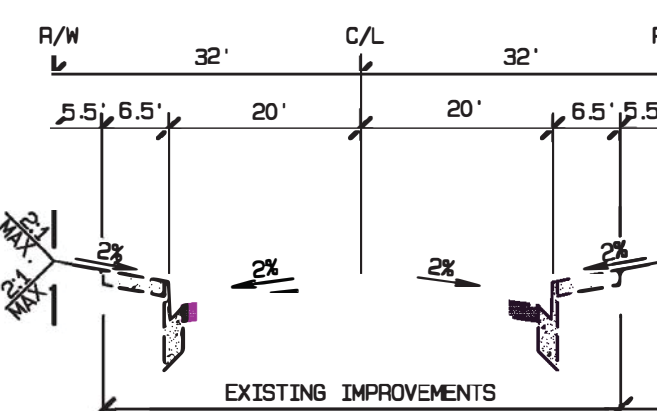
EXISTING: RL
PROPOSED: RS

PROPERTY INFORMATION

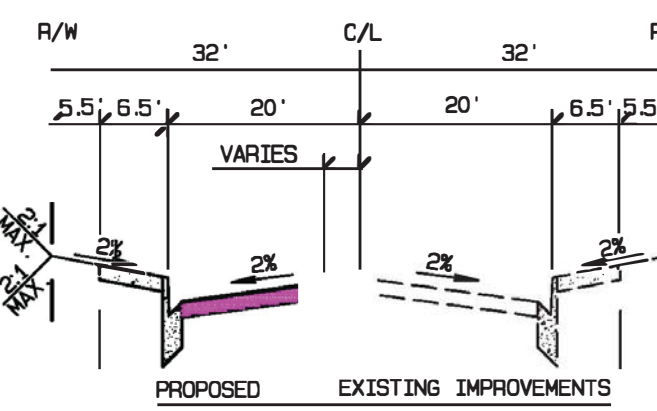
- GROSS AREA: 6.10 ACRES
- NET AREA: 4.43 ACRES
- TOTAL NO. OF LOTS: 21
- DENSITY: 4.74/AC.



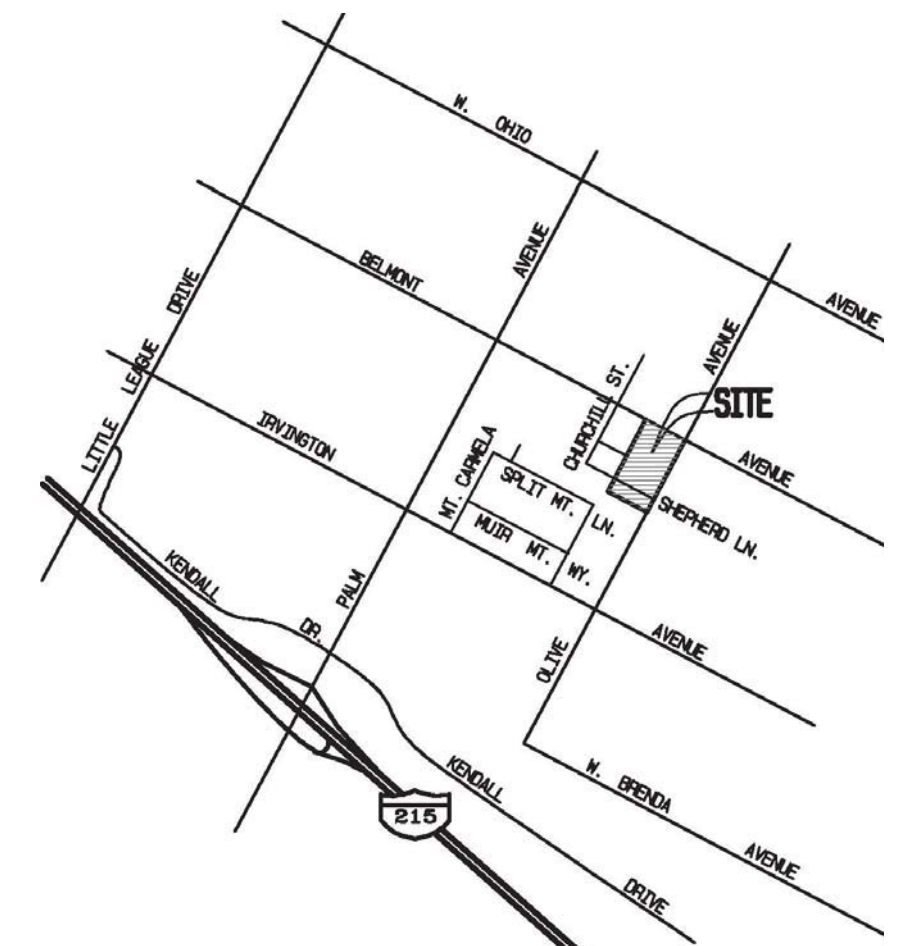
TYPICAL SECTION INTERIOR STREETS
NTS



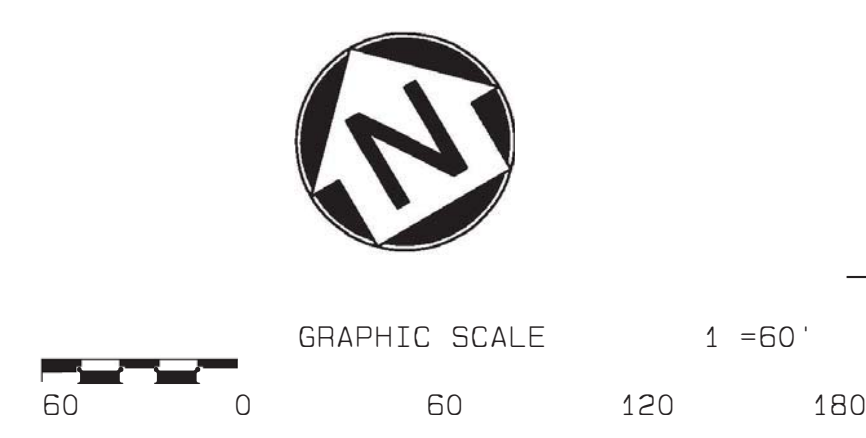
TYPICAL SECTION BELMONT AVENUE
NTS



TYPICAL SECTION OLIVE AVENUE
NTS



VICINITY MAP
NTS



S.D. ENGINEERING AND ASSOCIATES
LAND PLANNING AND CIVIL ENGINEERING
242 E. AIRPORT DRIVE, SUITE 212 - SAN BERNARDINO, CALIF. 92408
PHONE (909) 215-3451 SURESHSDENGINEERING.NET
SURESH DODDIAH R.C.E. 36361 DATE



REV.	REVISION DESCRIPTION	DATE	ENGR.	CITY	DATE	BENCH MARK:	PREPARED UNDER THE SUPERVISION OF:
						2" BRASS DISK SET FLUSH IN TOP OF CURB AT SOUTHEASTERLY CORNER OF BELMONT AVENUE AND PALM AVENUE, AT EAST END OF E.C.R., STAMPED CITY OF SAN BERNARDINO H1-5 ELEV: 1807.25	H1-5

DRAWN BY: EB
DESIGNED BY: EB
CHECKED BY: SD

CITY OF SAN BERNARDINO, CALIFORNIA
TENTATIVE TRACT MAP NO. 20421
PRE-APPLICATION
BELMONT AVENUE & OLIVE AVENUE
SAN BERNARDINO, CA
APN: 0261-151-10

SCALE: AS SHOWN
DATE: 6/23/2021
DRAWING NO.: 1

APPENDIX A

References

REFERENCES

- California Building Standards Commission (CBSC), 2019, "2019 California Building Code, California Code of Regulations, Title 24, Part 2, Volume 2 of 2".
- California Division of Mines & Geology, 1997, "Guidelines for Evaluating and Mitigating Seismic Hazards in California", Special Publication 117.
- California Division of Mines & Geology, 1996, "Probabilistic Seismic Hazard Assessment for the State of California", DMG Open File Report 96-08, USGS Open File Report 96-706.
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- Carson, Scott E., and Matti, Jonathan C., 1985, "Contour Map Showing Minimum Depth to Ground Water, Upper Santa Ana River Valley, California, 1973-1979", USGS Map MF-1802, Sheet 1 of 2, scale: 1: 48,000.
- Coduto, Don, P., 1994, "Foundation Design Principles and Practice", Prentice Hall, pages 637-655.
- County of San Bernardino, Effective Date January 1, 1994, "San Bernardino County Land Use General Plan", Map # FH27C, FH30C, FH29C, Scale 1:1,400.
- Department of Water Resources Website, 2020, GeoTracker "Groundwater Data Section".
- Hart, E.W., 2000, "Fault-Rupture Hazard Zones in California", California Division of Mines and Geology Special Publication 42, CD-003 (CD-ROM Version).
- Jennings, C.W., 1994, Fault Activity Map of California and Adjacent Areas with Locations and Ages of Recent Volcanic Eruptions, California Division of Mines and Geology, Geologic Data Map No. 6.
- Meza, Sergio, "Plot Plan, 1329 S. Euclid Avenue, San Bernardino, CA 91762" 1/8"=1' scale ,dated September 15, 2020.
- Morton, D.M., & Miller, F.K., 2003, "Preliminary Geologic Map of the San Bernardino 30' x 60' Quadrangle, Southern California (Version 1.0)", U.S. Geological Survey in Cooperation with the U.S. Forest Service and California Geologic Survey, Open-File Report 03-293, Scale: 1"=100,000'.
- S.D. Engineering & Associates, "Tentative Tract Map, Belmont Homes, San Bernardino California" dated 2020, sheet 1 of 3 scale 40'=1".
- Sampson & Associates, 2018," Preliminary Geotechnical Evaluation, proposed (16) Single Family Residences, Tract Map #20043, Located @ 2935 West Belmont Avenue, Between Churchill Street and Plam Avenue, City of San Bernardino, California", dated March 15, 2018, Project No. 18-120S.

APPENDIX B

Exploratory Trench Logs

LOGGED BY: JRH							METHOD OF EXCAVATION: CAT MINI EXCAVATOR WITH 24-INCH BUCKET ELEVATION: ± 1759.00			DATE OBSERVED: 9/9/2021 LOCATION: SEE INFILTRATION TEST LOCATION MAP		
DEPTH (FEET)	CLASSIFICATION	BLOWS/FOOT	UNDISTURBED SAMPLE	BULK SAMPLE	MOISTURE CONTENT (%)	IN PLACE DRY DENSITY (PCF)	TRENCH LOG NO. <u>5</u> _____ DESCRIPTION				SOIL TEST	
				V			UNDIFFERENTIATED TOPSOIL (Qts) GREY SILTY SAND, FINE GRAINED DRY, LOOSE					
				^			-----					
				V			YOUNG ALLUVIAL-FAN DEPOSITS UNIT 3 (Qyf3) SILTY SAND (SM): LIGHT BROWN, FINE TO COARSE GRAINED, SLIGHTLY MOIST, UNCONSOLIDATED DENSER WITH DEPTH					
5				^			TOTAL DEPTH - 5FT NO GROUNDWATER					
10												
15												
20												
25												
30												
35												
40												
		18										
JOB NO: 0842101.00							LOG OF TRENCH				FIGURE: B-5	

LOGGED BY: JRH							METHOD OF EXCAVATION: CAT MINI EXCAVATOR WITH 24-INCH BUCKET ELEVATION: ± 1757.00		DATE OBSERVED: 9/9/2021 LOCATION: SEE INFILTRATION TEST LOCATION MAP	
DEPTH (FEET)	CLASSIFICATION	BLOWS/FOOT	UNDISTURBED SAMPLE	BULK SAMPLE	MOISTURE CONTENT (%)	IN PLACE DRY DENSITY (PCF)	TRENCH LOG NO. <u>6</u> _____ DESCRIPTION			SOIL TEST
				V			UNDIFFERENTIATED TOPSOIL (Qts) GREY SILTY SAND, FINE GRAINED DRY, LOOSE			
				^			-----			
				V			YOUNG ALLUVIAL-FAN DEPOSITS UNIT 3 (Qyf3) SILTY SAND (SM): LIGHT BROWN, FINE TO COARSE GRAINED, SLIGHTLY MOIST, UNCONSOLIDATED DENSER WITH DEPTH			
				^						
5										
							TOTAL DEPTH - 5FT NO GROUNDWATER			
10										
15										
20										
25										
30										
35										
40										
		18								
JOB NO: 0842101.00							LOG OF TRENCH			FIGURE: B-6

LOGGED BY: JRH							METHOD OF EXCAVATION: CAT MINI EXCAVATOR WITH 24-INCH BUCKET ELEVATION: ± 1782.00		DATE OBSERVED: 9/9/2021 LOCATION: SEE INFILTRATION TEST LOCATION MAP	
DEPTH (FEET)	CLASSIFICATION	BLOWS/FOOT	UNDISTURBED SAMPLE	BULK SAMPLE	MOISTURE CONTENT (%)	IN PLACE DRY DENSITY (PCF)	TRENCH LOG NO. <u>7</u> _____ DESCRIPTION		SOIL TEST	
				V ^			UNDIFFERENTIATED TOPSOIL (Qts) GREY SILTY SAND, FINE GRAINED DRY, LOOSE			
				V ^			YOUNG ALLUVIAL-FAN DEPOSITS UNIT 3 (Qyf3) SILTY SAND (SM): LIGHT BROWN, FINE TO COARSE GRAINED, SLIGHTLY MOIST, UNCONSOLIDATED DENSER WITH DEPTH			
5							TOTAL DEPTH - 5FT NO GROUNDWATER			
10										
15										
20										
25										
30										
35										
40		18								
JOB NO: 0842101.00							LOG OF TRENCH		FIGURE: B-7	

APPENDIX C

Laboratory Test Results

LABORATORY TESTING

A. Classification

Soils were visually classified according to the Unified Soil Classification System. Classification was supplemented by index tests such as maximum density and optimum moisture content.

B. Expansion Index

An expansion index test was performed on a representative sample of the onsite soils remolded and tested under a surcharge of 144 lb/ft², in accordance with ASTM D-4829-11. The test results are presented on **Figure C-1, Table I**.

C. Maximum Density/Optimum Moisture Content

A maximum density/optimum moisture content relationship was determined for typical samples of the onsite soils. The laboratory standards used were ASTM 1557-Method A. The test results are summarized on **Figure C-1, Table II** and laboratory results are presented on **Figure C-2**.

D. Particle Size Determination

A particle size determination, consisting of mechanical analyses (sieve) was performed on a representative sample of the onsite soils in accordance with ASTM D 422-63 and CAL TEST 202. The test results are shown on **Figure C-3**

TABLE I EXPANSION INDEX		
TEST LOCATION	EXPANSION INDEX	EXPANSION POTENTIAL
T-1 @ 2-15 ft	11	NON-EXPANSIVE

TABLE II MAXIMUM DENSITY/OPTIMUM MOISTURE RELATIONSHIP ASTM D 1557		
TEST LOCATION	MAXIMUM DRY DENSITY (pcf)	OPTIMUM MOISTURE (%)
T-1 @ 2-15 ft	125.5	10.5

Figure C-1

COMPACTION TEST REPORT

Curve No.: 2.60

Project No.: 0842101.00
Project: INLAND - BELMONT

Date: 09/17/2021

Location:
Elev./Depth: 2-15ft+
Remarks:

Sample No.
MAX NO. 1

MATERIAL DESCRIPTION

Description: LIGHT BRN SILTY SAND

Classifications - SM

USCS:

AASHTO:

Nat. Moist. =

Sp.G. = 2.65

Liquid Limit =

Plasticity Index =

% > No.4 = %

% < No.200 =

TEST RESULTS

Maximum dry density = 125.5

Optimum moisture = 10.5

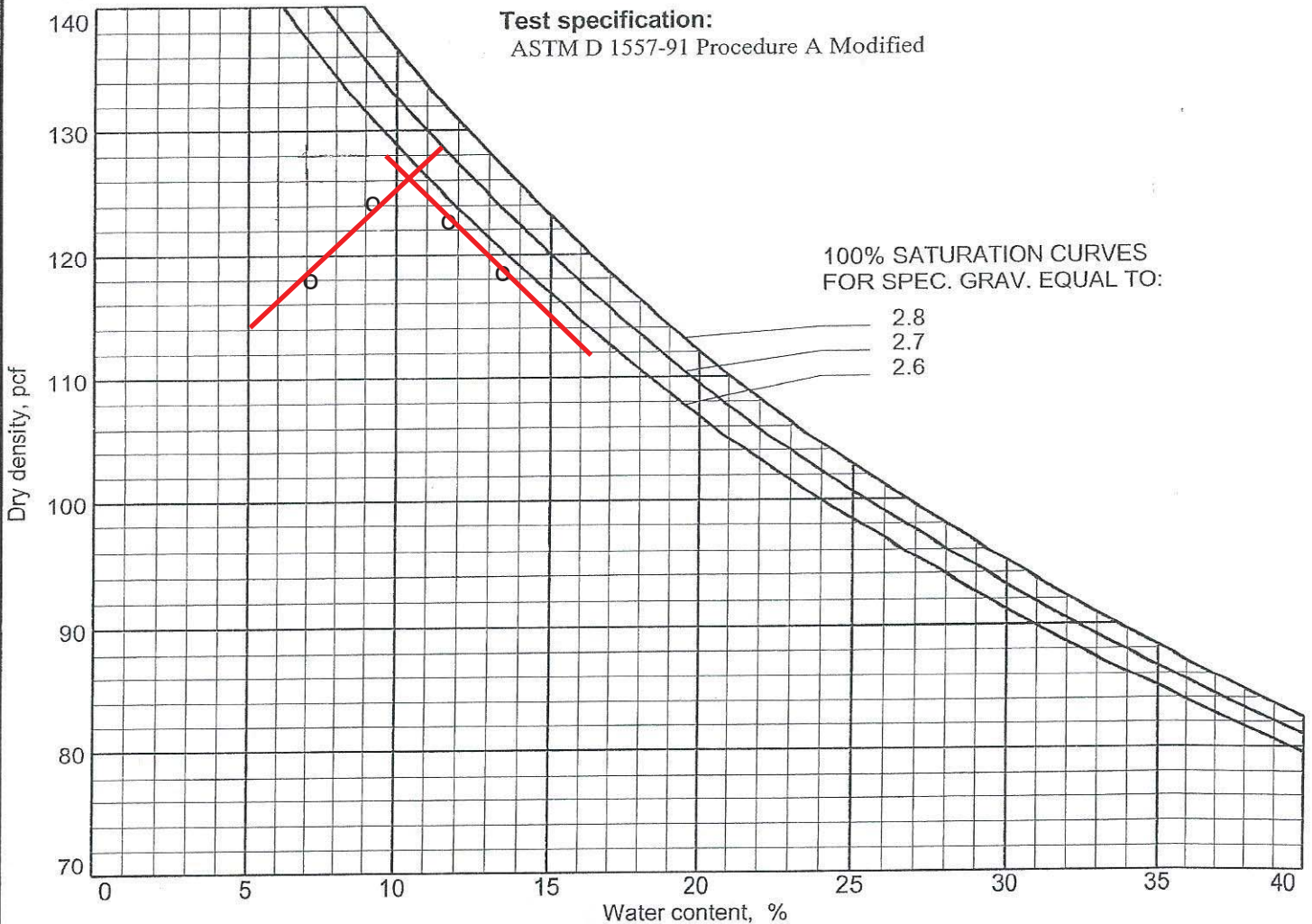
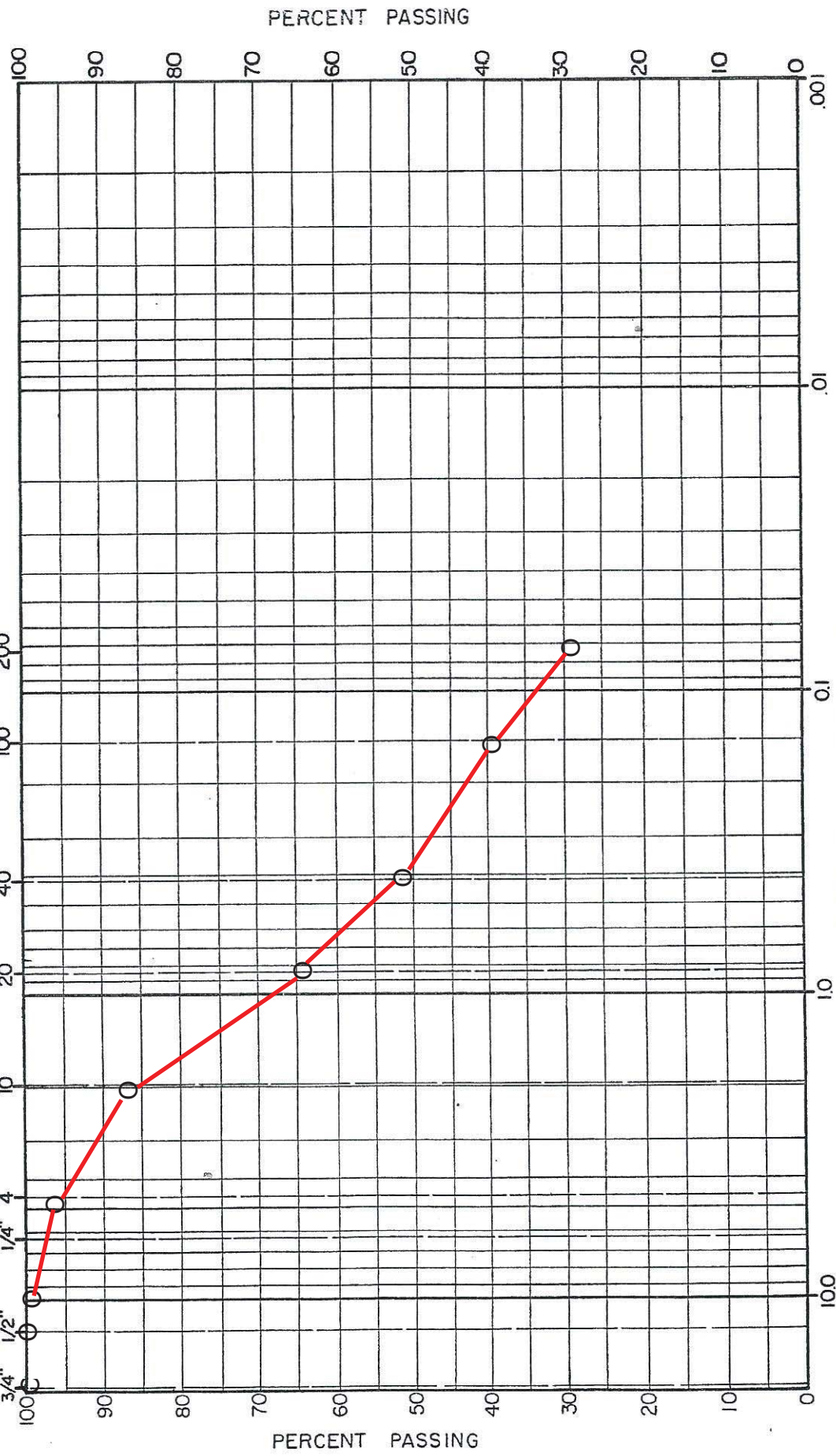


Figure C-2

GRAVEL SAND COARSE MEDIUM FINE SILT CLAY

SIEVE SIZES - U.S. STANDARD



BORING NO.	DEPTH, FT.	SYMBOL	LIQUID LIMIT	PLASTIC INDEX	CLASSIFICATION
T-1	2-15ft	o			SM

JOB NO: 0842101.00

GRAIN SIZE DISTRIBUTION

FIGURE NO: C-3

APPENDIX D

Standards of Grading

STANDARD GRADING AND EARTHWORK SPECIFICATIONS

These specifications present **SoCal Professional Engineers**, standard recommendations for grading and earthwork.

No deviation from these specifications should be permitted unless specifically superseded in the geotechnical report of the project or by written communication signed by the Soils Consultant. Evaluations performed by the Soils Consultant during the course of grading may result in subsequent recommendations which could supersede these specifications or the recommendations of the geotechnical report.

1.0 GENERAL

- 1.1 The Soils Consultant is the Owner's or Developer's representative on the project. For the purpose of these specifications, observations by the Soils Consultant include observations by the Soils Engineer, Soils Engineer, Engineering Geologist, and others employed by and responsible to the Soils Consultant.
- 1.2 All clearing, site preparation, or earthwork performed on the project shall be conducted and directed by the Contractor under the allowance or the supervision of the Soils Consultant.
- 1.3 The Contractor should be responsible for the safety of the project and satisfactory completion of all grading. During grading, the Contractor shall remain accessible.
- 1.4 Prior to the commencement of grading, the Soils Consultant shall be employed for the purpose of providing field, laboratory, and office services for conformance with the recommendations of the geotechnical report and these specifications. It will be necessary that the Soils Consultant provide adequate testing and observations so that he may provide an opinion as to determine that the work was accomplished as specified. It shall be the responsibility of the Contractor to assist the Soils Consultant and keep him apprised of work schedules and changes so that he may schedule his personnel accordingly.
- 1.5 It shall be the sole responsibility of the Contractor to provide adequate equipment and methods to accomplish the work in accordance with applicable grading codes, agency ordinances, these specifications, and the approved grading plans. If, in the opinion of the Soils Consultant, unsatisfactory conditions, such as questionable soil, poor moisture condition, inadequate compaction, adverse weather, etc, are resulting in a quality of work less than required in these specifications, the Soils Consultant will be empowered to reject the work and recommend that construction be stopped until the conditions are rectified.
- 1.6 It is the Contractor's responsibility to provide safe access to the Soils Consultant for testing and/or grading observation purposes. This may require the excavation of the test pits and/or the relocation of grading equipment.
- 1.7 A final report shall be issued by the Soils Consultant attesting to the Contractor's conformance with these specifications.

2.0 SITE PREPARATION

- 2.1 All vegetation and deleterious material shall be disposed of off-site. This removal shall be observed by the Soils Consultant and concluded prior to fill placement.
- 2.2 Soil, Alluvium or bedrock materials determined by the Soils Consultant as being unsuitable for placement in compacted fills shall be removed from the site or used in open areas as determined by the Soils Consultant. Any material incorporated as a part of a compacted fill must be approved by the Soils Consultant prior to fill placement.
- 2.3 After the ground surface to receive fill has been cleared, it shall be scarified, disced and/or bladed by the Contractor until it is uniform and free from ruts, hollows, hummocks, or other uneven features which may prevent uniform compaction.

The scarified ground surface shall then be brought to optimum moisture, mixed as required, and compacted as specified. If the scarified zone is greater than twelve inches in depth, the excess shall be removed and placed in lifts not to exceed six inches or less.

Prior to placing fill, the ground surface to receive fill shall be observed, tested, and approved by the soils consultant.

- 2.4 Any underground structures or cavities such as cesspools, cisterns, mining shafts, tunnels, septic tanks, wells, pipe lines, or others are to be removed or treated in a manner prescribed by the Soils Consultant.

- 2.5 In cut-fill transitions lots and where cut lots are partially in soil, colluvium or unweathered bedrock materials, in order to provide uniform bearing conditions, the bedrock portion of the lot extending a minimum of 5 feet outside of building lines shall be over excavated a minimum of 3 feet and replaced with compacted fill. Greater over excavation could be required as determined by Soils Consultant. Typical details are attached.

3.0 **COMPACTED FILLS**

- 3.1 Material to be placed as fill shall be free of organic matter and other deleterious substances, and shall be approved by the Soils Consultant. Soils of poor gradation, expansion, or strength characteristics shall be placed in areas designated by Soils Consultant or shall be mixed with other soils to serve as satisfactory fill material, as directed by the Soils Consultant.
- 3.2 Rock fragments less than six inches in diameter may be utilized in the fill, provided
- They are not placed or nested in concentrated pockets
 - There is sufficient amount of approved soil to surround the rocks
 - The distribution of rocks is supervised by the Soils Consultant
- 3.3 Rocks greater than twelve inches in diameter shall be taken off-site, or placed in accordance with the recommendations of the Soils Consultant, areas designated as suitable for rock disposal (A typical detail for Rock Disposal is attached.)
- 3.4 Material that is spongy, subject to decay, or otherwise considered unsuitable shall not be used in the compacted fill.
- 3.5 Representative samples of materials to be utilized as compacted fill shall be analyzed by the laboratory of the Soils Consultant to determine the physical properties. If any material other than that previously tested is encountered during grading, the appropriate analysis of this material shall be conducted by the Soils Consultant before being approved as fill material.
- 3.6 Material used in the compacting process shall be evenly spread, watered, processed, and compacted in thin lifts not to exceed six inches in thickness to obtain a uniformly dense layer. The fill shall be placed and compacted on a horizontal plane, unless otherwise approved by the Soils Consultant.
- 3.7 If the moisture content or relative compaction varies from that required by the Soils Consultant, the Contractor shall rework the fill until it has been approved by the Soils Consultant.
- 3.8 Each layer shall be compacted to at least 90 percent of the maximum density in compliance with the testing method specified by the controlling government agency or ASTM 1557-12, whichever applies.
- If compaction to a lesser percentage is authorized by the controlling governmental agency because of a specific land use or expansive soil conditions the area to receive fill compacted to less than 90 percent shall either be delineated on the grading plan and/or appropriate reference made to the area in the geotechnical report.
- 3.9 All fills shall be keyed and benched through all topsoil, colluvium, alluvium, or creep material, into sound bedrock, or firm material where the slope receiving fill exceeds a ratio of five horizontal to one vertical or in accordance with the recommendations of the Soils Consultant.
- 3.10 The key for side hill fills shall be a minimum width of 15 feet within bedrock or firm materials, unless otherwise specified in the geotechnical report, (see detail attached.)
- 3.11 Sub drainage devices shall be constructed in compliance with the ordinances of the controlling governmental agency, or with the recommendations of the Soils Consultant. (Typical Canyon Subdrain details are attached.)

3.12 The contractor will be required to obtain a minimum relative compaction of at least 90 percent out to the finish slope face of fill slopes, buttresses, and stabilization fills. This may be achieved by either over building the slope and cutting back to the compacted core, or by direct compaction of the slope face with suitable equipment, or by any other procedure, which produces the required compaction approved by the Soils Consultant.

3.13 All fill slopes should be planted or protected from erosion by other methods specified in the Soils report.

3.14 Fill-over-cut slopes shall be properly keyed through topsoil, colluvium or creep material into rock or firm materials and the transition shall be stripped of all soils prior to placing fill (see attached detail.)

4.0 **CUT SLOPES**

4.1 The Soils Consultant shall inspect all cut slopes at vertical intervals exceeding five feet.

4.2 If any conditions not anticipated in the geotechnical report such as perched water, seepage, lenticular or confined strata of a potentially adverse nature, unfavorably inclined bedding, joint or fault planes encountered during grading, these conditions shall be analyzed by the Soils Consultant, and recommendations shall be made to mitigate these problems (Typical details for stabilization of a portion of a cut slope are attached.)

4.3 Cut slopes that face in the same direction as the prevailing drainage shall be protected from slope wash by a non-erodible interceptor swale placed at the top of the slope.

4.4 Unless otherwise specified in the geotechnical report, no cut sloped shall be excavated higher or steeper than that allowed by the ordinances of controlling governmental agencies.

4.5 Drainage terraces shall be constructed in compliance with the ordinances of controlling governmental agencies, or with the recommendations of the Soils Consultant.

5.0 **TRENCH BACKFILLS**

5.1 Trench excavation shall be inspected prior to structure placement for competent bottom.

5.2 Trench excavations for utility pipes shall be backfilled under the supervision of the Soils Consultant.

5.3 After the utility pipes has been laid, the space under and around the pipe shall be backfilled with clean sand or approved granular soil to a depth of at least one foot over the top of the top of the pipe. The sand backfill shall be uniformly jetted into place before the controlled backfill is placed over the sand.

5.4 The on-site materials, or other soils approved by the Soils Consultant, shall be watered and mixed, as necessary, prior to placement in lifts over the sand backfill.

5.5 The controlled backfill shall be compacted to at least 90 percent of the maximum laboratory density, as determined by the ASTM D1557-12 or the controlling governmental agency.

5.6 Field density tests and inspection of the backfill procedures shall be made by the Soils Consultant during backfilling to see that proper moisture content and uniform compaction is being maintained. The contract shall provide test holes and exploratory pits as required by the Soils Consultant to enable sampling and testing.

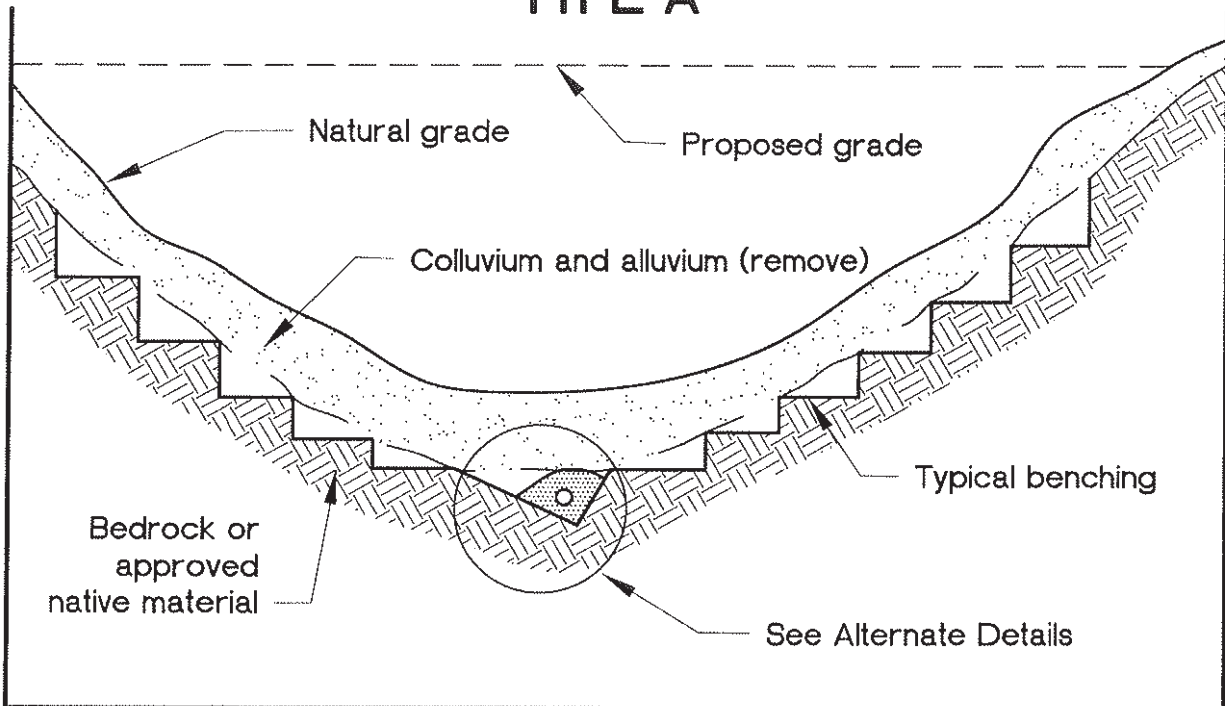
6.0 GRADING CONTROL

- 6.1 Inspection of the fill placement shall be provided by the Soils Consultant during the progress of grading.
- 6.2 In general, density tests should be made at intervals not exceeding two feet of fill height or every 500 cubic yards of fill placed. This criteria will vary depending on soil conditions and the size of the job. In any event, an adequate number of field density tests shall be made to verify that the required compaction is being achieved.
- 6.3 Density tests should be made on the native surface material to receive fill, as required by the Soils Consultant.
- 6.4 All clean-out, processed ground to received fill, key excavations, subdrains, and rock disposals should be inspected and approved by the Soils Consultant prior to placing any fill. It shall be the Contractor's responsibility to notify the Soils Consultant prior to placing any fill. It shall be the Contractor's responsibility to notify the Soils Consultant when such areas will be ready for inspection.

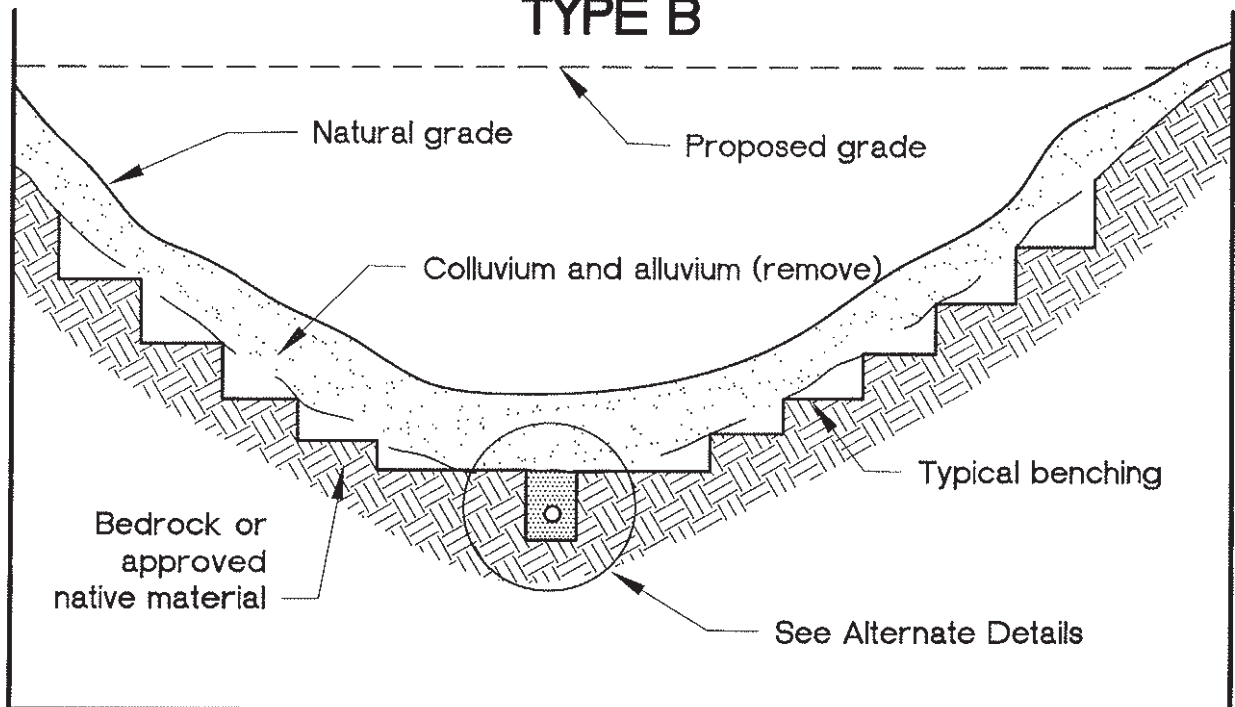
7.0 CONSTRUCTION CONSIDERATIONS

- 7.1 Erosion control measures, when necessary, shall be provided by the Contractor during grading and prior to the completion and construction of permanent drainage controls.
- 7.2 Upon completion of grading and termination of inspection by the Soils Consultant, no further filling or excavating, including that necessary for the footings foundations, large tree wells, retaining walls, or other features shall be performed without the approval of the Soils Consultant.
- 7.3 Care shall be taken by the Contractor during the final grading to preserve any berms, drainage terraces, interceptor swales, or other devices of permanent nature on or adjacent to the property.

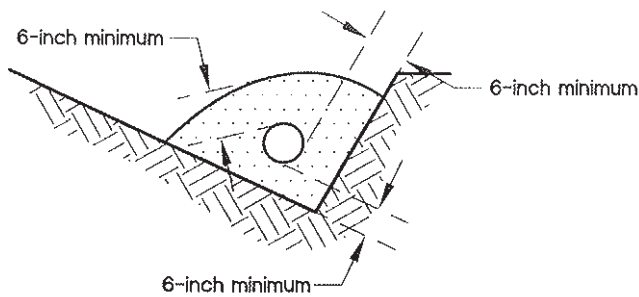
TYPE A



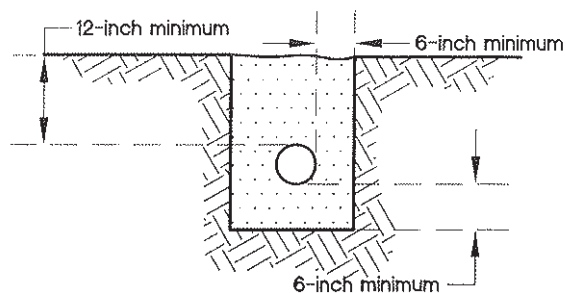
TYPE B



Selection of alternate subdrain details, location, and extent of subdrains should be evaluated by the geotechnical consultant during grading.



A-1



B-1

Filter material: Minimum volume of 9 cubic feet per lineal foot of pipe.

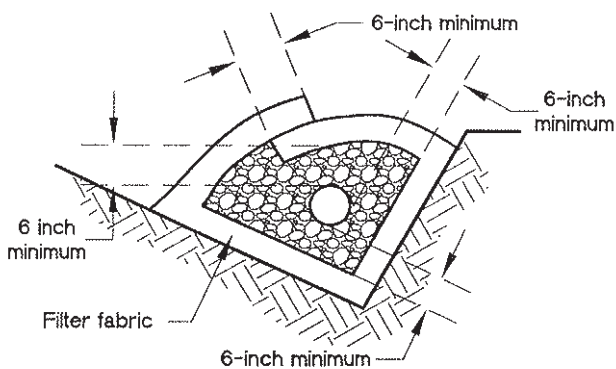
Perforated pipe: 6-inch-diameter ABS or PVC pipe or approved substitute with minimum 8 perforations ($\frac{1}{4}$ -inch diameter) per lineal foot in bottom half of pipe (ASTM D-2751, SDR-35, or ASTM D-1527, Schd. 40).

For continuous run in excess of 500 feet, use 8-inch-diameter pipe (ASTM D-3034, SDR-35, or ASTM D-1785, Schd. 40).

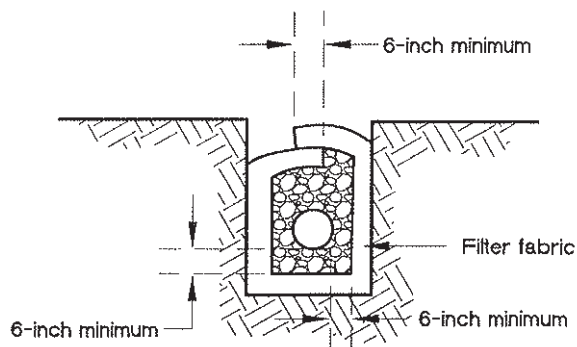
FILTER MATERIAL

Sieve Size	Percent Passing
1 inch	100
$\frac{3}{4}$ inch	90-100
$\frac{3}{8}$ inch	40-100
No. 4	25-40
No. 8	18-33
No. 30	5-15
No. 50	0-7
No. 200	0-3

ALTERNATE 1: PERFORATED PIPE AND FILTER MATERIAL



A-2



B-2

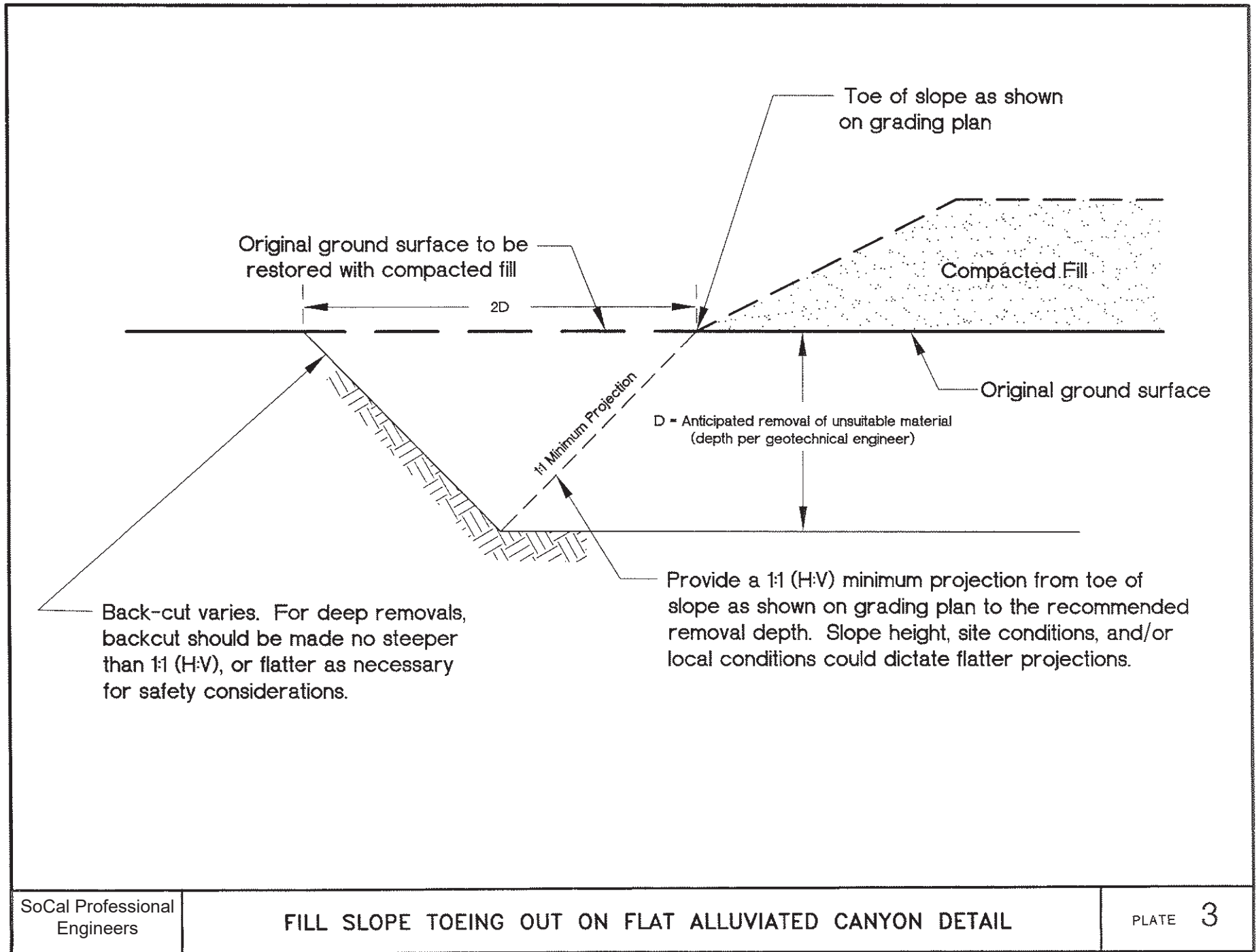
Gravel Material: 9 cubic feet per lineal foot.

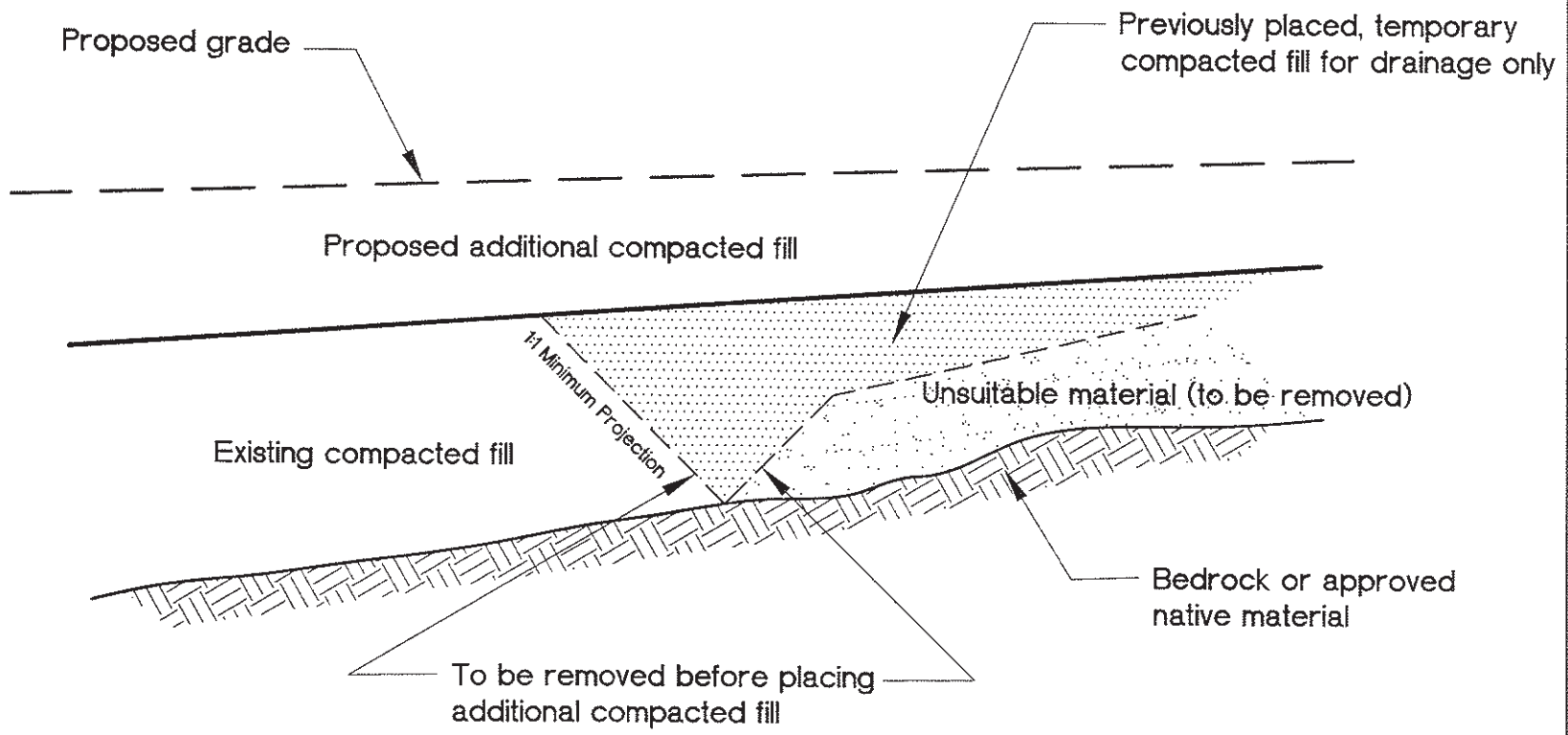
Perforated Pipe: See Alternate 1

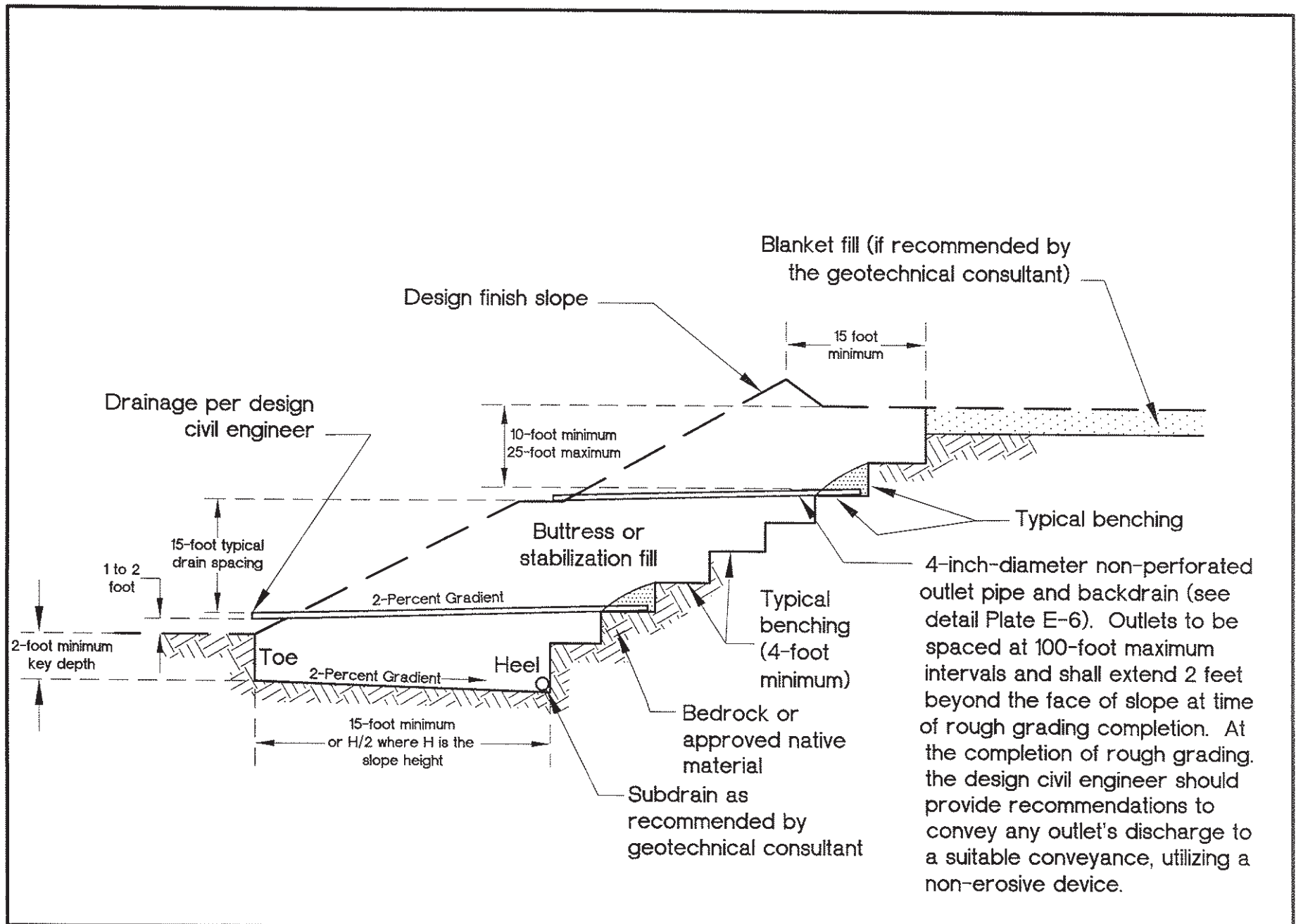
Gravel: Clean $\frac{3}{4}$ -inch rock or approved substitute.

Filter Fabric: Mirafi 140 or approved substitute.

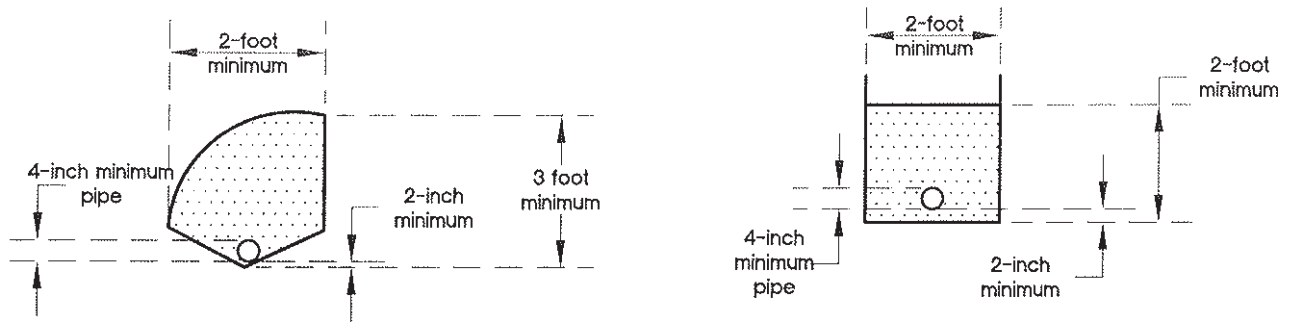
ALTERNATE 2: PERFORATED PIPE, GRAVEL, AND FILTER FABRIC







4-inch-diameter non-perforated outlet pipe and backdrain (see detail Plate E-6). Outlets to be spaced at 100-foot maximum intervals and shall extend 2 feet beyond the face of slope at time of rough grading completion. At the completion of rough grading, the design civil engineer should provide recommendations to convey any outlet's discharge to a suitable conveyance, utilizing a non-erosive device.



Filter Material: Minimum of 5 cubic feet per lineal foot of pipe or 4 cubic feet per lineal feet of pipe when placed in square cut trench.

Alternative in Lieu of Filter Material: Gravel may be encased in approved filter fabric. Filter fabric shall be Mirafi 140 or equivalent. Filter fabric shall be lapped a minimum of 12 inches in all joints.

Minimum 4-Inch-Diameter Pipe: ABS-ASTM D-2751, SDR 35; or ASTM D-1527 Schedule 40, PVC-ASTM D-3034, SDR 35; or ASTM D-1785 Schedule 40 with a crushing strength of 1,000 pounds minimum, and a minimum of 8 uniformly-spaced perforations per foot of pipe. Must be installed with perforations down at bottom of pipe. Provide cap at upstream end of pipe. Slope at 2 percent to outlet pipe. Outlet pipe to be connected to subdrain pipe with tee or elbow.

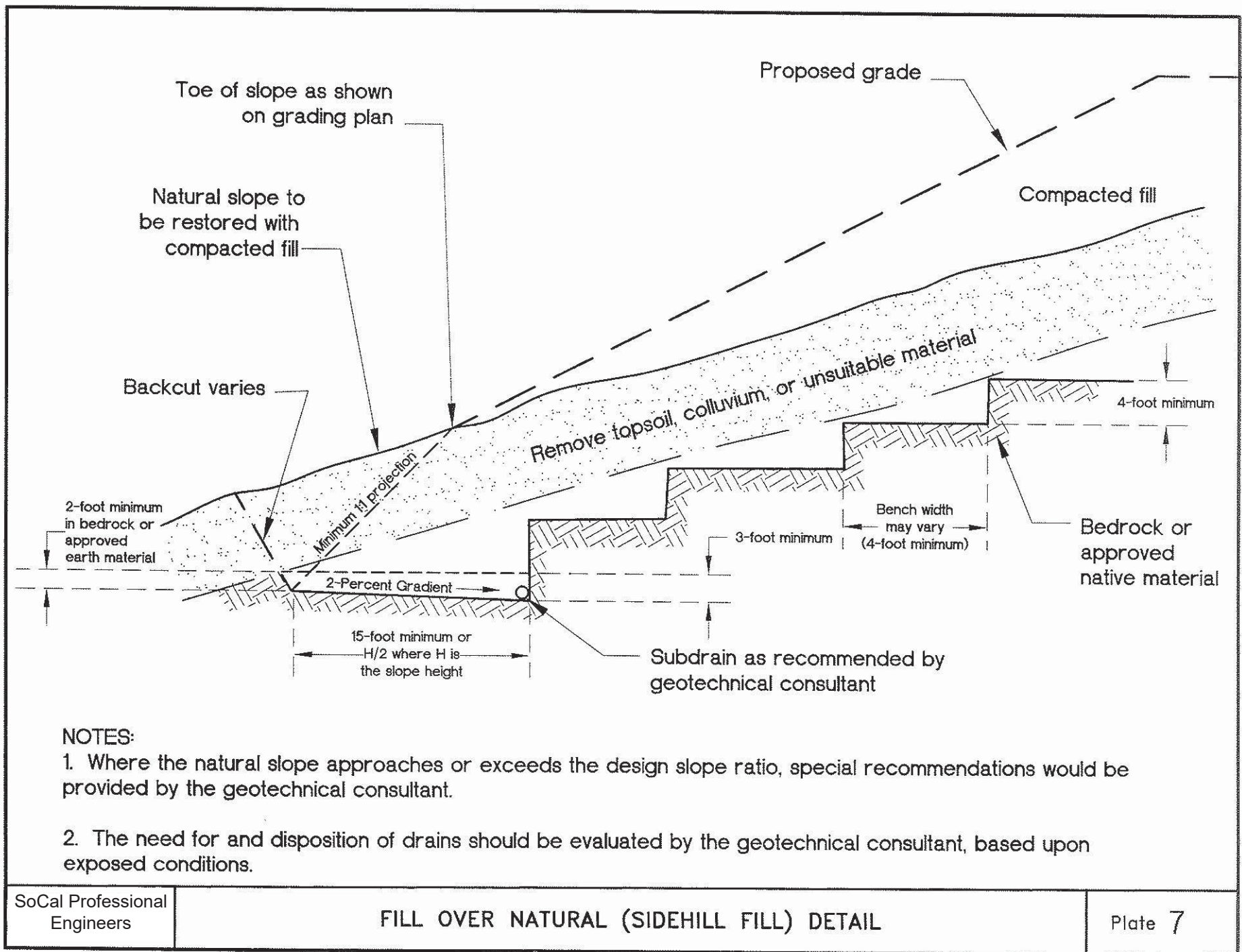
- Notes:
1. Trench for outlet pipes to be backfilled and compacted with onsite soil.
 2. Backdrains and lateral drains shall be located at elevation of every bench drain. First drain located at elevation just above lower lot grade. Additional drains may be required at the discretion of the geotechnical consultant.

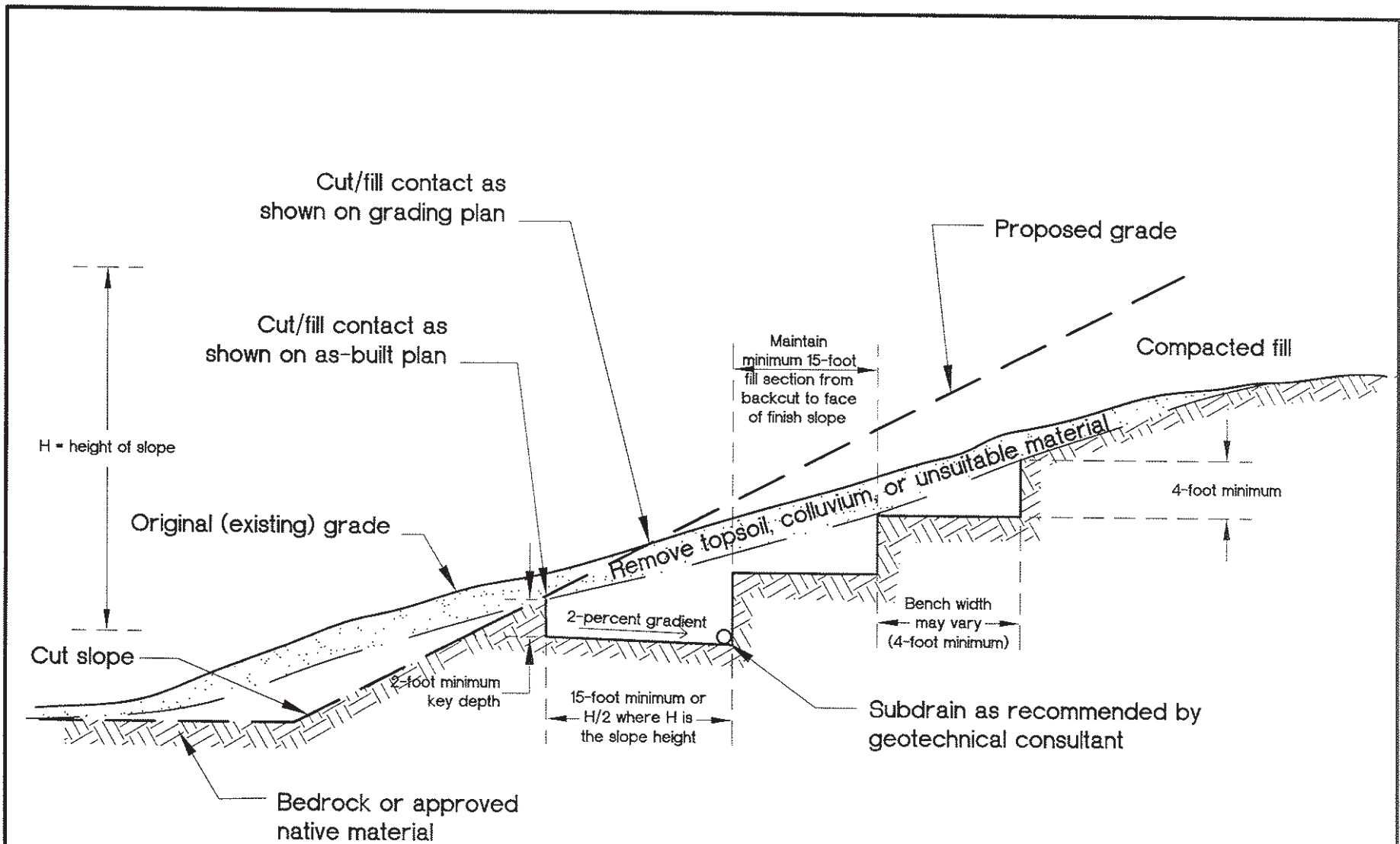
Filter Material shall be of the following specification or an approved equivalent.

Sieve Size	Percent Passing
1 inch	100
¾ inch	90-100
⅜ inch	40-100
No. 4	25-40
No. 8	18-33
No. 30	5-15
No. 50	0-7
No. 200	0-3

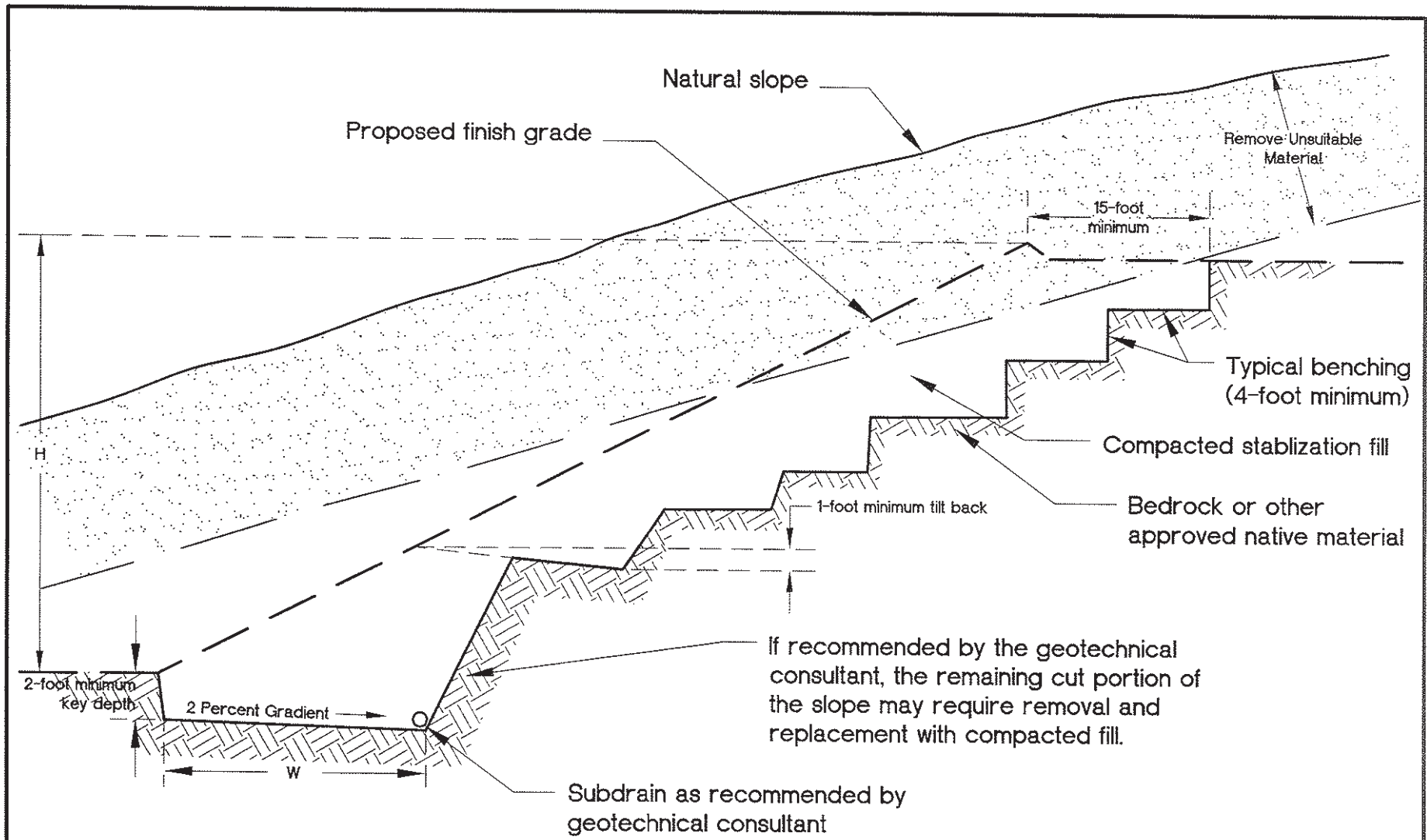
Gravel shall be of the following specification or an approved equivalent.

Sieve Size	Percent Passing
1½ inch	100
No. 4	50
No. 200	8

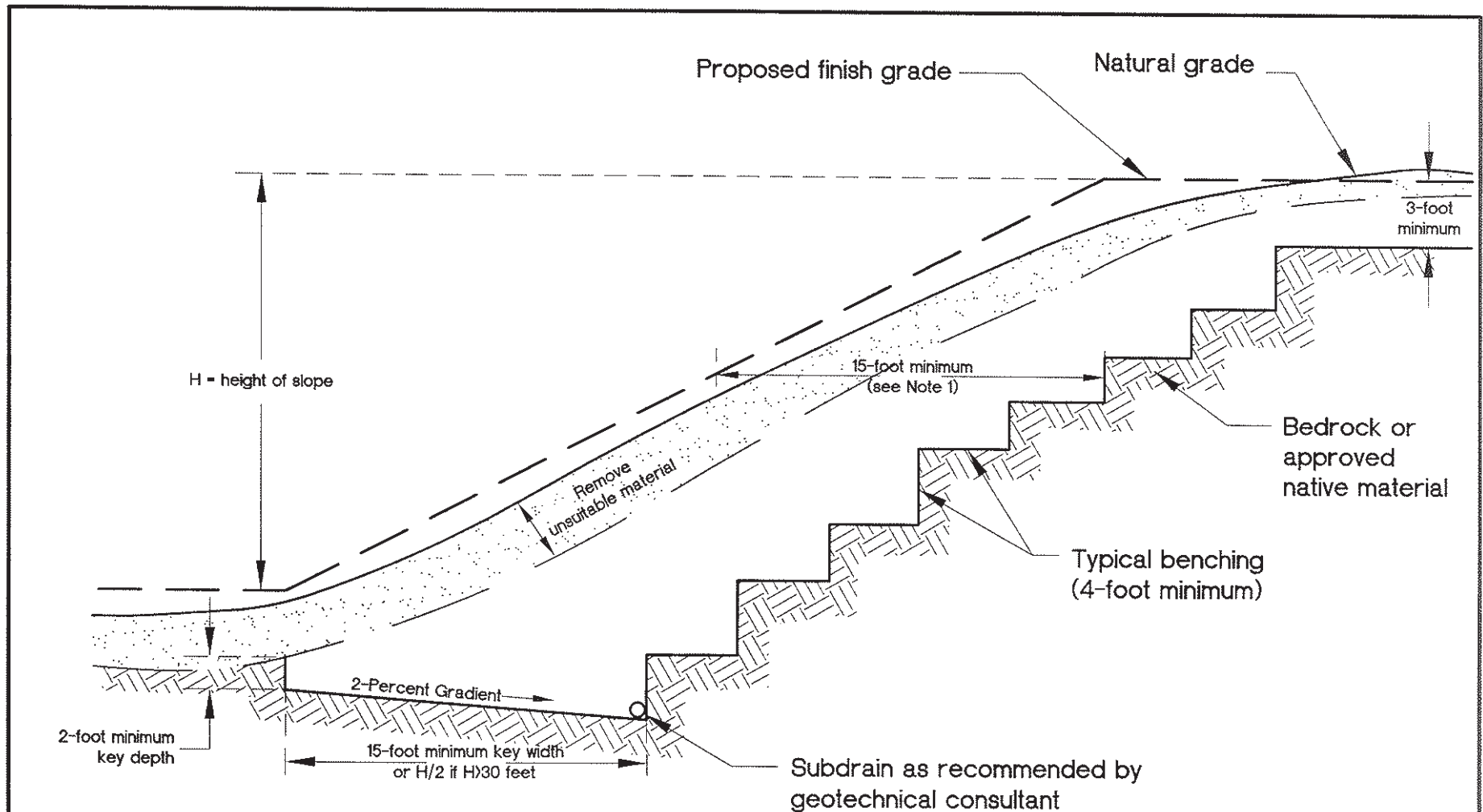




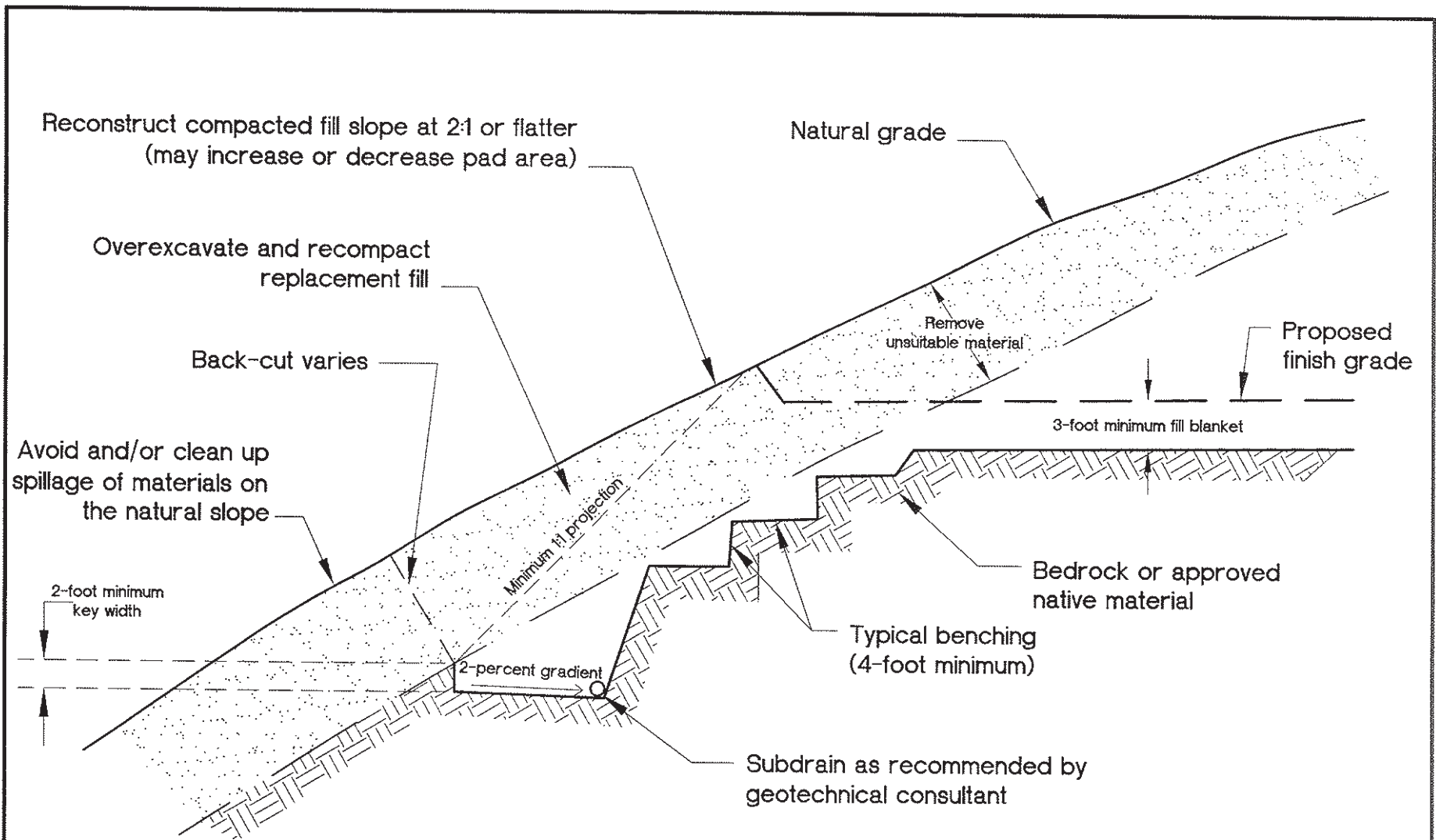
NOTE: The cut portion of the slope should be excavated and evaluated by the geotechnical consultant prior to construction of the fill portion.



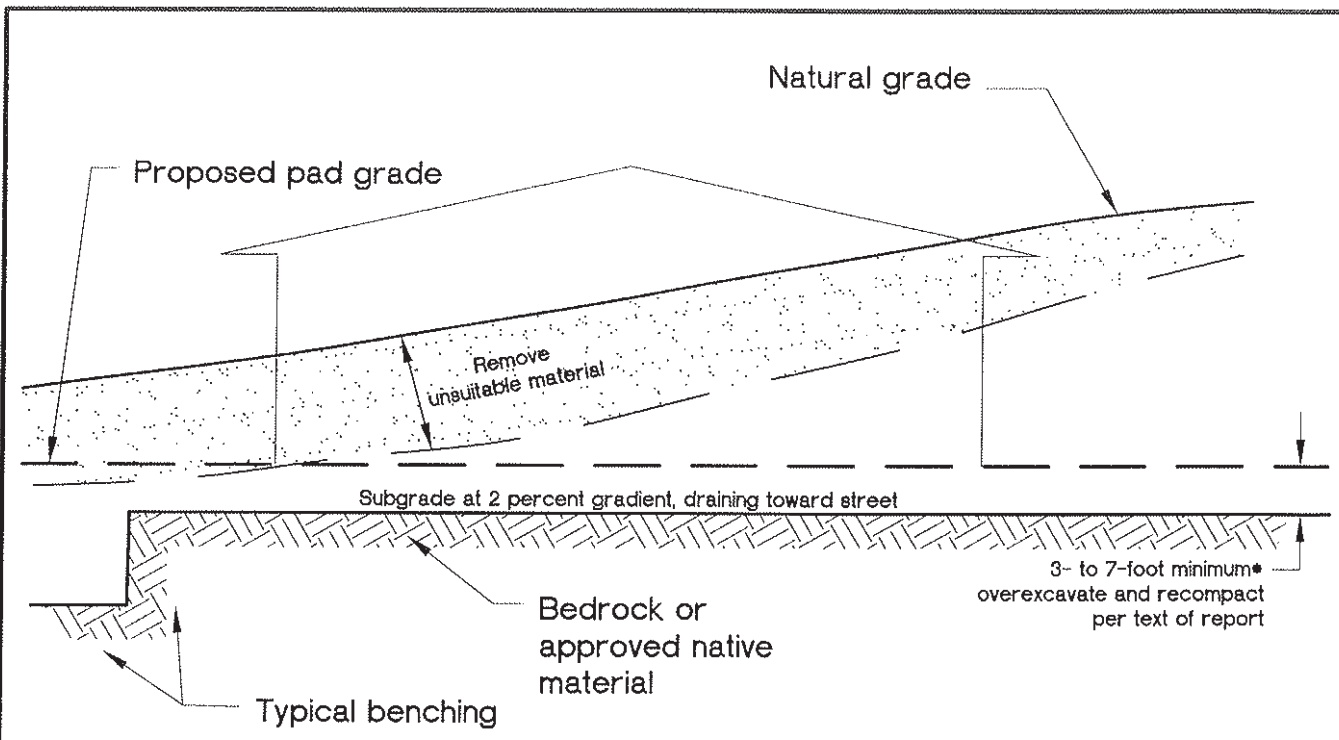
- NOTES:
1. Subdrains may be required as specified by the geotechnical consultant.
 2. W shall be equipment width (15 feet) for slope heights less than 25 feet. For slopes greater than 25 feet, W shall be evaluated by the geotechnical consultant. At no time, shall W be less than $H/2$, where H is the height of the slope.



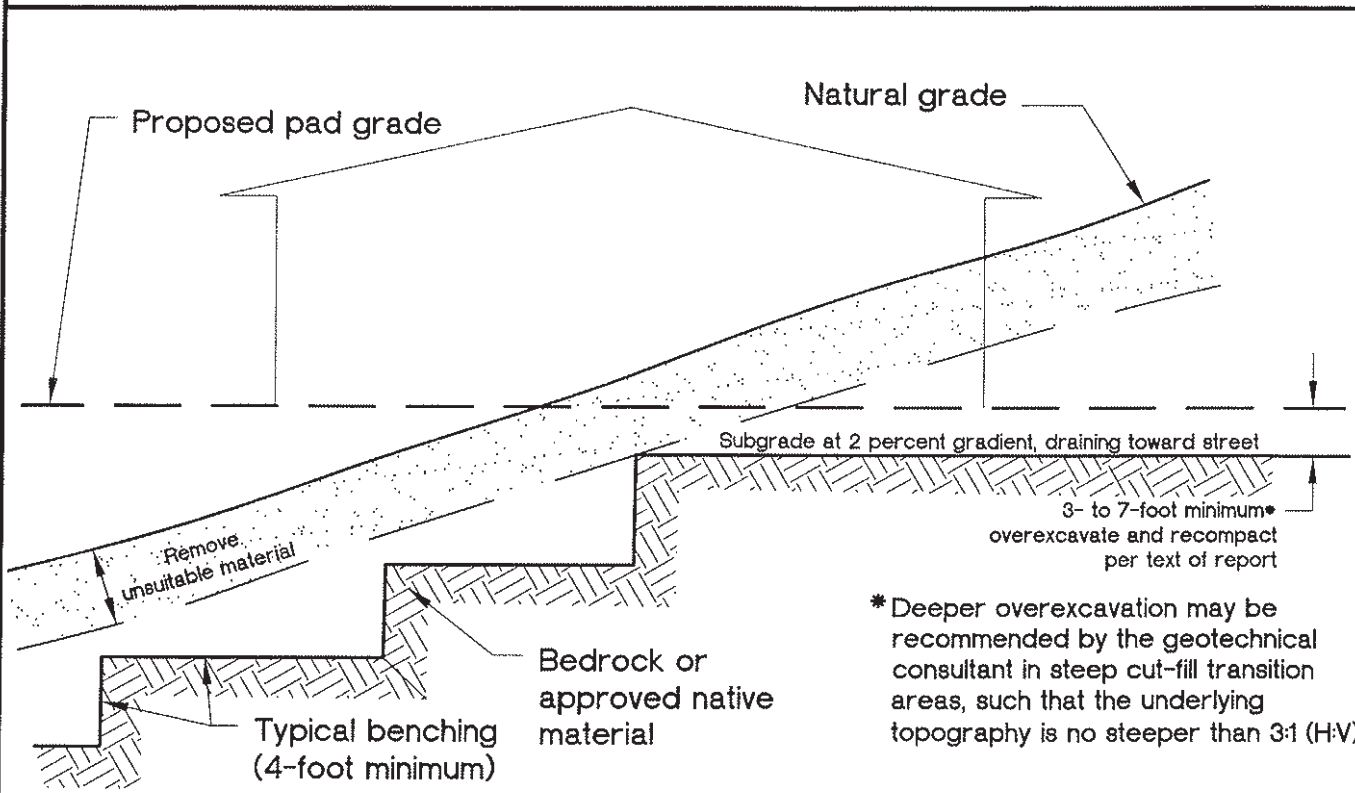
- NOTES:
1. 15-foot minimum to be maintained from proposed finish slope face to backcut.
 2. The need and disposition of drains will be evaluated by the geotechnical consultant based on field conditions.
 3. Pad overexcavation and recompaction should be performed if evaluated to be necessary by the geotechnical consultant.



- NOTES:
1. Subdrain and key width requirements will be evaluated based on exposed subsurface conditions and thickness of overburden.
 2. Pad overexcavation and recompaction should be performed if evaluated necessary by the geotechnical consultant.



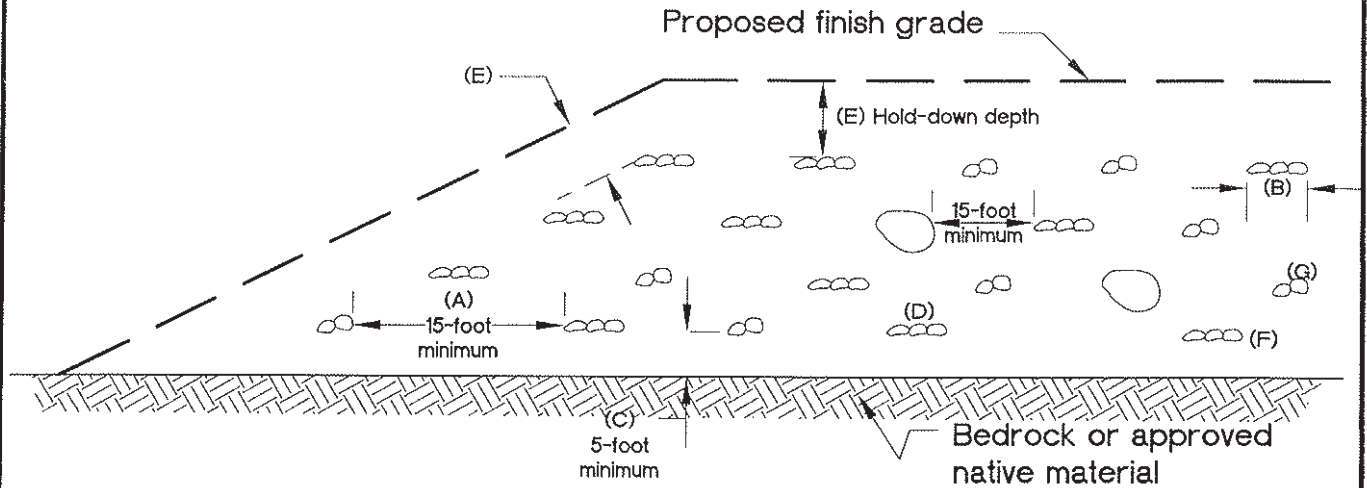
CUT LOT OR MATERIAL-TYPE TRANSITION



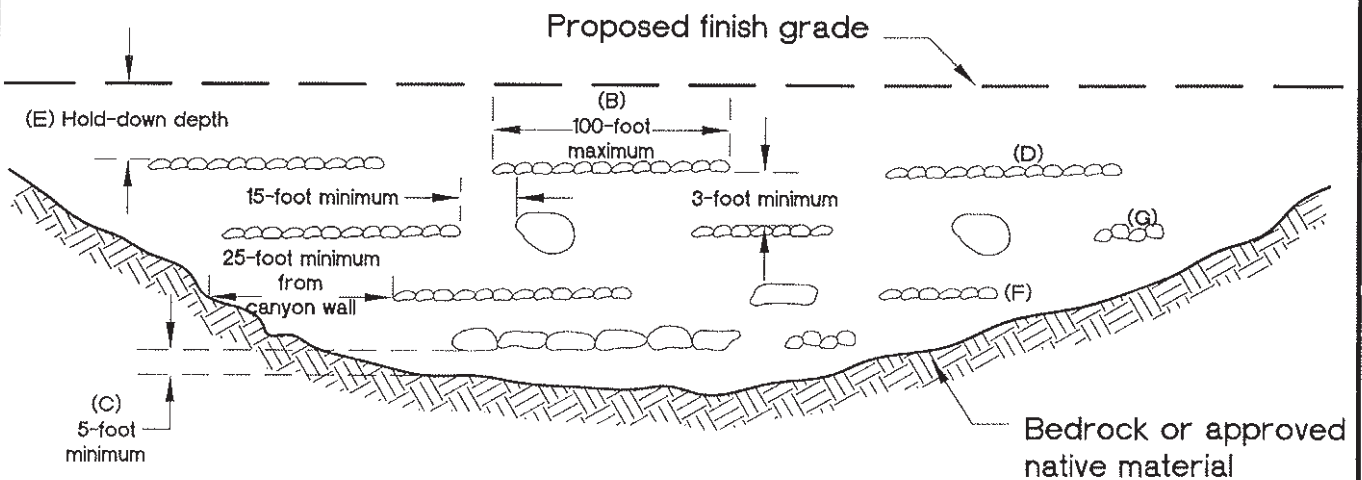
* Deeper overexcavation may be recommended by the geotechnical consultant in steep cut-fill transition areas, such that the underlying topography is no steeper than 3:1 (H:V)

CUT-FILL LOT (DAYLIGHT TRANSITION)

VIEW NORMAL TO SLOPE FACE



VIEW PARALLEL TO SLOPE FACE



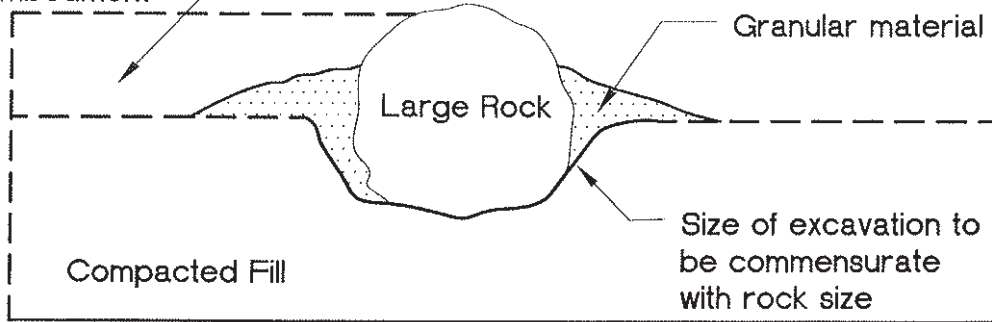
NOTES:

- A. One equipment width or a minimum of 15 feet between rows (or windrows).
- B. Height and width may vary depending on rock size and type of equipment. Length of windrow shall be no greater than 100 feet.
- C. If approved by the geotechnical consultant, windrows may be placed directly on competent material or bedrock, provided adequate space is available for compaction.
- D. Orientation of windrows may vary but should be as recommended by the geotechnical engineer and/or engineering geologist. Staggering of windrows is not necessary unless recommended.
- E. Clear area for utility trenches, foundations, and swimming pools; Hold-down depth as specified in text of report, subject to governing agency approval.
- F. All fill over and around rock windrow shall be compacted to at least 90 percent relative compaction or as recommended.
- G. After fill between windrows is placed and compacted, with the lift of fill covering windrow, windrow should be proof rolled with a D-9 dozer or equivalent.

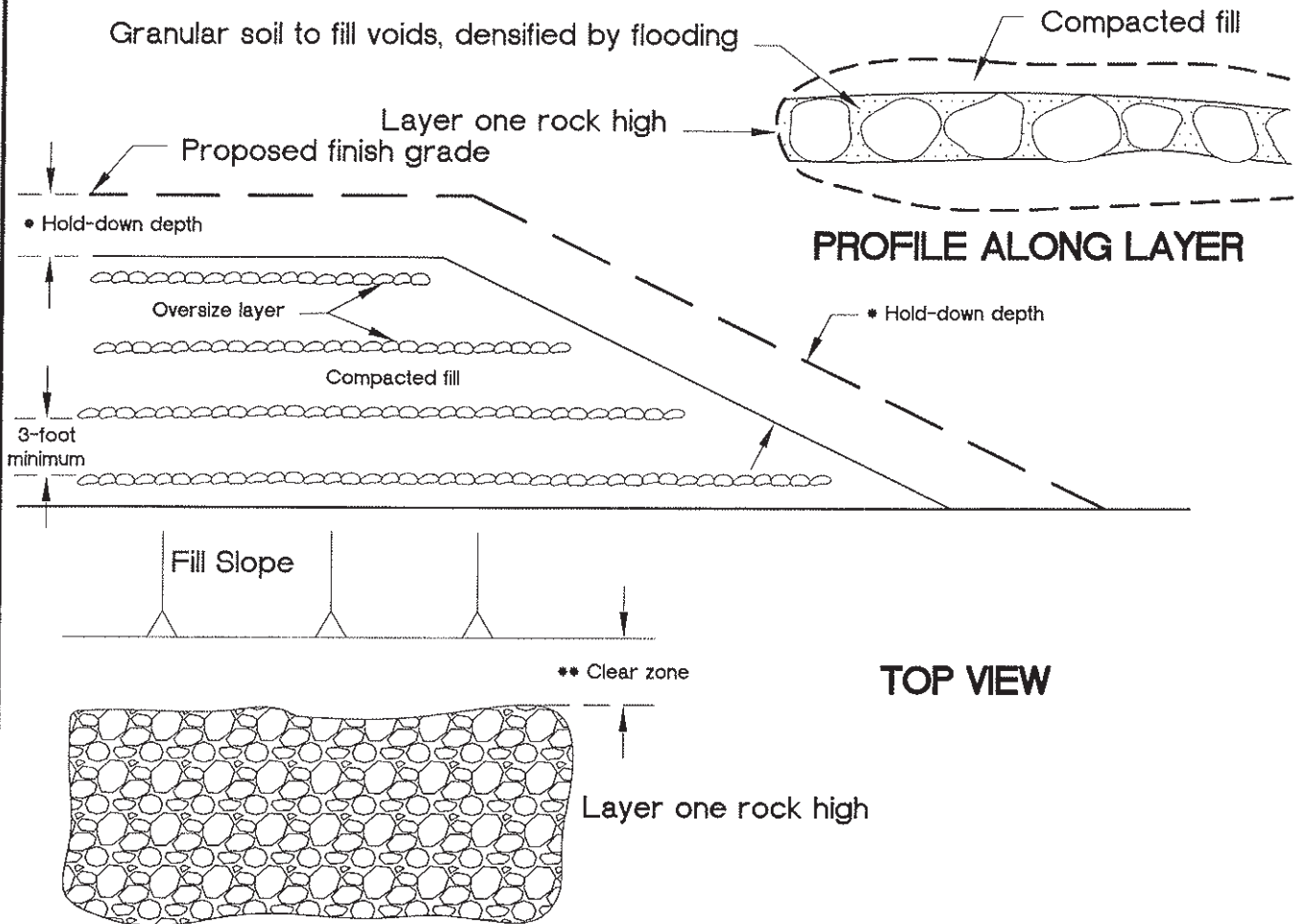
VIEWS ARE DIAGRAMMATIC ONLY AND MAY BE SUPERSEDED BY REPORT RECOMMENDATIONS OR CODE
ROCK SHOULD NOT TOUCH AND VOIDS SHOULD BE COMPLETELY FILLED

ROCK DISPOSAL PITS

Fill lifts compacted over rock after embedment



ROCK DISPOSAL LAYERS



* Hold-down depth or below lowest utility as specified in text of report, subject to governing agency approval.
 ** Clear zone for utility trenches, foundations, and swimming pools, as specified in text of report.
 VIEWS ARE DIAGRAMMATIC ONLY AND MAY BE SUPERSEDED BY REPORT RECOMMENDATIONS OR CODE
 ROCK SHOULD NOT TOUCH AND VOIDS SHOULD BE COMPLETELY FILLED IN

APPENDIX E

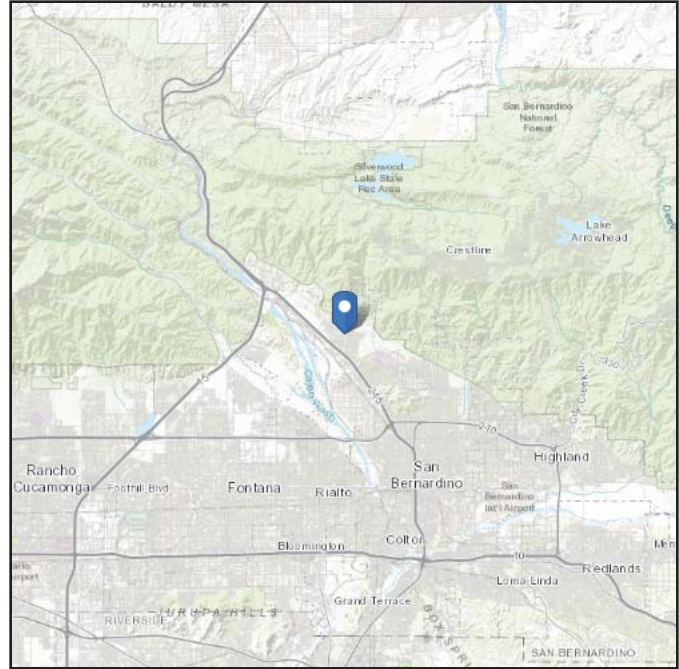
ASCE 7 Hazard Report

ASCE 7 Hazards Report

Address:
No Address at This
Location

Standard: ASCE/SEI 7-16
Risk Category: III
Soil Class: D - Default (see
Section 11.4.3)

Elevation: 1764.77 ft (NAVD 88)
Latitude: 34.197027
Longitude: -117.352924



Site Soil Class: D - Default (see Section 11.4.3)

Results:

S_s :	2.385	S_{D1} :	N/A
S_1 :	1.014	T_L :	12
F_a :	1.2	PGA :	1.026
F_v :	N/A	PGA _M :	1.231
S_{MS} :	2.862	F_{PGA} :	1.2
S_{M1} :	N/A	I_e :	1.25
S_{DS} :	1.908	C_v :	1.5

Ground motion hazard analysis may be required. See ASCE/SEI 7-16 Section 11.4.8.

Data Accessed: Mon Sep 13 2021

Date Source: [USGS Seismic Design Maps](#)

The ASCE 7 Hazard Tool is provided for your convenience, for informational purposes only, and is provided “as is” and without warranties of any kind. The location data included herein has been obtained from information developed, produced, and maintained by third party providers; or has been extrapolated from maps incorporated in the ASCE 7 standard. While ASCE has made every effort to use data obtained from reliable sources or methodologies, ASCE does not make any representations or warranties as to the accuracy, completeness, reliability, currency, or quality of any data provided herein. Any third-party links provided by this Tool should not be construed as an endorsement, affiliation, relationship, or sponsorship of such third-party content by or from ASCE.

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Appendix D Paleontological Resources Assessment Report

PALEONTOLOGICAL RESOURCES ASSESSMENT REPORT

TENTATIVE TRACT MAP NUMBER 20421

**Assessor's Parcel Number 0261-151-10
City of San Bernardino, San Bernardino County, California**

For Submittal to:

Community and Economic Development Department, Planning Division
City of San Bernardino
201 North E Street, 3rd Floor
San Bernardino, CA 92401

Prepared for:

Inland Self-Storage Management
P.O. Box 8008
Newport Beach, CA 92658

Prepared by:

Michael Hogan, Principal Investigator
Deirdre Encarnación, Report Writer
CRM TECH
1016 East Cooley Drive, Suite A/B
Colton, CA 92324

May 9, 2022

CRM TECH Project No. 3837P
Approximately 6.1 acres
San Bernardino North, Calif., 7.5' quadrangle
Rancho Muscupiabe land grant; T1N R5W, San Bernardino Baseline and Meridian

MANAGEMENT SUMMARY

Between February and May 2022, CRM TECH performed a paleontological resource assessment on approximately 6.1 acres of former agricultural land in the northwestern portion of the City of San Bernardino, San Bernardino County, California. The subject property of the study, Assessor's Parcel Number 0261-151-10, is located to the west of the intersection of Belmont Avenue and Olive Avenue, in a portion of the Rancho Muscupiabe land grant lying within Township 1 North Range 5 West, San Bernardino Baseline and Meridian, as depicted in the United States Geological Survey San Bernardino North, California, 7.5' quadrangle.

The study is part of the environmental review process for the proposed subdivision of the property as Tentative Tract Map Number 20421 for residential development as well as associated development code amendment to change the existing land use designation. The City of San Bernardino, as the 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 project would potentially disrupt or adversely affect any significant, nonrenewable paleontological resources, as mandated by CEQA.

In order to identify any paleontological resource localities in or near the project area and to assess the potential for such resources to be encountered during the project, CRM TECH initiated a records search, reviewed pertinent geological literature, and carried out a systematic field survey in accordance with the guidelines of the Society of Vertebrate Paleontology. The results of these research procedures indicate that the entire project area is situated upon surface deposits of alluvium that is unlikely to contain fossil materials but is underlain at significant depth by older, more fossiliferous sediments of Pleistocene age.

Based on these findings, the proposed project's potential to impact significant, nonrenewable paleontological resources appears to be low within the typical depth of disturbance for residential development but potentially high at a greater but unknown depth. Therefore, no paleontological resource impact mitigation program is recommended for the proposed project unless a greater depth of disturbance is anticipated than typical surface grading and underground utility installation would require. However, if any potential paleontological remains are unearthed during the project, all work in the immediate area should be halted or diverted until a qualified paleontologist can evaluate the nature and significance of the finds.

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INTRODUCTION

Between February and May 2022, CRM TECH performed a paleontological resource assessment on approximately 6.1 acres of former agricultural land in the City of San Bernardino, San Bernardino County, California (Fig. 1). The subject property of the study, Assessor's Parcel Number 0261-151-10, is located to the west of the intersection of Belmont Avenue and Olive Avenue, in a portion of the Rancho Muscupiabe land grant lying within Township 1 North Range 5 West, San Bernardino Baseline and Meridian, as depicted in the United States Geological Survey San Bernardino North, California, 7.5' quadrangle (Figs. 2, 3).

The study is part of the environmental review process for the proposed subdivision of the property as Tentative Tract Map Number 20421 for residential development as well as associated development code amendment to change the existing land use designation. The City of San Bernardino, as the 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 project would potentially disrupt or adversely affect any significant, nonrenewable paleontological resources, as mandated by CEQA.

In order to identify any paleontological resource localities in or near the project area and to assess the potential for such resources to be encountered during the project, CRM TECH initiated a records search, reviewed pertinent geological literature, and carried out a systematic field survey in accordance with the guidelines of the Society of Vertebrate Paleontology. The following report is a complete account of the methods, results, and final conclusion of this study. Personnel who participated in the study are named in the appropriate sections below, and their qualifications are provided in Appendix 1.

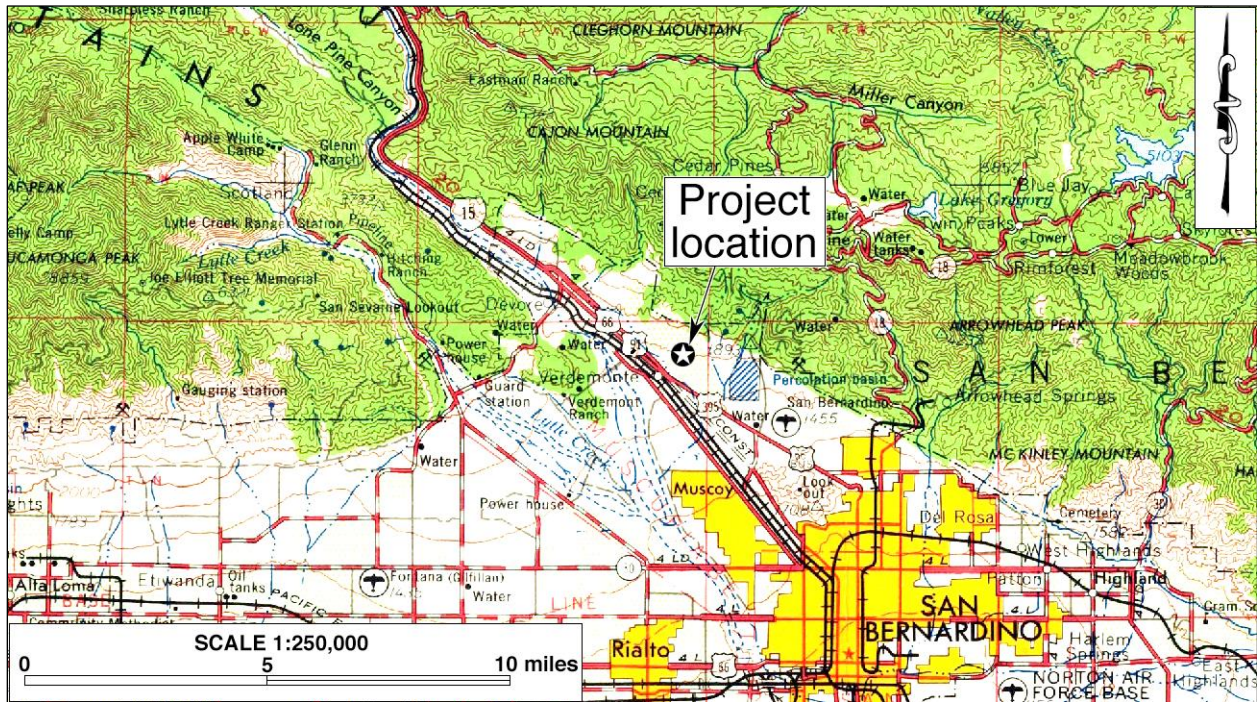


Figure 1. Project vicinity. (Based on USGS San Bernardino, Calif., 120'x60' quadrangle, 1969 edition)

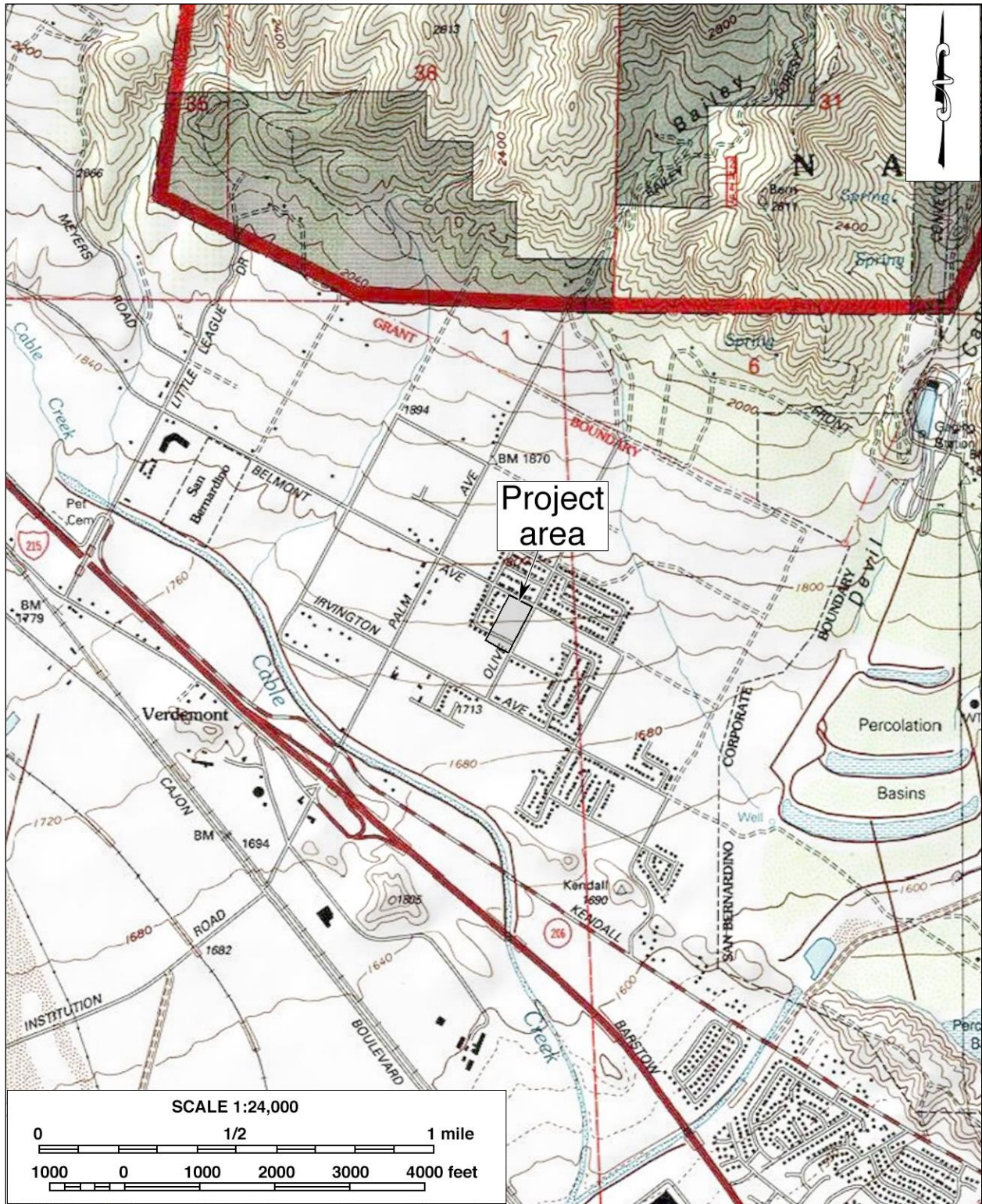


Figure 2. Project area. (Based on USGS San Bernardino North, Calif., 7.5' quadrangle, 1996 edition)



Figure 3. Recent satellite image of the project area.

PALEONTOLOGICAL RESOURCES

DEFINITION

Paleontological resources represent the remains of prehistoric life, exclusive of any human remains, and include the localities where fossils were collected as well as the sedimentary rock formations in which they were found. The defining character of fossils or fossil deposits is their geologic age, typically older than recorded human history and/or older than the middle Holocene Epoch, which dates to circa 5,000 radiocarbon years (Society of Vertebrate Paleontology 2010:11).

Common fossil remains include marine and freshwater mollusk shells; the bones and teeth of fish, amphibians, reptiles, and mammals; leaf imprint assemblages; and petrified wood. Fossil traces, another type of paleontological resource, include internal and external molds (impressions) and casts created by these organisms. These items can serve as important guides to the age of the rocks and sediments in which they are contained and may prove useful in determining the temporal relationships between rock deposits from one area and those from another as well as the timing of geologic events. They can also provide information regarding evolutionary relationships, development trends, and environmental conditions.

Fossil resources generally occur only in areas of sedimentary rock (e.g., sandstone, siltstone, mudstone, claystone, or shale). Because of the infrequency of fossil preservation, fossils, particularly vertebrate fossils, are considered nonrenewable paleontological resources. Occasionally fossils may be exposed at the surface through the process of natural erosion or because of human disturbances; however, they generally lay buried beneath the surficial soils. Thus, the absence of fossils on the surface does not preclude the possibility of their being present within subsurface deposits, while the presence of fossils at the surface is often a good indication that more remains may be found in the subsurface.

SIGNIFICANCE CRITERIA

According to guidelines proposed by Eric Scott and Kathleen Springer (2003) of the San Bernardino County Museum, paleontological resources can be considered to be of significant scientific interest if they meet one or more of the following criteria:

1. The fossils provide information on the evolutionary relationships and developmental trends exhibited among organisms, living or extinct;
2. The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;
3. The fossils provide data regarding the development of biological communities or the interactions between paleobotanical and paleozoological biotas;
4. The fossils demonstrate unusual or spectacular circumstances in the history of life; and/or
5. The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.

PALEONTOLOGICAL SENSITIVITY

The fossil record is unpredictable, and the preservation of organic remains is rare, requiring a particular sequence of events involving physical and biological factors. Skeletal tissue with a high percentage of mineral matter is the most readily preserved within the fossil record; soft tissues not intimately connected with the skeletal parts, however, are the least likely to be preserved (Raup and Stanley 1978). For this reason, the fossil record contains a biased selection not only of the types of organisms preserved but also of certain parts of the organisms themselves. As a consequence, paleontologists are unable to know with certainty, the quantity of fossils or the quality of their preservation that might be present within any given geologic unit.

Sedimentary units that are paleontologically sensitive are those geologic units (mappable rock formations) with a high potential to contain significant nonrenewable paleontological resources. More specifically, these are geologic units within which vertebrate fossils or significant invertebrate fossils have been determined by previous studies to be present or are likely to be present. These units include, but are not limited to, sedimentary formations that contain significant paleontological resources anywhere within their geographical extent as well as sedimentary rock units temporally or lithologically amenable to the preservation of fossils.

A geologic formation is defined as a stratigraphic unit identified by its lithic characteristics (e.g., grain size, texture, color, and mineral content) and stratigraphic position. There is a direct relationship between fossils and the geologic formations within which they are enclosed and, with sufficient knowledge of the geology and stratigraphy of a particular area, it is possible for paleontologists to reasonably determine the formation's potential to contain significant nonrenewable vertebrate, invertebrate, marine, or plant fossil remains.

The paleontological sensitivity for a geologic formation is determined by the potential for that formation to produce significant nonrenewable fossils. This determination is based on what fossil resources the particular geologic formation has produced in the past at other nearby locations. Determinations of paleontologic sensitivity must consider not only the potential to yield a large collection of fossil remains but also the potential to yield a few fossils that can provide new and significant taxonomic, phylogenetic, and/or stratigraphic data.

The Society of Vertebrate Paleontology issued a set of standard guidelines intended to assist paleontologists to assess and mitigate any adverse effects/impacts to nonrenewable paleontological resources. The guidelines defined four categories of paleontological sensitivity for geologic units that might be impacted by a proposed project, as listed below (Society of Vertebrate Paleontology 2010:1-2):

- **High Potential:** Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered.
- **Undetermined Potential:** Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment.
- **Low Potential:** Rock units that are poorly represented by fossil specimens in institutional collections, or based on general scientific consensus only preserve fossils in rare circumstances.
- **No Potential:** Rock units that have no potential to contain significant paleontological resources, such as high-grade metamorphic rocks and plutonic igneous rocks.

SETTING

The City of San Bernardino and the valley for which it is named are located in the Transverse Ranges Geomorphic Province of southern California, which consists of a series of steep east-west trending mountain ranges and valleys (Harden 2004:426). This east-west structure is in contrast to the usual coastal California northwest trend, hence the name “Transverse” (Jennings 1980). The Transverse Ranges Geomorphic Province extending west offshore to include the San Miguel, Santa Rosa, and Santa Cruz Islands, and the eastern end of the province is the San Bernardino Mountains (*ibid.*).

Within the San Bernardino Valley, a large irregular structural depression filled with alluvial deposits ranging in age from late Tertiary to Recent is overlain by channels of the Santa Ana River and its tributaries (Dutcher and Garrett 1963:1). The resulting valley is bounded by the San Gabriel and San Bernardino Mountain Ranges on the north to the Santa Ana Mountains and the Jurupa Hills on the south. Large alluvial fans, alluvial benches and terraces near the mountains, and stream channels underlie most of the area, but its landforms also include elongate hills, ridges, and scarps along the trace of the San Jacinto fault, which strikes northwestward roughly in the center of the valley (*ibid.*).

The project area lies in the Verdemon area in the northwestern portion of the City of San Bernardino, near the mouth of the Cajon Canyon, and approximately a half-mile from the southern base of the San Bernardino Mountains (Figs. 1, 2). It encompasses a generally rectangular-shaped parcel of vacant land surrounded by existing residential neighborhoods (Fig. 3). Virtually the entire project area has been greatly disturbed by past agricultural operations and, more recently, by construction activities associated with public roadways and residential development on adjacent properties.

The terrain within the project area is relatively level, with elevations ranging around approximately 1,745 to 1,785 feet above mean sea level, with a gradual incline to the northwest. The surface soils are alluvial in nature, consisting of fine- to coarse-grained sands mixed with silt, small to large rocks, and small boulders. Vegetation observed on the property includes several rows of olive trees as well as buckwheat, chamise, datura, foxtail, and other small shrubs and grasses (Fig. 4).

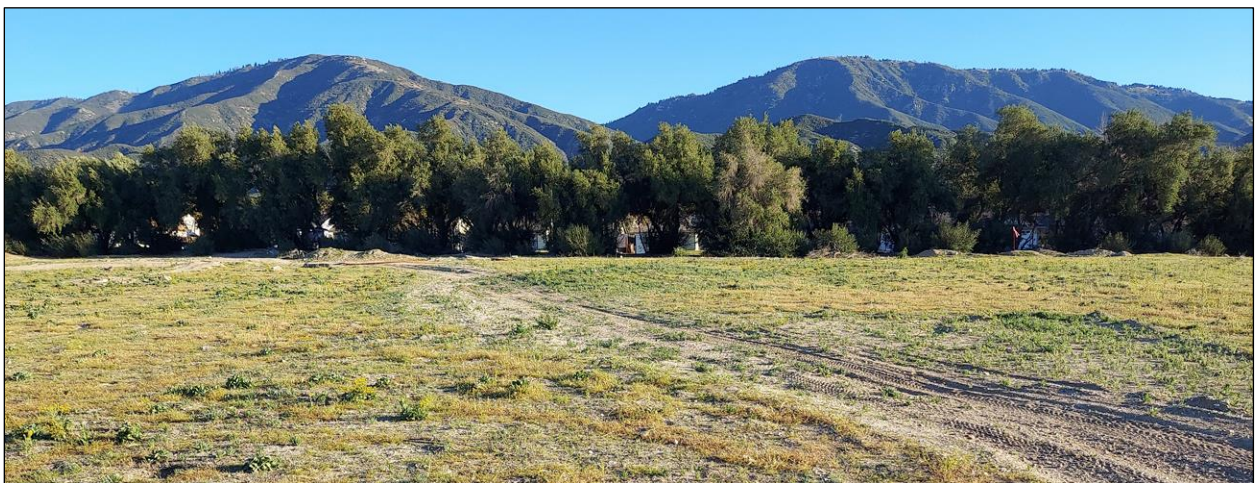


Figure 4. Current condition of the project area, view to the northeast. (Photograph taken on February 17, 2022)

METHODS AND PROCEDURES

RECORDS SEARCH

The paleontological records search service for this study was provided by the Western Science Center (WSC) in Hemet, California. The WSC maintains files of regional paleontological localities as well as supporting maps and documents. The records search results were used to identify previously performed paleontological resource assessments as well as known paleontological localities within a one-mile radius of the project area. A copy of the records search results is attached to this report in Appendix 2.

LITERATURE REVIEW

In conjunction with the records searches, CRM TECH report writer Deirdre Encarnación reviewed geological literature pertaining to the project vicinity under the direction of project geologist/paleontologist Harry M. Quinn, California Professional Geologist #3477. Sources consulted during the review include primarily topographic, geologic, and soil maps of the San Bernardino area, published geological literature on regional geology, and other materials in the CRM TECH library, including unpublished reports produced during similar surveys in the vicinity.

FIELD SURVEY

On February 17, 2022, CRM TECH paleontological surveyor Daniel Ballester carried out the field survey of the project area under Harry M. Quinn's direction. The survey was completed by walking a series of parallel transects oriented northeast-southwest and spaced 10 meters (approximately 33 feet) apart. In this way, the ground surface in the entire project area was systematically and carefully examined to determine the soil types, to verify the geologic formations, and to look for any indications of paleontological remains. Ground visibility was generally excellent (90-100%) due to the light vegetative cover.

RESULTS AND FINDINGS

RECORDS SEARCHES

Records of the WSC identified no fossil localities within the project area or within a one-mile radius (Stoneburg 2022). The WSC states that the geologic units underlying the project area are primarily alluvial fan gravel and sand from the Holocene Epoch, while surrounding soils include Pleistocene-age alluvial fan gravel, sand, and boulder gravel, mica schist of Mesozoic age, Cretaceous granitic rocks, and Precambrian gneiss (*ibid.*). Although the Holocene-age alluvial soils have high preservation value, they are unlikely to contain fossil material based on the relatively recent age of the deposits.

In light of the sediments present within the project area, the WSC concludes that fossil material is unlikely to be present within the depth to be impacted by the proposed development (Stoneburg 2022). However, the WSC further observes that, should the project require a substantial depth of

disturbance, the sensitivity of the subsurface soils for paleontological remains would increase with the likelihood of reaching deeply buried Pleistocene alluvial sediments (*ibid.*). The WSC therefore recommends that “caution during development should be observed” (*ibid.*).

LITERATURE REVIEW

The surface geology in the project area was mapped by Rogers (1967) as being *Qal-Qc*, or “stream, river channel, and alluvial fan deposits...of Pleistocene to Recent age.” In Rogers’ (1967) coding system, *Qal* represents Recent alluvium, while *Qc* represents Pleistocene nonmarine sediments. More recently, Miller and Matti (2001) mapped the surface geology in the project area entirely as *Qyf5*, which represents late Holocene alluvial-fan deposits composed of fine- to coarse-grained sand and pebble-boulder gravel, unconsolidated or slightly consolidated (Fig. 5). According to Miller (1979), alluvium filling the San Bernardino valley may be in part derived from erosion of other alluvial units that range from boulder-bearing alluvium at the base of the mountains to finer-grained sediments progressing away.

FIELD SURVEY

Throughout the course of the field survey, no surface manifestation of any paleontological remains was observed within the project area. As mentioned above, the ground surface in the project area has been disturbed by many decades of agricultural operations and by recent development on adjacent properties, and a paved road known as Shepherd Lane now extends across the southern portion of the property (Fig. 3).

CONCLUSION

CEQA guidelines (Title 14 CCR App. G, Sec. V(c)) require that public agencies in the State of California determine whether a proposed project would “directly or indirectly destroy a unique paleontological resource” during the environmental review process. The present study, conducted in compliance with this provision, is designed to identify any significant, non-renewable paleontological resources that may exist within or adjacent to the project area, and to assess the possibility for such resources to be encountered in future excavation and construction activities.

In summary of the research results presented above, no paleontological localities were previously reported within the project area, and no indications of any fossil remains was found in the surface sediments during this study. The records search identified no fossil localities within one mile of the project area, and both the literature review and records search suggest that the entire project area is situated upon surface exposures of relatively recent alluvium that is unlikely to contain fossil material. Excavations within the project area would have to be of substantial depths to impact potentially fossiliferous Pleistocene sediments.

Based on these findings, the proposed project’s potential to impact significant, nonrenewable paleontological resources appears to be low within the typical depth of disturbance for residential development but potentially high at a greater but unknown depth. Therefore, no paleontological resource impact mitigation program is recommended for the proposed project unless a greater depth

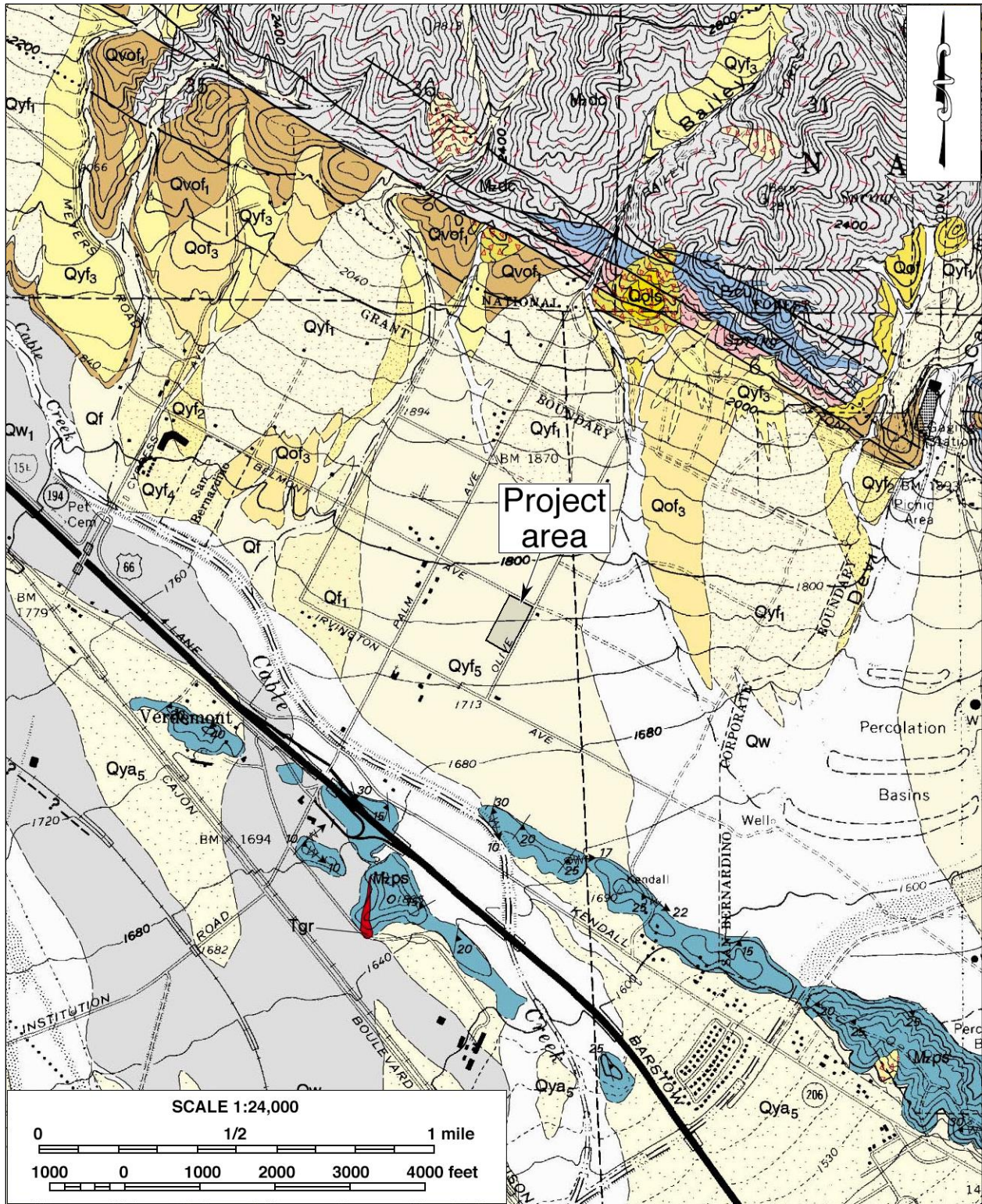


Figure 5. Geologic map of the project vicinity. (Source: Miller and Matti 2001)

of disturbance is anticipated than typical surface grading and underground utility installation would require. However, if any potential paleontological remains are unearthed during the project, all work in the immediate area should be halted or diverted until a qualified paleontologist can evaluate the nature and significance of the finds.

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- Dutcher, L.C., and A.A. Garrett
1963 *Geologic and Hydrologic Features of the San Bernardino Area, California, with Special Reference to Underflow across the San Jacinto Fault*. Geological Survey Water-supply Paper 1419. United States Geological Survey, Washington, D.C.
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APPENDIX 1

PERSONNEL QUALIFICATIONS

PRINCIPAL INVESTIGATOR

Michael Hogan, Ph.D., RPA (Registered Professional Archaeologist)

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, California.
1996-1998 Project Director and Ethnographer, Statistical Research, Inc., Redlands, California.
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 Project Director, Field Director, Crew Chief, and Archaeological Technician 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

Principal investigator for, author or co-author of, and contributor to numerous cultural resources
management study reports since 1986.

Memberships

Society for American Archaeology; Society for California Archaeology; Pacific Coast
Archaeological Society; Coachella Valley Archaeological Society.

PROJECT GEOLOGIST/PALEONTOLOGIST
Harry M. Quinn, M.S., California Professional Geologist #3477

Education

1968 M.S., Geology, University of Southern California, Los Angeles, California.
1964 B.S, Geology, Long Beach State College, Long Beach.
1962 A.A., Los Angeles Harbor College, Wilmington, California.

- Graduate work oriented toward invertebrate paleontology; M.S. thesis completed as a stratigraphic paleontology project on the Precambrian and Lower Cambrian rocks of Eastern California.

Professional Experience

2000- Project Paleontologist, CRM TECH, Riverside/Colton, California.
1998- Project Archaeologist, CRM TECH, Riverside/Colton, California.
1992-1998 Independent Geological/Geoarchaeological/Environmental Consultant, Pinyon Pines, California.
1994-1996 Environmental Geologist, E.C E.S., Inc, Redlands, California.
1988-1992 Project Geologist/Director of Environmental Services, STE, San Bernardino, California.
1987-1988 Senior Geologist, Jirsa Environmental Services, Norco, California.
1986 Consulting Petroleum Geologist, LOCO Exploration, Inc. Aurora, Colorado.
1978-1986 Senior Exploration Geologist, Tenneco Oil E & P, Englewood, Colorado.
1965-1978 Exploration and Development Geologist, Texaco, Inc., Los Angeles, California.

Previous Work Experience in Paleontology

1969-1973 Attended Texaco company-wide seminars designed to acquaint all paleontological laboratories with the capability of one another and the procedures of mutual assistance in solving correlation and paleo-environmental reconstruction problems.
1967-1968 Attended Texaco seminars on Carboniferous coral zonation techniques and Carboniferous smaller foraminifera zonation techniques for Alaska and Nevada.
1966-1972, 1974, 1975 Conducted stratigraphic section measuring and field paleontological identification in Alaska for stratigraphic controls. Pursued more detailed fossil identification in the paleontological laboratory to establish closer stratigraphic controls, mainly with Paleozoic and Mesozoic rocks and some Tertiary rocks, including both megafossil and microfossil identification, as well as fossil plant identification.
1965 Conducted stratigraphic section measuring and field paleontological identification in Nevada for stratigraphic controls. Pursued more detailed fossil identification in the paleontological laboratory to establish closer stratigraphic controls, mainly with Paleozoic rocks and some Mesozoic and Tertiary rocks. The Tertiary work included identification of ostracods from the Humboldt and Sheep Pass Formations and vertebrate and plant remains from Miocene alluvial sediments.

Memberships

Society of Vertebrate Paleontology; American Association of Petroleum Geologists; Association of Environmental Professionals; Rocky Mountain Association of Geologists, Pacific Section; Society of Economic Paleontologists and Mineralogists; San Bernardino County Museum.

Publications in Geology

Five publications in Geology concerning an oil field study, a ground water and earthquake study, a report on the geology of the Santa Rosa Mountain area, and papers on vertebrate and invertebrate Holocene Lake Cahuilla faunas.

REPORT WRITER
Deirdre Encarnación, M.A.

Education

- 2003 M.A., Anthropology, San Diego State University, California.
2000 B.A., Anthropology, minor in Biology, with honors; San Diego State University, California.
- 2001 Archaeological Field School, San Diego State University.
2000 Archaeological Field School, San Diego State University.

Professional Experience

- 2004- Project Archaeologist/Report Writer, CRM TECH, Riverside/Colton, California.
2001-2003 Part-time Lecturer, San Diego State University, California.
2001 Research Assistant for Dr. Lynn Gamble, San Diego State University.
2001 Archaeological Collection Catalog, SDSU Foundation.

PALEONTOLOGICAL MONITOR/FIELD DIRECTOR
Daniel Ballester, M.S., RPA (Registered Professional Archaeologist)

Education

- 2013 M.S., Geographic Information System (GIS), University of Redlands, California.
1998 B.A., Anthropology, California State University, San Bernardino.
1997 Archaeological Field School, University of Las Vegas and University of California, Riverside.
1994 University of Puerto Rico, Rio Piedras, Puerto Rico.
- 2007 Certificate in Geographic Information Systems (GIS), California State University, San Bernardino.
- Cross-trained in paleontological field procedures and identifications by CRM TECH Geologist/Paleontologist Harry M. Quinn.

Professional Experience

- 2002- Field Director/GIS Specialist, CRM TECH, Riverside/Colton, California.
2011-2012 GIS Specialist for Caltrans District 8 Project, Garcia and Associates, San Anselmo, California.
2009-2010 Field Crew Chief, Garcia and Associates, San Anselmo, California.
2009-2010 Field Crew, ECorp, Redlands.
1999-2002 Project Paleontologist/Archaeologist, CRM TECH, Riverside, California.
1998-1999 Field Crew, K.E.A. Environmental, San Diego, California.
1998 Field Crew, A.S.M. Affiliates, Encinitas, California.
1998 Field Crew, Archaeological Research Unit, University of California, Riverside.

Cultural Resources Management Reports

Co-author and contributor to numerous cultural and paleontological resources management reports since 2002.

APPENDIX 2

RECORDS SEARCH RESULTS



Nina Gallardo
CRM TECH
1016 E. Cooley Drive, Suite A/B
Colton, CA

March 4, 2022

Dear Ms. Gallardo,

This letter presents the results of a record search conducted for the Proposed Tentative Tract Map 20421 Project; Assessor's Parcel Number 0261-151-10 in the city San Bernardino, San Bernardino County, California. The project site is located north of Irvington Avenue, south of Belmont Avenue, west of Olive Avenue and east of Palm Avenue in Township 1 North, Range 5 West SB in the Muscupiabe Land Grant Section of the *San Bernardino North* USGS 7.5 minute quadrangle.

The geologic units underlying this project are mapped as primarily alluvial fan gravel and sand from the Holocene period (Diblee and Minch, 2004). Within a mile of the project area (particularly towards the mountains) are numerous other units, including:

- Qoa:** Pleistocene alluvial fan gravel and sand
- Qls:** Pleistocene landslide
- Qog:** Pleistocene alluvial fan deposits of boulder gravel
- ps:** Mesozoic (late Cretaceous) mica schist
- gr:** Cretaceous granitic rocks
- gn:** Precambrian gneiss

Holocene alluvial units are considered to be of high preservation value, but material found is unlikely to be fossil material due to the relatively modern associated dates of the deposits. However, if development requires any substantial depth of disturbance, the likelihood of reaching Pleistocene alluvial sediments would increase. The Western Science Center does not have localities within the project area or within a 1 mile radius.

While the presence of any fossil material is unlikely, if excavation activity disturbs deeper sediment dating to the earliest parts of the Holocene or Late Pleistocene periods, the material would be scientifically significant. Excavation activity associated with the development of the project area is unlikely to be paleontologically sensitive, but caution during development should be observed.

If you have any questions, or would like further information, please feel free to contact me at bstoneburg@westerncentermuseum.org.

Sincerely,






A handwritten signature in black ink, appearing to read 'Brittney Stoneburg', written in a cursive style.

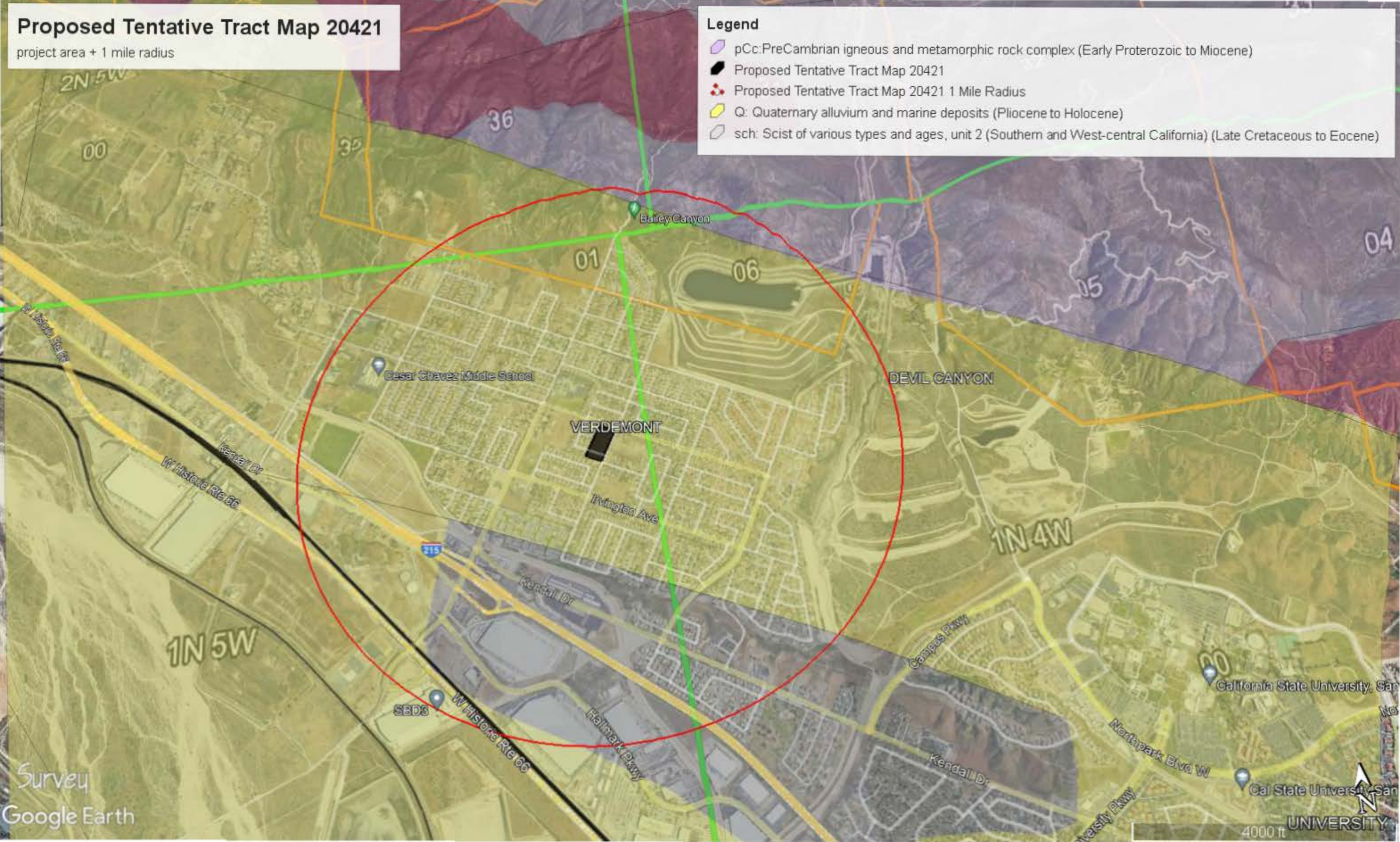
Brittney Elizabeth Stoneburg
Collections Technician

Proposed Tentative Tract Map 20421

project area + 1 mile radius

Legend

-  pCc: PreCambrian igneous and metamorphic rock complex (Early Proterozoic to Miocene)
-  Proposed Tentative Tract Map 20421
-  Proposed Tentative Tract Map 20421 1 Mile Radius
-  Q: Quaternary alluvium and marine deposits (Pliocene to Holocene)
-  sch: Scist of various types and ages, unit 2 (Southern and West-central California) (Late Cretaceous to Eocene)



Appendix E Onsite Stormwater Infiltration Systems Investigation



SoCal Professional Engineers

Serving all Southern California

229 Cajon St., Ste.#2, Redlands, CA 92373

909.271.3135

September 10, 2021

Rene Jacober
Inland Self Storage Management, Inc.
2999 W. Kendall Dr. Suite 208
San Bernardino, CA 92407

SUBJECT: ONSITE STORMWATER INFILTRATION SYSTEM INVESTIGATION
Proposed Tentative Tract Map
APN 0261-151-10, ± 5.3 Acres
Belmont Avenue
San Bernardino County, California
Work Order No. 0842101.01

Mr. Jacober,

In accordance with your authorization, we have conducted percolation testing for the infiltration system proposed for the proposed residential property. The purpose of our investigation was to provide infiltration rates for the proposed infiltration system.

Site Description

Attached as **Plate 1**, the “Infiltration Test Location Map” utilized the 40-scale, “Tentative Tract Map” prepared by Suresh Dudia, showing the test location(s) on the site. The subject site is a vacant 5.3 \pm -acre nearly rectangular shaped parcel that slopes $\pm 5\%$ in the area of the infiltration systems. The subject site is located on the south side of Belmont Avenue, city of San Bernardino, San Bernardino County, California. The geographical relationships of the site and surrounding area are depicted on our Site Location Map, **Figure 1**.

Vegetation onsite was a scattered growth of weeds and grasses. Gradients on the subject site are less than $\pm 5\%$ to the southeast.

Percolation/Infiltration Investigation

Percolation/infiltration testing was conducted on September 9, 2021. Tests were performed within each infiltration area for a total of six tests within the existing native soils. The test locations are depicted on the Infiltration Test Location Map, **Plate 1**. Six separate shallow borings were excavated, and six percolation tests were performed at depths corresponding to the depth of the proposed infiltration system. Additionally, an exploratory boring was advanced to a total depth explored of 15-ft below the ground surface. (bgs).

Our exploratory trench exposed approximately 1.0-ft of undifferentiated topsoil/colluvial soils overlying medium dense alluvial deposits, which extended to the total depth explored of 15-ft bgs. The **alluvium** map symbol Qyf3, excavates as gravelly silty Sand (Unified Soil Classifications - SM-GM) that can be described as brown, fine to coarse grained, gravelly, slightly moist and increases in density and grain size with depth. No mottling of the soil, often indicative of past high groundwater, was observed. Detailed descriptions of the onsite units are presented on our exploratory trench log included in **Appendix B**.

LABORATORY TESTING PROGRAM

Sieve analysis testing was performed on a soil sample representative of the earth materials exposed in the near surface soils at depths of 2 to 15ft was 28-percent passing the #200 sieve, indicating sufficient fines exist in the near surface soils to provide filtration. The test results are included in **Appendix C, Laboratory Test Results**.

GROUNDWATER

Groundwater was not encountered within our exploratory trenches, which were advanced to a maximum depth of 15 -ft bgs. No mottling or other indications of previous high groundwater levels were observed during our subsurface exploration. **Alluvial deposits** underly the subject site to the total depth explored of 15-ft. Regional depth to groundwater is 100+ feet Bgs (Carson & Matti, 1985).

SUMMARY OF TEST PROCEDURES

The testing procedure was performed in accordance with Riverside County Department of Environmental Health's "Local Management Program for Onsite Wastewater Treatment Systems", which became effective October 5, 2016, and the resulting perc rates were converted to infiltration rates utilizing the Porchet Method as outlined in the Riverside County Flood Control and Water Conservation District, "Design Handbook for Low Impact Development Best Management Practices" dated September 2011. The percolation tests were performed at depths within the underlying soils corresponding to the proposed system. Procedures for normal soils were followed.

Conclusion

Testing indicated infiltration rates at the proposed bottom of the systems within the native soils obtained consistent rates. The percolation rate was converted to infiltration rate utilizing the Porchet Method. The rates provided do not include a safety factor. The exploratory boring location and test locations are presented on our Infiltration Test Location Map, **Plate 1**.

PERCOLATION TEST NO.	DEPTH OF TEST	INFILTRATION RATE (In/Hr)
1	5-FT	5.08
2	5-FT	3.39
3	5-FT	6.10
4	5-FT	3.26
5	5-FT	4.20
6	5-FT	3.93

CLOSURE

It should be noted that infiltration rates determined by testing are ultimate rates based on short-duration field test results utilizing clear water. Infiltration rates can be affected by silt build-up, debris, degree of soil saturation, and other factors. An appropriate safety factor should be applied prior to use in design to account for subsoil inconsistencies, possible compaction related to site grading, and potential silting of the percolating soils. The safety factor should also be determined with consideration to other factors in the system design, particularly storm water volume estimates and the safety factors associated with those design components. A minimum 100-ft setback from on or off-site water wells should be maintained.

LIMITATIONS

The tested rates are representative for the areas and soil types tested. Should the systems be moved, or the exposed soil types are found to differ within the proposed systems, the approved infiltration rates may not apply. Our investigation was performed using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable Geotechnical Engineers and Geologists practicing in this or similar localities. No other warranty, expressed or implied, is made as to the conclusions and professional advice included in this report.

The report is issued with the understanding that it is used only by the owner and it is the sole responsibility of the owner or their representative to ensure that the information and recommendations contained herein are brought to the attention of the architect, engineer, and appropriate jurisdictional agency for the project and incorporated into the plans; and the necessary steps are taken to see that the contractor and subcontractors carry out such recommendations contained herein during construction and in the field.

The samples taken and used for testing and the observations made are believed representative; however, soil and geologic conditions can vary significantly between test locations. The evaluation or identification of the potential presence of hazardous or corrosive materials was not part of the scope of services provided by **SoCal Professional Engineers**, or its assigns.

The findings of this report are valid as of the present date. However, changes in the condition of a property can occur with the passage of time, whether due to natural processes or the works of man on this or adjacent properties. In addition, changes in applicable or appropriate standards may occur, whether they result from legislation or the broadening of knowledge. Accordingly, the findings of this report may be invalidated wholly or partially by changes outside our control. Therefore, this report is subject to review and revision as changed conditions are identified. The firm that performed

the geotechnical investigation for this project should be retained to provide testing observation services during construction to maintain continuity of geotechnical interpretation and to check that the recommendations presented herein are implemented during construction of improvements.

If another geotechnical firm is selected to perform the inspection services during construction operations, that firm should prepare a letter indicating their intent to assume the responsibilities of project geotechnical engineer of record. Selection of another firm to perform any of the recommended activities or failure to retain the undersigned to perform the recommended activities wholly absolves **SoCal Professional Engineers**, the undersigned, and its assigns from any and all liability arising directly or indirectly from any aspects of this project.

We appreciate the opportunity to be of service. Limitations and conditions contained in reference documents are considered in full force and applicable. If you have any questions, please do not hesitate to call our office.

Respectfully Submitted,

SoCal Professional Engineers
KHALED

Digitally signed by KHALED
FARAH
DN: cn=KHALED FARAH, o=SOCAL
PROFESSIONAL ENGINEERS,
email=info@socal-pe.com, c=US
Date: 2021.09.12 06:24:46 -07'00'

FARAH

Khaled S. Farah
Civil Engineer, RCE 83128



ATTACHMENTS

- Plate 1 – Infiltration Test Location Map
- Appendix A –References
- Appendix B – Boring Log
- Appendix C- Laboratory Test Results
- Appendix D- Test Data Sheets & Porchet Conversion Results

IN THE CITY OF SAN BERNARDINO,
COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA
TENTATIVE TRACT MAP NO. 20421

BEING A SUBDIVISION OF THE EAST HALF OF LOT 2 IN BLOCK 85 AS SHOWN ON LICENSED LAND SURVEYOR'S MAP OF THE IRVINGTON LAND AND WATER COMPANY'S SUBDIVISION OF A PART OF THE MUSCUIABE RANCHO, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ON FILE IN BOOK 1, PAGE 32 OF RECORDS OF SURVEY, IN THE OFFICE OF THE RECORDER OF SAID COUNTY.

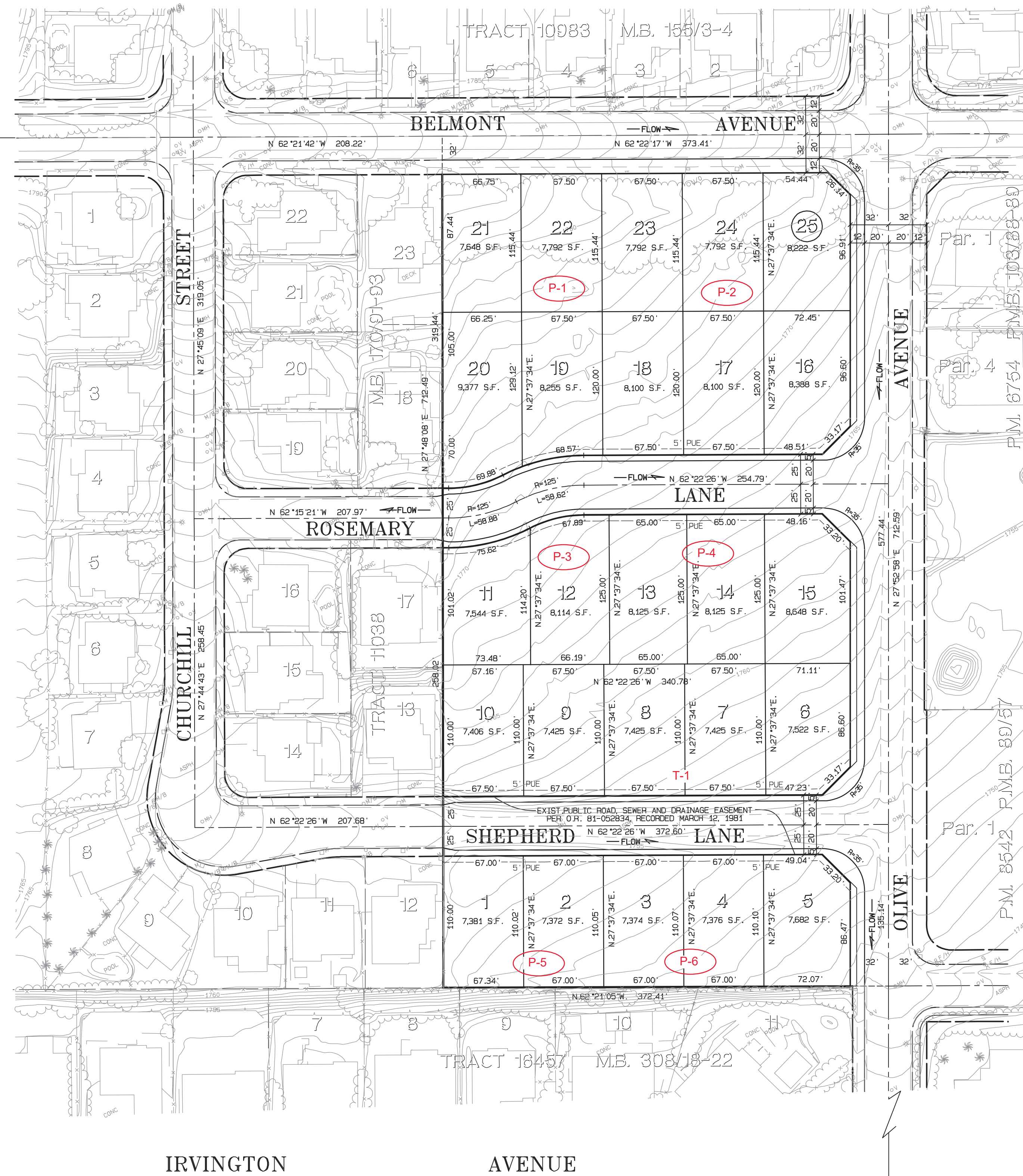
S.D. ENGINEERING AND ASSOCIATES

JUNE, 2021

SoCal Professional Engineers
Infiltration Test Location Map
WO0842101.01 September 2021 Plate 1

P-6 - Approximate Location of Test

T-1 - Approximate Location Exploratory Trench



LEGAL DESCRIPTION

ALL THAT CERTAIN REAL PROPERTY SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:
BEING A SUBDIVISION OF THE EAST HALF OF LOT 2, BLOCK 85 OF THE IRVINGTON LAND AND WATER COMPANY'S SUBDIVISION, AS SHOWN ON LICENSED LAND SURVEYORS MAP, AS PER PLAT RECORDED IN BOOK 1 OF MAPS, PAGE 32, RECORDS OF SURVEYS.

OWNER / APPLICANT

INLAND SELF STORAGE MANAGEMENT
P.O. BOX 8008
NEWPORT BEACH, CA 92658
ATTN: MR. RENE JACOBER
PH: (951) 206-5263

ENGINEER

S.D. ENGINEERING AND ASSOCIATES
242 E. AIRPORT DRIVE, STE. 212
SAN BERNARDINO, CA 92408
ATTN: MR. SURESH DODDIAH
PH: (909) 215-3451

ASSESSORS PARCEL NO.:

0261-151-10

ZONING

EXISTING: RL
PROPOSED: RS

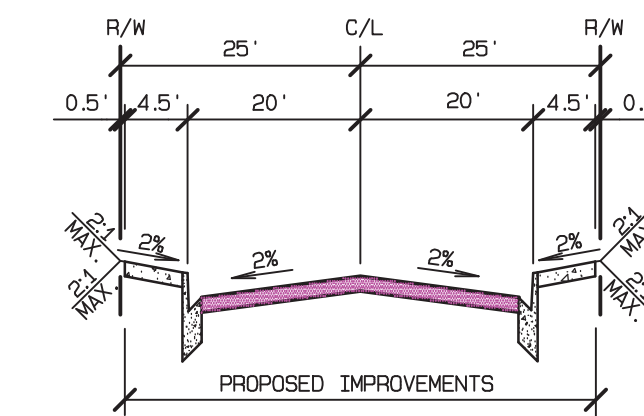
PROPERTY INFORMATION

- GROSS AREA: 6.10 ACRES
- NET AREA: 4.43 ACRES
- TOTAL NO. OF LOTS: 21
- DENSITY: 4.74/AC.

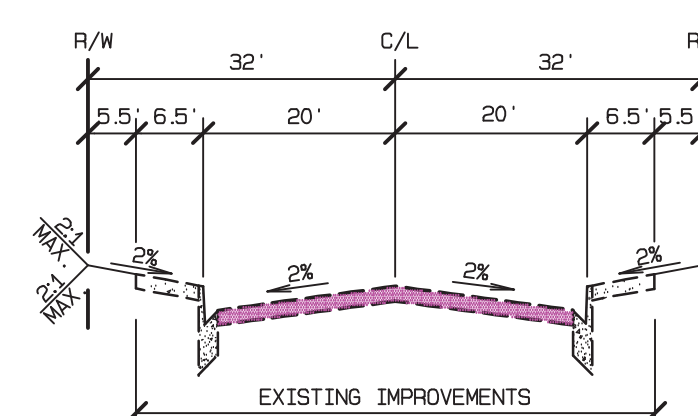
UTILITY COMPANIES

SEWER AND WATER: CITY OF SAN BERNARDINO
MUNICIPAL WATER DEPARTMENT
397 CHANDLER PLACE
SAN BERNARDINO, CA 92408
ATTN: MR. TED BRUNSON
PH: (909) 522-3414

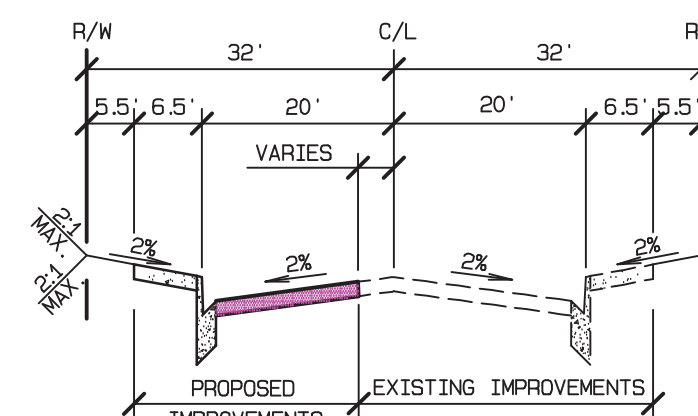
SOLID WASTE: BURFEC WASTE INDUSTRIES, INC.
5455 INDUSTRIAL PARKWAY
SAN BERNARDINO, CA 92407
PH: (909) 804-4222



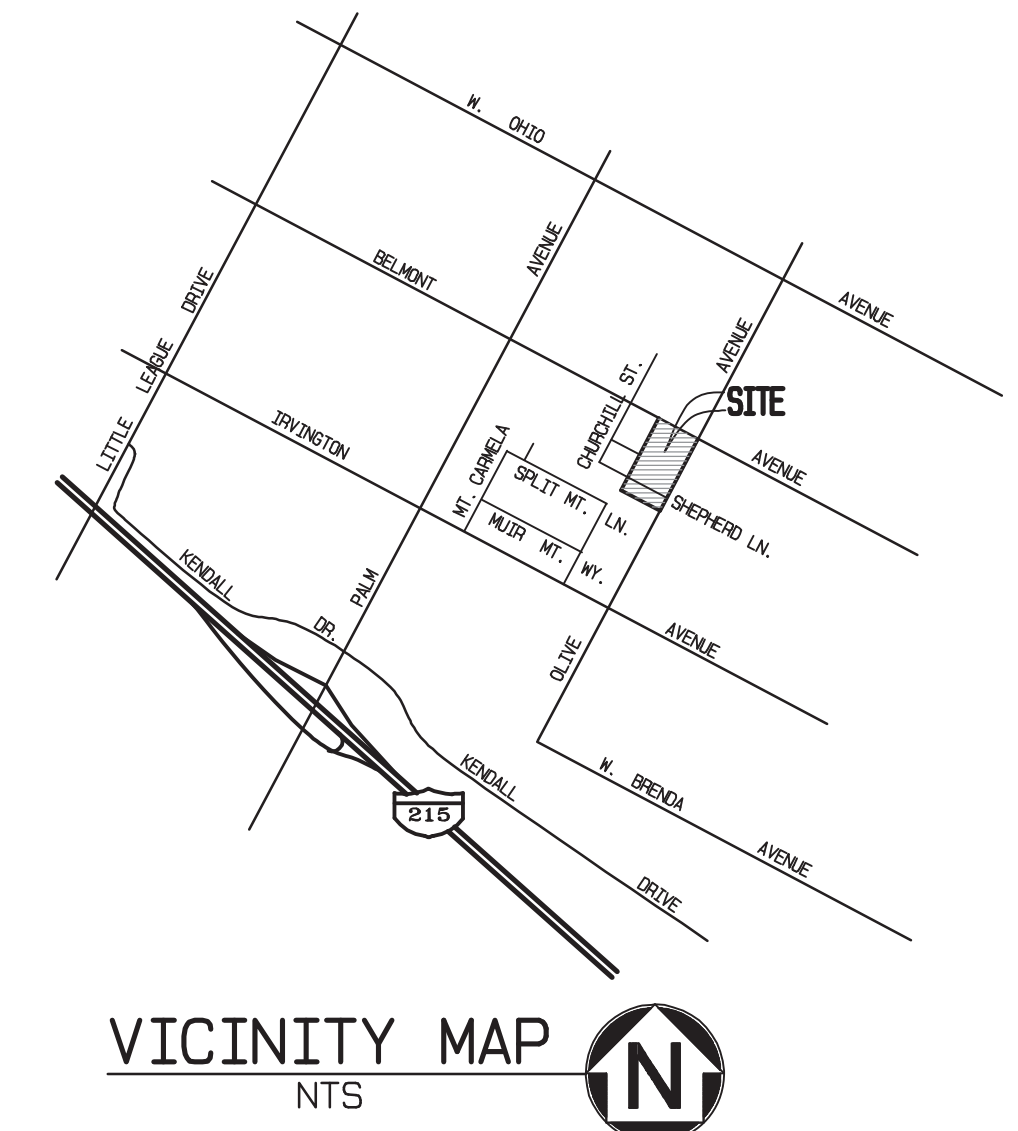
**TYPICAL SECTION
INTERIOR STREETS**
NTS



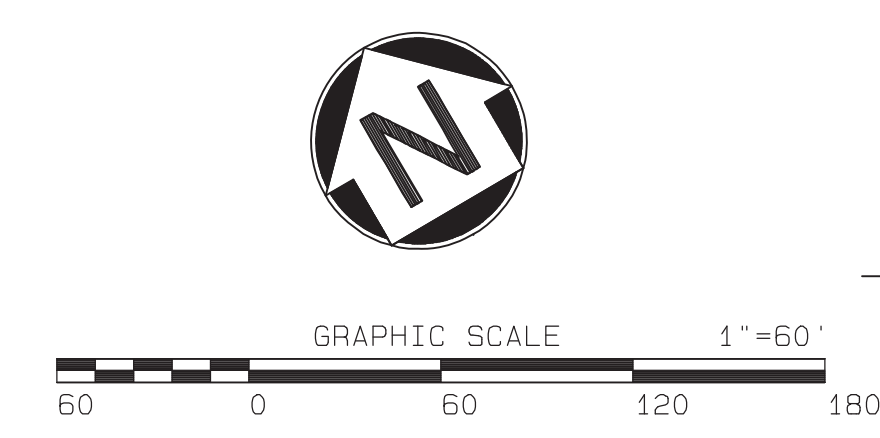
**TYPICAL SECTION
BELMONT AVENUE**
NTS



**TYPICAL SECTION
OLIVE AVENUE**
NTS



VICINITY MAP
NTS



S.D. ENGINEERING AND ASSOCIATES
LAND PLANNING AND CIVIL ENGINEERING
242 E. AIRPORT DRIVE, SUITE 212 - SAN BERNARDINO, CALIF. 92408
PHONE (909) 215-3451 SURESH@SDEENGINEERING.NET

SURESH DODDIAH R.C.E. 36361 DATE



REV.	REVISION DESCRIPTION	DATE	ENGR.	CITY	DATE

BENCH MARK: H1-5
2" BRASS DISK SET FLUSH IN TOP OF CURB AT SOUTHEASTERLY CORNER OF BELMONT AVENUE AND PALM AVENUE, AT EAST END OF E.C.R., STAMPED CITY OF SAN BERNARDINO H1-5
ELEV: 1807.25

PREPARED UNDER THE SUPERVISION OF:
DATE:

CITY OF SAN BERNARDINO, CALIFORNIA
TENTATIVE TRACT MAP NO. 20421

PRE-APPLICATION
BELMONT AVENUE & OLIVE AVENUE
SAN BERNARDINO, CA
APN: 0261-151-10

SCALE: AS SHOWN
DATE: 8/23/2021
DRAWING NO.: 1

APPENDIX A

References

REFERENCES

CDM Smith, Inc. 2013, “Technical Guidance Document For Water Quality Management Plans” dated June 7, 2013.

Department of Water Resources Website, 2021, GeoTracker “Groundwater Data Section”.

Riverside County Department of Environmental Health, 2016, “Local Management Program for Onsite Wastewater Treatment Systems”, effective October 5, 2016.

Riverside County Flood Control and Water Conservation District, 2011, “Design Handbook for Low Impact Development Best Management Practices” dated 9, 2011.

Redlands Consultants & Associates, 2020, “Tentative Tract Map, Belmont Homes, San Bernardino”, dated 10/29/2021, 40-scale, Sheet 1 of 3.

U.S.G.S., Morton Douglas, M., Miller Fred, K, 2003, “Geologic Map of the San Bernardino 30’ x 60’ Quadrangle”, DF-109, Scale: 1:100,000.

APPENDIX B

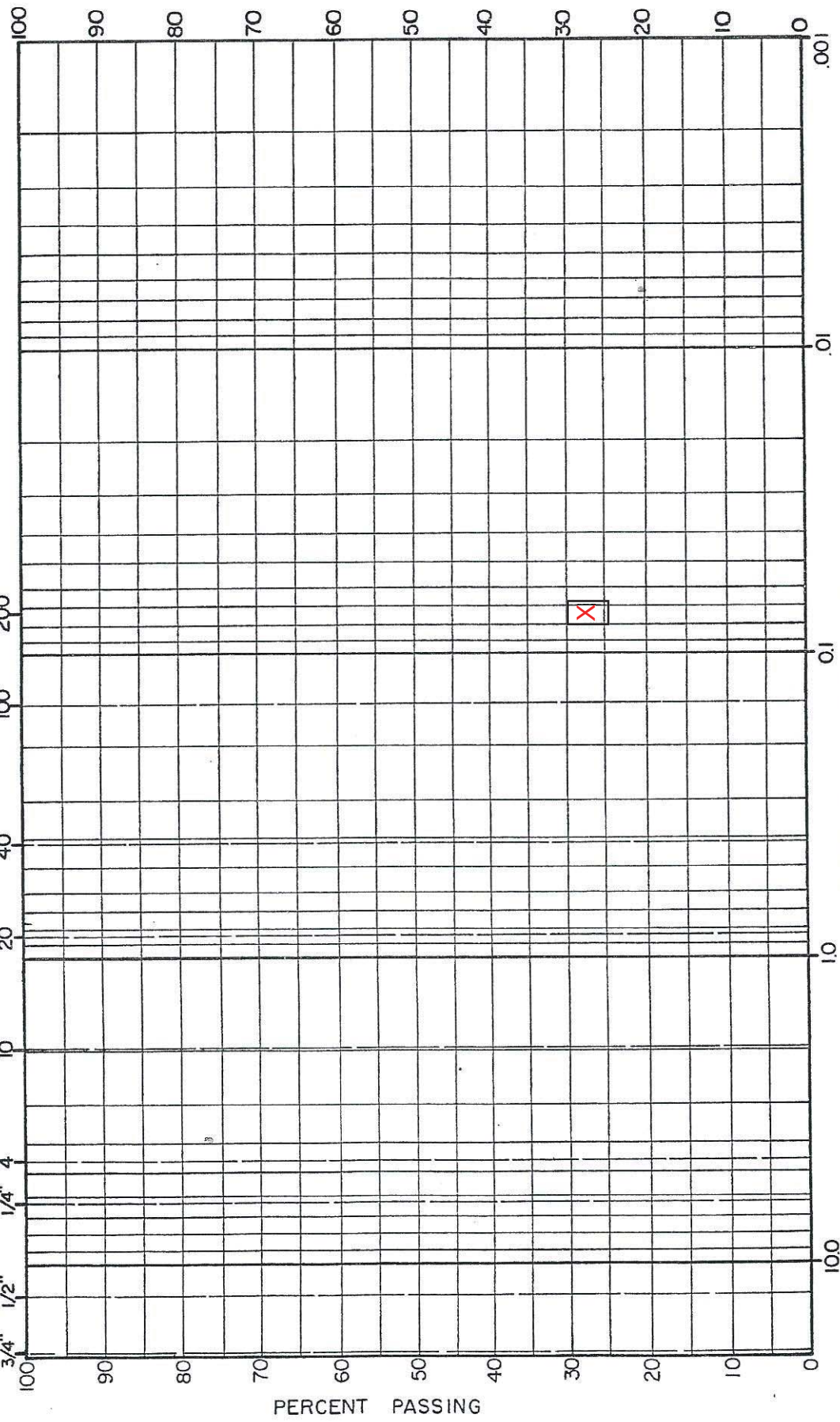
Exploratory Boring Log

APPENDIX C

Laboratory Test Results

GRAVEL SAND COARSE MEDIUM FINE SILT CLAY

SIEVE SIZES - U.S. STANDARD



BORING NO.	DEPTH, FT.	SYMBOL	LIQUID LIMIT	PLASTIC INDEX	CLASSIFICATION
T-1	5-15ft	X			SM

JOB NO: 0842101.01

GRAIN SIZE DISTRIBUTION

FIGURE NO: C-1

APPENDIX D

Test Data Sheet & Porchet Conversion Results

PORCHET METHOD-CONVERSION OF PERCOLATION RATE TO INFILTRATION RATE	PERC TEST NO:	LEGEND	REQUIRED ENTRY
	NO 1		CALCULATED ENTRY

Company Name:	SoCal Professional Engineers	DATE: 9/10/2021
Designed By:	JRH	CASE: BELMONT
		WO0842101.01

PERCOLATION TEST CONVERSION TO INFILTRATION RATE

THE CONVERSION EQUATION USED IS:

$$I_T(\text{in/hr}) = \frac{dh(\text{in}) \times 60(\text{min/hr}) \times r(\text{in})}{dt(\text{min}) \times [r(\text{in}) + 2h_{\text{AVG}}(\text{in})]}$$

Hole Radius	r=	8	inches
Time Interval	dt=	10	minutes
Initial height of water during selected time interval	H ₀ =	40	inches
Final height of water during selected time interval	H _f =	37	inches
Change in height of water during selected time interval	dH=	9	inches
Average head of height over the selected time interval	H _{AVG} =	38.5	inches
Converted infiltration rate per test data	I _T =	5.08	inches/hour

COMMENTS

PORCHET METHOD-CONVERSION OF PERCOLATION RATE TO INFILTRATION RATE	PERC TEST NO:	LEGEND	REQUIRED ENTRY
	NO 2		CALCULATED ENTRY

Company Name:	SoCal Professional Engineers	DATE: 9/10/2021
Designed By:	JRH	CASE: BELMONT
		WO0842101.01

PERCOLATION TEST CONVERSION TO INFILTRATION RATE

THE CONVERSION EQUATION USED IS:

$$I_T(\text{in/hr}) = \frac{dh(\text{in}) \times 60(\text{min/hr}) \times r(\text{in})}{dt(\text{min}) \times [r(\text{in}) + 2h_{\text{AVG}}(\text{in})]}$$

Hole Radius	r=	8	inches
Time Interval	dt=	10	minutes
Initial height of water during selected time interval	H ₀ =	40	inches
Final height of water during selected time interval	H _f =	37	inches
Change in height of water during selected time interval	dH=	6	inches
Average head of height over the selected time interval	H _{AVG} =	38.5	inches
Converted infiltration rate per test data	I _T =	3.39	inches/hour

COMMENTS

PORCHET METHOD-CONVERSION OF PERCOLATION RATE TO INFILTRATION RATE	PERC TEST NO:	LEGEND	REQUIRED ENTRY
	NO 3		CALCULATED ENTRY

Company Name:	SoCal Professional Engineers	DATE: 9/10/2021
Designed By:	JRH	CASE: BELMONT WO0842101.01

PERCOLATION TEST CONVERSION TO INFILTRATION RATE

THE CONVERSION EQUATION USED IS:

$$I_T(\text{in/hr}) = \frac{dh(\text{in}) \times 60(\text{min/hr}) \times r(\text{in})}{dt(\text{min}) \times [r(\text{in}) + 2h_{\text{AVG}}(\text{in})]}$$

Hole Radius	r=	8	inches
Time Interval	dt=	10	minutes
Initial height of water during selected time interval	H ₀ =	40	inches
Final height of water during selected time interval	H _f =	37	inches
Change in height of water during selected time interval	dH=	10.8	inches
Average head of height over the selected time interval	H _{AVG} =	38.5	inches
Converted infiltration rate per test data	I _T =	6.10	inches/hour

COMMENTS

PORCHET METHOD-CONVERSION OF PERCOLATION RATE TO INFILTRATION RATE	PERC TEST NO:	LEGEND	REQUIRED ENTRY
	NO 4		CALCULATED ENTRY

Company Name:	SoCal Professional Engineers	DATE: 9/10/2021
Designed By:	JRH	CASE: BELMONT
		WO0842101.01

PERCOLATION TEST CONVERSION TO INFILTRATION RATE

THE CONVERSION EQUATION USED IS:

$$I_T(\text{in/hr}) = \frac{dh(\text{in}) \times 60(\text{min/hr}) \times r(\text{in})}{dt(\text{min}) \times [r(\text{in}) + 2h_{\text{AVG}}(\text{in})]}$$

Hole Radius	r=	8 inches
Time Interval	dt=	10 minutes
Initial height of water during selected time interval	H ₀ =	40 inches
Final height of water during selected time interval	H _f =	37 inches
Change in height of water during selected time interval	dH=	5.78 inches
Average head of height over the selected time interval	H _{AVG} =	38.5 inches
Converted infiltration rate per test data	I _T =	3.26 inches/hour

COMMENTS

PORCHET METHOD-CONVERSION OF PERCOLATION RATE TO INFILTRATION RATE	PERC TEST NO:	LEGEND	REQUIRED ENTRY
	NO 4		CALCULATED ENTRY

Company Name:	SoCal Professional Engineers	DATE: 9/10/2021
Designed By:	JRH	CASE: BELMONT
		WO0842101.01

PERCOLATION TEST CONVERSION TO INFILTRATION RATE

THE CONVERSION EQUATION USED IS:

$$I_T(\text{in/hr}) = \frac{dh(\text{in}) \times 60(\text{min/hr}) \times r(\text{in})}{dt(\text{min}) \times [r(\text{in}) + 2h_{\text{AVG}}(\text{in})]}$$

Hole Radius	r=	8 inches
Time Interval	dt=	10 minutes
Initial height of water during selected time interval	H ₀ =	40 inches
Final height of water during selected time interval	H _f =	37 inches
Change in height of water during selected time interval	dH=	5.78 inches
Average head of height over the selected time interval	H _{AVG} =	38.5 inches
Converted infiltration rate per test data	I _T =	3.26 inches/hour

COMMENTS

PORCHET METHOD-CONVERSION OF PERCOLATION RATE TO INFILTRATION RATE	PERC TEST NO:	LEGEND	REQUIRED ENTRY
	NO 6		CALCULATED ENTRY

Company Name:	<u>SoCal Professional Engineers</u>	DATE: 9/10/2021
Designed By:	<u>JRH</u>	CASE: BELMONT WO0842101.01

PERCOLATION TEST CONVERSION TO INFILTRATION RATE

THE CONVERSION EQUATION USED IS:

$$I_T(\text{in/hr}) = \frac{dh(\text{in}) \times 60(\text{min/hr}) \times r(\text{in})}{dt(\text{min}) \times [r(\text{in}) + 2h_{\text{AVG}}(\text{in})]}$$

Hole Radius	r=	8	inches
Time Interval	dt=	10	minutes
Initial height of water during selected time interval	H ₀ =	40	inches
Final height of water during selected time interval	H _f =	37	inches
Change in height of water during selected time interval	dH=	6.96	inches
Average head of height over the selected time interval	H _{AVG} =	38.5	inches
Converted infiltration rate per test data	I _T =	3.93	inches/hour

COMMENTS



City of San Bernardino Public Works / Traffic Engineering Department Traffic Scope Approval Form

To be completed by applicant consultant and approved by Public Works prior to start of study

Project	TTM 20421	
Name: Project	Single Family Home Project	
Address: Project	Belmont Ave & Olive Ave	
Description:	25 Single Family Dwelling Units	
Developer's Name:	S. D. Engineering and Associates	
Address:		
Telephone No.	909-215-3451	Email address: suresh@sdengineering.net

Trip Generation Rates from ITE Latest Edition

Land Use (1) Single Family
 Development Sq Ft 25 DU
 ITE Land Use Code 11th Edition Code 210
 Daily Trips 236
 AM Peak Hour Trips
 Inbound 5
 Outbound 13
 Total 18
 PM Peak Hour Trips
 Inbound 15
 Outbound 9
 Total 24

Land Use (2) _____
 Development Sq Ft _____
 ITE Land Use Code _____
 Daily Trips _____
 AM Peak Hour Trips
 Inbound _____
 Outbound _____
 Total _____
 PM Peak Hour Trips
 Inbound _____
 Outbound _____
 Total _____

(Use Additional Sheet(s), if necessary)

Pass-by Trips (%), if applicable: N/A %
 Land Use (1) _____
 ITE Land Use Code _____
 Daily Trips _____
 AM Peak Hour Trips
 Inbound _____
 Outbound _____
 Total _____
 PM Peak Hour Trips:
 Inbound _____
 Outbound _____
 Total _____

Land Use (2) _____
 ITE Land Use Code _____
 Daily Trips _____
 AM Peak Hour Trips
 Inbound _____
 Outbound _____
 Total _____
 PM Peak Hour Trips:
 Inbound _____
 Outbound _____
 Total _____

Project Opening Year: <u>2023</u>	Build-out Year: _____
Study Intersections: 1 <u>Per City TIA guidelines less than</u>	6 _____
2 <u>250 daily trips and 50 peak hour</u>	7 _____
3 _____	8 _____
4 _____	9 _____
5 _____	10 _____

(Use Additional Sheet(s) and Maps to show project Boundaries & Attach memo for project Description)

Appendix F Traffic Scope Approval Form



**City of San Bernardino Public Works / Traffic Engineering Department
Traffic Scope Approval Form**

To be completed by applicant consultant and approved by Public Works prior to start of study

Study Roadway Segments: 1 _____ 2 _____
 3 _____ 4 _____
 5 _____ 6 _____

Proposed Development Use: Residential Commercial Mixed Use Other

Software Methodology: Synchro HCS

Additional issues to be considered: Traffic calming measures Queuing Analysis
 Bike/Ped Accommodations Merge Analysis Gap Analysis
 Actuation/Coordination Safety Analysis Sight Distance Analysis

Is the project screened from VMT assessment? Yes No

VMT Screening Justification: Project is located within a low VMT generating area - see attached
from SBCTA screening tool

Ambient Growth Rate: _____ %

Trip Distribution: East _____ % West _____ % North _____ % South _____ %

Consultant Preparer's Name: TJW Engineering

Address: 9841 Irvine Center Drive, Suite 200

Telephone No. 949-878-3509 PE / TE License #: 2565

Email Address: Thomas@tjwengineering.com

Signature: *Thomas* Date: 3-14-22

Approved By (Public Works Department):

Signature: *Azzam Jabshah* Date: 3/31/2022

Name: Azzam Jabshah Title: Traffic Engineer

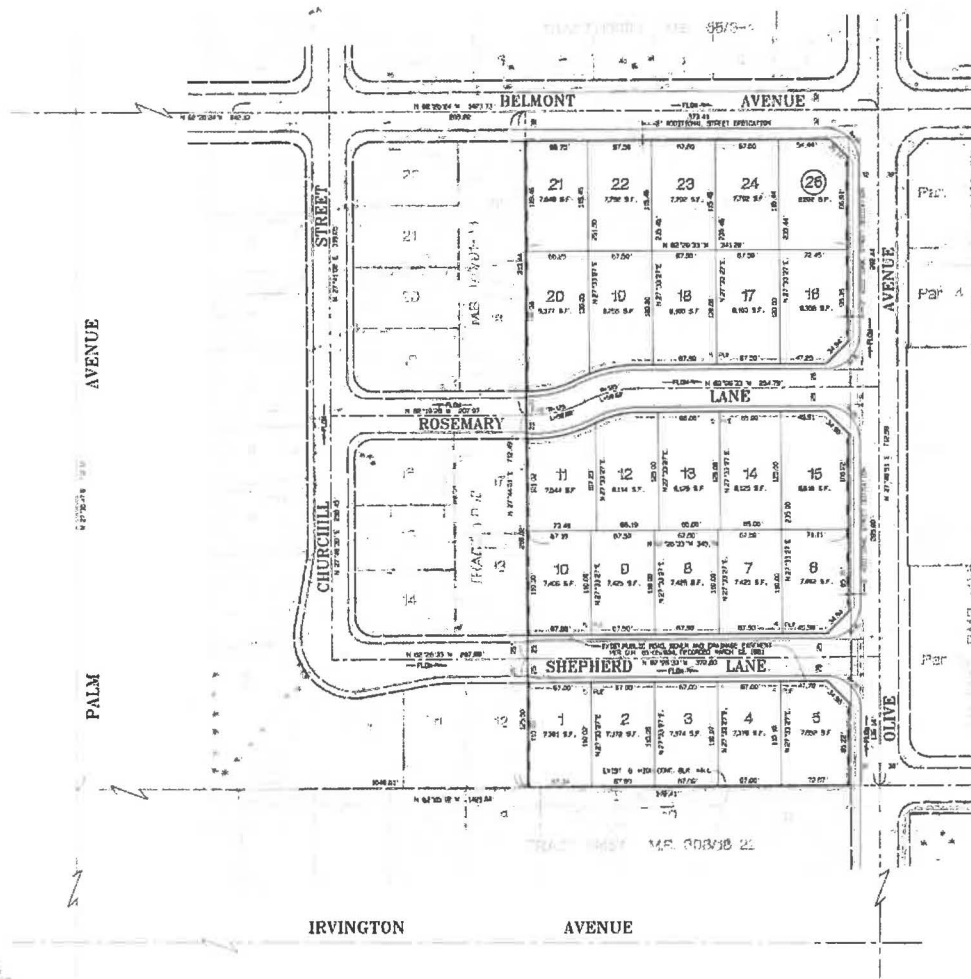
NO TIA is required
Approved VMT

IN THE CITY OF SAN BERNARDINO,
COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA
TENTATIVE TRACT MAP NO. 20421

BEING A SUBDIVISION OF THE EAST HALF OF LOT 2 IN BLOCK 85 AS SHOWN ON LICENSED LAND SURVEYOR'S MAP OF THE IRVINGTON LAND AND WATER COMPANY'S SUBDIVISION OF A PART OF THE MUSCUPUABE RANCHO, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ON FILE IN BOOK 1, PAGE 32 OF RECORDS OF SURVEY, IN THE OFFICE OF THE RECORDER OF SAID COUNTY.

S.D. ENGINEERING AND ASSOCIATES

SEPTEMBER 2021



LEGAL DESCRIPTION
ALL PARTS CERTAIN REAL PROPERTY SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:
BEING A SUBDIVISION OF THE EAST HALF OF LOT 2 IN BLOCK 85 OF THE IRVINGTON LAND AND WATER COMPANY'S SUBDIVISION AS SHOWN ON LICENSED LAND SURVEYOR'S MAP AS PER PLAT RECORDED IN BOOK 1 OF MAPS, PAGE 32, RECORDS OF SURVEYS.

OWNER / APPLICANT

INLAND CITY STORAGE MANAGEMENT
24200 BUCK
ATLANTA, GEORGIA 30328
PH: (770) 252-3421

ENGINEER

S.D. ENGINEERING AND ASSOCIATES
242 E. AIRPORT DRIVE, SUITE 200
SAN BERNARDINO, CA 92401
ATLANTA, GEORGIA 30328
PH: (909) 252-3421

ASSESSORS PARCEL NO.

001-01-01

ZONING

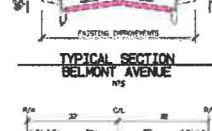
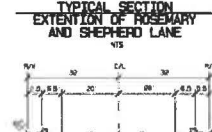
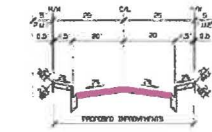
EXTERIOR R.
PROPOSED R5

PROPERTY INFORMATION

1. GROSS AREA 6.02 ACRES
2. NET AREA 4.43 ACRES
3. TOTAL NO. OF LOTS 25
4. DENSITY 4.10/ACRES AC

UTILITY COMPANIES

SEWER AND WATER: CITY OF SAN BERNARDINO
WASTEWATER TREATMENT DEPARTMENT
201 BENTLEY BLVD
SAN BERNARDINO, CA 92401
PH: (909) 522-3414
GAS: SOGAS
ELECTRIC: SOUTHWEST ELECTRIC INC.
2400 WILSON AVENUE
SAN BERNARDINO, CA 92407
PH: (909) 254-4022



S.D. ENGINEERING AND ASSOCIATES
LAND PLANNING AND CIVIL ENGINEERING
242 E. AIRPORT DRIVE, SUITE 212 - SAN BERNARDINO, CALIF 92408
PHONE (909) 210-3421 SUPES@SDEENGINEERING.NET



REV.	REVISION DESCRIPTION	DATE	ENGR.	CITY	DATE

BENCH MARK: H1-5
3" BRASS DISK SET FLUSH IN TOP OF CURB AT
SOUTHWEST CORNER OF BELMONT AVENUE
AND PALM AVENUE, AT EAST END OF E.C.P.,
STAMPED CITY OF SAN BERNARDINO H1-5
ELEV: 1807.25

PREPARED UNDER THE SUPERVISION OF:
DATE: _____

CITY OF SAN BERNARDINO, CALIFORNIA
TENTATIVE TRACT MAP NO. 20421

DRAWN BY: ES	SCALE: AS SHOWN
DESIGNED BY: CR	DATE: 8/27/2021
CHECKED BY: SD	THICKNESS: 1/8"

BELMONT AVENUE & OLIVE AVENUE
SAN BERNARDINO, CA
APH: 0261-151-10



Trip Generation

Proposed Land Use ¹	Qty	Unit ²	Daily Trips (ADTs)		AM Peak Hour					PM Peak Hour				
			Rate	Volume	Rate	In:Out Split	Volume			Rate	In:Out Split	Volume		
							In	Out	Total			In	Out	Total
Single Family (210)	25.00	DU	9.43	236	0.70	26:74	5	13	18	0.94	63:37	15	9	24
Sub Total				236			5	13	18			15	9	24

1: Rates from ITE Trip Generation (11th Edition, 2021)

2: DU = Dwelling Units



TJW ENGINEERING, INC.
TRAFFIC ENGINEERING &
TRANSPORTATION PLANNING
CONSULTANTS

March 14, 2022

Mr. Suresh Doddiah
S.D. ENGINEERING & ASSOCIATES
242 E. Airport Drive, Suite 212
San Bernardino, CA 92408

SUBJECT: TTM 20421 Single-Family Homes VMT Screening, City of San Bernardino

Dear Mr. Doddiah,

TJW Engineering, Inc. (TJW) is pleased to submit this VMT Screening for the proposed project located at the northwest corner of Olive Avenue and Belmont Avenue in the City of San Bernardino. The proposed project includes 25 single-family dwelling units. A site plan is attached for reference. The purpose of this memorandum is to summarize the VMT screening process for the proposed project.

Proposed Project

The proposed site is located at the northwest corner of Olive Avenue and Belmont Avenue in the City of San Bernardino. The proposed project includes 25 single-family dwelling units. Site access will be provided along both Olive Avenue and Belmont Avenue.

Background

Senate Bill (SB) 743 was adopted in 2013 requiring the Governor's Office of Planning and Research (OPR) to identify new metrics for identifying and mitigating transportation impacts within the California Environmental Quality Act (CEQA). For land use projects, OPR has identified Vehicle Miles Traveled (VMT) as the new metric for transportation analysis under CEQA. The regulatory changes to the CEQA guidelines that implement SB 743 were approved on December 28th, 2018 with an implementation date of July 1st, 2020 as the new metric.

The City of San Bernardino updated their Traffic Impact Analysis Guidelines for Vehicle Miles Traveled and Level of Service Assessment in August 2020. The document outlines guidelines for CEQA analysis including screening criteria and requirements for VMT assessment of land use projects. The City VMT guidelines provides screening criteria for projects including:

1. Transit Priority Area (TPA) Screening
2. Low VMT Area Screening

3. Project Type Screening

A land use project need only to meet one of the above screening thresholds to result in a less than significant impact.

Vehicle Miles Traveled (VMT) Screening

TPA Screening

As outlined in the City guidelines, projects located within a TPA (i.e. within ½ mile of an existing “major transit stop” or an existing stop along a “high quality-transit corridor” may be presumed to have a less than significant impact absent substantial evidence to the contrary. However, the presumption may not be appropriate if a project:

- Has a Floor Area Ratio (FAR) of less than 0.75;
- Includes more parking for use by residents, customers, or employees of the project than required by the jurisdiction (if the jurisdiction requires the project to supply parking);
- Is inconsistent with the applicable Sustainable Communities Strategy (as determined by the lead agency, with input from the Metropolitan Planning Organization); or
- Replaces affordable residential units with a smaller number of moderate- or high-income residential units.

Based on the screening tool results presented in the attached exhibit, the project site is not located with ½ mile of an existing major transit stop, or along a high-quality transit corridor.

TPA screening criteria is not met.

Low VMT Area Screening

The City guidelines states that “residential and office projects located within a low VMT-generating area may be presumed to have a less than significant impact absent substantial evidence to the contrary. The Screening Tool uses the sub-regional San Bernardino Transportation Analysis Model (SBTAM) to measure VMT performance within individual traffic analysis zones (TAZ’s) within the SBCTA region. The parcel containing the proposed project was selected and the Screening Tool was run for the Origin/Destination VMT per service population measure of VMT. Based on the Screening Tool results (see attached exhibit, the project is located within a low VMT-generating area.

Low VMT Area screening criteria is met.

Project Type Screening

The City guidelines identifies that local service projects less than 50,000 square feet may be presumed to have a less than significant impact absent substantial evidence to the contrary. In addition to local serving retail, various uses may, at the discretion of the City, be presumed to have a less than significant impact as their uses are often local serving in nature.

The proposed project is not a retail establishment and is not included among the City approved list of land uses. Specifically, the project proposes to construct 25 single-family dwelling units and the City has identified a threshold of 11 single-family dwelling units to be presumed to have a less than significant impact.

Project Type criteria is not met.

Summary

Based on our review of applicable VMT screening thresholds, as outlined in the City VMT guidelines (August 2020), the project meets the Low VMT Area screening criteria and would be assumed to result in a less than significant VMT impact. Therefore, no additional VMT analysis is required.

Please contact us at (949) 878-3509 if you have any questions regarding this analysis.

Sincerely,



Thomas Wheat, PE, TE
President

Registered Civil Engineer #69467
Registered Traffic Engineer #2565



David Chew, PTP
Transportation Planner

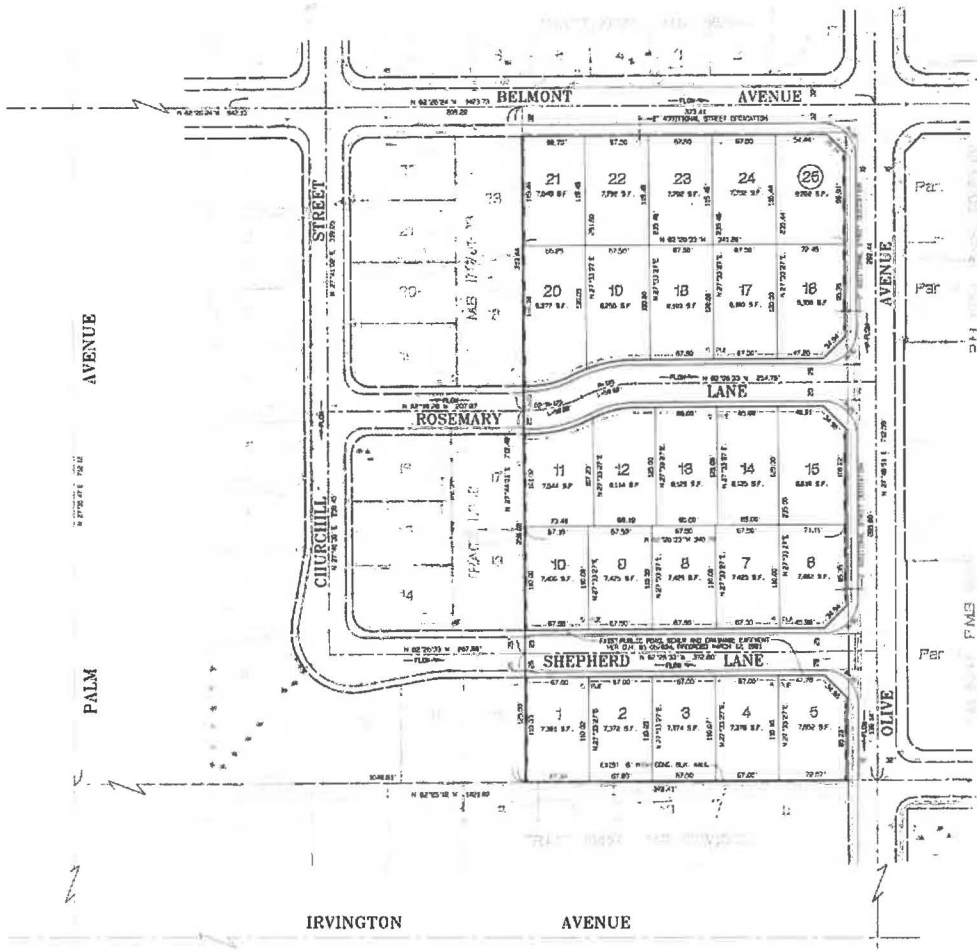


IN THE CITY OF SAN BERNARDINO,
COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA
TENTATIVE TRACT MAP NO. 20421

BEING A SUBDIVISION OF THE EAST HALF OF LOT 2 IN BLOCK 85 AS SHOWN ON LICENSED LAND SURVEYOR'S MAP OF THE IRVINGTON LAND AND WATER COMPANY'S SUBDIVISION OF A PART OF THE MUSCUIPTABE RANCHO, IN THE COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, ON FILE IN BOOK 1, PAGE 32 OF RECORDS OF SURVEY, IN THE OFFICE OF THE RECORDER OF SAID COUNTY.

S.D. ENGINEERING AND ASSOCIATES

SEPTEMBER, 2021



LEGAL DESCRIPTION
ALL THAT CERTAIN REAL PROPERTY SITUATED IN THE CITY OF SAN BERNARDINO, COUNTY OF SAN BERNARDINO, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:
BEING A SUBDIVISION OF THE EAST HALF OF LOT 2 IN BLOCK 85 OF THE IRVINGTON LAND AND WATER COMPANY'S SUBDIVISION OF A PART OF LICENSED LAND SURVEYOR'S MAP NO. AS PER PLAT RECORDED IN BOOK 1 OF MAPS, PAGE 32, RECORDS OF SURVEY.

OWNER / APPLICANT
BLIND SELF STORAGE INVESTMENT
P.O. BOX 8208
MIRAGE BEACH CA 92558
ATTN: MR. MICHAEL JACOBSON
PH: 760-240-5451

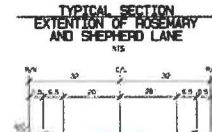
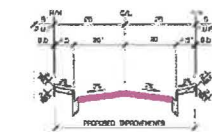
ENGINEER
S.D. ENGINEERING AND ASSOCIATES
242 E. AIRPORT DRIVE, SUITE 210
SAN BERNARDINO, CA 92408
ATTN: MR. SURESH DODDIAJI
PH: 909-255-3421

ASSESSORS PARCEL NO.
024-151-30

ZONING
FUTURE: R1
PROPOSED: R3

- PROPERTY INFORMATION**
1. GROSS AREA: 6.10 ACRES
 2. NET AREA: 4.43 ACRES
 3. TOTAL NO. OF LOTS: 25
 4. DENSITY: 4 UNITS/RS AC

UTILITY COMPANIES
SEWER AND WATER: CITY OF SAN BERNARDINO
SEWERAGE AND WASTE TREATMENT
3811 GARDEN PLACE
SAN BERNARDINO, CA 92410
ATTN: MR. TED BRONKHORST
PH: 909-520-5414
GAS: SOUTHWEST GAS CORPORATION
2400 SOUTHWEST FREIGHTWAY
SAN BERNARDINO, CA 92407
PH: 909-524-8222



S.D. ENGINEERING AND ASSOCIATES
LAND PLANNING AND CIVIL ENGINEERING
242 E. AIRPORT DRIVE, SUITE 210 - SAN BERNARDINO, CALIF. 92408
PHONE: (909) 255-3421 SURVEYING@SDEENGINEERING.NET



REV.	REVISION DESCRIPTION	DATE	BY	CHKD.	DATE

BENCH MARK: H1-5
2" BRASS DISK SET FLUSH IN TOP OF CURB AT
SOUTHWEST CORNER OF BELMONT AVENUE
AND PALM AVENUE, AT EAST END OF E.C.R.,
STAMPED CITY OF SAN BERNARDINO H1-5
ELEV: 1907.25

PREPARED UNDER THE SUPERVISION OF:
DATE: _____

CITY OF SAN BERNARDINO, CALIFORNIA		TENTATIVE TRACT MAP NO. 20421	
DESIGNED BY: CD	CHECKED BY: CD	DATE: 9/27/2021	SCALE: AS SHOWN
BELMONT AVENUE & OLIVE AVENUE SAN BERNARDINO, CA		DATE: 9/27/2021	SCALE: AS SHOWN
APN: 0241-151-10			



Appendix G Historical/Archaeological Resources Survey (Confidential)