

County of Santa Clara
Office of the County Clerk-Recorder
Business Division

County Government Center
 70 West Hedding Street, E. Wing, 1st Floor
 San Jose, California 95110 (408) 299-5688



Santa Clara County Clerk – Recorder’s Office
State of California



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CEQA DOCUMENT DECLARATION

REGINA ALCOMENDRAS, County Clerk – Recorder
 by **Nina Khamphilath, Clerk – Recorder Office Spe,** *[Signature]*

ENVIRONMENTAL FILING FEE RECEIPT

PLEASE COMPLETE THE FOLLOWING:

1. LEAD AGENCY: City of Campbell
2. PROJECT TITLE: Residences at Railway
3. APPLICANT NAME: Ardie Zahedani PHONE: (916) 444-9897
4. APPLICANT ADDRESS: 1801 I Street, Suite 200, Sacramento, CA 95811
5. PROJECT APPLICANT IS A: Local Public Agency School District Other Special District State Agency Private Entity
6. NOTICE TO BE POSTED FOR 21 DAYS.

7. CLASSIFICATION OF ENVIRONMENTAL DOCUMENT

a. PROJECTS THAT ARE SUBJECT TO DFG FEES

- | | | |
|--|-------------|----------------|
| <input type="checkbox"/> 1. <u>ENVIRONMENTAL IMPACT REPORT</u> (PUBLIC RESOURCES CODE §21152) | \$ 3,069.75 | \$ <u>0.00</u> |
| <input type="checkbox"/> 2. <u>NEGATIVE DECLARATION</u> (PUBLIC RESOURCES CODE §21080(C)) | \$ 2,210.00 | \$ <u>0.00</u> |
| <input type="checkbox"/> 3. <u>APPLICATION FEE WATER DIVERSION</u> (STATE WATER RESOURCES CONTROL BOARD ONLY) | \$ 850.00 | \$ <u>0.00</u> |
| <input type="checkbox"/> 4. <u>PROJECTS SUBJECT TO CERTIFIED REGULATORY PROGRAMS</u> | \$ 1,043.75 | \$ <u>0.00</u> |
| <input type="checkbox"/> 5. <u>COUNTY ADMINISTRATIVE FEE</u> (REQUIRED FOR a-1 THROUGH a-4 ABOVE)
Fish & Game Code §711.4(e) | \$ 50.00 | \$ <u>0.00</u> |

b. PROJECTS THAT ARE EXEMPT FROM DFG FEES

- | | | |
|---|----------|----------------|
| <input type="checkbox"/> 1. <u>NOTICE OF EXEMPTION</u> (\$50.00 COUNTY ADMINISTRATIVE FEE REQUIRED) | \$ 50.00 | \$ <u>0.00</u> |
| <input type="checkbox"/> 2. <u>A COMPLETED "CEQA FILING FEE NO EFFECT DETERMINATION FORM" FROM THE DEPARTMENT OF FISH & GAME, DOCUMENTING THE DFG'S DETERMINATION THAT THE PROJECT WILL HAVE NO EFFECT ON FISH, WILDLIFE AND HABITAT, OR AN OFFICIAL, DATED RECEIPT / PROOF OF PAYMENT SHOWING PREVIOUS PAYMENT OF THE DFG FILING FEE FOR THE *SAME PROJECT IS ATTACHED</u> (\$50.00 COUNTY ADMINISTRATIVE FEE REQUIRED) | | |
| DOCUMENT TYPE: <input type="checkbox"/> ENVIRONMENTAL IMPACT REPORT <input type="checkbox"/> NEGATIVE DECLARATION | \$ 50.00 | \$ <u>0.00</u> |

c. NOTICES THAT ARE NOT SUBJECT TO DFG FEES OR COUNTY ADMINISTRATIVE FEES

- | | | | |
|--|--|--------|------------------|
| <input type="checkbox"/> NOTICE OF PREPARATION | <input checked="" type="checkbox"/> NOTICE OF INTENT | NO FEE | \$ <u>NO FEE</u> |
|--|--|--------|------------------|

8. OTHER: _____ FEE (IF APPLICABLE): \$ _____
9. TOTAL RECEIVED..... \$ 0.00

*NOTE: "**SAME PROJECT**" MEANS **NO** CHANGES. IF THE DOCUMENT SUBMITTED IS NOT THE SAME (OTHER THAN DATES), A "NO EFFECT DETERMINATION" LETTER FROM THE DEPARTMENT OF FISH AND GAME FOR THE **SUBSEQUENT** FILING OR THE APPROPRIATE FEES ARE REQUIRED.

THIS FORM MUST BE COMPLETED AND ATTACHED TO THE FRONT OF ALL CEQA DOCUMENTS LISTED ABOVE (**INCLUDING COPIES**) SUBMITTED FOR FILING. WE WILL NEED AN ORIGINAL (WET SIGNATURE) AND THREE COPIES. (**YOUR ORIGINAL WILL BE RETURNED TO YOU AT THE TIME OF FILING.**)

CHECKS FOR ALL FEES SHOULD BE MADE PAYABLE TO: SANTA CLARA COUNTY CLERK-RECORDER

PLEASE NOTE: FEES ARE ANNUALLY ADJUSTED (Fish & Game Code §711.4(b)); PLEASE CHECK WITH THIS OFFICE AND THE DEPARTMENT OF FISH AND GAME FOR THE LATEST FEE INFORMATION.

"... NO PROJECT SHALL BE OPERATIVE, VESTED, OR FINAL, NOR SHALL LOCAL GOVERNMENT PERMITS FOR THE PROJECT BE VALID, UNTIL THE FILING FEES REQUIRED PURSUANT TO THIS SECTION ARE PAID." Fish & Game Code §711.4(c)(3)



**NOTICE OF INTENT
INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION
CITY OF CAMPBELL, CALIFORNIA**

Notice is hereby given of the intent of the Campbell City Council to adopt a Mitigated Negative Declaration for the Residences at Railway Project, which includes an application for a Planned Development Permit (PLN2014-323), Vesting Subdivision Map (PLN2014-324), CEQA Review (PLN2014-325), Tree Removal Permit (PLN2014-329), Sign Exception (PLN2015-053), and Variance (PLN2015-167) to allow construction of a residential infill project consisting of 157 units, comprised of 119 apartment, 32 townhomes, and six (6) duet units, pursuant to Public Resources Code Secs. 21092(b)(1) and 21094.5, located at **208 & 226-328 Railway Avenue, and a portion of 290 Dillon Avenue (City Corporation Yard), Campbell, CA, 95008.**

The project site is approximately 4.66 gross acres and consists of an assemblage of thirteen parcels located on both sides of Railway Avenue and a small portion of public property (Public Works Maintenance Corporation Yard) generally located at the end of Dillon Avenue. The project site is bordered by the Avalon Apartment Community to the south, the remaining City Corporation Yard to the east, the VTA light rail line to the west, and the Calvary Temple of Campbell (church) to the north.

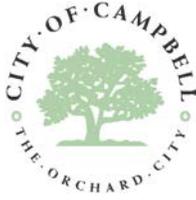
An Infill Environmental Checklist was prepared in compliance with State CEQA Guideline Sec. 15183.3 for the purposes of determining whether the infill project may have a significant effect on the environment not addressed in a previous Environmental Impact Report (EIR), not substantially mitigated by uniformly applicable development policies, or mitigated through project-specific measures. On the basis of the Infill Environmental Checklist, Community Development Department staff has determined that the project will not have a significant effect on the environment due to the incorporation of project-specific mitigation measures and application of uniformly applicable development policies, and therefore, has prepared a draft Mitigated Negative Declaration for consideration by the Campbell Planning Commission and Campbell City Council. The California Environmental Quality Act (CEQA) requires this notice to disclose whether any listed toxic sites are present at the location. The project location does not contain a toxic site pursuant to Section 65962.5 of the Government Code.

All interested parties are invited and encouraged to submit comments in writing regarding the draft Mitigated Negative Declaration and/or attend the below described public hearings. The public review period for the draft Mitigated Negative Declaration begins on **July 22, 2015** and ends on **August 11, 2015**. Any comments must be submitted in writing, including email, to the Community Development Department by 5:00 p.m. on **August 11, 2015**. The Infill Environmental Checklist and draft Mitigated Negative Declaration are available for review from 8:00 a.m. to 5:00 p.m. at the Community Development Department, City Hall, 70 North First Street, Campbell, CA or online at <http://www.cityofcampbell.com/501/Public-Notices> under 'Environmental Notices'.

The Campbell Planning Commission will consider the project and draft Mitigated Negative Declaration at a public hearing to be held on **August 11, 2015** and submit to the Campbell City Council a recommendation for approval or denial. The Campbell City Council is tentatively scheduled to hold a public hearing on **September 15, 2015**, to consider the Planning Commission's recommendation on the project and draft Mitigated Negative Declaration. Both meetings will be held at 7:30 p.m., or shortly thereafter, in the City Hall City Council Chambers, 70 North First Street, Campbell, CA.

Please be advised that if you challenge the decision on the Mitigated Negative Declaration and/or project in court, you may be limited to raising only those issues you or someone else raised at the public hearings described in this notice, or in written correspondence delivered to the City of Campbell prior to the public hearings. Questions and written comments may be addressed to Stephen Rose, Associate Planner at (408) 866-2142 or by email at stephenr@cityofcampbell.com.

CITY OF CAMPBELL
WENDY WOOD
ACTING CITY CLERK



CITY OF CAMPBELL
Community Development Department

MITIGATED NEGATIVE DECLARATION

The Community Development Department has prepared an Infill Environmental Checklist in compliance with State CEQA Guideline Sec. 15183.3 for the purposes of determining whether the proposed infill project described below may have a significant effect on the environment not addressed in a previous Environmental Impact Report (EIR), not substantially mitigated by uniformly applicable development policies, or mitigated through project-specific measures. "Significant effect on the environment" means a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance.

Project Title: Residences at Railway

File Number(s): Planned Development Permit (PLN2014-323) | Vesting Tentative Subdivision Map (PLN2014-324) | CEQA Review (PLN2014-325) | Tree Removal Permit (PLN2014-329) | Sign Exception (PLN2015-053) | Variance (PLN2015-167)

Project Address: 208 & 226-328 Railway Avenue, & a portion of 290 Dillon Avenue (City Corporation Yard)

Project Sponsor: St. Anton Communities / Ardie Zahedani
1801 I Street, Suite 200
Sacramento, CA 95811
(916) 444-9897

Zoning District: P-D (Planned Development)

General Plan *Commercial/Med.-High Density Residential (14-27 units/gr. acre) and High Density Residential (21-27 units/gr. acre)*

Lead Agency: City of Campbell, Community Development Department
70 N. First Street, Campbell, CA 95008

Contact Person: Stephen Rose, Associate Planner
(408) 866-2142 | stephenr@cityofcampbell.com

Date Posted: July 22, 2015

Surrounding Land Uses / General Plan / Zoning:

North: Church & Historic Building / Commercial/Med.-High Residential / P-D (Planned Development)

South: Avalon Apartments / High-Density Residential / P-D (Planned Development)

East: Maintenance Yard / High-Density Residential / P-D (Planned Development)

West: VTA Light Rail

Prior Environmental Document(s): On November 6, 2001, the City of Campbell adopted the Campbell General Plan and certified the Final Environmental Impact Report (EIR) (State Clearing House # 2001042063) for the project. The adopting City Council Resolution (CC Resolution No. 9940) for the EIR, summarized the potentially significant environmental impacts that would be mitigated to a level less than significant with the identified mitigation measures as well as those environmental impacts determined to be significant and unavoidable.

Location of Prior Environmental Document(s): City of Campbell City Hall, Community Development Department, 70 N. First Street, Campbell, CA 95008.

Project Description: The proposed project is an infill residential development consisting of 157-units, comprised of 119 apartment units (rental) and 32 townhouse (for sale) and six duet (for sale) units. The project is intended to be a walkable, transit oriented, infill development, benefiting from its proximity to the Vasona Light Rail Corridor, Los Gatos Creek Trail, Downtown Campbell businesses, and major regional freeways.

Finding: On the basis of the Infill Environmental Checklist, Community Development Department staff has determined that, based upon substantial evidence, the project will not have a significant effect on the environment due to mitigation measures adopted in a previous Environmental Impact Report (EIR), application of uniformly applicable development policies, and incorporation of the following project-specific mitigation measures agreed to by the project proponent.

Mitigation Measures Included in the Project to Reduce Potentially Significant Environmental Effects to a Less Than Significant Level:

Mitigation Measure AIR-1: The project applicant shall ensure that construction plans include the BAAQMD Best Management Practices for fugitive dust control. The following will be required for all construction activities within the project area. These measures will reduce fugitive dust emissions primarily during soil movement, grading and demolition activities, but also during vehicle and equipment movement on unpaved project sites:

- a. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- b. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- c. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- d. All vehicle speeds on unpaved roads shall be limited to 15 mph.
- e. All streets, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- f. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne

toxic control measure Title 13, Section 2485 of CCR). Clear signage shall be provided for construction workers at all access points.

- g. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- h. A publicly visible sign shall be posted with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Mitigation Measure AIR-2: The project applicant shall ensure that construction contract specifications include a requirement that all off-road diesel-powered construction equipment used for project improvements be equipped with a Level 3 Verified Diesel Emissions Control (VDEC).

Mitigation Measure AIR-3: The project applicant shall ensure that architectural coatings (e.g. paints and solvents) with a VOC content of 100 grams per liter or less shall be used for interior and 150 grams per liter or less for exterior surfaces shall be required.

Mitigation Measure AIR-4: Hearths. Fireplaces, if proposed for installation in project residential units, shall use natural gas only.

Mitigation Measure AIR-5: Implement Enhanced Exhaust Emissions Reduction Measures. The construction contractor shall implement the following measures during construction to further reduce construction-related exhaust emissions:

- a. All off-road equipment greater than 25 horsepower (hp) and operating for more than 20 total hours over the entire duration of construction activities shall meet the following requirements:
 - i. Where access to alternative sources of power are available, portable diesel engines shall be prohibited; and
 - ii. All off-road equipment shall have:
 - 1. Engines that meet or exceed either USEPA or CARB Tier 2 off-road emission standards, and
 - 2. Engines that are retrofitted with a CARB Level 3 Verified Diesel Emissions
 - a. Control Strategy (VDECS). Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such are available.

Mitigation Measure BIO-1: Project-related activities that occur during the breeding season could be constrained in the vicinity of any active nests. If tree removal or ground disturbance activities are scheduled to commence during the breeding season (February 1st through August 31st), pre-construction nesting bird surveys should be conducted by a qualified biologist to identify possible nesting activity within 15 days prior to such activities. A construction-free buffer of suitable dimensions must be established around any active raptor

and migratory bird nest (up to 250 feet, depending on the location and species) for the duration of the project, or until it has been determined that the chicks have fledged and are foraging independently from their parents.

Mitigation Measure LUP-1: Apartments (For Rent Units): The applicant and/or property management shall provide annual VTA eco-passes to all apartment tenants at time of move-in and every year after for the length of tenancy. The cost of the VTA eco-passes shall be equally borne by the applicant and tenant. Residents who qualify as very-low income shall be provided an eco-pass at no cost at time of move-in and every year after for the length of tenancy. The applicant and/or property management shall not include the cost of a VTA eco-pass in the overall rent for very-low income apartment units. The requirement to provide no-cost eco-passes shall continue for the life of the project.

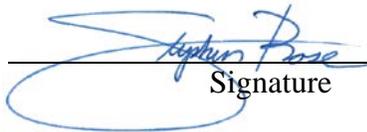
Townhouses/Duplexes (For Sale Units): The applicant and/or established Home Owners Association shall include the cost of an annual VTA eco-pass in the unit dues for the life of the project.

Mitigation Measure NOI-1: Air conditioning shall be included in all residences constructed in the Residences at Railway Development to allow occupants to close doors and windows as desired to achieve additional acoustic isolation.

Mitigation Measure NOI-2: A noise barrier shall be constructed along the light rail to provide adequate shielding for the backyards of the duplexes.

PUBLIC REVIEW PERIOD

Any person may file a written protest of the draft Mitigated Negative Declaration before 5:00 p.m. on **August 11, 2015**. Such protest must be filed at the Community Development Department, City Hall, 70 North First Street, Campbell, California. The written protest should make a "fair argument" that the project will have one or more significant effects on the environment based on substantial evidence. However, please note that certain determinations made pursuant to CEQA Guidelines Sec. 15183.3 are questions of fact to be resolved by the lead agency.



Signature

Stephen Rose, Associate Planner
Printed Name

July 22, 2015
Date

City of Campbell
Agency

Encl: Infill Environmental Checklist Form
Mitigation Monitoring and Reporting Program

INFILL ENVIRONMENTAL CHECKLIST

Residences at Railway

208 & 226-328 Railway Avenue &
a portion of 290 Dillon Avenue (City Corporation Yard)

*An environmental evaluation
prepared in compliance with the
California Environmental Quality Act*



Prepared by
Stephen Rose
Associate Planner

City of Campbell
Community Development Department
Planning Division
70 N. First Street
Campbell, CA 95008



Public Review Period
July 22, 2015 – August 11, 2015

Infill Environmental Checklist Form

Project Title: Residences at Railway

File Number(s): Planned Development Permit (PLN2014-323) | Vesting Tentative Subdivision Map (PLN2014-324) | CEQA Review (PLN2014-325) | Tree Removal Permit (PLN2014-329) | Sign Exception (PLN2015-053) | Variance (PLN2015-167)

Project Address: 208 & 226-328 Railway Avenue, & a portion of 290 Dillon Avenue (City Corporation Yard)

Project Sponsor: St. Anton Communities / Ardie Zahedani
1801 I Street, Suite 200
Sacramento, CA 95811
(916) 444-9897

Zoning District: P-D (Planned Development)

General Plan *Commercial/Med.-High Density Residential (14-27 units/gr. acre) and High Density Residential (21-27 units/gr. acre)*

Lead Agency: City of Campbell, Community Development Department
70 N. First Street, Campbell, CA 95008

Contact Person: Stephen Rose, Associate Planner
(408) 866-2142 | stephenr@cityofcampbell.com

Date Posted: July 22, 2015

Project Setting and Surrounding Land Use: The project site is an assemblage of thirteen parcels located on both sides of Railway Avenue and also includes a small portion of the City Corporation Yard, located at the end of Dillon Avenue, which all together totals 3.90 net acres (4.66 gross). The project site is bordered by the Avalon Apartment Community to the south, the remaining City Corporation Yard to the east, the VTA light rail line to the west, and the Calvary Temple of Campbell (church) to the north.

The thirteen properties are predominantly comprised of a mixture of non-conforming warehouse, auto repair/rental, and general contractor uses, operated from an assortment of older buildings, the majority of which were constructed in the 1950's, and all of which are proposed for removal.

Project Description: The proposed project is an infill residential development consisting of 157-units, comprised of 119 apartment units (rental) and 32 townhouse (for sale) and six duet (for sale) units. The project is intended to be a walkable, transit oriented, infill development, benefiting from its proximity to the Vasona Light Rail Corridor, Los Gatos Creek Trail, Downtown Campbell businesses, and major regional freeways.

With a proposed density of 33.7 units per gross acre, the project seeks to exceed the maximum density allowed under the General Plan (27-units per gross acre) by providing affordable housing units in order to qualify for a density bonus. As a concession for providing affordable housing, the developer is also seeking a height exception, to allow the interior level of the apartment complex to be built at 68 feet, 6 inches (allowing the development of a fifth story), where the maximum height would otherwise be restricted to 50 feet (excluding architectural features). The applicant will also seek to comply with the parking standards for a project qualifying for a Density Bonus, consistent with the City of Campbell's and State adopted standards for projects providing additional affordable housing.

As summarized in the table below, over three-quarters of the project would be comprised of for-rent apartments, with the remainder developed as for-sale townhouses and duet units.

HOUSING UNIT ALLOCATIONS		
Apartments (for- rent)	119	75.7%
(Studio)	(6)	(3.8%)
(1 Bed)	(83)	(52.8%)
(2 Bed)	(30)	(19.1%)
Townhouses (for- sale)	32	20.3%
Duets (for-sale)	6	3.8%
Total	157	100%

While the project does not include a commercial component, the apartment complex will provide a central lobby, a clubhouse that has a leasing area with multiple offices, a services/activity center, a group exercise studio, a bicycle repair area, and a clubroom with kitchen and seating for community gatherings as amenities. Additionally, the apartment component of the project will have a pool in the central courtyard for other recreational and fitness activities.

Project Data

Net Lot Area: 3.90 acres (including 4,032 sq. ft. of City property)

Gross Lot Area: 4.66 acres

Zoning: P-D (Planned Development)

General Plan: *Commercial/Med.-High Density Residential (14-27 units/gr. acre) and High Density Residential (21-27 units/gr. acre)*

Proposed Units: 157 units (119 apartments, 32 townhomes, and 6 duet units)

Proposed Density w/ Bonus: 33.7 units/gr. acre (157 units / 4.66 gross acres)

Density Max without Bonus: 27 units/gr. acre (126 units)

Density Bonus (Max): 36.45 units/gr. acre (170 units)

Unit Sizes:

Townhomes: 1,251 sq. ft. to 1,926 sq. ft. (2 to 4 bedrooms)
 Duet: 1,900 sq. ft. (3 bedrooms)
 Apartments: 441 sq. ft. to 1,900 sq. ft. (studio to 3 bedrooms)

Building Height:

Townhome Rows: 36 feet
 Duet: 28 feet, 4 inches
 Apartment Building 68 feet, 6 inches

Maximum Height Allowed: 75 Feet (Maximum Allowable within City)
 50 Feet (SOCA Sub-Area 2)

Parking:	<u>Provided</u>	<u>Minimum Required</u>	<u>Surplus</u>
	258	233	+25

Project Entitlements: Required land use entitlements for the proposed project include a Planned Development Permit (PLN2014-323) for the approval of site configuration and architectural design, Vesting Tentative Subdivision Map (PLN2014-324) to create individual townhome, duplex and commonly owned lots, Tree Removal Permit (PLN2014-329) to allow removal of "protected trees", a Sign Exception (PLN2015-053) to allow a large decorative sign element and Variance (PLN2015-167) to allow the placement of a new service pole in association with the project's undergrounding of overhead utilities.

Prior Environmental Document(s): On November 6, 2001, the City of Campbell adopted the Campbell General Plan and certified the Final Environmental Impact Report (EIR) (State Clearing House # 2001042063) which applicable to the project. The adopting City Council Resolution (reference **Attachment 1** – CC Resolution No. 9949) for the EIR, summarizes the potentially significant environmental impacts that would be mitigated to a level less than significant with the identified mitigation measures as well as those environmental impacts determined to be significant and unavoidable.

Location of Prior Environmental Document(s): City of Campbell City Hall, Community Development Department, 70 N. First Street, Campbell, CA 95008.

Other public agencies whose approval is required: None

Project Location

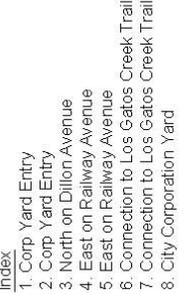
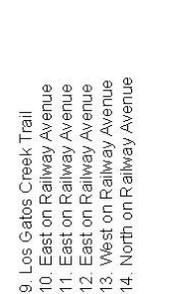


Figure 1: Regional Setting



Figure 2: Project Site

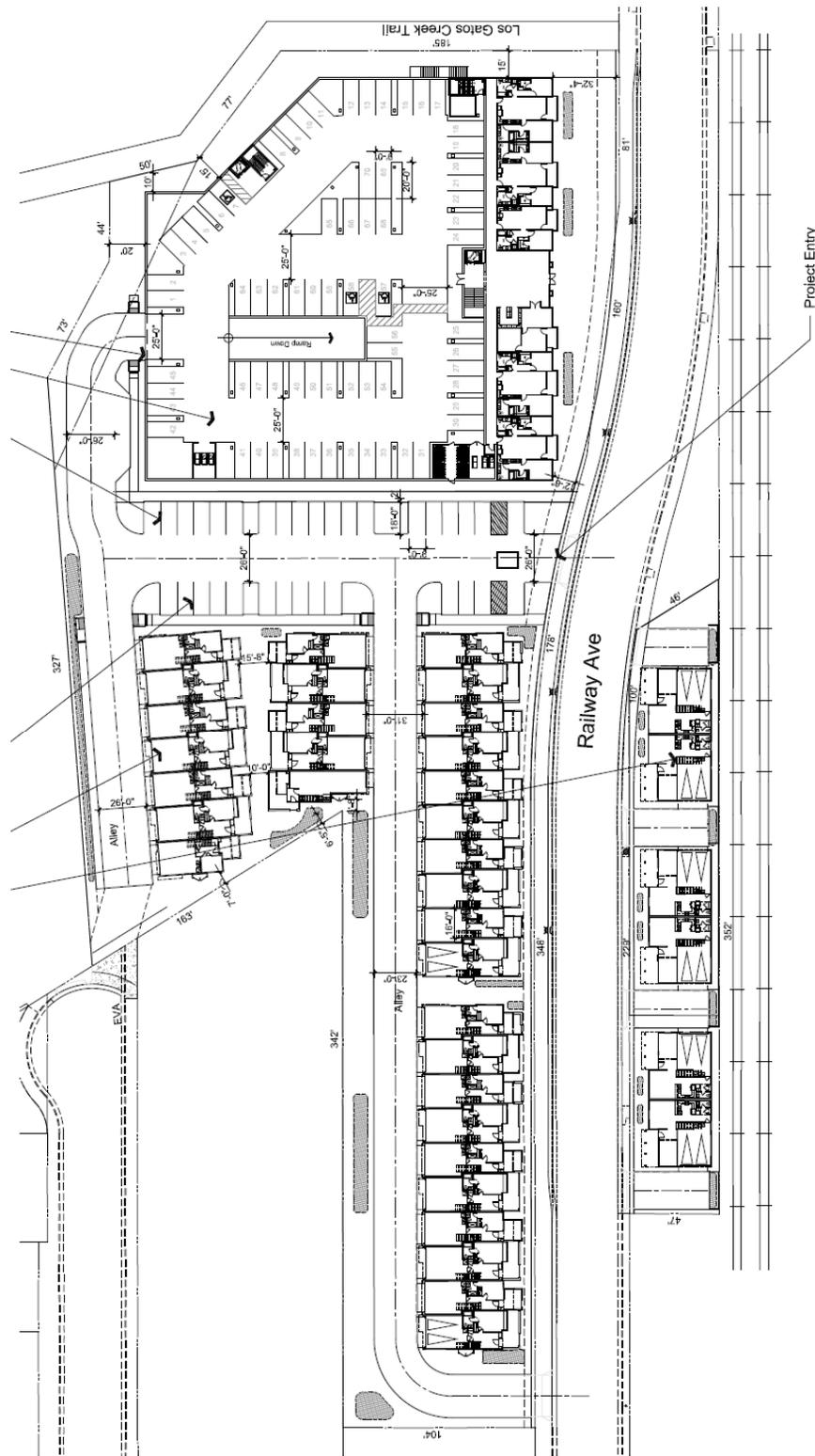
Site Photographs



- 9. Los Gatos Creek Trail
- 10. East on Railway Avenue
- 11. East on Railway Avenue
- 12. East on Railway Avenue
- 13. West on Railway Avenue
- 14. North on Railway Avenue

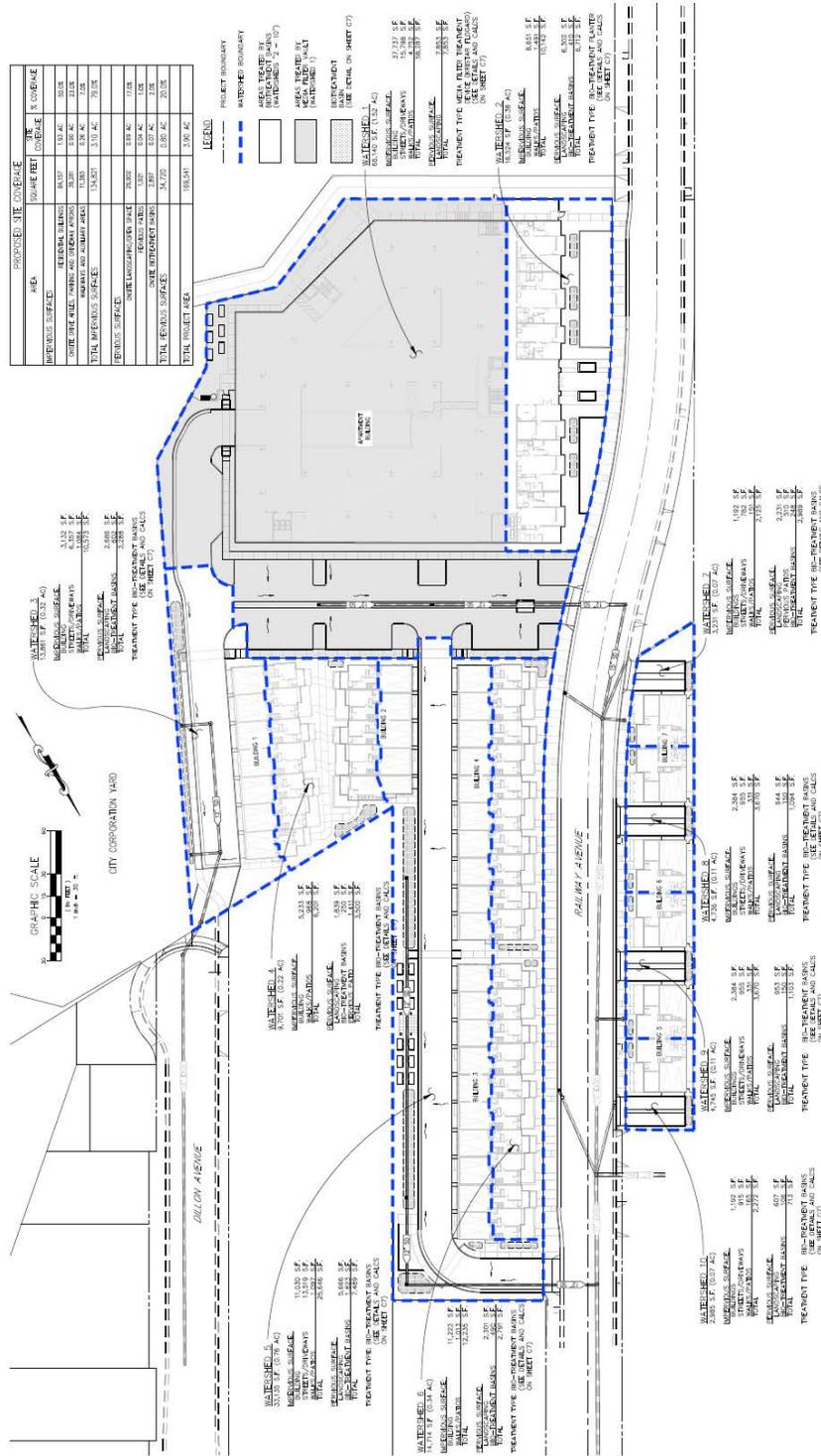
- 1. Corp. Yard Entry
- 2. Corp. Yard Entry
- 3. North on Dillon Avenue
- 4. East on Railway Avenue
- 5. East on Railway Avenue
- 6. Connection to Los Gatos Creek Trail
- 7. Connection to Los Gatos Creek Trail
- 8. City Corporation Yard

Preliminary Site Plan



ARCHITECTURAL SITE PLAN

Preliminary Stormwater Treatment Plan

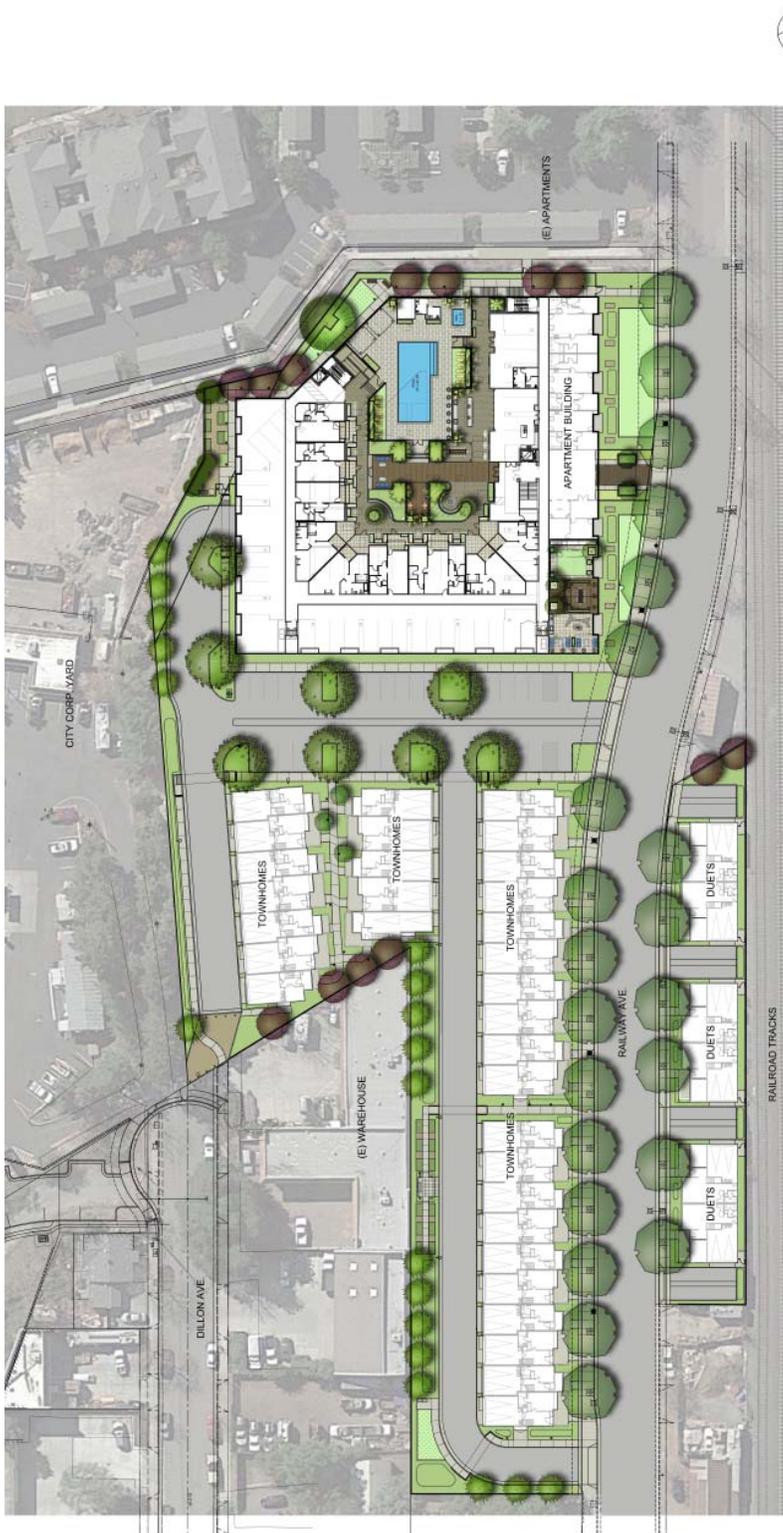


C6

STORMWATER MANAGEMENT PLAN

RESIDENCES AT RAILWAY

Preliminary Landscaping Plan



CAMPBELL, CALIFORNIA
 BOX # 384-883
 11.03.2018

COMPOSITE COLOR
 LANDSCAPE PLAN
 L2.05

St. Anton Communities
 1801 I St., Suite 200
 Sacramento, CA
 916-444-9897



SATISFACTION OF PERFORMANCE STANDARDS

Provide the information demonstrating that the infill project satisfies the performance standards in Appendix M below. For mixed-use projects, the predominant use will determine which performance standards apply to the entire project.

- 1. Does the *non-residential* infill project include a renewable energy feature? If so, describe below. If not, explain below why it is not feasible to do so.**

Not applicable. The proposed project is a residential development.

- 2. If the project site is included on any list compiled pursuant to Section 65962.5 of the Government Code, either provide documentation of remediation or describe the recommendations provided in a preliminary endangerment assessment or comparable document that will be implemented as part of the project.**

The project site is not listed on the Hazardous Waste and Substances Sites List (available at http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm), compiled pursuant to Government Code Section 65962.5. However, soil vapor sampling, and soil sampling conducted as part of the project's Phase I Environmental Site Assessment (reference **Attachment 7**) and Results of Limited Phase II Site Investigation Report (reference **Attachment 8**) revealed concentrations of Benzene, Tetrachloroethene (PCE), Total Petroleum Hydrocarbons (TPH), Organochlorine Pesticides (OCPs), and Arsenic above environmental regulatory screening levels for residential land use and applicable State and Federal standards.

The project sponsor has prepared a Soil Remediation Implementation Plan (reference **Attachment 2**) to excavate and remove TPH-impacted soils.

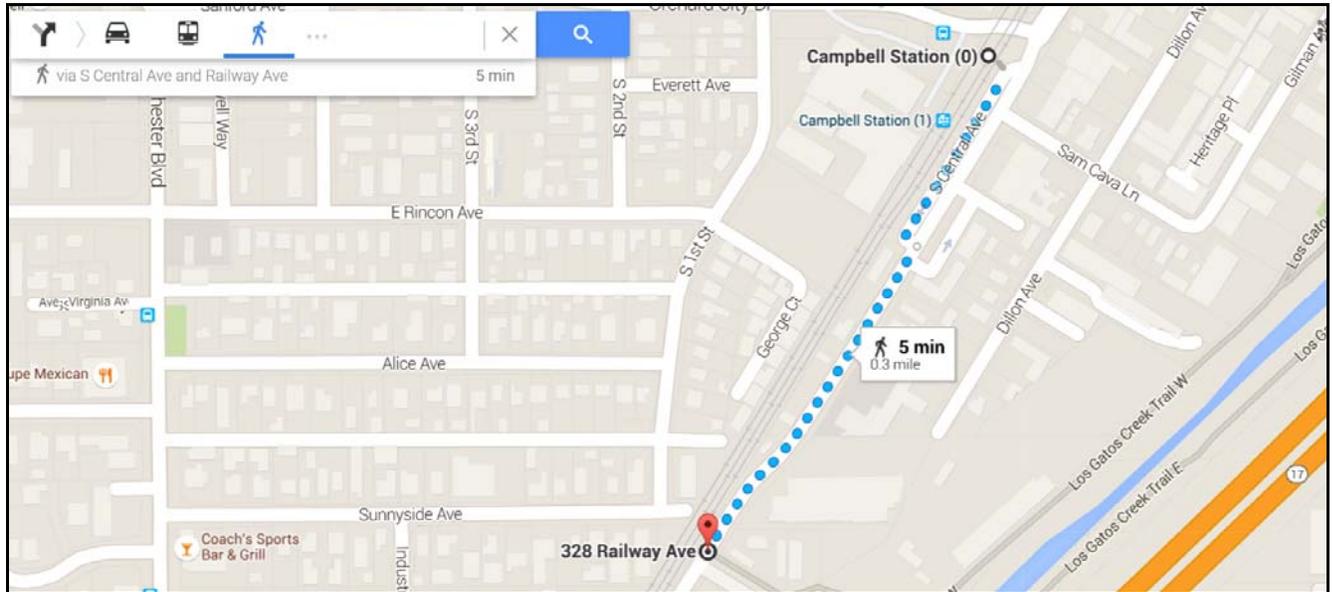
- 3. If the infill project includes residential units located within 500 feet, or such distance that the local agency or local air district has determined is appropriate based on local conditions, a high volume roadway or other significant source of air pollution, as defined in Appendix M, describe the measures that the project will implement to protect public health. Such measures may include policies and standards identified in the local general plan, specific plans, zoning code or community risk reduction plan, or measures recommended in a health risk assessment, to promote the protection of public health. Identify the policies or standards, or refer to the site specific analysis, below. (Attach additional sheets if necessary.)**

The project site is located approximately 400 feet from California Highway 17. As discussed further in the Part 3 (Air Quality) of Environmental Impact Analysis, short-term construction and operational emissions will be below acceptable levels established by the Bay Area Air Quality Management District (BAAQMD). As such, no specific measures are necessary to further protection of the public health.

Nevertheless, BAAQMD's CEQA Air Quality Guidelines require a number of best management practices to control fugitive dust and exhaust emissions which are to be implemented as MM AIR-1, MM AIR-2, & MM AIR-3.

4. For residential projects, the project satisfies which of the following?

- Located within a low vehicle travel area, as defined in Appendix M.
- Located within 1/2 mile of an existing major transit stop or an existing stop along a high quality transit corridor (reference map below):



- Consists of 100 or fewer units that are each affordable to low income households. (Attach evidence of legal commitment to ensure the continued availability and use of the housing units for lower income households, as defined in Section 50079.5 of the Health and Safety Code, for a period of at least 30 years, at monthly housing costs, as determined pursuant to Section 50053 of the Health and Safety Code.)

5. For commercial projects with a single building floor-plate below 50,000 square feet, the project satisfies which of the following?

- Located within a low vehicle travel area, as defined in Appendix M. (Attach VMT map.)
- The project is within one-half mile of 1800 dwelling units. (Attach map illustrating proximity to households.)

6. For office building projects, the project satisfies which of the following?

- Located within a low vehicle travel area, as defined in Appendix M. (Attach VMT map.)
- Located within 1/4 mile of an existing major transit stop. (Attach map illustrating proximity to transit.)

7. For *school* projects, the project does all of the following:

- The project complies with the requirements in Sections 17213, 17213.1 and 17213.2 of the California Education Code.
- The project is an elementary school and is within one mile of 50% of the student population, or is a middle school or high school and is within two miles of 50% of the student population. Alternatively, the school is within ½ mile of an existing major transit stop or an existing stop along a high quality transit corridor. (Attach map and methodology.)
- The project provides parking and storage for bicycles and scooters

8. For *small walkable community projects*, the project must be a residential project that has a density of at least eight units to the acre or a commercial project with a floor area ratio of at least 0.5, or both.

Not applicable. The project is not a small walkable community project.

ENVIRONMENTAL IMPACT EVALUATION

This section describes the purpose of this infill environmental checklist. The checklist was developed by the Governor's Office of Planning and Research for general use in implementing the streamlined CEQA review for qualified infill projects as set forth in SB 226, signed by the Governor on October 4, 2011. This new streamlined option recognizes the benefits of infill development projects and provides flexibility in project design by basing eligibility on environmental performance rather than prescribing specific project characteristics. It also allows infill projects to avoid repeating analysis of environmental effects that have already been analyzed at a programmatic level.

This streamlined infill review applies to different types and sizes of projects, but the projects must be located within an incorporated city or other qualifying area. Additionally, the projects may include general plan amendments and zoning changes provided that the new effects are analyzed. This checklist is used to determine whether the effects of a specific project have been previously analyzed in a prior EIR for a planning level decision or if additional analysis is required. The following determinations are used in the checklist analysis for each effect.

No Impact: 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) or that the impact is less than significant without requiring mitigation. 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).

Prior EIR Analysis: Analysis of the specific project level contributions to a significant effect previously analyzed need not be repeated. Instead, the checklist analysis shall be limited to: (A) environmental effects specific to the project or project site that were not addressed in the prior EIR or; (B) environmental effects that new information shows would be more significant than previously described (CEQA Guidelines §15183.3(d)(1)). Projects which are determined to have no impact or effects which were adequately analyzed in a prior EIR are exempt from further CEQA review.

Mitigated by Uniformly Applicable Development Standards: If an effect of the infill project was not previously analyzed or if an effect would be more significant than previously analyzed, the checklist can reference uniformly applicable development policies or standards which *substantially mitigate* that effect. Examples of uniformly applicable development policies include regulations governing construction activities, requirements in locally adopted building, grading, and storm water codes, design guidelines, requirements for protecting residents from air pollution sources such as high volume roadways and stationary sources, impact fee programs for public infrastructure and road improvements, requirements for reducing greenhouse gas emissions, and ordinances that protect urban trees and historic resources. A written finding is required to be adopted supporting this determination of the effect, but the project would be exempt from further CEQA review. Where applicable, specific sections of the Campbell Municipal Code (CMC) are cited.

Less than Significant with Mitigation/Significant Impact: If the infill project would result in new specific effects or more significant effects, and uniformly applicable development policies or standards would not substantially mitigate such effects, those effects are subject to CEQA review. If it is determined that the new specific effect(s) is less than significant or less than significant with mitigation it may result in a Negative Declaration or Mitigated Negative Declaration. If it is determined that the new specific effect(s) is potentially significant, it may result in an Infill EIR.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

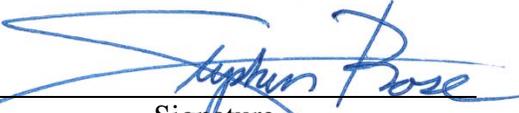
The infill project could potentially result in one or more of the following environmental effects, which would be less than significant with mitigation incorporated:

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

DETERMINATION

On the basis of this initial evaluation:

- I find that the proposed infill project **WOULD NOT** have any significant effects on the environment that either have not already been analyzed in a prior EIR or that are more significant than previously analyzed, or that uniformly applicable development policies would not substantially mitigate. Pursuant to Public Resources Code Section 21094.5, CEQA does not apply to such effects. A Notice of Determination (Section 15094) will be filed.
- I find that the proposed infill project will have effects that either have not been analyzed in a prior EIR, or are more significant than described in the prior EIR, and that no uniformly applicable development policies would substantially mitigate such effects. With respect to those effects that are subject to CEQA, I find that such effects **WOULD NOT** be significant and a **NEGATIVE DECLARATION**, or if the project is a Transit Priority Project a **SUSTAINABLE COMMUNITIES ENVIRONMENTAL ASSESSMENT**, will be prepared.
- I find that the proposed infill project will have effects that either have not been analyzed in a prior EIR, or are more significant than described in the prior EIR, and that no uniformly applicable development policies would substantially mitigate such effects. I find that although those effects could be significant, there will not be a significant effect in this case because revisions in the infill project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION**, or if the project is a Transit Priority Project a **SUSTAINABLE COMMUNITIES ENVIRONMENTAL ASSESSMENT**, will be prepared.
- I find that the proposed infill project would have effects that either have not been analyzed in a prior EIR, or are more significant than described in the prior EIR, and that no uniformly applicable development policies would substantially mitigate such effects. I find that those effects **WOULD** be significant, and an infill **ENVIRONMENTAL IMPACT REPORT** is required to analyze those effects that are subject to CEQA.



Signature

Stephen Rose, Associate Planner
Printed Name

July 22, 2015
Date

City of Campbell
Agency

1. AESTHETICS

	Significant Impact	Less Than Significant w/ Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
Would the project:					
a) Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

(a-c) – No Impact: The project will alter the existing visual character of the site and its surroundings through demolition of existing structures and eventual development planned residential community. There are no groves of trees, rock outcroppings, in or immediately adjacent to the project site that would be visually obstructed or removed by the proposed development. However, a historic building does border the development to the northwest at 209 Railway Avenue (Cannery Worker’s Dining Hall), which would remain. Special care was paid to the siting, scale, massing, and design of the duets which would occur adjacent to this property, to reinforce the value and prominence of the historic resource.

Furthermore, although the Los Gatos Creek trail is not identified as a scenic vista, scenic resource, or view-corridor, its importance to the community and adjacency to the project site were also given special consideration. The project design is intended to compliment and respect to the Los Gatos Creek trail through transparent fencing, and suitable landscape vegetation. As a result, the project would not result in a substantial adverse effect on a scenic vista, or substantially damage scenic resources.

(d) – Substantially Mitigated by Uniformly Applicable Development Policies. The majority of the project site has very limited lighting. New site lighting is anticipated to include down-lit fixtures for new residences and freestanding lighting fixtures along the new public pathway and internal roadways. However, light and glare associated with new site lighting would be substantially mitigated by the Lighting Design Standards (CMC Sec. 21.18.090), which requires lighting to be designed and installed so that light rays are not emitted across property lines. This standard will be implemented through requirement of a photometric plan during building permit plan check.

2. AGRICULTURAL RESOURCES

	Significant Impact	Less Than Significant w/ Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
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 Programs of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Conflict with existing zoning for, or cause rezoning of, forest land or timberland zoned Timberland Production?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a-e) – No Impact: The project site is not currently used for, nor zoned for, farmland or other agricultural or horticultural purpose. Neither the project site nor surrounding properties contain farmland or support agricultural activity that could be impacted by the project.

3. AIR QUALITY

	Significant Impact	Less Than Significant w/ Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
Would the project:					
a) Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) 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 (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: The following is excerpted from the 'Air Quality and Greenhouse Gas, and Health Risk Assessment', prepared by RCH Group for this project, and has been edited for content, brevity and clarity. The complete document, including tables and figures, is included as **Attachment 3**.

Under amendments to the federal Clean Air Act (CAA), the U.S. Environmental Protection Agency (USEPA) has classified air basins or portions thereof as either "attainment" or "non-attainment" for each criteria air pollutant, based on whether or not the national standards have been achieved. The California CAA, which is patterned after the federal CAA, also requires areas to be designated as "attainment" or "non-attainment" for the state standards. Thus, areas in California have two sets of (non) attainment designations: one set with respect to the national standards and one set with respect to the state standards. The San Francisco Bay Area Air Basin (Bay Area) is currently designated as a nonattainment area for state and national ozone standards, state particulate matter (PM10 and PM2.5) standards, and federal PM2.5 (24-hour) standard.

The Bay Area Air Quality Management District (BAAQMD) is the regional air quality authority in the project area. The most recently adopted air quality plan for the San Francisco Bay Area is the Bay

Area 2010 Clean Air Plan (BAAQMD, 2010). The 2010 Clean Air Plan (2010 CAP) is an update to the BAAQMD 2005 Ozone Strategy to comply with State air quality planning requirements. The 2010 CAP serves as a roadmap showing how the San Francisco Bay Area will achieve compliance with the State one-hour ozone standard as expeditiously as practicable, and how the region will reduce transport of ozone and ozone precursors to neighboring air basins. The 2010 CAP also serves as a multi-pollutant air quality plan to protect public health and the climate. The control strategy contained in the 2010 CAP includes revised, updated, and new measures in the three traditional control measure categories, including stationary source measures, mobile source measures, and transportation control measures. In addition, the 2010 CAP identifies two new categories of control measures, including land use and local impact measures, and energy and climate measures.

The air quality analysis below uses the previously-adopted 2011 thresholds of the BAAQMD to determine the potential impacts of the project. While the significance thresholds adopted by BAAQMD in 2011 are not currently recommended by the BAAQMD (based on court decision), these thresholds are based on substantial evidence identified in BAAQMD's 2009 Justification Report and are therefore used within this document. For the purposes of this air quality analysis, sensitive receptors are defined as facilities and land uses that include members of the population that are particularly sensitive to the effects of air pollutants, such as children, the elderly, and people with illnesses. Examples include schools, hospitals, and daycare centers. Residential areas are also considered sensitive to poor air quality because people usually stay home for extended periods of time, which results in greater exposure to ambient air quality.

(a) – Less than Significant with Mitigation: The BAAQMD adopted its 2010 Bay Area Clean Air Plan (CAP) in accordance with the requirements of the California Clean Air Act (CCAA) to implement all feasible measures to reduce ozone; provide a control strategy to reduce ozone, particulate matter, air toxics, and GHG emissions in a single, integrated plan; and establish emission control measures to be adopted or implemented in the 2010 through 2012 timeframe. The primary goals of the 2010 Bay Area CAP are to:

- Attain air quality standards;
- Reduce population exposure and protecting public health in the Bay Area; and
- Reduce GHG emissions and protect the climate.

BAAQMD recommends that approving a project where an air quality plan consistency determination is required to analyze the project with respect to the following questions: (1) Does the project support the primary goals of the air quality plan; (2) Does the project include applicable control measures from the air quality plan; and (3) Does the project disrupt or hinder implementation of any 2010 CAP control measures? If the first two questions are concluded in the affirmative and the third question concluded in the negative, the BAAQMD considers the project consistent with air quality plans prepared for the Bay Area.

Any project that would not support the 2010 CAP goals would not be considered consistent with the 2010 CAP. The recommended measure for determining project support of these goals is consistency with BAAQMD CEQA thresholds of significance. As presented in the subsequent impact discussions, the proposed project with mitigations would not exceed the BAAQMD significance thresholds; therefore, the proposed project with mitigations would support the primary goals of the 2010 CAP. As

mentioned, projects that incorporate all feasible control measures in the air quality plan are considered consistent with the 2010 CAP.

The proposed project with mitigation measures (MM AIR-1 – AIR-5) would support the primary goals of the 2010 CAP, it would be consistent with all applicable 2010 CAP control measures, and would not disrupt or hinder implementation of any 2010 CAP control measures. Therefore, there would be a less than significant impact associated with, conflicting with, or obstructing implementation of the applicable air quality plan.

(b) – Less than Significant with Mitigation: The proposed project would be constructed in a single phase estimated to require 18 months, which would include demolition of existing structures, site preparation, grading, building construction, paving, and coating.

Project construction would generate short-term emissions of air pollutants, including fugitive dust and equipment exhaust emissions. The BAAQMD *CEQA Air Quality Guidelines* recommend quantification of construction-related exhaust emissions and comparison of those emissions to significance thresholds. The CalEEMod (California Emissions Estimator Model, Version 2013.2.2) was used to quantify construction-related pollutant emissions.

The demolition, site preparation, and grading would occur sequentially for a period of approximately 40 days using equipment such as backhoes, graders, dozers, loaders, and haul trucks. The site is currently predominantly occupied by industrial uses of approximately 49,200 square feet that would be demolished prior to project construction. Site preparation would consist of land clearing and grubbing, haul truck trips would likely be required to export the materials from the project site. A total of 15,000 cubic yards of soil export is anticipated during construction to create a subsurface parking structure.

Based on CalEEMod, a total of approximately 224 haul truck trips were estimated during demolition and approximately 1,875 haul trucks were estimated during excavation. An average daily construction crew of 150 employees would be present on-site during building construction with less workers during other construction phases.

The emissions generated from these construction activities include:

- Dust (including PM₁₀ and PM_{2.5}) primarily from “fugitive” sources (i.e., emissions released through means other than through a stack or tailpipe) such as material handling and travel on unpaved surfaces; and
- Combustion emissions of criteria air pollutants (ROG, NO_x, CO, PM₁₀, and PM_{2.5}) primarily from operation of heavy off-road construction equipment, haul trucks, (primarily diesel-operated), and construction worker automobile trips (primarily gasoline operated).

Construction-related fugitive dust emissions would vary from day to day, depending on the level and type of activity, silt content of the soil, and the weather. High winds (greater than 10 miles per hour) occur infrequently in the area, less than two percent of the time. In the absence of mitigation, construction activities may result in significant quantities of dust, and as a result, local visibility and PM₁₀ concentrations may be adversely affected on a temporary and intermittent basis during construction. In addition, the fugitive dust generated by construction would include not only PM₁₀, but also larger particles, which would fall out of the atmosphere within several hundred feet of the site and

could result in nuisance-type impacts. Erosion control measures and water programs are typically undertaken to minimize these fugitive dust and particulate emissions. A dust control efficiency of over 50 percent due to daily watering and other measures (e.g., limiting vehicle speed to 15 mph, management of stockpiles, screening process controls, etc.) was estimated. Based on CalEEMod, one water application per day reduces fugitive dust by 34 percent, two water applications per day reduces fugitive dust by 55 percent, and three water applications per day reduces fugitive dust by 61 percent. As the construction phases (i.e., grading, building construction, paving, etc.) are sequential, the average daily construction period emissions (i.e., total construction period emissions divided by the number of construction days) were compared to the BAAQMD significance thresholds. All construction-related emissions would be below the BAAQMD significance thresholds. Nevertheless, BAAQMD's *CEQA Air Quality Guidelines* require a number of best management practices to control fugitive dust and exhaust emissions.

Mitigation Measures: The following mitigation measures will be incorporated into the project approval:

- *Mitigation Measure AIR-1:* The project applicant shall ensure that construction plans include the BAAQMD Best Management Practices for fugitive dust control. The following will be required for all construction activities within the project area. These measures will reduce fugitive dust emissions primarily during soil movement, grading and demolition activities, but also during vehicle and equipment movement on unpaved project sites:
 - a. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
 - b. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
 - c. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
 - d. All vehicle speeds on unpaved roads shall be limited to 15 mph.
 - e. All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
 - f. A publicly visible sign shall be posted with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.
- *Mitigation Measure AIR-2:* The project applicant shall ensure that construction contract specifications include a requirement that all off-road diesel-powered construction equipment used for project improvements be equipped with a Level3 Verified Diesel Emissions Control (VDEC).
 - a. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne tox.ics control measure Title 13, Section 2485 of CCR). Clear signage shall be provided for construction workers at all access points.

- b. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- *Mitigation Measure AIR-3*: The project applicant shall ensure that architectural coatings (e.g. paints and solvents) with a VOC content of 100 grams per liter or less shall be used for interior and 150 grams per liter or less for exterior surfaces shall be required.

(c) – Less than Significant with Mitigation: The project would not result in the generation of criteria pollutants during short-term construction activities, but nevertheless a number of best management practices to control fugitive dust and exhaust emissions will be included in the project approval as Mitigation Measures AIR-1 through AIR-3. In regards to long-term operations, the project land uses were input into CalEEMod, which estimated daily and annual operational emissions that would be associated with the proposed project in comparison to BAAQMD's thresholds of significance. The estimated annual project operational emissions for ROG, NO_x, PM₁₀, PM_{2.5} & CO were determined to be below the BAAQMD's significance thresholds without mitigation. Furthermore, the estimated daily operations for NO_x, PM₁₀, PM_{2.5} & CO were also determined to be below the BAAQMD's significance thresholds without mitigation. However, fireplaces and wood stoves, if part of the project, would result in potentially significant operational ROG emissions, but such emissions would be reduced below the BAAQMD's significance thresholds if restricted to natural gas only. As such, with the inclusion of Mitigation Measure AIR-4, the operational emissions would be less than significant.

Mitigation Measures: The following mitigation measures will be incorporated into the project approval:

- *Mitigation Measure AIR-4: Hearths.* Fireplaces, if proposed for installation in project residential units, shall use natural gas only.

(d) – Less than Significant with Mitigation: With implementation of required BAAMQD mitigation measures for construction activity and equipment described previously as Mitigation Measures AIR-1 through AIR-3, the maximum cancer risk from construction DPM for an existing residential-adult receptor would be 11.2 per million and for a residential-child receptor would be 127 per million. Thus, the cancer risk due to construction activities is potentially above the BAAQMD threshold of 10 per million and would be potentially significant. The estimated cancer risk impacts at the nearest existing residence due to Highway 17 is 19.5 per million. The estimated cancer risk impacts at the nearest existing residence due to UPRR is 9.65 per million. The estimated cancer risk impacts at the nearest existing residence due to nearby permitted sources is 9.32 per million. The cumulative cancer risk from the construction activities and other nearby sources is 165 per million and thus, above the BAAQMD threshold of 100 per million and would also be potentially significant. However, with the implementation of Mitigation Measure AIR-5, the maximum cancer risk from construction for a residential-adult receptor would be 0.8 per million and for a residential child receptor would be 8.9 per million. Thus, the cancer risk due to construction activities would be below the BAAQMD threshold of 10 per million and would be less than significant with mitigation. Cumulative cancer risk from the mitigated construction activities plus other nearby emission sources is also below the BAAQMD threshold of 100 per million and would also be less than significant with mitigation.

- **Mitigation Measure AIR-5: Implement Enhanced Exhaust Emissions Reduction Measures.** The construction contractor shall implement the following measures during construction to further reduce construction-related exhaust emissions:
 - a. All off-road equipment greater than 25 horsepower (hp) and operating for more than 20 total hours over the entire duration of construction activities shall meet the following requirements:
 - i. Where access to alternative sources of power are available, portable diesel engines shall be prohibited; and
 - ii. All off-road equipment shall have:
 - 1. Engines that meet or exceed either USEPA or CARB Tier 2 off-road emission standards, and
 - 2. Engines that are retrofitted with a CARB Level 3 Verified Diesel Emissions
 - a. Control Strategy (VDECS). Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such are available.

Non-Cancer Health Hazard

Both acute (short-term) and chronic (long-term) adverse health impacts unrelated to cancer are measured against a hazard index (HI), which is defined as the ratio of the proposed project's incremental DPM exposure concentration to a published reference exposure level (REL) as determined by OEHHA. To compute the total HI, individual ratios or Hazard Quotients (HQs) of each individual air toxic are added to produce an overall HI. If the overall HI is greater than 1.0, then the impact is considered to be significant. The chronic reference exposure level for DPM as determined by OEHHA is 5 µg/m³. There is no acute REL for DPM. However, diesel exhaust does contain acrolein and other compounds, which do have an acute REL. Based on BAAQMD's DPM speciation data, acrolein emissions are approximately 1.3 percent of the total DPM emissions. The acute REL for acrolein as determined by OEHHA₂₀ is 2.5 µg /m³. The unmitigated and mitigated chronic HI would be 0.43 and 0.03, respectively. Thus, the chronic HI would be well below the BAAQMD threshold of 1 and the proposed project impact would less than significant. The cumulative chronic health impacts would also be well below the BAAQMD threshold of 10.

The unmitigated and mitigated acute HI would be 0.22 and 0.02, respectively. Thus, the acute HI would be below the BAAQMD threshold of 1 and the proposed project impact would be less than significant. The cumulative acute health impacts would be well below the BAAQMD threshold of 10.

PM_{2.5} Concentration

Dispersion modeling also estimated the exposure of sensitive receptors to project-related concentrations of PM_{2.5}. The BAAQMD *Air Quality Guidelines* requires inclusion only of PM_{2.5} exhaust emissions in this analysis (i.e., fugitive dust emissions are addressed under BAAQMD dust control measures and are required by law to be implemented during project construction). The proposed project's unmitigated annual PM_{2.5} concentration from construction activities would be 2.17 µg/m³. With implementation of Mitigation Measure AIR-5, the annual PM_{2.5} concentration would be reduced to 0.16 µg/m³. Thus, the annual PM_{2.5} concentration due to project construction would be

below the BAAQMD threshold of $0.3 \mu\text{g}/\text{m}^3$ and would be considered less than significant with mitigation.

Health Impacts on Proposed Residences

The following describes the health risk assessment associated with proposed residences as a result of existing cumulative sources such as permitted sources (i.e., diesel generators, gasoline stations), UPRR operations, and Highway 17. The BAAQMD's *CEQA Air Quality Guidelines* include standards and methods for determining the significance of cumulative health risk impacts. The method for determining cumulative health risk requires the tallying of health risk from permitted stationary sources, major roadways and any other identified substantial TAC sources in the vicinity of a project site (i.e., within a 1,000-foot radius) and then adding the individual sources to determine whether the BAAQMD's cumulative health risk thresholds are exceeded. **Table 11** shows the individual and cumulative cancer risks, hazard indexes, and $\text{PM}_{2.5}$ concentrations (in $\mu\text{g}/\text{m}^3$) impacting the proposed project residences from BAAQMD-permitted stationary sources and major roadways within 1,000 feet of the proposed project, and also includes the effects of DPM from UPRR operations. The cumulative cancer risk, 36.9 per million, would be well below the BAAQMD cumulative significance threshold of 100 per million for new residential receptors. Thus, the proposed project would be a less than significant health impact on proposed receptors.

(e) – No Impact: Though offensive odors from stationary and mobile sources rarely cause any physical harm, they still remain unpleasant and can lead to public distress, generating citizen complaints to local governments. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

The BAAQMD's significance criteria for odors are subjective and are based on the number of odor complaints generated by a project. Generally, the BAAQMD considers any project with the potential to frequently expose members of the public to objectionable odors to cause a significant impact. With respect to the proposed project, diesel-fueled construction equipment exhaust would generate some odors. However, these emissions typically dissipate quickly and would be unlikely to affect a substantial number of people.

Odor impacts could also result from siting a new sensitive receptor near an existing odor source. Examples of land uses that have the potential to generate considerable odors include, but are not limited to wastewater treatment plants; landfills; refineries; and chemical plants. In the BAAQMD *CEQA Air Quality Guidelines* (dated May 2011), odor screening distances were recommended by BAAQMD for a variety of land uses. Projects that would site a new receptor farther than the applicable screening distance from an existing odor source would not likely result in a significant odor impact. The odor screening distances are not used as absolute screening criteria, rather as information to consider along with the odor parameters and complaint history. The odor screening distances for a sewage treatment plant, refinery, and chemical plant are two miles. The proposed project is not within the odor screening distances for a sewage treatment plant, refinery, or other odor producing sources.

Generally, odor emissions are highly dispersive, especially in areas with higher average wind speeds. However, odors disperse less quickly during inversions or during calm conditions, which hamper vertical mixing and dispersion. Therefore, odor impacts associated with the location of the proposed project would be less than significant.

4. BIOLOGICAL RESOURCES

	Significant Impact	Less Than Significant w/ Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
Would the project:					
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Game or US Fish and Wildlife Service?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Significant Impact	Less Than Significant w/ Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Note: Portions of the following are excerpted from the “Biological Resources” report, prepared by Bruce D. Barnett, Ph.D., for this project, and have been edited for brevity and clarity. The complete document, including exhibits, is included as Attachment 4.

(a, d) – Less than Significant with Mitigation:

According to the California Natural Diversity Database (Rarefind) Database (CNDDDB 2015); California Wildlife Habitat Relationships System, Santa Clara County Breeding Bird Atlas, United States Fish & Wildlife Services (USFWS), California Native Plant Society’s Online Inventory and the City’s General Plan, no species identified as a candidate, sensitive or special status species, or habitat for such species are known to occupy the project site. Furthermore, as the entire project area and surroundings to the north, east, and south are developed and the Valley Transportation Authority’s Light Rail line occurs along the western project boundary (with residential units across), no natural habitat occurs onsite or in the immediate vicinity. Some trees have been planted along Railway Avenue and the light rail line, with larger trees along the borders of 300 – 328 Railway Avenue. These trees have little value to wildlife beyond potential nesting habitat for urban birds and squirrels.

However, to mitigate potential impacts to migratory birds (which could populate the project area in the intervening time since the survey had been conducted), pre-construction bird nesting surveys should be performed in and around the site within two weeks prior to any clearing or construction activity.

Mitigation Measure: The following mitigation measure will be incorporated into the project approval:

- *Mitigation Measure BIO-1:* Project-related activities that occur during the breeding season could be constrained in the vicinity of any active nests. If tree removal or ground disturbance activities are scheduled to commence during the breeding season (February 1st through August 31st), pre-construction nesting bird surveys should be conducted by a qualified biologist to identify possible nesting activity within 15 days prior to such activities. A construction-free buffer of suitable dimensions must be established around any active raptor and migratory bird nest (up to 250 feet, depending on the location and species) for the duration of the project, or until it has been determined that the chicks have fledged and are foraging independently from their parents.

(b-c) – Substantially Mitigated by Uniformly Applicable Development Policies:

The Los Gatos Creek and its associated riparian zone occur approximately 250' from the project's eastern limit on its southern side up to 550' feet away farther north, which would be unaffected by proposed project activities due to its distance.

The proposed project will require grading, excavation, and vegetation removal, thereby resulting in the project site becoming vulnerable to sheet, rill or gully erosion. Eroded soil is generally carried as sediment in surface runoff to be deposited in natural creek/river beds, canals, and adjacent wetlands. To avoid or minimize sedimentation to offsite waters, the applicant is required to comply with standard erosion control measures, including preparation of an erosion control plan that employ best management practices (BMPs), develop a Storm Water Pollution Prevention Plan (SWPPP) per State Water Quality Control Board Stormwater Permit, conform with City's stormwater and grading requirements (CMC Sec. 20.80.020 and 21.16.100), and obtain all necessary permits. As a result, potential impacts to downstream waters from erosion and polluted stormwater runoff, that could also affect riparian habitats, will be substantially mitigated.

(e) – Substantially Mitigated by Uniformly Applicable Development Policies: As part of the proposed development, the project will require removal of all on-site trees. A tree survey prepared for the project identified approximately 17 onsite trees to be removed, and 16 street trees, of which approximately four are considered "protected" and will require approval of a Tree Removal Permit as noted in the Arborist Report (reference **Attachment 5**). The City's Tree Protection Ordinance (CMC 21.32) requires a permit to remove any tree 12-inches in diameter or greater (with the exception of fruit and Eucalyptus trees). The tree survey indicates that the vast majority of the trees are of a moderate to poor quality and are insignificant based on their species and size. However, as required by CMC 21.32, all "protected trees" must be replaced with at a one-to-one ratio. The preliminary landscaping and irrigation plans depict a comprehensive landscaping scheme for the project site, showing planting of the required trees. As such, the potential tree loss would be substantially mitigated by uniformly applicable development policies, and would not conflict with the City's Tree Protection Ordinance.

In addition to tree removals, the Arborist Report notes that twenty off-site trees, along the eastern boundary, would be preserved but may require clearance pruning for vehicle access or building construction. As CMC 21.32 outlines the procedures for tree pruning, and further identifies "severe pruning" as a prohibited act, potential damage to offsite trees as a result of pruning activities would also be substantially mitigated by uniformly applicable development policies, and would also not conflict with the City's Tree Protection Ordinance.

(f) – No Impact: No adopted Habitat Conservation Plan, Natural Community Conservation Plan or approved local, regional or state habitat conservation plans apply to the project or the project site.

5. CULTURAL RESOURCES

	Significant Impact	Less Than Significant w/ Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
Would the project:					
a) Cause a substantial adverse change in the significance of a historical resource as defined in 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to 15064.5?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d) Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

*Note: Portions of the response to (a) are excerpted from the “Historic Evaluation of the Quonset Hut Structure at 241 Railway Avenue in the City of Campbell”, prepared by Robert R. Cartier, Ph.D., for this project, and have been edited to provide additional information, brevity, and clarity. The complete document, including exhibits, is included as **Attachment 13**.*

(a) – No Impact: The project site does not contain known historical resources as defined in §15064.5 of the CEQA Guidelines nor is any property within the project site identified as historically significant by the Campbell Historic Resource Inventory (HRI). The project site does, however, contain a Quonset Hut at 241 Railway Avenue which has been identified as a “potentially historically significant” resource by the City of Campbell. While a potentially historically significant structure does not warrant any further review, an evaluation of the Quonset Hut was prepared by Robert R. Cartier based on the criteria of the National Register of Historic Places (NRHP) & California Register of Historic Resources (CRHR) concluding that as the structure was built in 1957 (roughly 12 years after WWII ended) it is not associated with the WWII era, is not historically significant, and does not appear to be eligible for listing in either the NRHP or CRHR registries.

(b-c) – Analyzed in Prior EIR: The Campbell General Plan EIR recognized that construction activity could result in the exposure of undocumented paleontological and archaeological resources (Impact CULT-1, Pg. 150). This potential impact was mitigated to a less than a significant level through incorporation of the following General Plan Strategy (CNR-1.1b). The requirement to properly handle any discovered archeological or paleontological resources will be incorporated into the project's conditions of approval.

Strategy CNR-1.1b: Archaeological Resources: In accordance with CEQA and the State Public Resources Code, require the discontinuation of all work in the immediate vicinity and the preparation of a resource mitigation plan and monitoring program by a licensed archaeologist if archaeological resources are found on any sites within the City.

(d) – Substantially Mitigated by Uniformly Applicable Development Policies: No human remains are known to exist on the project site. However, should human remains be discovered during excavation or construction, such remains shall be handled pursuant to § 7050.5 of the California Health and Safety Code and § 5097.94 of the California Public Resources Code. Specifically, in the event a human burial or skeletal element is identified during excavation or construction, work in that location shall stop immediately until the find can be properly treated. The Santa Clara County Coroner shall be notified and shall make a determination as to whether remains are Native American in origin and take such actions as required by law.

6. GEOLOGY AND SOILS

	Significant Impact	Less Than Significant w/ Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
Would the project:					
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:					
i. Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
ii. Strong seismic ground shaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iii. Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
iv. Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<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 risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a, c-d) – Substantially Mitigated by Uniformly Applicable Development Policies: The project site is located within the seismically active San Francisco Bay Area. According to maps prepared under the Alquist-Priolo Earthquake Fault Zone Act, there are no zoned active faults within the City of Campbell. Therefore, ground rupture is not likely to occur at the site. According to the State Seismic Hazard Zones Map, the project site is not located in any hazard zone and therefore does not have the potential for liquefaction or earthquake-induced landslides. However, the nearest major earthquake faults are the Monte Vista Shannon Fault, San Andreas Fault, the Hayward-Rogers Creek Fault and the Calaveras Fault, all of which pose the greatest earthquake threat because of their high quake potential. The project will likely be subjected to at least one moderate to severe earthquake that will cause moderate to severe ground shaking during the useful life of the proposed residential buildings. Ground shaking on the site could damage buildings, roads and utilities.

As required by the CMC Sec. 21.18.130 all new development shall conform to the California Building Code provisions regarding engineering and geotechnical analysis. This project will require preparation of a geotechnical report, the conclusions and recommendations of which shall become the standards for review of the construction drawings for a building permit. A preliminary geotechnical investigation has been prepared for the project. Conformance with the recommendations of the preliminary geotechnical report for the project (reference **Attachment 6**) will substantially mitigate the potential for seismic damage and geologic instability and risk to future occupants.

(b) – No Impact: The potential for unstable soil conditions and erosion would not be significant because the project will be required to comply with the recommendations of the geotechnical analysis, as noted above. Measures to control construction dust, as discussed in Mitigation Measure *AIR - 1*, will also mitigate for wind-blown erosion.

(e) – No Impact: The project would not involve the use of septic tanks or alternative waste water disposal systems.

7. GREENHOUSE GAS EMISSIONS

	Significant Impact	Less Than Significant w/ Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
Would the project:					
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an adopted plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

*Note: The following responses are excerpted from the 'Air Quality, Greenhouse Gas, and Health Risk Assessment', prepared by RCH Group for this project, and has been edited for brevity and clarity. The complete document, including tables and figures, is included as **Attachment 3**.*

"Global warming" and "global climate change" are the terms used to describe the increase in the average temperature of the earth's near-surface air and oceans since the mid-20th century and its projected continuation. Increases in greenhouse gas (GHG) concentrations in the earth's atmosphere are thought to be the main cause of human-induced climate change. GHGs naturally trap heat by impeding the exit of solar radiation that has hit the earth and is reflected back into space. Some GHGs occur naturally and are necessary for keeping the earth's surface inhabitable. However, increases in the concentrations of these gases in the atmosphere during the last 100 years have decreased the amount of solar radiation that is reflected back into space, intensifying the natural greenhouse effect and resulting in the increase of global average temperature. Carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆) are the principal GHGs. When concentrations of these gases exceed natural concentrations in the atmosphere, the greenhouse effect may be enhanced. CO₂, CH₄, and N₂O occur naturally, and are also generated through human activity. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas CH₄ results from off-gassing associated with agricultural practices and landfills.

BAAQMD and the California Air Pollution Control Officers Association (CAPCOA) consider GHG impacts to be exclusively cumulative impacts (BAAQMD, 2012; CAPCOA, 2008); therefore, assessment of significance is based on a determination of whether the GHG emissions from a project represent a cumulatively considerable contribution to the global atmosphere. This analysis uses both a quantitative and a qualitative approach. This analysis considers that, because the quantifiable thresholds developed by BAAQMD in its 2009 Justification Report were formulated based on AB 32 and California Climate Change Scoping Plan reduction targets for which its set of strategies were developed to reduce GHG emissions statewide, a project cannot exceed a numeric BAAQMD threshold without also conflicting with an applicable plan, policy, or regulation adopted for the purpose

of reducing the emissions of GHGs (the state Climate Change Scoping Plan). Therefore, if a project exceeds a numeric threshold and results in a significant cumulative impact, it would also result in a significant cumulative impact with respect to plan, policy, or regulation consistency, even though the project may incorporate measures and have features that would reduce its contribution to cumulative GHG emissions.

Separate thresholds of significance are established for operational emissions from stationary sources (such as generators, furnaces, and boilers) and non-stationary sources (such as on-road vehicles). As no threshold has been established for construction-related emissions, the operational emissions thresholds are applied in this analysis. The threshold for stationary sources is 10,000 metric tons of CO₂e per year (i.e., emissions above this level may be considered significant). For non-stationary sources, three separate thresholds have been established:

- Compliance with a Qualified Greenhouse Gas Reduction Strategy (i.e., if a project is found to be out of compliance with a Qualified Greenhouse Gas Reduction Strategy, its GHG emissions may be considered significant); or
- 1,100 metric tons of CO₂e per year (i.e., emissions above this level may be considered significant); or
- 4.6 metric tons of CO₂e per service population per year (i.e., emissions above this level may be considered significant). (Service population is the sum of residents plus employees expected for a development project.)

The quantitative threshold of 1,100 metric tons of CO₂e annually proposed by BAAQMD in its 2009 Justification Report is applied to this analysis. If the project construction or operational GHG emissions would exceed this threshold then, consistent with BAAQMD Guidelines, it would be considered to have a cumulatively considerable contribution of GHG emissions and a cumulatively significant impact on climate change.

CalEEMod was used to quantify GHG emissions associated with Project construction activities, as well as long-term operational emissions produced by motor vehicles, natural gas combustion for space and water heating, electricity use, and landscape maintenance equipment. CalEEMod incorporates GHG emission factors for the central electric utility serving the Bay Area and mitigation measures based on the California Air Pollution Control Officer's Association (CAPCOA) Quantifying Greenhouse Gas Mitigation Measures and the California Climate Action Registry General Reporting Protocol.

CalEEMod is sensitive to the year selected, since vehicle emissions have and continue to be reduced due to fuel efficiency standards and low carbon fuels. The operational year of 2017 was analyzed since it is the first full year that the proposed project could conceivably be occupied. The project would be located approximately 0.2 miles from the VTA Winchester light-rail transit hub. This information would tend to reduce motor vehicle emissions as it would tend to reduce daily trips by increasing the use of mass transportation. Default rates for energy consumption were assumed in the model. Emissions rates associated with electricity consumption were adjusted to account for Pacific Gas & Electric utility's projected 2017 CO₂ intensity rate. This 2017 rate is based, in part, on the requirement

of a renewable energy portfolio standard of 33 percent by the year 2020. CalEEMod uses a default rate of 641.35 pounds of CO₂ per megawatt of electricity produced.

(a) – No Impact: The proposed project’s estimated construction and operational GHG emissions are presented in Table 12 (reference *Attachment 3*). The estimated construction GHG emissions are 1,001 metric tons of CO₂e. As indicated, the 30-year amortized annual construction related GHG emissions would be 33 metric tons of CO₂e. There is no BAAQMD CEQA significance threshold for construction-related GHG emissions. The GHG construction and unmitigated operational emissions would be 4.3 metric tons per service population (approximately 340 residences) per year, which is below the BAAQMD threshold of 4.6 metric tons per service population. The GHG construction and mitigated operational emissions would be 3.7 metric tons per service population per year, which is below the BAAQMD threshold of 4.6 metric tons per service population. Thus, the proposed project impacts on climate change are less than significant.

(b) – No Impact: The City of Campbell has not established a GHG reduction plan. However, since the project would result in less than significant GHG emissions, as described above, the project would not conflict with any applicable plans, policies, or regulations adopted for the purpose of reducing GHG emissions. This would be a less than significant impact.

8. HAZARDS AND HAZARDOUS MATERIALS

	Significant Impact	Less Than Significant w/ Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
Would the project:					
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<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 type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<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 for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Impair implementation of or physically interfere with an	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

	Significant Impact	Less Than Significant w/ Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
adopted emergency response plan or emergency evacuation plan?					
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a) – No Impact: No routine transport, use or disposal of hazardous materials would be associated with the project. A slight hazardous potential would exist during project construction when materials and construction equipment are at the site, however, long-term hazard risk is very low. Hazard risks during construction and demolition would be regulated by the City’s standard conditions of approval and would be required to be performed in accordance with state and federal hazardous materials regulations and current Best Management Practices (BMPs) for construction activities as discussed in Section 2 – Air Quality. The use of toxic chemicals for landscaping (pesticides, herbicides, etc.) will not be above what is generally required for landscape maintenance and is not considered significant.

(b, d) – Substantially Mitigated by Uniformly Applicable Development Policies: The project site is not listed on the Hazardous Waste and Substances Sites List (available at http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm), compiled pursuant to Government Code Section 65962.5. However, vapor and soil matrix sampling taken from the project site, conducted as part of the project's Phase I Environmental Site Assessment (reference **Attachment 7**) and Results of Limited Phase II Site Investigation Report (reference **Attachment 8**), revealed vapor concentrations of Tetrachloroethene (PCE) at 310/320 Railway Avenue (formerly Henry Little Tractor Service) and Benzene at 330 Railway Avenue (formerly Swedish Auto Service) exceeding residential California Human Health Screening Levels (CHHSLs) thresholds. However, no corresponding soil impacts approaching the CHHSLs threshold were found for either PCE or Benzene in either of those locations.

As required by the CMC Sec. 21.18.080.B, the project sponsor has prepared a soil remediation plan (reference **Attachment 2**) to excavate and remove potentially contaminated soil, which will substantially mitigate any hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials. As of the date of this Infill Checklist, voluntary soil remediation is underway, conducted pursuant to the Remediation Implementation Plan. A remedial summary report will be prepared once the remedial excavation has been completed. Completion of all work will occur prior to issuance of building permits.

(c) – Substantially Mitigated by Uniformly Applicable Development Policies: The project site is located within a quarter mile of an existing school (St. Lucy Parish School – 76 Kennedy Avenue, Campbell, CA 95008). There are no other schools known to be proposed within a quarter mile of the

project site at this time. As a residential development, the proposed project would not store, handle, or dispose of significant quantities of hazardous materials and would not include any uses (e.g. commercial or industrial) that could result in emissions of hazardous substances. During construction, fugitive dust emissions primarily during soil movement, grading and demolition activities will be handled in compliance with BAAQMD Best Management Practices.

(e-f) – No Impact: The project site is not located within the Santa Clara County Airport Land Use Commission jurisdiction, within two miles of a public airport or within the vicinity of a private airstrip.

(g) – No Impact: The project would not interfere with emergency response or evacuation plans. Sufficient emergency access and emergency services staff would be provided for the project site in compliance with the State of California Building Code Standards and requirements of the Santa Clara County Fire and Health Departments.

(h) – No Impact: The project site is not located near any wildland areas and would not cause an increase in wildland fire hazard.

9. HYDROLOGY AND WATER QUALITY

	Significant Impact	Less Than Significant w/ Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
Would the project:					
a) Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Significant Impact	Less Than Significant w/ Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
f) Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j) Inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a, c-f) – Substantially Mitigated by Uniformly Applicable Development Policies: The project would entirely alter the existing drainage pattern of the project site through demolition of all structures and re-grading to accommodate residential development. As discussed below, the project includes advanced stormwater treatment and retention that will prevent erosion, siltation, runoff related flooding, or increases in flow velocity or volume of stormwater runoff. The changes to the project site as a result of on-site improvements will not substantially alter the existing drainage pattern of the surrounding area, alter the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on-or off-site.

In compliance with Provision C.3 of the National Pollution Discharge Elimination System (NPDES), (as implemented by CMC Sec.14.02 and 21.16.100), the project incorporates stormwater management measures. The project's stormwater treatment plan indicates use of bio-retention areas (vegetated swales) that allow water to percolate into the ground through a passive (natural) infiltration medium before flowing the public storm drain system. As the proposed treatment system will treat and contain the majority of the stormwater on-site and it would, therefore, not exceed the capacity of existing or planned storm water drainage systems, provide substantial additional sources of polluted stormwater runoff, or otherwise substantially degrade water quality.

(b) – No Impact: The project will be adequately served by the existing water supplies, as confirmed in written correspondence ("will serve" letter") by San Jose Water Company (reference **Attachment 10**),

the local area water utility. As such, the project will not deplete or otherwise interfere with groundwater supplies.

(g-h) – No Impact: The Federal Emergency Management Agency Flood Insurance Rate Maps indicates the project is located in Zone X (reference **Attachment 10**), an area determined to be outside the 500-year (.2%) annual chance floodplain. Therefore, the project would not place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.

(i-j) – No Impact: The project site is located downstream of Lexington Reservoir, in an area defined by the Association of Bay Area Governments as a dam failure inundation area. As the project is not modifying flood protection measures or creating a condition where adjacent properties are exposed to a new significant risk of loss, injury or death involving flooding, no additional exposure to water-related hazards is expected as a result of the project construction or operation.

10. LAND USE and PLANNING

	Significant Impact	Less Than Significant w/ Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
Would the project:					
a) Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Conflict with any applicable habitat conservation plan or, natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a) – No Impact: Projects that have the potential to physically divide an established community typically include construction that would eliminate formal or informal travel ways through a property. No such pathways or other forms of informal access through the project site currently exist.

(b) – Less than Significant with Mitigation Incorporated: The project site covers two land use districts (High Density Residential & Commercial/Medium-High Density Residential), and two separate sub-areas (Sub Area 2 & 3) of the South of Campbell Avenue Area Plan (SOCA) as described by the City of Campbell General Plan. The entire project site is zoned P-D (Planned Development) which allows for uses that are determined to be consistent with the General Plan, and allows for flexibility in development standards so as to allow developments that are more consistent with site characteristics while creating an optimum quantity and use of open space and good design.

The four parcels located farther south on the east side of Railway Avenue are designated *High Density Residential (up to 27 units/gr. acre)* and are subject to Sub Area 2 of the SOCA Plan. Sub Area 2 of the SOCA Plan provides for a maximum height of 50-feet which the project seeks to exceed as an incentive for providing affordable residential units in accordance with Sec. 21.20 of the Campbell Municipal Code.

The remainder of the project site, spanning both sides of Railway Avenue, is designated *Commercial/Medium-High Density Residential (14-27 units/gr. acre)* and is subject to Sub Area 3 of the SOCA Plan. The SOCA Plan is designed to encourage the orderly transition of the South of

Campbell Avenue area from its historic industrial use to a mixed commercial/residential district, supportive and complementary to Downtown Campbell. Development of the proposed residential infill project would also be consistent with the General Plan land use designations and with the SOCA Plan. The proposed development is also consistent with the General Plan Housing Element, which identified the SOCA Area as an "opportunity site" for new residential development. Lastly, the project would also be consistent with the following General Plan strategies that relate to support for high density residential development and quality design:

- Strategy LUT-1.5a: Transit-Oriented Development: Encourage transit-oriented development including employment centers such as office and research and development facilities and the city's highest density residential projects by coordinating the location, intensity, and mix of land uses with transportation resources, such as Light Rail.
- Strategy LUT-1.5f: Transportation Impact Mitigation: Require appropriate mitigation measures for new development that impacts the transportation system and consider collecting impact/mitigation fees as an in-lieu fee that could be used toward approved capitol improvement projects.
- Policy LUT-2.1: Alternative Transportation: Encourage the use of alternative transportation such as ridesharing, public transit services, walking, and bicycling to reduce reliance on automobile use.
- Strategy LUT-2.1h: Bicycle Facilities: Encourage adequate and secure bicycle facilities at employment centers, activity centers, and residential projects.
- Strategy LUT-2.1m: Reduced Fare or Voucher Systems: Support transit agencies in implementing or continuing reduced fare or no fare voucher systems for populations in need.
- Strategy LUT-2.3a: Intersection Level of Service: To the extent possible, maintain level of service (LOS) on designated intersections consistent with the Santa Clara County Congestion Management Plan.
- Policy LUT-3.1: Variety of Residential Densities: Provide land use categories for and maintaining of a variety of residential densities to offer existing and future residents of all income levels, age groups and special needs sufficient opportunities and choices for locating in Campbell.
- Policy LUT-2.4: Jobs and Housing Balance: Maintain Campbell's balance of jobs and housing units to encourage residents to work in Campbell, and to limit the impact on the regional transportation system.
- Strategy LUT-3.1c: High Density Residential: Allow higher residential densities in the NOCA, SOCA, and areas near the Light Rail stations as an incentive to redevelop older, less intensive uses.
- Policy LUT-7.2: Public Utilities and Improvements: Provide sidewalks, public utilities and improvements that are safe, attractive, efficient and well maintained for pedestrians, bicyclists and motorists.
- Strategy LUT-7.2g: Landscaped and Tree Lined Streets: Provide attractive, user friendly, tree-lined streets and install creative landscaping in street improvement projects, where feasible.
- Strategy LUT-9.1a: Land Use Objectives and Redevelopment Plans: Permit only those uses that are compatible with land use objectives and redevelopment plans.
- Policy LUT-9.3: Goal LUT-9, Policy 9.3: Design and Planning Compatibility: Promote high quality, creative design and site planning that is compatible with surrounding development, public spaces and natural resources.
- Policy LUT-9.3p: Site Lighting Guidelines: Ensure that lighting does not create glare and overflow on adjacent properties by developing standards and guidelines that are incorporated into the Zoning Ordinance.

- Policy LUT-10.2.c: Landscaping in the Public Right-of-Way: Adopt an ordinance requiring developers to install and maintain landscaping within the public right-of-way adjacent to the developed property.
- Strategy LUT-13.1: Variety of Uses: Attract and maintain a variety of uses that create an economic balance within the City while maintaining a balance with other community land use needs, such as housing and open space, and while providing high quality services to the community.
- Strategy LUT-14.6a: Decorative Features: Development projects should incorporate decorative features including plazas that incorporate amenities such as public art, special paving, tile, and fountains.
- Strategy LUT-16.1: Land Use: Allow commercial, industrial and/or residential land use uses in the accordance with adopted plan for each [SOCA] sub-area.
- Policy LUT-16.2: Building Orientation: Orient buildings to a public street.
- Strategy LUT-16.2a: Residential Entries: Locate building entries facing the streets for all residential units located along a public street.
- Strategy LUT-16.2b: Non-Residential Entries: Ensure that all nonresidential developments are required to orient identifiable entryways toward public streets and provide street-level windows and glass front display bays for all street-level office and retail.
- Strategy LUT-16.2c: Visibility: Ensure that Residential projects are designed to provide visibility into the core of the project where the project adjoins streets or the Los Gatos Creek Trail. Public parking for trail users is encouraged.
- Policy LUT-16.3: Building and Site Design: Encourage high quality building and site design in the SOCA Area.

Land use impacts are considered to be significant if the proposed project would conflict with any plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect. Environmental plans and policies are those, like the Bay Area Air Quality Management District (BAAQMD) 2010 Clean Air Plan, which directly address environmental issues and/or contain targets or standards, which must be met in order to preserve or improve characteristics of the City's physical environment. The discussion of conformance with the BAAQMD 2010 Clean Air Plan has been already been provided as part of the discussion on Air Quality (see Section 3).

A review of City of Campbell Land Use Policies and Strategies reveals that while the project would be substantially mitigated by uniformly applicable development policies, to achieve consistency with Policy LUT-2.1 and Strategy LUT-2.1m, the project would be required to provide eco-passes for the project to take advantage of the nearby light rail station and further the objective of supporting transit agencies including the VTA (reference **Attachment 14**).

Mitigation Measures: The following mitigation measures will be incorporated into the project approval:

- *Mitigation Measure LUP-1: Apartments (For Rent Units)*: The applicant and/or property management shall provide annual VTA eco-passes to all apartment tenants at time of move-in and every year after for the length of tenancy. The cost of the VTA eco-passes shall be equally borne by the applicant and tenant. Residents who qualify as very-low income shall be provided an eco-pass at no cost at time of move-in and every year after for the length of tenancy. The applicant and/or property management shall not include the cost of a VTA eco-pass in the

overall rent for very-low income apartment units. The requirement to provide no-cost eco-passes shall continue for the life of the project.

Townhouses/Duplexes (For Sale Units): The applicant and/or established Home Owners Association shall include the cost of an annual VTA eco-pass in the unit dues for the life of the project.

(c) – No Impact: No habitat conservation plan or natural community conservation plans are applicable to the project site.

11. MINERAL RESOURCES

	Significant Impact	Less Than Significant w/ Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Conflict with an adopted energy conservation plan or use non-renewable resources in a wasteful and inefficient manner?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a-c) – No Impact: No known mineral resources are present at the project site.

12. NOISE

	Significant Impact	Less Than Significant w/ Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
Would the project:					
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<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 expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

***Note:** Portions of the following have been excerpted from the 'Environmental Noise Assessment', prepared by Bollard Acoustical Consultants for this project, but have been edited for brevity and clarity. The complete document, including tables and figures, is included as **Attachment 11**.*

(a-b) – Less than Significant w/ Mitigation Incorporated:

The City's Noise Ordinance (CMC Sec. 21.16.070.E) provides the following noise exposure standards for new residential development:

- Noise from stationary sources. New residential development shall conform to a stationary source noise exposure standard of 65 dBA for exterior noise levels and 45 dBA for interior noise levels.
- Traffic-related noise. New residential development shall conform to a traffic-related noise exposure standard of 60 dBA CNEL for outdoor noise in noise-sensitive outdoor activity areas and 45 dBA CNEL for indoor noise.

Acoustical studies are required for all new noise-sensitive projects that may be affected by existing noise from stationary sources, including all new residential developments with a noise exposure greater than 60 dBA CNEL. In compliance with this uniformly applicable development policy, an acoustical analysis was prepared for the project (reference **Attachment 11**). Based on the analysis, the project will be required to incorporate design features to reduce the ambient noise and vibration within the buildings to acceptable levels as defined by the California Building Code (CBC). Outdoor recreational areas will be shielded as necessary to comply with the noise standard.

Mitigation Measures: The following mitigation measures will be incorporated into the project approval:

- *Mitigation Measure NOI-1*: Air conditioning shall be included in all residences constructed in the Residences at Railway Development to allow occupants to close doors and windows as desired to achieve additional acoustic isolation.
- *Mitigation Measure NOI-2*: A noise barrier shall be constructed along the light rail to provide adequate shielding for the backyards of the duplexes.

As a result of these mitigation measures, potential noise-related impacts would be mitigated to a less than significant level.

(c) – No Impact: Residential developments are classified as sensitive receptors of noise, and to this extent do not themselves generate noise of any appreciable level. Project traffic would generate 74 AM peak trips and 89 PM peak trips which would be distributed amongst the street network (see Transportation and Circulation). This incremental amount of peak trips, during which traffic noise levels would be the greatest, would not result in a substantial permanent increase in noise beyond existing noise levels. As such, the project would not result in increase in ambient noise within the vicinity of the project site.

(d) – Substantially Mitigated by Uniformly Applicable Development Policies. Construction will eventually result in temporarily increasing ambient noise levels in the project vicinity. However, construction is governed by CMC Sec. 18.04.052, which limits construction activity from 8 AM to 5 PM., Monday through Friday, 9 AM to 4 PM on Saturday, and prohibits construction on Sunday. Additionally, loud environmentally disruptive noise over 50 dBA (e.g., air compressors without mufflers, continuously running motors or generators, loud playing musical instruments or radios) is prohibited. As such, temporary ambient noise level increases associated with construction will be substantially mitigated.

(e-f) – No Impact: The project is not located within the vicinity of an airport land use plan or within two miles of an airport. The project is not located within the vicinity of a private airstrip.

13. POPULATION AND HOUSING

	Significant Impact	Less Than Significant w/ Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
Would the project:					
a) Induce substantial population growth in an area either directly or indirectly (e.g. through projects in an undeveloped area or extension of major infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Displace substantial numbers of existing housing, especially affordable housing and necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a) – No Impact: The development of 157 residential units is consistent with the planned residential densities of the General Plan with the approval of a Density Bonus consistent with both City and State regulations and does not represent substantial growth inducing impacts. Stormwater infrastructure that is required to be upgraded (as discussed in Section 17 – Utilities and Service Systems) would not result in increased capacities that would induce substantial population growth.

(b-c) – No Impact: The project will require the demolition of existing residences that have already been vacated, and therefore will not result in the displacement of any people or housing units, which would necessitate the construction of replacement housing elsewhere. The proposed project would be required to provide affordable housing units as a requirement to granting the 35% Density Bonus requested by the applicant which would increase housing opportunities within the City for lower income families.

14. PUBLIC SERVICES

	Significant Impact	Less Than Significant w/ Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
Would the project:					
a) 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Maintenance of public facilities, including roads?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other public services or facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a) – No Impact: The project will require public services such as fire, police services, schools, open space, and street maintenance; however, these services are currently provided to all other developments in the area. The project is consistent with the General Plan residential density with the approval of a Density Bonus and will contribute to the park dedication impact fund by payment of an in-lieu fee. The project will not result in any significant changes to existing services or substantial adverse impacts to public services.

15. RECREATION

	Significant Impact	Less Than Significant w/ Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
Would the project:					
a) 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a) – No Impact: The project will result in an increase in the use of existing neighborhood and regional parks and other recreational facilities. However, the increase in demand for recreational facilities would not be significant and would be less than significant and consistent with the planned density for the project site with the approval of a Density Bonus.

The project site is also located adjacent to the Los Gatos Creek Trail with a proposed pedestrian trail access point allowing residents and guests of the proposed project to utilize the existing trail for their recreational enjoyment.

(b) – No Impact: The City’s Subdivision Ordinance (CMC Sec. 20.24) requires the dedication of land or the payment of an in-lieu fee as a condition of approval for the Tentative Subdivision Map. The City’s Standard is three acres of open space, parkland and recreational facilities and one acre of school open space and recreational facilities for every 1,000 residents. The City’s Open Space Element prioritizes the acquisition and development of open space sites in neighborhoods which are deficient in open space and park acreage. The City’s access standard is to provide open space, parks, or recreation facilities within one-half mile radii of all City residents. The project site is located within one half-mile of Campbell Park and the Los Gatos Creek Trail; therefore, the residents of the proposed project are anticipated to use the existing facilities and the dedication of on-site parkland will not be required. The project sponsor is required to pay a Park Impact Fee for the development of the project and this fee will be used for the acquisition, improvement and/or expansion of parks and recreational facilities within the City.

16. TRANSPORTATION and CIRCULATION

	Significant Impact	Less Than Significant w/Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
Would the project:					
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system including, but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Result in any rail, waterborne or air traffic impacts?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) Result in inadequate emergency access?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a-b) – No Impact: As required by the regional Congestion Management Program (CMP), the City contracted for preparation of a Traffic Impact Analysis (TIA) for the project (reference **Attachment 12**). The purpose of this study was to determine what affect the project would have on traffic along adjacent roadways and intersections, and identify any associated improvements that would be required to mitigate impacts to a level of insignificance as defined by the City’s General Plan or other policies. The traffic study’s trip generation was based on an anticipated project profile that included 29 townhomes, 10 duets, and 126 apartment units (165 total units) whereas the proposed project is considered less intensive in that it includes 32 townhomes, 6 duets, and 119 apartment units (157 total units). The analysis anticipates that the project would generate 1,065 daily trips, including 74 trips during the AM peak hour (7:00 – 9:00) and 89 during the PM peak hour (4:00 – 6:00). While there are existing industrial uses on the project site, no credit was applied to the analysis for existing trips that would be eliminated by the proposed project. According to the TIA, the operation of the study intersections are currently acceptable and would continue to be acceptable with the addition of the project related trips. Similarly, all study intersections are expected to continue operating acceptably under Background and Cumulative conditions with and without the project. However, the TIA’s traffic infusion on residential environment (TIRE) analysis determined that the project would be expected to increase the neighborhood street segment on Kennedy Avenue by more than +0.1 (from 2.8 to 3.1), which would be anticipated to result in a noticeable change to traffic, whereas all other study neighborhood street segments would not be expected to have a noticeable change (no project trips were expected to use El Caminito Avenue, Catalpa Lane, Cherry Lane, or California Street). The increase would not constitute a significant environmental impact in that a TIRE index value of 3.0 are typically more suitable for residential activities (as noted in the existing conditions on Gilman, Cherry, and California – which were noted with a TIRE index of 3.1), and provided that Kennedy Avenue is not primarily a residential street and already anticipated to serve as a Commercial/Industrial collector (as noted in Figure LUT-3 of the Land Use and Transportation Element of the City of Campbell General Plan). It should be further noted that a mitigation measure, included under Land Use (LUP-1), the project will be required to provide eco-passes which, while not factored into the TIA analysis, is also anticipated to alleviate adverse transportation and circulation impacts and be responsive to General Plan Policy LUT-2.1 and Strategy LUT-2.1m.

(c) – No Impact: The project would not affect any rail, waterborne, or air traffic.

(d-e) – No Impact: The TIA reviewed the project's internal vehicular circulation and emergency access and determined it to be adequate, but recommended that a crosswalk be included at the eastern end of the main project driveway as part of the proposed project (which has subsequently been proposed to be included). The TIA also recommended the elimination of a proposed crosswalk at the light rail crossing, considering prohibiting cars for 15 feet on both sides of the project driveways, and working with staff to gain approval of the parking supply (all of which have or will be analyzed as part of the final project). The Fire Department has also determined the site circulation and roadway configuration would provide adequate emergency access.

(f) – No Impact: The proposed project is a transit-oriented development in that will be located within ¼ mile of the Downtown Campbell light-rail station, as well as Downtown Campbell. The proposed project provides 255 on-site parking spaces. As the applicant has requested a Density Bonus, the parking requirement for the residential is restricted to one space for every one bedroom unit and two spaces for every two or more bedroom unit. Based on the unit-size and unit-count, the project exceeds the residential parking standard for a density bonus project by approximately 25 parking spaces.

The development of a higher density residential infill project in proximity to high quality transit and the City center is consistent with the applicable policies of the Campbell General Plan, below.

- Strategy LUT-1.5a: Transit-Oriented Development: Encourage transit-oriented development including employment centers such as office and research and development facilities and the city's highest density residential projects by coordinating the location, intensity, and mix of land uses with transportation resources, such as Light Rail.
- Strategy LUT-3.1c: High Density Residential: Allow higher residential densities in the NOCA, SOCA, and areas near the Light Rail stations as an incentive to redevelop older, less intensive uses.
- Policy H-4.3: Planned For Densities: To encourage the efficient and sustainable use of land, the City encourages residential development that is proposed near existing light rail stations (within 1/4 mile radius) and/or within the boundaries of the Winchester Boulevard Plan and East Campbell Avenue plan areas, to achieve at least 75 percent of the maximum General Plan Land Use category densities.

As such, the project would not conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities.

17. UTILITIES and SERVICE SYSTEMS

	Significant Impact	Less Than Significant w/ Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
Would the project:					
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e) 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 type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g) Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a-b, e) – No Impact: The utilities for the proposed project, including sewage disposal, would require the construction of a private sanitary system that would connect to the existing waste water treatment system, which currently has sufficient capacity to receive the additional waste water generated from the proposed project. Therefore, the project would not impact the ability of the waste water treatment provider to meet its current commitments for service. The project would not generate significant amounts of wastewater, and would therefore not exceed wastewater treatment requirements for the Regional Water Quality Control Board. The West Valley Sanitation District has provided written correspondence ("will serve" letter) which indicates that the sewer facilities, with the construction of on- and off-site improvements (sewer connection fees collected from the development will be used to upgrade a 6-inch sewer downstream, located north of Sam Cava Lane), will be adequate to support the site (reference **Attachment 9**).

(c) – No Impact: As previous noted, the project stormwater runoff generated by the project site would be collected and treated on-site in compliance with Provision C.3 of the National Pollution Discharge Elimination System (NPDES) requirements as discussed in Section 9 (Hydrology and Water Quality).

(d) – No Impact: The project will be adequately served by the existing water supplies, as confirmed in written correspondence ("will serve" letter) by San Jose Water Company (reference **Attachment 9**), the local area water utility.

(f-g) – No Impact: Existing capacity at local landfills can accommodate the amount of waste generated as a result of project operation. The project would comply with Federal, State and local statutes and regulations related to solid waste.

18. MANDATORY FINDINGS OF SIGNIFICANCE

	Significant Impact	Less Than Significant w/ Mitigation Incorporated	No Impact	Analyzed in the Prior EIR	Substantially Mitigated by Uniformly Applicable Development Policies
Would the project:					
a) Does the project have the potential to 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, 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?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a) – No Impact: Based on the findings of the Infill Environmental Checklist Form, construction and operation of the project, with mitigation, would not substantially degrade the quality the environment; reduce the habitat, population, or range of species; nor eliminate important examples of California history or prehistory.

(b) – No Impact: The project would not cause any significant cumulative impacts to the following topical issues:

Traffic congestion at study intersections. The Traffic Study prepared for the project evaluated the operating conditions of key study intersections for existing, background, project, and cumulative traffic conditions. Based on the results of the Traffic Study, all study intersections are projected to operate at acceptable levels for each traffic condition.

Land Use and Planning. The project in combination with any development activity in the vicinity would not induce growth, because the project alone would not induce growth. While the project seeks to exceed the maximum density allowed under the General Plan (27-units per gross acre) it would provide affordable housing units in order to qualify for a density bonus consistent with the City of Campbell's and State adopted standards for projects providing affordable housing.

Geologic Problems. Seismic and soil conditions are site-specific, and will not contribute to cumulative impacts.

Water. No other development in the vicinity should cumulatively affect runoff and water quality as no other developments will occur concurrently.

Air Quality. The project would not exceed BAAQMD thresholds and no other developments would occur in the vicinity of the project during the construction, so cumulative impacts would be less than significant. Construction dust would be handled on a site-specific basis.

Biological Resources. Although no other projects would be concurrently constructed in the vicinity, cumulative biological impacts may occur. However, measures to mitigate for project construction impacts on biological resources would also apply for cumulative biological impacts.

Energy. The project would have no impact on energy and mineral sources, so it would not contribute to cumulative impacts.

Hazards. All hazards discussed are site specific, and will not contribute to cumulative impacts.

Noise. Construction activity is substantially mitigated through uniform development policies on a project-by-project basis and therefore cannot result in a cumulative impact.

Public Services. Since the project would not make any significant demands on public services, it would not contribute to cumulative impacts to public services.

Utilities/Service Systems. Since the project would have less than significant or no impacts to public utilities, it would have no cumulative impact.

(C) – No Impact: Based on the findings of the Infill Environmental Checklist Form, there is no evidence to demonstrate that the project would cause a substantial adverse effect on human beings, either directly or indirectly. (a): Based on the findings of the Initial Study, construction and operation of the project, with mitigation, the project would not substantially degrade the quality the environment; reduce the habitat, population, or range of species; nor eliminate important examples of California history or prehistory.

SUMMARY OF MITIGATION MEASURES

1. **Aesthetics:** None Required
2. **Agricultural Resources:** None Required
3. **Air Quality:** The following mitigation measures will be incorporated into the project approval:

Mitigation Measure AIR-1: The project applicant shall ensure that construction plans include the BAAQMD Best Management Practices for fugitive dust control. The following will be required for all construction activities within the project area. These measures will reduce fugitive dust emissions primarily during soil movement, grading and demolition activities, but also during vehicle and equipment movement on unpaved project sites:

- a. All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- b. All haul trucks transporting soil, sand, or other loose material off-site shall be covered.
- c. All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- d. All vehicle speeds on unpaved roads shall be limited to 15 mph.
- e. All streets, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- f. Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to 5 minutes (as required by the California airborne tox.ics control measure Title 13, Section 2485 of CCR). Clear signage shall be provided for construction workers at all access points.
- g. All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.
- h. A publicly visible sign shall be posted with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. BAAQMD's phone number shall also be visible to ensure compliance with applicable regulations.

Mitigation Measure AIR-2: The project applicant shall ensure that construction contract specifications include a requirement that all off-road diesel-powered construction equipment used for project improvements be equipped with a Level3 Verified Diesel Emissions Control (VDEC).

Mitigation Measure AIR-3: The project applicant shall ensure that architectural coatings (e.g. paints and solvents) with a VOC content of 100 grams per liter or less shall be used for interior and 150 grams per liter or less for exterior surfaces shall be required.

Mitigation Measure AIR-4: Hearths. Fireplaces, if proposed for installation in project residential units, shall use natural gas only.

Mitigation Measure AIR-5: Implement Enhanced Exhaust Emissions Reduction Measures. The construction contractor shall implement the following measures during construction to further reduce construction-related exhaust emissions:

- b. All off-road equipment greater than 25 horsepower (hp) and operating for more than 20 total hours over the entire duration of construction activities shall meet the following requirements:
 - i. Where access to alternative sources of power are available, portable diesel engines shall be prohibited; and
 - ii. All off-road equipment shall have:
 1. Engines that meet or exceed either USEPA or CARB Tier 2 off-road emission standards, and
 2. Engines that are retrofitted with a CARB Level 3 Verified Diesel Emissions
 - a. Control Strategy (VDECS). Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such are available.

- 4. Biological Resources:** The following mitigation measures will be incorporated into the project approval:

Mitigation Measure BIO-1: Project-related activities that occur during the breeding season could be constrained in the vicinity of any active nests. If tree removal or ground disturbance activities are scheduled to commence during the breeding season (February 1st through August 31st), pre-construction nesting bird surveys should be conducted by a qualified biologist to identify possible nesting activity within 15 days prior to such activities. A construction-free buffer of suitable dimensions must be established around any active raptor and migratory bird nest (up to 250 feet, depending on the location and species) for the duration of the project, or until it has been determined that the chicks have fledged and are foraging independently from their parents.

- 5. Cultural Resources:** None Required
- 6. Geology and Soils:** None Required
- 7. Greenhouse Gas Emissions:** None Required
- 8. Hazards and Hazardous Materials:** None Required

9. Hydrology and Water Quality: None Required**10. Land Use and Planning:** The following mitigation measures will be incorporated into the project approval:

Mitigation Measure LUP-1: Apartments (For Rent Units): The applicant and/or property management shall provide annual VTA eco-passes to all apartment tenants at time of move-in and every year after for the length of tenancy. The cost of the VTA eco-passes shall be equally borne by the applicant and tenant. Residents who qualify as very-low income shall be provided an eco-pass at no cost at time of move-in and every year after for the length of tenancy. The applicant and/or property management shall not include the cost of a VTA eco-pass in the overall rent for very-low income apartment units. The requirement to provide no-cost eco-passes shall continue for the life of the project.

Townhouses/Duplexes (For Sale Units): The applicant and/or established Home Owners Association shall include the cost of an annual VTA eco-pass in the unit dues for the life of the project.

11. Mineral Resources: None Required**12. Noise:** The following mitigation measures will be incorporated into the project approval:

Mitigation Measure NOI-1: Air conditioning shall be included in all residences constructed in the Residences at Railway Development to allow occupants to close doors and windows as desired to achieve additional acoustic isolation.

Mitigation Measure NOI-2: A noise barrier shall be constructed along the light rail to provide adequate shielding for the backyards of the duplexes.

13. Population and Housing: None Required**14. Public Services:** None Required**15. Recreation:** None Required**16. Transportation and Traffic:** None Required**17. Utilities and Service Systems:** None Required**18. Mandatory Findings of Significance:** None Required

REFERENCE MATERIALS

Attachments (May be viewed online on the City of Campbell 'Public Notices' web page (<http://www.cityofcampbell.com/501/Public-Notices>) under 'Environmental Notices' or at the Campbell Community Development Department office (70 N First St., Campbell, CA 95008) during normal business hours).

1. City Council Resolution No. 9949, adopted November 6, 2001
2. *Soil Remediation Implementation Plan* by Bernard A. Sentianin, (PG 5530) of EEI dated July 6, 2015
3. *Air Quality, Greenhouse Gas, and Health Risk Assessment* by RCH Group, dated April 24, 2015
4. *St. Anton "Residences at Railway", Campbell CA – Biological Resources* by Bruce D. Barnett, Ph.D of Barnett Environmental, dated April 24, 2015
5. *Arborist Report* by Deanne Ecklund (Certified Arborist #WE-9067A) of HortScience, Inc., dated April 2015
6. *Preliminary Geotechnical Investigation* by Hector Estrella (PG 9019), Jeffery P. Blake (CEG 2248), Jeffery L. Michal (GE2515) of EEI, dated May 30, 2014
7. *Phase I Environmental Site Assessment* prepared by Polly Ivers and reviewed by Bernard A Sentianin (PG 5530) of EEI, dated May 12, 2014
8. *Results of Limited Phase II Site Investigation Report* by Bernard A. Sentianin (PG 5530) of EEI dated September 2, 2014
9. *"Will Serve" Letters (PG&E, San Jose Water, West Valley Sanitation District, & Campbell Union School District)*
10. *Flood Rate Insurance Map* by Federal Emergency Management Agency (FEMA), dated May 18, 2009
11. *Environmental Noise Assessment* by Paul Bollard, of Bollard Acoustical Consultants, Inc., dated May 6, 2015
12. *Transportation Impact Analysis for 226-328 Railway Avenue* by W-Trans, dated July 10, 2015
13. *Historic Evaluation of the Quonset Hut Structure at 241 Railway Avenue in the City of Campbell* ", by Robert R. Cartier, Ph.D., dated April 10, 2015
14. *City File No.; PLN2014-323 / Residences at Railway* by VTA, dated July 10, 2015

Reference Documents:

1. Hazardous Waste and Substances Sites List, June 2015.
2. (available at http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm)
3. Bay Area Air Quality Management District (BAAQMD), June 2010, *CEQA Air Quality Guidelines*.

4. Bay Area Air Quality Management District (BAAQMD), December 2008, *Source Inventory of Bay Area Greenhouse Gas Emissions*.
5. California Environmental Protection Agency (CEPA) California Air Resources Board (CARB), April 2005, *Air Quality and Land Use Handbook: A Community Health Perspective*.
6. California Environmental Protection Agency (CEPA) California Air Resources Board (CARB), November 16, 2007, *Staff Report: California 1990 Greenhouse Gas Emissions Level and 2020 Emissions Limit*.
7. California Natural Diversity Database, 2000.
8. California Office of Planning and Research (OPR), June 19, 2008, *Technical Advisory: CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review*.
9. CEQA Guidelines, 2012 version.
10. City of Campbell General Plan.
11. Campbell General Plan EIR.
12. City of Campbell Zoning Code.
13. Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map, Community Map Number 06085C0241H, Effective Date May 18, 2009.
14. State of California, Seismic Hazard Zones Map, San Jose West Quadrangle, February 7, 2002.
15. U.S. Environmental Protection Agency, April 15, 2009, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990-2007*.

ATTACHMENT 1

CITY COUNCIL RESOLUTION NO. 9940

RESOLUTION NO. 9949

BEING A RESOLUTION OF THE CITY COUNCIL OF THE CITY
OF CAMPBELL CERTIFYING THE FINAL ENVIRONMENTAL
IMPACT REPORT FOR THE *DRAFT GENERAL PLAN*.

IT IS HEREBY RESOLVED THAT after notification and public hearing, as specified by law on the proposed amendments to the *Draft General Plan* of the City of Campbell, and after presentation by the Community Development Director, proponents and opponents, the City Council did determine that the certification of the Final Environmental Impact Report for the City of Campbell *Draft General Plan* is warranted based upon the following findings:

1. Fehr and Peers Associates, Inc. of San Jose, California prepared a Transportation Impact Analysis to evaluate the potential impacts of the *Draft General Plan* and found potentially significant traffic impacts.
2. The environmental consulting firm of LSA Associates, Inc. of Berkeley, California has prepared an Environmental Impact Report (EIR) - State Clearinghouse #20011042063; that evaluates the environmental impacts of the *Draft General Plan* and Zoning Map Amendments.
3. The Final EIR for the *Draft General Plan* has been prepared to serve as the CEQA document for Planning Commission and City Council consideration of the General Plan Update.
4. The Final EIR for the *Draft General Plan* has been completed in compliance with the California Environmental Quality Act (Section 21000 et seq. of the California Public Resources Code).
5. The City Council has reviewed and considered the information within the Final EIR for the *Draft General Plan* prior to approving the proposed changes to the General Plan and Zoning Map and finds that it adequately addresses the environmental issues of the *Draft General Plan*.
6. Notice of availability of the Draft EIR for the *Draft General Plan* was prepared and published pursuant to Section 21092 of the Public Resources Code, advising the public that a 45-day public review period would end on September 10, 2001.
7. The City Council hereby finds and determines that the Final EIR reflects the independent judgment of the City Council.
8. The City Council hereby identifies the significant effects, adopts the mitigation measures, adopts the mitigation monitoring and reporting program to be implemented for such mitigation measures, and make the findings set forth in detail in the attached Attachment 5 for the adoption of a Statement of Overriding Considerations. The statements, findings and determinations set forth below and in Attachment 5 are based on the Final EIR and other

information available to the City Council, and are made in compliance with Section 15091 of the State CEQA Guidelines and Section 21081(a) of CEQA.

9. As detailed in the Final EIR, and listed below, approval and implementation of the *Draft General Plan* may have significant environmental impacts, unless mitigated to a level of less than significant, related to Geologic and Seismic Hazards, Noise and Hazards, and, as a result, the City Council, as applicable, may approve the *Draft General Plan* only if, in connection with such approvals, the City Council, as applicable, approves the Mitigation Monitoring and Reporting Program as contained in the Final EIR.

The following potentially significant environmental impacts will be mitigated to a level less than significant with the mitigation measures indicated.

- **Impact Noise-3:** New development, particularly residential uses on and adjacent to major transit corridors, could be exposed to excessive traffic-related noise levels.

Mitigation Measure: To further ensure that all new noise-sensitive proposals are carefully reviewed with respect to potential noise impacts, the City shall review new development using the following guidelines in combination with the land use compatibility standards:

Strategy CNR-10.c shall be revised to include performance standards related to traffic-related noise that state all new residential development should conform to a noise exposure standard of 60 dBa CNEL for outdoor noise in noise-sensitive outdoor activity areas and 45 dBa CNEL for indoor noise. New development, which does not and cannot be made to conform to this standard, should not be permitted.

Acoustical studies, describing how the exterior and interior noise standards will be met, should be required for all new residential development with a noise exposure greater than 60 dBa CNEL. The studies should also satisfy the requirements set forth in Title 24, part 2, of the California Administrative Code, Noise Insulation Standards, for multiple-family attached, hotels, motels, etc., regulated by Title 24. The noise exposure table (Table IV.H-5 of the EIR) should be used as the basis to initially identify areas with potential excessive noise exposure.

- **Impact Geologic and Safety Hazards-2:** The strategies in the *Draft General Plan* do not include notification of the public of the potential hazards associated with the unreinforced masonry structures in the City.

Mitigation Measure: A new strategy should be added to the Draft General Plan, as follows:

Strategy HS-3.2h: Posting of potential hazards associated with Unreinforced Masonry Buildings. Require that all URM structures within the City be posted with signs informing the public of the potential hazards associated with occupancy of these buildings. Property owners are responsible for implementing and maintaining such signage.

- **Impact Hazard-1:** Redevelopment of former industrial properties could potentially expose Campbell workers and residents to hazardous materials from historic releases.

Mitigation Measure: The following strategy should be added to the Health and Safety Element of the Draft General Plan:

Strategy HS-7.1f: Development Projects Involving Potential Historical Hazardous Materials Use. Require that applications for discretionary development projects that will involve a change in land use (i.e., from industrial to commercial or residential) provide detailed information regarding potential historical hazardous materials use, including soil and/or groundwater sampling results, if warranted.

The City Council finds that changes have been incorporated into the *Draft General Plan*, and are outlined in the Mitigation Monitoring and Reporting Program, which is contained in the Final EIR, which will avoid or substantially lessen the significant environmental effects as identified in the Final EIR.

10. As detailed in EIR, and listed below, approval and implementation of the General Plan Update may have Significant Unavoidable environmental impacts related to Geologic and Seismic Hazards and Transportation and Circulation facilities, and, as a result, the City Council, as applicable, may approve the *Draft General Plan* only if, in connection with such approvals, the City Council, as applicable, makes a statement of overriding considerations in accordance with Sections 15092 and 15093 of the State CEQA Guidelines and Section 21081(b) of CEQA.

These impacts and the respective reasons why mitigation measures or project alternatives would be infeasible are as follows:

- **Impact: Geologic & Seismic Hazards - Geologic-1:** Construction of new residential and commercial facilities under the *Draft General Plan* would result in an increase in the number of people potentially exposed to severe seismic ground shaking hazards.

The City Council finds that specific technological considerations make the implementation of the mitigation measures infeasible for the following reasons:

Implementation of Strategies HS-3.1a, HS-3.1c, HS-3.2a, HS-3.2d, HS-3.2f, and HS-3.2g would result in existing and proposed programs, including, but not limited to programs requiring site-specific geotechnical reports, compliance with the guidelines of the Uniform

Building Code, earthquake preparedness and response programs, and seismic-retrofitting programs, that would reduce the severity, but not eliminate this impact. Seismic shaking hazards cannot be completely eliminated; therefore, this impact remains an unavoidable adverse impact, even after mitigation. The relative risk are no greater than any other community in the Bay Area and therefore the City is willing to accept this risk.

The City Council hereby finds that in regards to the Significant Unavoidable Geologic & Seismic Hazard impact identified in the Final EIR and herein, the City has chosen the Industrial Alternative which is the environmentally superior alternative, and that the Significant Unavoidable Geologic & Seismic Hazard impact would exist under any of the alternatives analyzed, including the No Project and Increased Housing Alternative, with the exception of the No Growth Alternative. The No Growth alternative would not increase the number of people in the City exposed to geologic or seismic hazards. As a result, no significant impact would result. However, the No Growth alternative would not result in any of the beneficial impacts that would result from implementation of the Draft General Plan, including increasing the housing stock to fulfill the City's fair share housing needs allocation; the consolidation of areas with various land use designations into a single, more cohesive designation to minimize land use conflicts (i.e., the South of Campbell Area). In addition, the City does not have any mechanism to essentially stop any development from occurring as a result, it would be difficult, if not impossible, to implement the No Growth alternative.

- **Impact: Transportation and Circulation - Transportation-4:** Build out of the *Draft General Plan* would increase traffic and adversely impact four intersections (Bascom/Hamilton, Campbell/Union, Winchester/Hacienda and Winchester/Knowles) and two roadway sections (northbound Union between Apricot and Campbell and between Bascom and McGlincey Lane during the AM peak hour).

The City Council finds that specific economic and technological considerations make the implementation of the mitigation measures infeasible for the following reasons:

- Bascom/Hamilton – This intersection is built out, and there are no feasible physical improvements that could improve the projected LOS F condition. Additional lane capacity would require acquisition of property, removal of parking and buildings, utilities and other private improvements that would be cost prohibitive.

This intersection is fully developed, with relatively new (3 to 10 years) commercial retail buildings on three corners, and a gas station on the remaining corner. Additionally, the northeast corner is in the jurisdiction of the City of San Jose. Street widening would affect private landscaping, parking and buildings on all four corners. The City, based on past experience, estimates that adding through and/or turn lanes, sufficient to mitigate the impact, at this location would cost, on an order of magnitude of several million dollars. This includes payment for property acquisition for right-of-way purposes, payment of severance damages to property and business owners and possible relocation of businesses. This magnitude of expenditure would require reducing essential City services or exceeding revenues or creating an unbalanced budget.

- Campbell/Union - This intersection is built out, and there are no feasible physical improvements that could improve the projected LOS E condition. The construction of additional lane capacity would require acquisition of property, removal of parking and buildings, including properties listed on the City's Historic Resource Inventory, utilities and other private improvements that would be cost prohibitive.

This intersection is fully built out, with one new (2 to 3 years) bank building on the southwest corner, and a historic property on the southeast corner used as a tuxedo rental business. Street widening would affect private landscaping, parking and buildings on both corners. The City, based on past experience, estimates that adding through and/or turn lanes, sufficient to mitigate the impact, at this location would cost, on an order of magnitude, of several million dollars. This includes payment for property acquisition for right-of-way purposes, payment of severance damages to property and business owners, and possible relocation of businesses. This magnitude of expenditure would require reducing essential City services or exceeding revenues or creating an unbalanced budget.

- Winchester/Hacienda – The addition of a second eastbound through lane at this intersection would reduce this impact to a less than significant level by reducing the change in the v/c ratio to less than .05, but the intersection would still operate at a LOS F. The City has determined that this mitigation measure would not be feasible as the construction of a second eastbound through lane would require the elimination of a left-turn pocket and acceleration lane on Hacienda Avenue east of Winchester Boulevard which serves an existing development and is necessary for the safe egress from the property. Additionally, the cost of extending the capacity to Dell Avenue would require the acquisition of property, dislocation of private parking facilities and landscaping that would cost several million dollars. This magnitude of expenditure would require reducing essential City services or exceeding revenues or creating an unbalanced budget.
- Winchester/Knowles - The addition of a westbound left-turn lane would decrease the reduction in the v/c ratio to a less than significant level (i.e., with the mitigation the v/c ratio change would no longer exceed .05), but the intersection would still operate at a LOS E. The majority of this intersection is located within the Town of Los Gatos and would require cooperation between the City of Campbell and the Town of Los Gatos to design, approve and fund the construction of such improvements. Impacts at this intersection are designated as unavoidable because the recommended mitigation measures are beyond the jurisdiction of the City of Campbell to implement unilaterally.
- Northbound Union Avenue between Apricot and Campbell Avenue and between Bascom and McGlincey Lane during the AM peak hour (two roadway segments) – These roadway segments along Union Avenue serve existing development consisting mainly of multistory apartments and condominium complexes. Any additional lane capacity would require the acquisition of private property, partial demolition of residential structures and related parking and utility facilities. The City has determined that this would be both economically and socially infeasible.

The properties along these street segments are fully built out, with predominately two and three story apartment and condominium developments located in close proximity to the existing street right-of-way line.. Street widening would affect private landscaping, parking and buildings on at least one side of the street. The City, based on past experience, estimates that adding through lanes, sufficient to mitigate the impact, at these locations would cost, on an order of magnitude, of at least ten (10) million dollars. This includes payment for property acquisition for right-of-way purposes, payment of severance damages to property and business owners, and possible relocation of residential tenants and businesses. This magnitude of expenditure would require either reducing essential City services or exceeding revenues and creating an unbalanced budget.

One possible mitigation measure analyzed in the Final EIR is the conversion of the existing two-way left turn lane into a reversible northbound through lane during the AM peak period. The City Council finds that this measure would likely cause driver confusion and unsafe conditions and therefore is determined to be infeasible.

- Additionally, the McGlincey Lane to Bascom Avenue segment of Union Avenue is predominately (81 percent as measured along right-of-way frontage) located within the City of San Jose jurisdiction. Impacts at this street segment are designated as unavoidable because of both the recommended mitigation measures are beyond the jurisdiction of the City of Campbell to implement unilaterally.

11. The City Council hereby finds that in regards to the Significant Unavoidable Geologic or Seismic Impact identified in the Final EIR and herein, the City has chosen the Industrial Alternative which is the environmentally superior alternative, and that the Significant Unavoidable Geologic or Seismic impact would exist under any of the alternatives analyzed, including the No Project and Increased Housing Alternative, with the exception of the No Growth Alternative. The No Growth alternative would not result in any of the beneficial impacts that would result from implementation of the Draft General Plan, including increasing the housing stock to fulfill the City's Regional Housing Needs Determination; the consolidation of areas with various land use designations into a single, more cohesive designation to minimize land use conflicts (i.e., the South of Campbell Area). In addition, the City does not have any mechanism to essentially stop any development from occurring as a result, it would be difficult, if not impossible, to implement the No Growth alternative.

The other alternatives identified (No Project, Increased Housing) would not result in the elimination of the Significant Unavoidable impacts. As identified in the Final EIR, projected increases in congestion in the City are partly due to increased traffic throughout the Bay Area, and the South Bay region in particular, and not merely a result of land uses in the City.

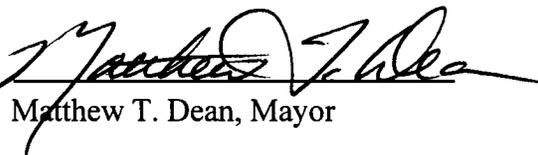
12. Based on the information set forth in the Final EIR, the City Council finds pursuant to 14 California Code of Regulations Section 753.5(c) that, considering the record as a whole, approval and implementation of the *Draft General Plan* involves no potential for adverse

effect, either individually or cumulatively, on vegetation or wildlife, and that therefore no fee is required in connection with the filing of a Notice of Determination.

13. The Custodian of the Record for this *Draft General Plan* and Final Environmental Impact Report is the City Clerk of the City of Campbell, located at 70 North First Street, Campbell, California.

PASSED AND ADOPTED this 6th day of November, 2001, by the following roll call vote:

AYES:	COUNCILMEMBERS:	Furtado, Kennedy, Burr, Watson, Dean
NOES:	COUNCILMEMBERS:	None
ABSENT:	COUNCILMEMBERS:	None
ABSTAIN:	COUNCILMEMBERS:	None

APPROVED: 
Matthew T. Dean, Mayor

ATTEST: 
Anne Bybee, City Clerk

ATTACHMENT 2

SOIL REMEDIATION IMPLEMENTATION PLAN



July 6, 2015

Jay D. Coles
Project Manager
St. Anton Communities
1801 I Street, Suite 200
Sacramento, CA 95811

Subject: Soil Remediation Implementation Plan
300, 310, 320, 328 Railway Avenue
Campbell, California 95008
EEI Project No. STA-71881.3

Dear Mr. Coles,

Based on our Phase II Site investigation for the subject properties, EEI has prepared this Implementation Plan for the remediation of TPH-impacted soils. Specifically, the areas in question are the Henry Little Tractor Service parcel at 310/320 Railway Avenue, and a small area in the western portion of the parcel formerly occupied by Swedish Auto Service at 300 Railway Avenue.

In both cases, the impacted soils were identified in near-surface soils (i.e., upper 2 to 3 feet), with an estimated volume, depending on depth, of approximately 1,700 cubic yards (2,500 tons) at 310/320 Railway Avenue and approximately 44 cubic yards (67 tons) at 300 Railway Avenue. Based on existing laboratory analytical data, the soil is assumed to be non-hazardous, TPH-impacted soil only, and the estimated disposal costs are based on this assumption. It is also assumed that based on the previous Phase II investigation, remedial excavation shall be limited to the two areas identified and no further investigation will be required. A Geologist will monitor the remedial excavation and collect confirmation samples to verify successful removal of impacted soil. A Remediation Summary Report will be prepared once the remedial excavation is complete. We anticipate the remedial excavation of impacted soils, confirmation sampling and preparation of the Remediation Summary Report can be completed within 45 days of commencement.

Soil stockpiles of approximately 250 cubic yards each will be temporarily staged on the site within the remediation area to await the sampling and hauling process. Soil stockpiles shall be adequately secured and covered by plastic sheeting to control dust and runoff while awaiting collection. During the excavation and relocation of soil, a water truck will be present to control dust.

Approximately eight end-dump trucks will be onsite and will handle 2-3 export loads per day. Based on a Class II disposal category, the soil export will either go to the Waste Management facility in Kirby Canyon or Republic Services in Milpitas at the Newby Island facility. Trucks will leave the site and use Railway Avenue to Kennedy Avenue to Winchester Boulevard to the Freeway 17 South. If samples return a clean or non-contaminated result, those soils will remain onsite for reuse and will not require any further treatment. There will be no shoring or sloping of the excavations, as they are not anticipated to be exceed 5 feet in depth.

Estimated Schedule of Onsite Activity:

June 20, 2015: All tenants vacate from entire site.
June 26, 2015: Demolition and Clearing of Site.
July 7, 2015: Commence Phase 1 Remediation Activity.
July 9, 2015: Phase 1 Remediation Complete and Confirmation Sampling sent to lab.
July 16, 2015: Phase 1 Results Returned.
July 23, 2015: Phase 1 Contaminated Soil Hauled off to Disposal site.
July 24, 2015: Commence Phase 2 Remediation Activity.
July 28, 2015: Phase 2 Remediation Complete and Confirmation Sampling.
Aug 13, 2015: Phase 2 Results Returned.
Aug 18, 2015: Phase 2 Contaminated Soil Hauled off to Disposal site.
Aug 21, 2015: Remedial Summary Report.

If you have questions, please contact the undersigned at (805) 987-8728.

Sincerely,

EEI

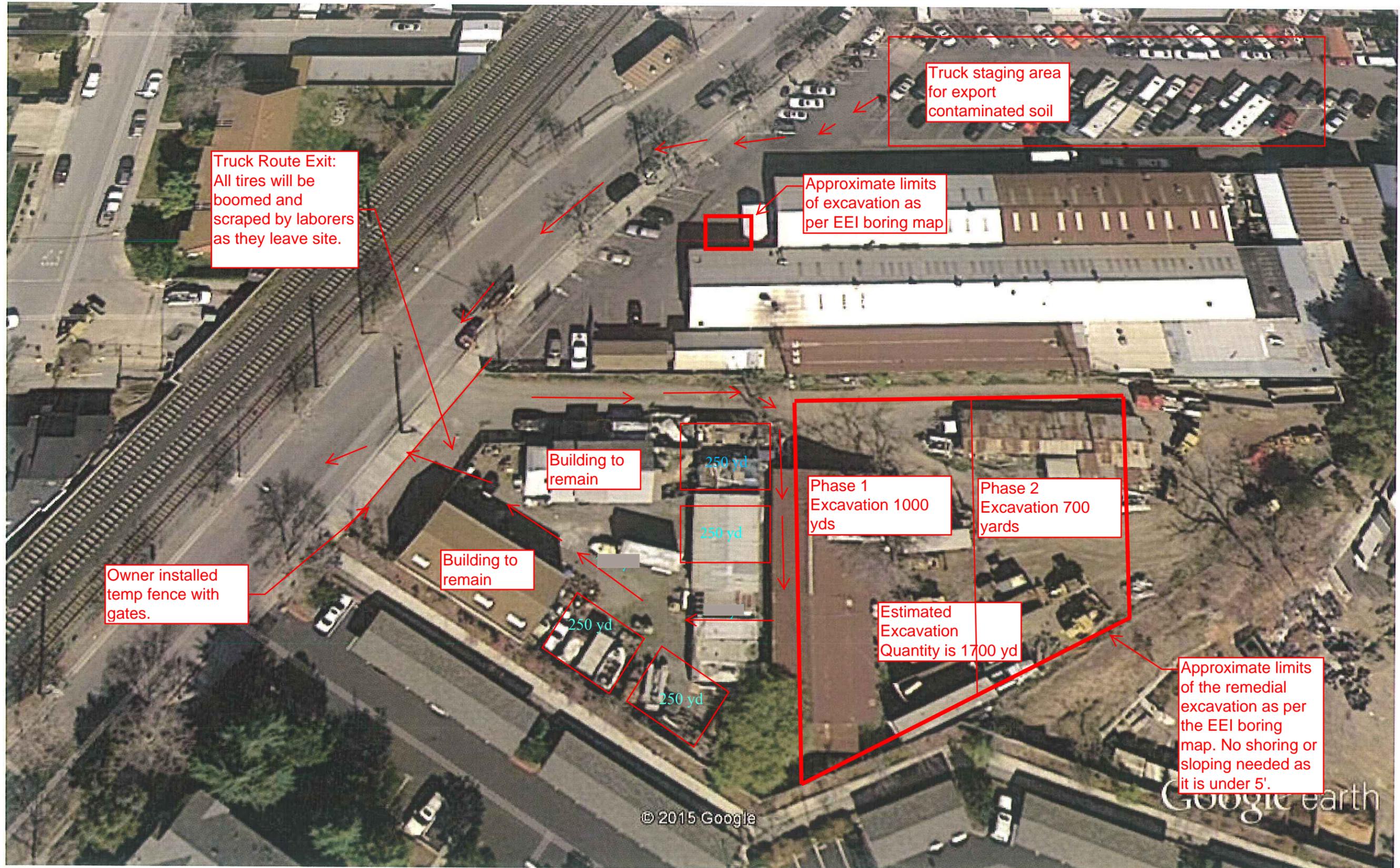


Bernard A. Sentianin, PG
Principal Geologist

ATTACHMENT
Remediation Plan 24June2015

cc: Stephen Rose, Associate Planner, City of Campbell

REMEDIATION PLAN - PHASE 1 & 2
310 / 320 RAILWAY



Google earth

feet
meters

100

400

1. Excavation area will be performed in 2 Phases.
2. Stockpiles will be 250 cubic yards in size.
3. Trucks will stage in the asphalt paved parking to the north.
4. Export the Phase 1 stockpiled soil and then perform the Phase 2 Excavation

5. Straw bales will be used for storm water.
6. Half-moon/circle sandbags to be placed at all storm drains.
7. Owner/Contractor will clean the dirt that goes on the street 1-2 times per week depending on need.

8. Eight trucks onsite handling 2-3 loads per day
9. 1st phase to begin approx. 7/13/15
10. Export will either go to Kirby Canyon or Newby Island Facility.
11. Excavation area will not be filled. Future sub garage area.



ATTACHMENT 3

AIR QUALITY, GREENHOUSE GAS, AND HEALTH RISK ASSESSMENT

Air Quality, Greenhouse Gas, and Health Risk Assessment

St Anton Capital
Residences at Railway
300 Railway Avenue
Campbell, California



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April 24, 2015

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ATTACHMENTS

A - CalEEMod OUTPUT FILES

B - HEALTH RISK ASSESSMENT

1.0 INTRODUCTION

This document provides an overview of the existing air quality conditions at the proposed project site, the air quality regulatory framework, an analysis of potential air quality impacts that would result from implementation of the proposed project, and identification of applicable mitigation measures. Other issues related to air emissions covered in this document include the assessment of emissions related to air quality health impacts (health risk assessment or HRA). Issues related to climate change and greenhouse gas (GHG) emissions are also included. The supporting methodology and assumptions used in the air quality analysis are provided in **Attachment A: CalEEMod Output Files** and **Attachment B: Health Risk Assessment**.

2.0 PROJECT OVERVIEW

The proposed project includes the development of approximately 157 residential units, built on approximately 4.66 acres of land, with approximately 340 residents. The proposed project would involve the development of approximately 119 apartment units (203,000 square feet) and 38 for-sale attached homes, of which 32 are townhouses (58,000 square feet) and six are attached “duet” units (11,400 square feet) that would be located across Railway Avenue.

The site is currently occupied by industrial uses of approximately 49,200 square feet that would be demolished prior to project construction. Construction activities are expected to commence in spring of 2015 with demolition of the existing structures. Grading and site improvements would occur during the second half of 2015 and building construction and paving would occur from the fall of 2015 through 2016.

3.0 ANALYSIS METHODOLOGY

Intermittent (short-term construction emissions that occur from activities, such as removal of structures, site-grading, and building construction) and long-term air quality impacts related to the operation of the proposed project were evaluated. The analysis focuses on daily and annual emissions from these construction and operational (mobile, area, stationary, and fugitive sources) activities. This air quality analysis is consistent with the methods described in the Bay Area Air Quality Management District (BAAQMD) *CEQA Air Quality Guidelines* (dated June 2010, updated in May 2011, and revised in May 2012).¹ Mitigation measures are presented to reduce impacts to less than significant.

¹ The Air District’s June 2010 adopted thresholds of significance were challenged in a lawsuit. Although the BAAQMD’s adoption of significance thresholds for air quality analysis has been subject to judicial actions, the lead agency has determined that BAAQMD’s Revised Draft Options and Justification Report (October 2009) provide substantial evidence to support the BAAQMD recommended thresholds. Therefore, the lead agency has determined the BAAQMD recommended thresholds are appropriate for use in this analysis.

The air quality analysis includes a review of criteria pollutant² emissions such as carbon monoxide (CO)³, nitrogen oxides (NO_x), sulfur dioxide (SO₂), volatile organic compounds (VOC) as reactive organic gases (ROG)⁴, particulate matter less than 10 micrometers (PM₁₀), particulate matter less than 2.5 micrometers (PM_{2.5}).⁵

The HRA addresses diesel particulate matter (DPM) emissions from on-site construction equipment and haul trucks and cumulative impacts from nearby permitted stationary sources, Union Pacific Railroad (UPRR) operations, and Highway 17.

Regulatory models used to estimate air quality impacts include:

- California Air Resources Board's (CARB) EMFAC2011⁶ emissions inventory model. EMFAC2011 is the latest emission inventory model that calculates emission inventories and emission rates for motor vehicles operating on roads in California. This model reflects CARB's current understanding of how vehicles travel and how much they emit. EMFAC2011 can be used to show how California motor vehicle emissions have changed over time and are projected to change in the future.
- CARB OFFROAD2011⁷ emissions inventory model. OFFROAD2011 is the latest emission inventory model that calculates emission inventories and emission rates for off-road equipment such as loaders, excavators, and off-road haul trucks operating in California. This model reflects CARB's current understanding of how equipment operates and how much they emit. OFFROAD2011 can be used to show how California off-road equipment emissions have changed over time and are projected to change in the future.
- CalEEMod (California Emissions Estimator Model Version 2013.2.2)⁸ land use emissions model estimates construction emissions due to demolition and construction activities and operations.

² Criteria air pollutants refer to those air pollutants for which the United States Environmental Protection Agency (USEPA) and California Air Resources Board (CARB) has established National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) under the Federal Clean Air Act (CAA).

³ CO is a non-reactive pollutant that is a product of incomplete combustion of organic material, and is mostly associated with motor vehicle traffic, and in wintertime, with wood-burning stoves and fireplaces.

⁴ VOC means any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate, which participates in atmospheric photochemical reactions and thus, a precursor of ozone formation. ROGs are any reactive compounds of carbon, excluding methane, CO, CO₂ carbonic acid, metallic carbides or carbonates, ammonium carbonate, and other exempt compounds. The terms VOC and ROG are often used interchangeably.

⁵ PM₁₀ and PM_{2.5} consists of airborne particles that measure 10 microns or less in diameter and 2.5 microns or less in diameter, respectively. PM₁₀ and PM_{2.5} represent fractions of particulate matter that can be inhaled into the air passages and the lungs, causing adverse health effects.

⁶ CARB EMFAC2011 User's Guide, December 20, 2012, <http://www.arb.ca.gov/msei/modeling.htm>

⁷ CARB OFFROAD2011 Instructions, http://www.arb.ca.gov/msprog/ordiesel/info_1085/oei_write_up.pdf

⁸ California Emissions Estimator Model User's Guide, July 2013. <http://www.caleemod.com/>

- AERMOD (American Meteorological Society/USEPA Regulatory Model) is an atmospheric dispersion model which can simulate point, area, volume, and line emissions sources and has the capability to include simple, intermediate, and complex terrain along with meteorological conditions and multiple receptor locations.^{9,10} AERMOD is commonly executed to yield 1-hour maximum and annual average concentrations (in $\mu\text{g}/\text{m}^3$) at each receptor.

4.0 EXISTING CONDITIONS

The project site is located within the San Francisco Bay Area Air Basin (Air Basin), which encompasses Alameda, Contra Costa, Santa Clara, San Francisco, San Mateo, Marin, and Napa Counties, and the southern portions of Solano and Sonoma Counties. The Air Basin is characterized by complex terrain which distorts normal wind flow patterns, consisting of coastal mountain ranges, inland valleys, and bays.

Regional Meteorology

Air quality is affected by the rate, amount, and location of pollutant emissions and the associated meteorological conditions that influence pollutant movement and dispersal. Atmospheric conditions, including wind speed, wind direction, stability, and air temperature, in combination with local surface topography (i.e., geographic features such as mountains, valleys, and San Francisco Bay), determine the effect of air pollutant emissions on local air quality.

The climate of the greater San Francisco Bay Area, including Santa Clara County, is a Mediterranean-type climate characterized by warm, dry summers and mild, wet winters. The climate is determined largely by a high-pressure system that is often present over the eastern Pacific Ocean off the West Coast of North America. In winter, the Pacific high-pressure system shifts southward, allowing storms to pass through the region. During summer and fall, air emissions generated within the Bay Area can combine with abundant sunshine under the restraining influences of topography and subsidence inversions to create conditions that are conducive to the formation of photochemical pollutants, such as ozone and secondary particulates, such as sulfates and nitrates.

The proposed project lies in the Santa Clara Valley climatological sub-region of the Bay Area. The northwest-southeast oriented Santa Clara Valley is bounded by the Santa Cruz Mountains to the west, the Diablo Range to the east, and the San Francisco Bay to the north. Temperatures are warm in summer, under mostly clear skies, although a relatively large diurnal range results in cool nights. Winter temperatures are mild, except for very cool but generally frostless mornings.

⁹ USEPA Preferred/Recommended Models, *AERMOD Modeling System*, http://www.epa.gov/ttn/scram/dispersion_prefrec.htm#aermod.

¹⁰ Title 40 CFR Part 51, *Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions; Final Rule*, http://www.epa.gov/ttn/scram/guidance/guide/appw_05.pdf.

The San Jose Airport mean maximum temperatures range from the high 70's to the low 80's during the summer to the high 50's to the low 60's during the winter, and mean minimum temperatures range from the high 50's during the summer to the low 40's during the winter.¹¹

Rainfall amounts are modest ranging from 13 to 20 inches annually. The wind patterns in the Santa Clara Valley are influenced greatly by the terrain, resulting in a prevailing flow roughly parallel to the valley's northwest-southeast axis with a north-northwesterly sea breeze extending up the valley during the afternoon and early evening and a light south-southeasterly drainage flow occurring during the late evening and early morning.¹² The regional average annual wind speed is 6.6 miles per hour.

Local Air Quality

The BAAQMD maintains a network of monitoring stations within the Air Basin that monitor air quality and compliance with applicable ambient standards. The monitoring station closest to the project site is in San Jose, approximately 4.5 miles to the north-northeast of the project site; where levels of ozone (O₃), PM₁₀, PM_{2.5}, CO, NO₂, and SO₂ are recorded.

Table 1 summarizes the most recent three years of data (2011 through 2013) from the San Jose air monitoring station. The federal 24-hour PM_{2.5} standard was exceeded six times in 2013, twice in 2012, and three times in 2011; while the State PM₁₀ standard was exceeded five times in 2013 and once in 2012. The federal 8-hour ozone standard was exceeded once in 2013; while the State 1-hour ozone standard was exceeded once in 2012 and 2011. No other State or federal air quality standards were exceeded during the three-year period. The Bay Area is currently designated “nonattainment” for state and national (1-hour and 8-hour) ozone standards, for the state PM₁₀ standards, and for state and national (annual average and 24-hour) PM_{2.5} standards. The Bay Area is designated “attainment” or “unclassifiable” with respect to the other ambient air quality standards.

¹¹ Bay Area Air Quality Management District. October 4, 2010, Bay Area Climatology <http://www.baaqmd.gov/Divisions/Communications-and-Outreach/Air-Quality-in-the-Bay-Area/Bay-Area-Climatology.aspx>.

¹² Bay Area Air Quality Management District. October 4, 2010, Bay Area Climatology <http://www.baaqmd.gov/Divisions/Communications-and-Outreach/Air-Quality-in-the-Bay-Area/Bay-Area-Climatology.aspx>.

Table 1: Air Quality Data Summary (2011 - 2013)

Pollutant	Monitoring Data by Year			
	Standard ^a	2011	2012	2013
Ozone				
Highest 1 Hour Average (ppm) ^b	0.09	0.098	0.101	0.093
Days over State Standard		1	1	0
Highest 8 Hour Average (ppm) ^b	0.075	0.067	0.062	0.079
Days over National Standard		0	0	1
Nitrogen Dioxide				
Highest 1 Hour Average (ppm) ^b	0.180	0.061	0.067	0.059
Days over State Standard		0	0	0
Annual Average ($\mu\text{g}/\text{m}^3$) ^b	0.030/0.053	0.015	0.013	0.015
Carbon Monoxide				
Highest 1 Hour Average (ppm) ^b	9.0	2.5	2.6	3.1
Days over State Standard		0	0	0
Highest 8 Hour Average (ppm) ^b	20	2.3	1.9	2.5
Days over State Standard		0	0	0
Particulate Matter (PM₁₀)				
Highest 24 Hour Average ($\mu\text{g}/\text{m}^3$) ^b	50	44.3	59.6	58.1
Days over State Standard		0	1	5
State Annual Average ($\mu\text{g}/\text{m}^3$) ^b	20	19.2	18.8	22.3
Particulate Matter (PM_{2.5})				
Highest 24 Hour Average ($\mu\text{g}/\text{m}^3$) ^b	35	50.5	38.4	57.7
Days over National Standard		3	2	6
State Annual Average ($\mu\text{g}/\text{m}^3$) ^b	12	9.9	9.1	12.4
NOTES: Values in bold are in excess of at least one applicable standard.				
a. Generally, state standards and national standards are not to be exceeded more than once per year.				
b. ppm = parts per million; $\mu\text{g}/\text{m}^3$ = micrograms per cubic meter.				
c. PM ₁₀ is not measured every day of the year. Number of estimated days over the standard is based on 365 days per year.				

Source: USEPA (<http://www.epa.gov/air/data/>) CARB Air Quality Data Statistics
(<http://www.arb.ca.gov/adam/welcome.html>, 2011–2013).

The BAAQMD's Community Air Risk Evaluation (CARE) program was initiated in 2004 to evaluate and reduce health risks associated with exposure to outdoor air toxics (TACs) in the Bay Area. Based on findings of the latest report, DPM was found to account for approximately 85 percent of the cancer risk from airborne toxics. Carcinogenic compounds from gasoline-powered cars and light duty trucks were also identified as significant contributors: 1,3-butadiene contributed four percent of the cancer risk-weighted emissions, and benzene contributed three percent. Collectively, five compounds—diesel PM, 1,3-butadiene, benzene, formaldehyde, and acetaldehyde—were found to be responsible for more than 90 percent of the cancer risk attributed to emissions. All of these compounds are associated with emissions from internal combustion engines. The most important sources of cancer risk-weighted emissions were combustion-related sources of DPM, including on-road mobile sources (31 percent), construction equipment (29 percent), and ships and harbor craft (13 percent). A 75 percent reduction in DPM was predicted between 2005 and 2015 when the inventory accounted for CARB's diesel

regulations. Overall, cancer risk from TAC dropped by more than 50 percent between 2005 and 2015, when emissions inputs accounted for state diesel regulations and other reductions.¹³

Modeled cancer risks from TAC in 2005 were highest near sources of DPM: near core urban areas, along major roadways and freeways, and near maritime shipping terminals. Peak modeled risks were found to be located east of San Francisco, near West Oakland, and the maritime Port of Oakland. BAAQMD has identified seven impacted communities in the Bay Area:

- Western Contra Costa County and the cities of Richmond and San Pablo.
- Western Alameda County along the Interstate 880 corridor and the cities of Berkeley, Alameda, Oakland, and Hayward.
- San Jose.
- Eastern side of San Francisco.
- Concord.
- Vallejo.
- Pittsburgh and Antioch.

The proposed project is within the city of Campbell, which is not part of the seven CARE program impacted communities in the Bay Area. The health impacts in the Bay Area, as determined both by pollution levels and by existing health vulnerabilities in a community, is approximately 160 cancer risk per million persons, while in Campbell, the health impacts is approximately 142 cancer risk per million persons.¹⁴

Nearby Sensitive Receptors

Land uses such as schools, children's daycare centers, hospitals, and convalescent homes are considered to be more sensitive than the general public to poor air quality because the population groups associated with these uses have increased susceptibility to respiratory distress. Persons engaged in strenuous work or exercise also have increased sensitivity to poor air quality. The CARB has identified the following people as most likely to be affected by air pollution: children less than 14 years of age, the elderly over 65 years of age, athletes, and those with cardiovascular and chronic respiratory diseases. These groups are classified as sensitive population groups.

Residential areas are considered more sensitive to air quality conditions than commercial and industrial areas, because people generally spend longer periods of time at their residences,

¹³ BAAQMD. Improving Air Quality & Health in Bay Area Communities, Community Air Risk Program (CARE) Retrospective & Path Forward (2004 – 2013). April 2014. http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/CARE%20Program/Documents/CARE_Retrospective_April2014.ashx?la=en

¹⁴ BAAQMD. Identifying Areas with Cumulative Impacts from Air Pollution in the San Francisco Bay Area. March 2014. http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/CARE%20Program/Documents/ImpactCommunities_2_Methodology.ashx?la=en

resulting in greater exposure to ambient air quality conditions. Recreational uses are also considered sensitive, due to the greater exposure to ambient air quality conditions and because the presence of pollution detracts from the recreational experience. According to the BAAQMD, workers are not considered sensitive receptors because all employers must follow regulations set forth by the Occupation Safety and Health Administration to ensure the health and well-being of their employees.

BAAQMD considers the relevant zone of influence for an assessment of air quality health risks to be within 1,000 feet of a project site. The project property is generally bound by the Avalon Campbell high-density multifamily community to the south, the Los Gatos Creek Trail and City of Campbell maintenance yard to the east, light industrial uses to the north, and the Downtown Campbell Transit Station and vacant light industrial buildings to the west across Railway Avenue. The nearest existing residential land uses are within 100 feet to the south and within 100 feet to the west of the project site. Nelly's Childcare is located 550 feet to the north of the project site. Montessori Academy of Campbell is located 890 feet to the northwest of the project site. The Saint Lucy School is located approximately 1,050 feet from the project site. The Los Gatos Creek Trail is located adjacently to the east of the project site and is used for recreational purposes. Traffic on Highway 17, located 600 feet to the east of the project site, are sources of air pollutants that would affect future project residents.

5.0 IMPACT ANALYSIS AND MITIGATION

The air quality analysis includes a review of pollutant emissions such as CO, NO_x, SO₂, VOC as ROG, PM₁₀, and PM_{2.5}. The HRA addresses the DPM emissions from on-site construction equipment and haul trucks associated with the proposed project and cumulative impacts from nearby permitted sources, Union Pacific Railroad (located to the west), and Highway 17 (located to the east).

Threshold of Significance

The significance of potential impacts was determined based on State CEQA Guidelines, Appendix G, and the BAAQMD *CEQA Air Quality Guidelines*. Using Appendix G evaluation thresholds, the proposed project would be considered to have significant air quality impacts if it were to:

- A. Conflict with or obstruct implementation of the applicable air quality plan;
- B. Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- C. Expose sensitive receptors to substantial pollutant concentrations;
- D. Create objectionable odors affecting a substantial number of people; or
- E. Result in a cumulatively considerable net increase of any nonattainment pollutant, and/or health impacts (including releasing emissions that exceed quantitative thresholds for ozone precursors).

The air quality analysis follows the methodology presented in the recent CEQA Guidelines released by the BAAQMD in May 2012. However, since the May 2012 *CEQA Air Quality Guidelines* do not provide specific significance thresholds, the thresholds and methodologies from the BAAQMD's 2011 *CEQA Air Quality Guidelines* were used to evaluate the potential impacts of construction and operation of the proposed project. The thresholds of significance applied to assess project-level air quality impacts are:

- Average daily construction exhaust emissions of 54 pounds per day of ROG, NO_x, or PM_{2.5} or 82 pounds per day of PM₁₀;
- Average daily operation emissions of 54 pounds per day of ROG, NO_x, or PM_{2.5} or 82 pounds per day of PM₁₀; or result in maximum annual emissions of 10 tons per year of ROG, NO_x, or PM_{2.5} or 15 tons per year of PM₁₀;
- Exposure of persons by siting a new source or a new sensitive receptor to substantial levels of TACs resulting in (a) a cancer risk level greater than 10 in one million, (b) a noncancerous risk (chronic or acute) hazard index greater than 1.0, or (c) an increase of annual average PM_{2.5} of greater than 0.3 micrograms per cubic meter (µg/m³). For this threshold, sensitive receptors include residential uses, schools, parks, daycare centers, nursing homes, and medical centers; or
- Frequently and for a substantial duration, create or expose sensitive receptors to substantial objectionable odors affecting a substantial number of people.

Assessment of a significant cumulative impact if it would result in:

- Exposure of persons, by siting a new source or a new sensitive receptor, to substantial levels of TACs during either construction or operation resulting in (a) a cancer risk level greater than 100 in a million, (b) a noncancer risk (chronic or acute) hazard index greater than 10.0, or (c) annual average PM_{2.5} of greater than 0.8 µg/m³.

The BAAQMD air quality significance thresholds are found in **Table 2**.

Table 2: BAAQMD Air Quality Significance Thresholds

Pollutant	Construction Thresholds	Daily Operational Thresholds	Annual Operational Thresholds
Criteria Air Pollutants			
ROG	54	54	10
NOx	54	54	10
PM10	82	82	15
PM2.5	54	54	10
CO	NA	9.0 ppm (8-hour) and 20.0 ppm (1-hour)	
Fugitive Dust	Best Management Practices	NA	
Project Health Risk and Hazards			
Excess Cancer Risk	10 per million	10 per million	
Chronic Hazard Index	1.0	1.0	
Acute Hazard Index	1.0	1.0	
Incremental Annual Average PM2.5	0.3 µg/m ³	0.3 µg/m ³	
Cumulative Health Risk and Hazards			
Excess Cancer Risk	100 per million	100 per million	
Chronic Hazard Index	10.0	10.0	
Acute Hazard Index	10.0	10.0	
Incremental Annual Average PM2.5	0.8 µg/m ³	0.8 µg/m ³	
Greenhouse Gas Emissions			
Annual Emissions	1,100 metric tons or 4.6 metric tons per capita		

SOURCE: BAAQMD Adopted Air Quality CEQA Thresholds of Significance - June 2, 2010, [http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/CEQA/Summary Table Proposed BAAQMD CEQA Thresholds May 3 2010.ashx?la=en](http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/CEQA/Summary%20Table%20Proposed%20BAAQMD%20CEQA%20Thresholds%20May%203%202010.ashx?la=en)

The BAAQMD *CEQA Air Quality Guidelines* identify a project-specific threshold of either 1,100 metric tons of CO_{2e} per year or 4.6 metric tons of CO_{2e} per year per service population (i.e., the number of residents plus the number of employees associated with a new development), which is also considered a cumulatively considerable contribution to the global GHG burden and, therefore, a significant cumulative impact. This analysis applies the 4.6 metric tons of CO_{2e} per year per service population significance criterion to proposed project GHG emissions. GHG emissions and their thresholds of significance are further discussed in **Section 6**.

IMPACT AQ-1: *Would the proposed project conflict with or obstruct implementation of the applicable air quality plan?* **Less than Significant Impact with Mitigation**

The BAAQMD adopted its 2010 Bay Area Clean Air Plan (CAP) in accordance with the requirements of the California Clean Air Act (CCAA) to implement all feasible measures to reduce ozone; provide a control strategy to reduce ozone, particulate matter, air toxics, and GHG emissions in a single, integrated plan; and establish emission control measures to be adopted or implemented in the 2010 through 2012 timeframe. The primary goals of the 2010 Bay Area CAP are to:

- Attain air quality standards;
- Reduce population exposure and protecting public health in the Bay Area; and
- Reduce GHG emissions and protect the climate.

BAAQMD recommends that approving a project where an air quality plan consistency determination is required to analyze the project with respect to the following questions: (1) Does the project support the primary goals of the air quality plan; (2) Does the project include applicable control measures from the air quality plan; and (3) Does the project disrupt or hinder implementation of any 2010 CAP control measures? If the first two questions are concluded in the affirmative and the third question concluded in the negative, the BAAQMD considers the project consistent with air quality plans prepared for the Bay Area.

Any project that would not support the 2010 CAP goals would not be considered consistent with the 2010 CAP. The recommended measure for determining project support of these goals is consistency with BAAQMD CEQA thresholds of significance. As presented in the subsequent impact discussions, the proposed project with mitigations would not exceed the BAAQMD significance thresholds; therefore, the proposed project with mitigations would support the primary goals of the 2010 CAP. As mentioned, projects that incorporate all feasible control measures in the air quality plan are considered consistent with the 2010 CAP.

The proposed project with mitigation measures would support the primary goals of the 2010 CAP, it would be consistent with all applicable 2010 CAP control measures, and would not disrupt or hinder implementation of any 2010 CAP control measures. Therefore, there would be a less than significant impact associated with, conflicting with, or obstructing implementation of the applicable air quality plan.

IMPACT AQ-2: *Would Project-related construction activities conflict with or obstruct implementation of the applicable air quality plan or violate any air quality standards or contribute substantially to an existing or projected air quality violation?* **Less than Significant Impact with Mitigation**

Construction activities are expected to commence in April of 2015 with demolition of existing structures. Grading and site improvements would occur during the second half of 2015 and construction would occur from the fall of 2015 through 2016. The proposed project would be constructed in a single phase estimated to require 18 months. **Table 3** provides the estimated construction schedule for each phase: demolition, site preparation, grading, building construction, paving, and coating.

Table 3: Estimated Project Construction Schedule

Phase	Description	Start	End	Working Days
1	Demolition	4/1/2015	4/15/2015	11
2	Site Preparation	4/16/2015	4/29/2015	10
3	Grading	4/30/2015	5/27/2015	20
4	Building Construction	5/28/2015	11/6/2016	377
5	Paving	11/7/2016	12/4/2016	20
6	Architectural Coating	12/5/2016	12/31/2016	20

SOURCE: CARB CalEEMod Version 2013.2.2.

Project construction would generate short-term emissions of air pollutants, including fugitive dust and equipment exhaust emissions. The BAAQMD *CEQA Air Quality Guidelines* recommend quantification of construction-related exhaust emissions and comparison of those emissions to significance thresholds. The CalEEMod (California Emissions Estimator Model, Version 2013.2.2) was used to quantify construction-related pollutant emissions. CalEEMod output worksheets are included in **Attachment A**.

The demolition, site preparation, and grading would occur sequentially for a period of approximately 40 days using equipment such as backhoes, graders, dozers, loaders, and haul trucks. The site is currently occupied by industrial uses of approximately 49,200 square feet that would be demolished prior to project construction. Site preparation would consist of land clearing and grubbing, haul truck trips would likely be required to export the materials from the project site. A total of 15,000 cubic yards of soil export is anticipated during construction to create a subsurface parking structure.

The estimated construction equipment associated with the proposed project along with the number of pieces of equipment, daily hours of operation, horsepower (hp), and load factor (i.e., percent of full throttle) are shown in **Table 4**.

Table 4: Estimated Project Construction Equipment Usage

Phase	Equipment	Amount	Daily Hours	HP	Load Factor
Demolition	Concrete/Industrial Saws	1	8	81	0.73
Demolition	Excavators	3	8	162	0.38
Demolition	Rubber Tired Dozers	2	8	255	0.4
Site Preparation	Rubber Tired Dozers	3	8	255	0.4
Site Preparation	Tractors/Loaders/Backhoes	4	8	97	0.37
Grading	Excavators	1	8	162	0.38
Grading	Graders	1	8	174	0.41
Grading	Rubber Tired Dozers	1	8	255	0.4
Grading	Tractors/Loaders/Backhoes	3	8	97	0.37
Building Construction	Cranes	1	7	226	0.29
Building Construction	Forklifts	3	8	89	0.2

Building Construction	Generator Sets	1	8	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7	97	0.37
Building Construction	Welders	1	8	46	0.45
Paving	Pavers	2	8	125	0.42
Paving	Paving Equipment	2	8	130	0.36
Paving	Rollers	2	8	80	0.38
Architectural Coating	Air Compressors	1	6	78	0.48

SOURCE: CARB CalEEMod Version 2013.2.2.

Based on CalEEMod, a total of approximately 224 haul truck trips were estimated during demolition and approximately 1,875 haul trucks were estimated during excavation. An average daily construction crew of 150 employees would be present on-site during building construction with less workers during other construction phases. **Table 5** provides a list of the expected trips and trip lengths by construction phase of haul trucks, vendors, and construction workers.

Table 5: Construction Trips and Trip Lengths

Phase	Worker Trips	Vendor Trips	Haul Truck Trips	Worker Trip Length (mile)	Vendor Trip Length (mile)	Haul Trip Length (mile)
Demolition	15	0	224	12.4	7.3	20.0
Site Preparation	18	0	0	12.4	7.3	20.0
Grading	15	0	1,875	12.4	7.3	20.0
Building Construction	153	33	0	12.4	7.3	20.0
Paving	15	0	0	12.4	7.3	20.0
Architectural Coating	31	0	0	12.4	7.3	20.0

SOURCE: CARB CalEEMod Version 2013.2.2.

The emissions generated from these construction activities include:

- Dust (including PM₁₀ and PM_{2.5}) primarily from “fugitive” sources (i.e., emissions released through means other than through a stack or tailpipe) such as material handling and travel on unpaved surfaces; and
- Combustion emissions of criteria air pollutants (ROG, NO_x, CO, PM₁₀, and PM_{2.5}) primarily from operation of heavy off-road construction equipment, haul trucks, (primarily diesel-operated), and construction worker automobile trips (primarily gasoline-operated).

Construction-related fugitive dust emissions would vary from day to day, depending on the level and type of activity, silt content of the soil, and the weather. High winds (greater than 10 miles per hour) occur infrequently in the area, less than two percent of the time. In the absence of mitigation, construction activities may result in significant quantities of dust, and as a result, local visibility and PM₁₀ concentrations may be adversely affected on a temporary and intermittent basis during construction. In addition, the fugitive dust generated by construction

would include not only PM₁₀, but also larger particles, which would fall out of the atmosphere within several hundred feet of the site and could result in nuisance-type impacts.

Erosion control measures and water programs are typically undertaken to minimize these fugitive dust and particulate emissions. A dust control efficiency of over 50 percent due to daily watering and other measures (e.g., limiting vehicle speed to 15 mph, management of stockpiles, screening process controls, etc.) was estimated. Based on CalEEMod, one water application per day reduces fugitive dust by 34 percent, two water applications per day reduces fugitive dust by 55 percent, and three water applications per day reduces fugitive dust by 61 percent.

Table 6 provides the estimated short-term construction emissions that would be associated with the proposed project and compares those emissions to the BAAQMD’s significance thresholds for construction exhaust emissions. As the construction phases (i.e., grading, building construction, paving, etc.) are sequential, the average daily construction period emissions (i.e., total construction period emissions divided by the number of construction days) were compared to the BAAQMD significance thresholds. All construction-related emissions would be below the BAAQMD significance thresholds.

Table 6: Estimated Daily Construction Emissions (pounds)

Condition	ROG	NO _x	PM10	PM2.5	CO
	Unmitigated				
Construction	14.4	34.6	2.1	1.9	31.0
Significance Threshold	54	54	82	54	---
Significant (Yes or No)?	No	No	No	No	No
	Mitigated				
Construction	12.0	28.3	0.2	0.2	29.5
Significance Threshold	54	54	82	54	---
Significant (Yes or No)?	No	No	No	No	No

SOURCE: CARB CalEEMod Version 2013.2.2.

Nevertheless, BAAQMD’s *CEQA Air Quality Guidelines* require a number of best management practices to control fugitive dust and exhaust emissions. The following measures shall be implemented by the construction contractor:

Mitigation Measure AQ-1: BAAQMD Required Dust Control Measures: The construction contractor shall reduce construction-related air pollutant emissions by implementing BAAQMD’s basic fugitive dust control measures, including:

- All exposed surfaces (e.g., parking areas, staging areas, soil piles, graded areas, and unpaved access roads) shall be watered two times per day.
- All haul trucks transporting soil, sand, or other loose material off site shall be covered.

- All visible mud or dirt track-out onto adjacent public roads shall be removed using wet power vacuum street sweepers at least once per day. The use of dry power sweeping is prohibited.
- All vehicle speeds on unpaved roads shall be limited to 15 miles per hour.
- All roadways, driveways, and sidewalks to be paved shall be completed as soon as possible. Building pads shall be laid as soon as possible after grading unless seeding or soil binders are used.
- A publically visible sign shall be posted with the telephone number and person to contact at the Lead Agency regarding dust complaints. This person shall respond and take corrective action within 48 hours. The Air District's phone number shall also be visible to ensure compliance with applicable regulations.

Mitigation Measure AQ-2: BAAQMD Required Basic Exhaust Emissions Reduction Measures. The construction contractor shall implement the following measures during construction to reduce construction-related exhaust emissions:

- Idling times shall be minimized either by shutting equipment off when not in use or reducing the maximum idling time to five minutes (as required by the California airborne toxics control measure Title 13, Section 2485 of California Code of Regulations). Clear signage shall be provided for construction workers at all access points.
- All construction equipment shall be maintained and properly tuned in accordance with manufacturer's specifications. All equipment shall be checked by a certified mechanic and determined to be running in proper condition prior to operation.

Mitigation Measure AQ-3: BAAQMD Regulation 8, Rule 3 for Architectural Coatings. Emissions of VOC due to the use of architectural coatings are regulated by the limits contained in Regulation 8: Organic Compounds, Rule 3: Architectural Coatings (Rule 8-3). Rule 8-3 was revised on January 1, 2011 to include more stringent VOC limit requirements. The revised VOC architectural coating limits specify that the use paints and solvents with a VOC content of 100 grams per liter or less for interior and 150 grams per liter or less for exterior surfaces shall be required.

IMPACT AQ-3: *Would the operation of the proposed project conflict with or obstruct implementation of the applicable air quality plan or violate any air quality standards or contribute substantially to an existing or projected air quality violation?* **Less than Significant Impact with Mitigation**

CalEEMod was used to estimate emissions that would be associated with motor vehicle use, space and water heating, and landscape maintenance emissions expected to occur after the proposed project construction is complete and operational. The proposed project land use types and size and other project-specific information were input to the model. Unless otherwise noted,

the CalEEMod model defaults for Santa Clara County were used. CalEEMod provides emissions for transportation, areas sources, electricity consumption, natural gas combustion, electricity usage associated with water usage and wastewater discharge, and solid waste land filling and transport. CalEEMod output worksheets are included in **Attachment A**.

The proposed project land uses were input into CalEEMod, which included 118 apartment units (as Apartment Mid-Rise), 29 townhouses (as Condo/Townhouse), and six “duet” units (as Single Family Housing) and 258 parking spaces on a 4.4-acre site. The following default CalEEMod trip rates were used in the air quality analysis: Apartment Mid-Rise – 778 daily trips per weekday, Condo/Townhouse – 191 daily trips per weekday, and Single Family Housing – 57 daily trips per weekday. The default trip lengths and trip types specified by CalEEMod for Santa Clara County were used.

Estimated daily and annual operational emissions that would be associated with the proposed project are presented in **Tables 7 and 8** and are compared to BAAQMD’s thresholds of significance. Fireplaces and wood stoves, if part of the project, would result in potentially significant operational ROG emissions, but such emissions would be reduced through **Mitigation Measure AQ-4**. As indicated in **Table 8**, the estimated proposed project operational emissions would be below the BAAQMD’s significance thresholds and would be less than significant with mitigation.

Table 7: Estimated Daily Project Operational Emissions (pounds)

Condition	ROG	NO _x	PM10	PM2.5	CO
	Unmitigated				
Area	73.6	1.02	11.2	11.2	91.9
Energy	0.05	0.46	0.04	0.04	0.20
Mobile	3.81	7.84	0.10	0.09	37.5
Total Proposed Project	77.5	9.32	11.4	11.4	130
Significance Threshold	54	54	82	54	---
Significant Impact?	Yes	No	No	No	No
	Mitigated				
Area	9.986	0.15	0.24	0.24	13.1
Energy	0.05	0.42	0.03	0.03	0.18
Mobile	3.65	6.70	0.08	0.07	33.6
Total Proposed Project	13.6	7.27	0.36	0.35	46.9
Significance Threshold	54	54	82	54	---
Significant Impact?	No	No	No	No	No

SOURCE: CARB CalEEMod Version 2013.2.2.

Table 8: Estimated Annual Project Operational Emissions (tons)

Condition	ROG	NO _x	PM10	PM2.5	CO
Unmitigated					
Area	1.87	0.02	0.04	0.04	1.40
Energy	<0.01	0.08	<0.01	<0.01	0.04
Mobile	0.59	1.26	0.02	0.01	5.80
Total Proposed Project	2.47	1.36	0.06	0.06	7.24
Significance Threshold	10	10	15	10	---
Significant (Yes or No)?	No	No	No	No	No
Mitigated					
Area	1.72	0.01	<0.01	<0.01	1.18
Energy	<0.01	0.08	<0.01	<0.01	0.03
Mobile	0.57	1.08	0.01	0.01	5.13
Total Proposed Project	2.29	1.17	0.03	0.03	6.35
Significance Threshold	10	10	15	10	---
Significant (Yes or No)?	No	No	No	No	No

SOURCE: CARB CalEEMod Version 2013.2.2.

Mitigation Measure AQ-4: Hearths. Fireplaces, if proposed for installation in project residential units, shall use natural gas only.

IMPACT AQ-4: Would Project-related operational activities cause an exceedance of the CAAQS for CO at traffic intersections? Less than Significant Impact

Increased traffic volumes due to the project would result in increased pollutant emissions in the vicinity of the roads utilized by this traffic, which can cause pollutant levels to exceed the ambient air quality standards. The BAAQMD has identified the following screening criteria for determining whether a project's motor vehicle CO emissions would likely cause ambient air quality standards to be exceeded:

- The project is consistent with an applicable congestion management program established by the county congestion management agency for designated roads or highways, the regional transportation plan, and local congestion management agency plans.
- The project traffic would increase traffic volumes at affected intersections to more than 44,000 vehicles per day.
- The project traffic would increase traffic volumes at affected intersections to more than 24,000 vehicles per day where vertical and/or horizontal mixing is substantially limited (e.g., tunnel, parking garage, bridge underpass, natural or urban street canyon, below-grade roadway).

The proposed project would generate minimal new traffic trips and would comply with these screening criteria. Based on the BAAQMD's criteria, project-related traffic would not exceed

CO standards and therefore, no further analysis was conducted for CO impacts. This impact would be considered less than significant on a project-level and cumulative basis.

IMPACT AQ-5: *Would Project operational activities expose sensitive receptors to substantial concentrations of toxic air contaminants (TACs)?* Less than Significant Impact with Mitigation

According to BAAQMD *CEQA Air Quality Guidelines* and *Air Toxics New Source Review Program Health Risk Screening Analysis Guidelines*¹⁵, 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 TACs over a 70-year lifetime will contract cancer, based on the use of standard risk-assessment methodology. The Maximally Exposed Individual (MEI) represents the worst–case risk estimate, based on a theoretical person continuously exposed for 70 years at the point of highest compound concentration in the air. This is a highly conservative assumption, since most people do not remain at home all day and on average residents change residences every 11 to 12 years. In addition, this assumption assumes that residents are experiencing outdoor concentrations for the entire exposure period.

The BAAQMD has established the CEQA significance threshold for individuals exposed to TAC sources as the increased incremental cancer risk of 10 in one million or greater. This HRA analyzed the potential incremental cancer risks to sensitive receptors in the project vicinity of the proposed project, using CARB’s CalEEMod and emission rates from CARB’s EMFAC2011 and OFFROAD2011 emission models. Emission factors were input into the USEPA AERMOD (Version 14134)¹⁶ atmospheric dispersion model to calculate ambient air concentrations at receptors in the proposed project vicinity. This assessment is intended to provide a worst–case estimate of the increased exposure by employing a standard emission estimation program, an accepted pollutant dispersion model, approved toxicity factors, and exposure parameters.

These conservative health risk methodologies were used in this HRA in order to estimate maximum potential health risks. These methodologies overestimate both non-carcinogenic and carcinogenic health risk, possibly by an order of magnitude or more. Therefore, for carcinogenic risks, the actual probabilities of cancer formation in the populations of concern due to exposure to carcinogenic pollutants are likely to be lower than the risks derived using the risk assessment methodology. The extrapolation of toxicity data in animals to humans, the estimation of concentration prediction methods within dispersion models; and the variability in lifestyles,

¹⁵ Bay Area Air Quality Management District. *Air Toxics New Source Review Program Health Risk Screening Analysis Guidelines*. January 2010.

http://www.baaqmd.gov/~media/Files/Engineering/Air%20Toxics%20Programs/hrsa_guidelines.ashx

¹⁶ US Environmental Protection Agency, AERMOD Modeling System,

http://www.epa.gov/scram001/dispersion_prefrec.htm.

fitness and other confounding factors of the human population also contribute to the overestimation of health impacts. Therefore, the results of the HRA are highly overstated.

In accordance with California Office of Environmental Health Hazard Assessment (OEHHA) guidelines,¹⁷ the HRA was accomplished by applying the highest estimated concentrations of TAC at the receptors analyzed to the established cancer potency factors and acceptable reference concentrations for non-cancer health effects. **Attachment B** provides additional information on the methodology used for the HRA.

Cumulative Health Impact Methodology

The BAAQMD's *CEQA Air Quality Guidelines* also include standards and methods for determining the significance of cumulative health risk impacts. The method for determining cumulative health risk requires the tallying of health risk from permitted stationary sources, major roadways and any other identified substantial TAC sources in the vicinity of a project site (i.e., within a 1,000-foot radius) and then adding the individual sources to determine whether the BAAQMD's cumulative health risk thresholds are exceeded.

BAAQMD has developed a geo-referenced database of permitted stationary emissions sources throughout the San Francisco Bay Area and the *Stationary Source Risk & Hazard Analysis Tool* (May, 2012) for estimating cumulative health risks from the permitted sources. Two permitted sources are located within 1,000 feet of the project site. The UPRR is also located within 1,000 feet to the west.

BAAQMD has also developed a geo-referenced database of major roadways in the Bay Area and the *Highway Screening Analysis Tool* (May 2011) for estimating cumulative health risks from such roadways. An identified major roadway, Highway 17, is located 600 feet to the east of the project site and 500 feet to the east of existing residences. BAAQMD *CEQA Air Quality Guidelines* also require the inclusion of surface streets within 1,000 feet of the project with annual average daily traffic (AADT) of 10,000 or greater¹⁸. No roadways meet this criterion.

Incremental Cancer Risk

Cancer risk is the lifetime probability of developing cancer from exposure to carcinogenic substances. Following HRA guidelines established by OEHHA and the BAAQMD in

¹⁷ Office of Environmental Health Hazard Assessment. *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessment*. August 2003. http://oehha.ca.gov/air/hot_spots/pdf/HRAguidefinal.pdf

¹⁸ BAAQMD County Surface Street Screening Tables, May 2011 and CEHTP Traffic Linkage Service Demonstration, http://www.ehib.org/traffic_tool.jsp.

*Recommended Methods for Screening and Modeling Local Risks and Hazards*¹⁹, incremental cancer risks were calculated by applying established toxicity factors to modeled concentrations.

Health Impacts on Existing Residences

The following describes the health risk assessment associated with existing receptors as a result of project construction activities and cumulative sources. With implementation of required BAAMQD mitigation measures for construction activity and equipment described previously as **Mitigation Measures AQ-1 through AQ-3**, the maximum cancer risk from construction DPM for an existing residential-adult receptor would be 11.2 per million and for a residential-child receptor would be 127 per million. Thus, the cancer risk due to construction activities is potentially above the BAAQMD threshold of 10 per million and would be potentially significant. The estimated cancer risk impacts at the nearest existing residence due to Highway 17 is 19.5 per million. The estimated cancer risk impacts at the nearest existing residence due to UPRR is 9.65 per million. The estimated cancer risk impacts at the nearest existing residence due to nearby permitted sources is 9.32 per million. The cumulative cancer risk from the construction activities and other nearby sources is 165 per million and thus, above the BAAQMD threshold of 100 per million and would also be potentially significant (see **Table 9**).

However, with the implementation of **Mitigation Measure AQ-5**, the maximum cancer risk from construction for a residential-adult receptor would be 0.8 per million and for a residential-child receptor would be 8.9 per million. Thus, the cancer risk due to construction activities would be below the BAAQMD threshold of 10 per million and would be less than significant with mitigation. Cumulative cancer risk from the mitigated construction activities plus other nearby emission sources is also below the BAAQMD threshold of 100 per million and would also be less than significant with mitigation (see **Table 10**).

Mitigation Measure AQ-5: Implement Enhanced Exhaust Emissions Reduction Measures. The construction contractor shall implement the following measures during construction to further reduce construction-related exhaust emissions:

All off-road equipment greater than 25 horsepower (hp) and operating for more than 20 total hours over the entire duration of construction activities shall meet the following requirements:

1. Where access to alternative sources of power are available, portable diesel engines shall be prohibited; and
2. All off-road equipment shall have:

¹⁹ Bay Area Air Quality Management District. *Recommended Methods for Screening and Modeling Local Risks and Hazards*. May 2012.
<http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/CEQA/Risk%20Modeling%20Approach%20May%202012.ashx?la=en>

- a. Engines that meet or exceed either USEPA or CARB Tier 2 off-road emission standards, and
- b. Engines that are retrofitted with a CARB Level 3 Verified Diesel Emissions Control Strategy (VDECS). Acceptable options for reducing emissions include the use of late model engines, low-emission diesel products, alternative fuels, engine retrofit technology, after-treatment products, add-on devices such as particulate filters, and/or other options as such are available.

Table 9: Estimated Unmitigated Health Impacts for Existing Receptors

Source	Cancer Risk	Hazard Impact	PM2.5 Concentration
	Proposed Project		
Unmitigated Proposed Project (adult/child)	11.2/127	0.43	2.17
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	Yes	No	Yes
	Cumulative		
City of Campbell (#19046), 290 South Dillon ^a	9.02	<0.01	0.02
City of Campbell (#G7099), 290 South Dillon ^b	0.30	<0.01	<0.01
Union Pacific Railroad ^c	9.65	0.01	0.04
Highway 17 ^d	19.5	0.02	0.14
Unmitigated Proposed Project (adult/child)	11.2/127	0.43	2.17
Cumulative Impact	165	0.48	2.38
Significance Threshold	100	10	0.8
Significant (Yes or No)?	Yes	No	Yes

a Cancer Risk, Hazard Impact, and PM2.5 Concentration values for the source diesel generator was adjusted using the BAAQMD Diesel Generator Distance Multiplier.

b Cancer Risk, Hazard Impact, and PM2.5 Concentration values for the source gasoline station was adjusted using the BAAQMD Gas Station Distance Multiplier.

c Railroad Cancer Risk, Hazard Impact, and PM2.5 Concentration values based on the assumption of the number of diesel locomotives passing by on a weekly basis. The AERMOD model was used to estimate maximum downwind concentrations and potential health risk at sensitive receptors from the rail line source. Additional information is provided in Attachment B.

d Highway 17 Cancer Risk, Hazard Impact, and PM2.5 Concentration values for Highway 17 are based on 6 foot height estimates provided by the BAAQMD developed geo-referenced database of permitted and Highway TAC emissions. Additional information is provided in Attachment B.

Table 10: Estimated Mitigated Health Impacts for Existing Receptors

Source	Cancer Risk	Hazard Impact	PM2.5 Concentration
	Proposed Project		
Mitigated Proposed Project (adult/child)	0.78/8.85	0.03	0.16
Significance Threshold	10	1.0	0.3
Significant (Yes or No)?	No	No	No
City of Campbell (#19046), 290 South Dillon ^a	9.02	<0.01	0.02
City of Campbell (#G7099), 290 South Dillon ^b	0.30	<0.01	<0.01
Union Pacific Railroad ^c	9.65	0.01	0.04
Highway 17 ^d	19.5	0.02	0.14
Mitigated Proposed Project (adult/child)	0.78/8.85	0.03	0.16
Cumulative Impact	47.3	0.08	0.37
Significance Threshold	100	10	0.8
Significant (Yes or No)?	No	No	No

a Cancer Risk, Hazard Impact, and PM2.5 Concentration values for the source diesel generator was adjusted using the BAAQMD Diesel Generator Distance Multiplier.

b Cancer Risk, Hazard Impact, and PM2.5 Concentration values for the source gasoline station was adjusted using the BAAQMD Gas Station Distance Multiplier.

c Railroad Cancer Risk, Hazard Impact, and PM2.5 Concentration values based on the assumption of the number of diesel locomotives passing by on a weekly basis. The AERMOD model was used to estimate maximum downwind concentrations and potential health risk at sensitive receptors from the rail line source. Additional information is provided in Attachment B.

d Highway 17 Cancer Risk, Hazard Impact, and PM2.5 Concentration values for Highway 17 are based on 6 foot height estimates provided by the BAAQMD developed geo-referenced database of permitted and Highway TAC emissions. Additional information is provided in Attachment B.

Non-Cancer Health Hazard

Both acute (short-term) and chronic (long-term) adverse health impacts unrelated to cancer are measured against a hazard index (HI), which is defined as the ratio of the proposed project's incremental DPM exposure concentration to a published reference exposure level (REL) as determined by OEHHA. To compute the total HI, individual ratios or Hazard Quotients (HQs) of each individual air toxic are added to produce an overall HI. If the overall HI is greater than 1.0, then the impact is considered to be significant.

The chronic reference exposure level for DPM as determined by OEHHA is 5 µg/m³. There is no acute REL for DPM. However, diesel exhaust does contain acrolein and other compounds, which do have an acute REL. Based on BAAQMD's DPM speciation data, acrolein emissions are approximately 1.3 percent of the total DPM emissions. The acute REL for acrolein as determined by OEHHA²⁰ is 2.5 µg /m³.

The unmitigated and mitigated chronic HI would be 0.43 and 0.03, respectively. Thus, the chronic HI would be well below the BAAQMD threshold of 1 and the proposed project impact would less than significant. The cumulative chronic health impacts would also be well below the BAAQMD threshold of 10 (see **Tables 9 and 10**).

²⁰ California Office of Environmental Health Hazards Assessment Toxicity Criteria Database, 2010. <http://www.oehha.ca.gov/>.

The unmitigated and mitigated acute HI would be 0.22 and 0.02, respectively. Thus, the acute HI would be below the BAAQMD threshold of 1 and the proposed project impact would be less than significant. The cumulative acute health impacts would be well below the BAAQMD threshold of 10 (see **Tables 9 and 10**).

PM_{2.5} Concentration

Dispersion modeling also estimated the exposure of sensitive receptors to project-related concentrations of PM_{2.5}. The BAAQMD *Air Quality Guidelines* requires inclusion only of PM_{2.5} exhaust emissions in this analysis (i.e., fugitive dust emissions are addressed under BAAQMD dust control measures and are required by law to be implemented during project construction). The proposed project's unmitigated annual PM_{2.5} concentration from construction activities would be 2.17 µg/m³. With implementation of **Mitigation Measure AQ-5**, the annual PM_{2.5} concentration would be reduced to 0.16 µg/m³. Thus, the annual PM_{2.5} concentration due to project construction would be below the BAAQMD threshold of 0.3 µg/m³ and would be considered less than significant with mitigation (see **Tables 9 and 10**).

Health Impacts on Proposed Residences

The following describes the health risk assessment associated with proposed residences as a result of existing cumulative sources such as permitted sources (i.e., diesel generators, gasoline stations), UPRR operations, and Highway 17.

The BAAQMD's *CEQA Air Quality Guidelines* include standards and methods for determining the significance of cumulative health risk impacts. The method for determining cumulative health risk requires the tallying of health risk from permitted stationary sources, major roadways and any other identified substantial TAC sources in the vicinity of a project site (i.e., within a 1,000-foot radius) and then adding the individual sources to determine whether the BAAQMD's cumulative health risk thresholds are exceeded.

Table 11 shows the individual and cumulative cancer risks, hazard indexes, and PM_{2.5} concentrations (in µg/m³) impacting the proposed project residences from BAAQMD-permitted stationary sources and major roadways within 1,000 feet of the proposed project, and also includes the effects of DPM from UPRR operations. The cumulative cancer risk, 36.9 per million, would be well below the BAAQMD cumulative significance threshold of 100 per million for new residential receptors. Thus, the proposed project would be a less than significant health impact on proposed receptors.

Table 11: Estimated Health Impacts for Proposed Receptors

Source	Cancer Risk	Hazard Impact	PM2.5 Concentration
City of Campbell (#19046), 290 South Dillon ^a	9.02	<0.01	0.02
City of Campbell (#G7099), 290 South Dillon ^b	0.30	<0.01	<0.01
Union Pacific Railroad ^c	9.82	0.01	0.04
Highway 17 ^d	17.8	0.02	0.13
Cumulative Impact	36.9	0.05	0.20
Significance Threshold	100	10	0.8
Significant (Yes or No)?	No	No	No

a Cancer Risk, Hazard Impact, and PM2.5 Concentration values for the source diesel generator was adjusted using the BAAQMD Diesel Generator Distance Multiplier.

b Cancer Risk, Hazard Impact, and PM2.5 Concentration values for the source gasoline station was adjusted using the BAAQMD Gas Station Distance Multiplier.

c Railroad Cancer Risk, Hazard Impact, and PM2.5 Concentration values based on the assumption of the number of diesel locomotives passing by on a weekly basis. The AERMOD model was used to estimate maximum downwind concentrations and potential health risk at sensitive receptors from the rail line source. Additional information is provided in Attachment B.

d Highway 17 Cancer Risk, Hazard Impact, and PM2.5 Concentration values for Highway 17 are based on 6 foot height estimates provided by the BAAQMD developed geo-referenced database of permitted and Highway TAC emissions. Additional information is provided in Attachment B.

IMPACT AQ-6: *Would the Project create objectionable odors affecting a substantial amount of people?* Less than Significant

Though offensive odors from stationary and mobile sources rarely cause any physical harm, they still remain unpleasant and can lead to public distress, generating citizen complaints to local governments. The occurrence and severity of odor impacts depend on the nature, frequency, and intensity of the source; wind speed and direction; and the sensitivity of receptors.

The BAAQMD’s significance criteria for odors are subjective and are based on the number of odor complaints generated by a project. Generally, the BAAQMD considers any project with the potential to frequently expose members of the public to objectionable odors to cause a significant impact. With respect to the proposed project, diesel-fueled construction equipment exhaust would generate some odors. However, these emissions typically dissipate quickly and would be unlikely to affect a substantial number of people.

Odor impacts could also result from siting a new sensitive receptor near an existing odor source. Examples of land uses that have the potential to generate considerable odors include, but are not limited to wastewater treatment plants; landfills; refineries; and chemical plants.

In the BAAQMD *CEQA Air Quality Guidelines* (dated May 2011), odor screening distances were recommended by BAAQMD for a variety of land uses. Projects that would site a new receptor farther than the applicable screening distance from an existing odor source would not likely result in a significant odor impact. The odor screening distances are not used as absolute screening criteria, rather as information to consider along with the odor parameters and complaint history. The odor screening distances for a sewage treatment plant, refinery, and

chemical plant are two miles.²¹ The proposed project is not within the odor screening distances for a sewage treatment plant, refinery, or other odor producing sources.

Generally, odor emissions are highly dispersive, especially in areas with higher average wind speeds. However, odors disperse less quickly during inversions or during calm conditions, which hamper vertical mixing and dispersion. Therefore, odor impacts associated with the location of the proposed project would be less than significant.

6.0 GREENHOUSE GAS ANALYSIS

“Global warming” and “global climate change” are the terms used to describe the increase in the average temperature of the earth’s near-surface air and oceans since the mid-20th century and its projected continuation. Warming of the climate system is now considered to be unequivocal (IPCC, 2007), with global surface temperature increasing approximately 1.33 degrees Fahrenheit (°F) over the last 100 years. Continued warming is projected to increase global average temperature between 2 and 11°F over the next 100 years.

Natural processes and human actions have been identified as the causes of this warming. The International Panel on Climate Change (IPCC) concludes that variations in natural phenomena such as solar radiation and volcanoes produced most of the warming from pre-industrial times to 1950 and had a small cooling effect afterward. After 1950, however, increasing GHG concentrations resulting from human activity such as fossil fuel burning and deforestation have been responsible for most of the observed temperature increase. These basic conclusions have been endorsed by more than 45 scientific societies and academies of science, including all of the national academies of science of the major industrialized countries. Since 2007, no scientific body of national or international standing has maintained a dissenting opinion.

Increases in GHG concentrations in the earth’s atmosphere are thought to be the main cause of human-induced climate change. GHGs naturally trap heat by impeding the exit of solar radiation that has hit the earth and is reflected back into space. Some GHGs occur naturally and are necessary for keeping the earth’s surface inhabitable. However, increases in the concentrations of these gases in the atmosphere during the last 100 years have decreased the amount of solar radiation that is reflected back into space, intensifying the natural greenhouse effect and resulting in the increase of global average temperature.

Gases that trap heat in the atmosphere are referred to as GHGs because they capture heat radiated from the sun as it is reflected back into the atmosphere, much like a greenhouse does. The accumulation of GHGs has been implicated as the driving force for global climate change. The

²¹ Sacramento Metropolitan Air Quality Management District, Guide to Air Quality Assessment in Sacramento County, June 2014, <http://www.airquality.org/ceqa/cequguideupdate/Ch7OdorScreeningDistancesFINAL.pdf>

primary GHGs are carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O), ozone, and water vapor.

While the presence of the primary GHGs in the atmosphere are naturally occurring, CO₂, CH₄, and N₂O are also emitted from human activities, accelerating the rate at which these compounds occur within earth's atmosphere. Emissions of CO₂ are largely by-products of fossil fuel combustion, whereas methane results from off-gassing associated with agricultural practices and landfills. Other GHGs include hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride, and are generated in certain industrial processes. Greenhouse gases are typically reported in "carbon dioxide-equivalent" measures (CO₂e).²²

There is international scientific consensus that human-caused increases in GHGs have and will continue to contribute to global warming. Potential global warming impacts in California may include, but are not limited to, loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more large forest fires, and more drought years. Secondary effects are likely to include a global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity.²³

Santa Clara County Climate Action Plan

In 2007, the Santa Clara County Board of Supervisors signed the Cool Counties Climate Stabilization Declaration and established a set of aggressive goals for GHG emissions reductions that would reduce the government's GHG emissions by 80 percent before 2050. The Climate Action Plan represents a year-long effort among multiple County agencies, resulting in a set of strategic changes in County operations, facilities and employee behaviors which will facilitate not simply emissions reductions, but water conservation, and decreases in fuel consumption and solid waste volume.

California Green Building Standards Code

On January 12, 2010, the State Building Standards Commission unanimously adopted updates to the California Green Building Standards Code, which went into effect on January 1, 2011. CALGreen is a comprehensive and uniform regulatory code for all residential, commercial and school buildings.

CALGreen does not prevent a local jurisdiction from adopting a more stringent code as state law provides methods for local enhancements. CALGreen recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they provide a minimum 50-percent diversion requirement. CALGreen also

²² Because of the differential heat absorption potential of various GHGs, GHG emissions are frequently measured in "carbon dioxide-equivalents," which present a weighted average based on each gas's heat absorption (or "global warming") potential.

²³ California Climate Change Portal. Frequently Asked Questions about Global Climate Change. Available Online at: <http://www.climatechange.ca.gov/publications/faqs.html>.

provides exemptions for areas not served by construction and demolition recycling infrastructure. State building code provides the minimum standard, which buildings need to meet in order to be certified for occupancy. Enforcement is generally through the local building official.

The development of CALGreen is intended to (1) cause a reduction in GHG emissions from buildings; (2) promote environmentally responsible, cost-effective, healthier places to live and work; (3) reduce energy and water consumption; and (4) respond to the directives by the Governor. In short, CALGreen is established to reduce construction waste; make buildings more efficient in the use of materials and energy; and reduce environmental impacts during and after construction.

CALGreen contains requirements for construction site selection, storm water control during construction, construction waste reduction, indoor water use reduction, material selection, natural resource conservation, site irrigation conservation, and more. CALGreen provides for design options allowing the designer to determine how best to achieve compliance for a given site or building condition. CALGreen also requires building commissioning, which is a process for verifying that all building systems, like heating and cooling equipment and lighting systems, are functioning at their maximum efficiency. The following provides examples of CALGreen requirements:

- **Designated parking.** Provide designated parking in commercial projects for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles.
- **Recycling by Occupants.** Provide readily accessible areas that serve the entire building and are identified for the depositing, storage and collection of nonhazardous materials for recycling.
- **Construction waste.** A minimum 50-percent diversion of construction and demolition waste from landfills, increasing voluntarily to 65 and 75 percent for new homes and 80-percent for commercial projects. All (100 percent) of trees, stumps, rocks and associated vegetation and soils resulting from land clearing shall be reused or recycled.
- **Wastewater reduction.** Each building shall reduce the generation of wastewater by installation of water-conserving fixtures or using nonpotable water systems.
- **Water use savings.** 20-percent mandatory reduction in indoor water use with voluntary goal standards for 30, 35, and 40-percent reductions.
- **Water meters.** Separate water meters for buildings in excess of 50,000 square feet or buildings projected to consume more than 1,000 gallons per day.
- **Irrigation efficiency.** Moisture-sensing irrigation systems for larger landscaped areas.
- **Materials pollution control.** Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particleboard.
- **Building commissioning.** Mandatory inspections of energy systems (i.e. heat furnace, air conditioner, mechanical equipment) for nonresidential buildings over 10,000 square feet

to ensure that all are working at their maximum capacity according to their design efficiencies.

Build It Green New Construction Green Building Guidelines

The proposed project will be designed to the specifics of the Build It Green New Construction Green Building Guidelines. These features shall be incorporated into the project design to ensure consistency with adopted City and statewide plans and programs. The proposed project will demonstrate the incorporation of project design features prior to the issuance of building or occupancy permits. The Green Point Rated certification systems are standards for a residential green building rating system which recognize performance in five categories: Community, Energy Efficiency, Indoor Air Quality and Health, Resource Conservation, and Water Conservation. Points are earned by complying with the specific standards for any of the given measures in the system. Projects are scored on overall performance and performance in each category. The points translate to a one of the following certifications, in order from Certified, Silver, Gold, and Platinum. The proposed project is anticipated to achieve the Gold certification with greater than 110 points. Some common measures include: high-efficacy lighting, Energy Star® appliances, FSC-Certified lumber, insulation with 75 percent recycled content, water efficient fixtures, solar electric panels, solar water heaters, and low or zero emitting interior paints, varnishes, cabinetry and carpeting.²⁴

Assembly Bill 32 (California Global Warming Solutions Act of 2006)

California passed the California Global Warming Solutions Act of 2006 (AB 32; California Health and Safety Code Division 25.5, Sections 38500 - 38599). AB 32 establishes regulatory, reporting, and market mechanisms to achieve quantifiable reductions in GHG emissions and establishes a cap on statewide GHG emissions. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by 2020. This reduction will be accomplished by enforcing a statewide cap on GHG emissions that will be phased in starting in 2012. To effectively implement the cap, AB 32 directs CARB to develop and implement regulations to reduce statewide GHG emissions from stationary sources. AB 32 specifies that regulations adopted in response to AB 1493 should be used to address GHG emissions from vehicles. However, AB 32 also includes language stating that if the AB 1493 regulations cannot be implemented, then CARB should develop new regulations to control vehicle GHG emissions under the authorization of AB 32.

AB 32 requires CARB to adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrived at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state reduces GHG emissions enough to meet the cap. AB 32 also includes guidance on instituting emissions reductions in an economically efficient manner, along with conditions to ensure that businesses and consumers are not unfairly affected by the reductions. Using these criteria to reduce

²⁴ Build It Green, <http://builditgreen3.elasticbeanstalk.com/>

statewide GHG emissions to 1990 levels by 2020 would represent an approximate 25 to 30 percent reduction in current emissions levels. However, CARB has discretionary authority to seek greater reductions in more significant and growing GHG sectors, such as transportation, as compared to other sectors that are not anticipated to significantly increase emissions. Under AB 32, CARB must adopt regulations to achieve reductions in GHGs to meet the 1990 emissions cap by 2020.

Climate Change Scoping Plan

In October of 2013, the CARB submitted the First Update to the Climate Change Scoping Plan for public review and comment. The First Update to the Scoping Plan was approved by the CARB on May 22, 2014, and builds upon the initial Scoping Plan with new strategies and recommendations. The First Update identifies opportunities to leverage existing and new funds to further drive GHG emission reductions through strategic planning and targeted low carbon investments. The First Update defines CARB's climate change priorities for the next five years, and also sets the groundwork to reach long-term goals set forth in Executive Orders S-3-05 and B-16-2012. The Update highlights California's progress toward meeting the "near-term" 2020 GHG emission reduction goals defined in the initial Scoping Plan. It also evaluates how to align the State's "longer-term" GHG reduction strategies with other State policy priorities for water, waste, natural resources, clean energy, transportation, and land use.

In the First Update to the Climate Change Scoping Plan, nine key focus areas were identified (energy, transportation, agriculture, water, waste management, and natural and working lands), along with short-lived climate pollutants, green buildings, and the cap-and-trade program. These key focus areas have overlapping and complementary interests that will require careful coordination in California's future climate and energy policies. These focus areas were selected to address issues that underlie multiple sectors of the economy. As such, each focus area is not contained to a single economic sector, but has far-reaching impacts within many economic sectors.

Greenhouse Gas Regional Emission Estimates

In 2012, the United States emitted about 6.526 billion tons of CO₂e or about 21 tons per year per person. Of the four major sectors nationwide - residential, commercial, industrial, and transportation - electrical generation accounts for the highest fraction of GHG emissions (approximately 32 percent); these emissions are entirely generated from direct fossil fuel combustion. United States GHG emissions decreased by 3.4 percent from 2011 to 2012. Recent trends can be attributed to multiple factors including reduced emissions from electricity generation, improvements in fuel efficiency in vehicles with reductions in miles traveled, and

year-to-year changes in the prevailing weather. GHG emissions in 2012 were 10 percent below 2005 levels.²⁵

California's gross emissions of GHG decreased by 1.6 percent from 466.3 million metric tons of CO₂e in 2000 to 458.7 million metric tons in 2012, with a maximum of 492.7 million metric tons in 2004. During the same period, California's population grew by 11 percent from 34 to 37.8 million people. As a result, California's per capita GHG emissions have generally decreased over the last 12 years from 13.7 in 2000 to 12.1 million metric tons of CO₂e per person in 2012.²⁶ California has one of the lowest per capita GHG emission rates in the country, due to the success of its energy efficiency and renewable energy programs and commitments that have lowered the state's GHG emissions rate of growth by more than half of what it would have been otherwise. Another factor that has reduced California's fuel use and GHG emissions is its mild climate compared to that of many other states.

The transportation sector remains the largest source of GHG emissions in 2012, accounting for 36 percent of California's GHG emission inventory. Contributions from the transportation sector include emissions from on-road and off-road vehicles, aviation, rail and water-borne vehicles, and some other minor sources. Transportation-related GHG emissions have dropped 12 percent since reaching a maximum in 2007. In 2012, emissions from the on-road category decreased by 0.5 percent from the previous year.²⁷

The California Environmental Protection Agency Climate Action Team reported that the composition of gross GHG emissions in California in 2002 (expressed in terms of CO₂e) were as follows²⁸:

- CO₂ accounted for 83.3 percent;
- CH₄ accounted for 6.4 percent;
- N₂O accounted for 6.8 percent; and
- Fluorinated gases (HFCs, PFC, and SF₆) accounted for 3.5 percent.

In the San Francisco Bay Area, the transportation sector and industrial/commercial sector represent the largest sources of GHG emissions, accounting for 36.4 percent each of the Bay Area's 95.8 million tons of CO₂e in 2007. Electricity/co-generation sources account for about 15.9 percent of the Bay Area's GHG emissions, followed by residential fuel usage at about 7.1

²⁵ USEPA, *Inventory of U.S. Greenhouse Gas Emissions and Sinks: 1990–2012*, April 2014, <http://www.epa.gov/climatechange/ghgemissions/usinventoryreport.html#fullreport>

²⁶ CARB, *2014 Edition California Greenhouse Gas Emission Inventory 2000 – 2012*, May, 2014, http://www.arb.ca.gov/cc/inventory/pubs/reports/ghg_inventory_00-12_report.pdf

²⁷ CARB, *2014 Edition California Greenhouse Gas Emission Inventory 2000 – 2012*, May, 2014, http://www.arb.ca.gov/cc/inventory/pubs/reports/ghg_inventory_00-12_report.pdf

²⁸ California Environmental Protection Agency, *Climate Action Team Report to Governor Schwarzenegger and the California Legislature*, December 2010, <http://www.energy.ca.gov/2010publications/CAT-1000-2010-005/CAT-1000-2010-005.PDF>

percent. Off-road equipment and agricultural/farming sources currently account for approximately three percent and 1.2 percent of the total Bay Area GHG emissions, respectively.²⁹

Thresholds of Significance

Separate thresholds of significance are established for operational GHG emissions from stationary sources (such as generators, furnaces, and boilers) and non-stationary sources (such as on-road vehicles). As no threshold has been established for construction-related emissions, the operational emissions thresholds apply. The threshold for stationary sources is 10,000 metric tons of CO₂e per year (i.e., emissions above this level may be considered significant). For non-stationary sources, three separate thresholds have been established:

- Compliance with a Qualified Greenhouse Gas Reduction Strategy (i.e., if a project is found to be out of compliance with a Qualified Greenhouse Gas Reduction Strategy, its GHG emissions may be considered significant); or
- 1,100 metric tons of CO₂e per year (i.e., emissions above this level may be considered significant); or
- 4.6 metric tons of CO₂e per service population per year (i.e., emissions above this level may be considered significant). Service population is the sum of residents plus employees expected for a development project.

For quantifying a project's GHG emissions, BAAQMD recommends that all GHG emissions from a project be estimated, including a project's direct and indirect GHG emissions from operations. Direct emissions refer to emissions produced from onsite combustion of energy, such as natural gas used in furnaces and boilers, emissions from industrial processes, and fuel combustion from mobile sources. Indirect emissions are emissions produced offsite from energy production and water conveyance due to a project's energy use and water consumption.

IMPACT GHG-1: *Would the Project conflict with implementation of State, Air District, County, and City goals for reducing GHG emissions?* Less than Significant

CalEEMod was used to quantify GHG emissions associated with Project construction activities, as well as long-term operational emissions produced by motor vehicles, natural gas combustion for space and water heating, electricity use, and landscape maintenance equipment. CalEEMod incorporates GHG emission factors for the central electric utility serving the Bay Area and mitigation measures based on the California Air Pollution Control Officer's Association (CAPCOA) *Quantifying Greenhouse Gas Mitigation Measures* and the *California Climate Action Registry General Reporting Protocol*.

²⁹ BAAQMD, Source Inventory of Bay Area Greenhouse Gas Emissions, February 2010, http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/Emission%20Inventory/regionalinventory2007_2_10.ashx?la=en

CalEEMod is sensitive to the year selected, since vehicle emissions have and continue to be reduced due to fuel efficiency standards and low carbon fuels. The operational year of 2017 was analyzed since it is the first full year that the proposed project could conceivably be occupied. The project would be located approximately 0.2 miles from the VTA Winchester light-rail transit hub. This information would tend to reduce motor vehicle emissions as it would tend to reduce daily trips by increasing the use of mass transportation.

Default rates for energy consumption were assumed in the model. Emissions rates associated with electricity consumption were adjusted to account for Pacific Gas & Electric utility’s projected 2017 CO₂ intensity rate. This 2017 rate is based, in part, on the requirement of a renewable energy portfolio standard of 33 percent by the year 2020. CalEEMod uses a default rate of 641.35 pounds of CO₂ per megawatt of electricity produced.

The proposed project’s estimated construction and operational GHG emissions are presented in **Table 12**. The estimated construction GHG emissions are 1,001 metric tons of CO_{2e}. As indicated, 30-year amortized annual construction related GHG emissions would be 33 metric tons of CO_{2e}. There is no BAAQMD CEQA significance threshold for construction-related GHG emissions. The GHG construction and unmitigated operational emissions would be 4.3 metric tons per service population (approximately 340 residences) per year, which is below the BAAQMD threshold of 4.6 metric tons per service population. The GHG construction and mitigated operational emissions would be 3.7 metric tons per service population per year, which is below the BAAQMD threshold of 4.6 metric tons per service population. Thus, the proposed project impacts on climate change are less than significant.

Table 12: Estimated Greenhouse Gas Emissions

Source	Annual CO _{2e} Metric Tons
Construction (30-year amortized)	33.4
Operations	
Area Sources	9.7
Energy	409
Mobile	927
Solid Waste	34.5
Water	35.4
Total Emissions (Unmitigated)	1,448
Total Emissions per Service Population	4.3
<i>BAAQMD Efficiency Threshold</i>	4.6
Potentially Significant?	No
Operations	
Area Sources	7.4
Energy	392

Mobile	7.68
Solid Waste	34.5
Water	35.4
Total Emissions (Mitigated)	1,270
Total Emissions per Service Population	3.7
<i>BAAQMD Efficiency Threshold</i>	4.6
Potentially Significant?	No

SOURCE: CARB CalEEMod Version 2013.2.2.

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Attachment A

Construction and Operational Emissions

CalEEMod Output Files

- Annual
- Summer
- Winter
- Mitigation Report

Campbell Residences at Railway Santa Clara County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	168.00	Space	1.51	67,200.00	0
Parking Lot	80.00	Space	0.72	32,000.00	0
Apartments Mid Rise	119.00	Dwelling Unit	3.13	203,000.00	260
Condo/Townhouse	32.00	Dwelling Unit	2.00	58,000.00	65
Single Family Housing	6.00	Dwelling Unit	1.95	11,400.00	15

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2017
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Response to Data Request dated January 26, 2015

Construction Phase - Response to Data Request dated January 26, 2015

Demolition -

Grading -

Architectural Coating - Super Low VOC Content

Construction Off-road Equipment Mitigation - BAAQMD Enhanced Mitigation Measures

Mobile Land Use Mitigation -

Area Mitigation - Response to Data Request dated January 26, 2015

Energy Mitigation -

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tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstructionPhase	NumDays	230.00	377.00
tblConstructionPhase	NumDays	20.00	11.00
tblConstructionPhase	PhaseEndDate	12/30/2016	12/31/2016
tblConstructionPhase	PhaseEndDate	11/4/2016	11/6/2016
tblConstructionPhase	PhaseEndDate	12/2/2016	12/4/2016

tblGrading	MaterialExported	0.00	15,000.00
tblLandUse	LandUseSquareFeet	119,000.00	203,000.00
tblLandUse	LandUseSquareFeet	32,000.00	58,000.00
tblLandUse	LandUseSquareFeet	10,800.00	11,400.00
tblLandUse	Population	340.00	260.00
tblLandUse	Population	92.00	65.00
tblLandUse	Population	17.00	15.00
tblProjectCharacteristics	OperationalYear	2014	2017

2.0 Emissions Summary

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	1.8679	0.0164	1.4019	2.6000e-004		0.0387	0.0387		0.0387	0.0387	3.3078	6.1339	9.4418	8.3300e-003	2.5000e-004	9.6941
Energy	9.7200e-003	0.0830	0.0353	5.3000e-004		6.7100e-003	6.7100e-003		6.7100e-003	6.7100e-003	0.0000	406.9685	406.9685	0.0159	4.6700e-003	408.7502
Mobile	0.5935	1.2629	5.7996	0.0121	0.8727	0.0162	0.8889	0.2333	0.0149	0.2482	0.0000	926.2995	926.2995	0.0382	0.0000	927.1023
Waste						0.0000	0.0000		0.0000	0.0000	15.3786	0.0000	15.3786	0.9089	0.0000	34.4644
Water						0.0000	0.0000		0.0000	0.0000	3.2453	22.6681	25.9134	0.3343	8.0800e-003	35.4401
Total	2.4711	1.3623	7.2368	0.0129	0.8727	0.0616	0.9343	0.2333	0.0603	0.2937	21.9317	1,362.0700	1,384.0017	1.3057	0.0130	1,415.4512

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	1.7160	0.0138	1.1798	6.0000e-005		6.7800e-003	6.7800e-003		6.7800e-003	6.7800e-003	0.0000	7.3406	7.3406	2.0300e-003	1.0000e-004	7.4140
Energy	8.9300e-003	0.0763	0.0325	4.9000e-004		6.1700e-003	6.1700e-003		6.1700e-003	6.1700e-003	0.0000	390.4629	390.4629	0.0154	4.4500e-003	392.1636
Mobile	0.5660	1.0802	5.1341	0.0100	0.7166	0.0136	0.7302	0.1916	0.0125	0.2041	0.0000	766.9306	766.9306	0.0323	0.0000	767.6089
Waste						0.0000	0.0000		0.0000	0.0000	15.3786	0.0000	15.3786	0.9089	0.0000	34.4644
Water						0.0000	0.0000		0.0000	0.0000	3.2453	22.6681	25.9134	0.3343	8.0700e-003	35.4349
Total	2.2910	1.1702	6.3464	0.0106	0.7166	0.0265	0.7431	0.1916	0.0254	0.2170	18.6239	1,187.4021	1,206.0260	1.2928	0.0126	1,237.0859

	ROG	NOx	CO	SO2	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	7.29	14.10	12.30	17.93	17.89	56.95	20.47	17.89	57.84	26.10	15.08	12.82	12.86	0.98	2.92	12.60

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2015	4/15/2015	5	11	
2	Site Preparation	Site Preparation	4/16/2015	4/29/2015	5	10	
3	Grading	Grading	4/30/2015	5/27/2015	5	20	
4	Building Construction	Building Construction	5/28/2015	11/6/2016	5	377	
5	Paving	Paving	11/7/2016	12/4/2016	5	20	
6	Architectural Coating	Architectural Coating	12/5/2016	12/31/2016	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 551,610; Residential Outdoor: 183,870; Non-Residential Indoor: 102,240; Non-Residential Outdoor: 34,080 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	224.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	1,875.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	153.00	33.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	31.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2015

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					0.0242	0.0000	0.0242	3.6700e-003	0.0000	3.6700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0248	0.2660	0.1984	2.2000e-004		0.0135	0.0135		0.0126	0.0126	0.0000	20.5927	20.5927	5.5800e-003	0.0000	20.7099
Total	0.0248	0.2660	0.1984	2.2000e-004	0.0242	0.0135	0.0377	3.6700e-003	0.0126	0.0162	0.0000	20.5927	20.5927	5.5800e-003	0.0000	20.7099

3.2 Demolition - 2015

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	2.7500e-003	0.0388	0.0279	8.0000e-005	1.8900e-003	5.8000e-004	2.4700e-003	5.2000e-004	5.3000e-004	1.0500e-003	0.0000	7.7630	7.7630	7.0000e-005	0.0000	7.7644
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	4.8000e-004	4.6900e-003	1.0000e-005	7.5000e-004	1.0000e-005	7.6000e-004	2.0000e-004	1.0000e-005	2.1000e-004	0.0000	0.6856	0.6856	4.0000e-005	0.0000	0.6864
Total	3.0900e-003	0.0393	0.0326	9.0000e-005	2.6400e-003	5.9000e-004	3.2300e-003	7.2000e-004	5.4000e-004	1.2600e-003	0.0000	8.4486	8.4486	1.1000e-004	0.0000	8.4508

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					0.0109	0.0000	0.0109	1.6500e-003	0.0000	1.6500e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	7.1000e-003	0.1841	0.1390	2.2000e-004		7.7000e-004	7.7000e-004		7.7000e-004	7.7000e-004	0.0000	20.5927	20.5927	5.5800e-003	0.0000	20.7099
Total	7.1000e-003	0.1841	0.1390	2.2000e-004	0.0109	7.7000e-004	0.0117	1.6500e-003	7.7000e-004	2.4200e-003	0.0000	20.5927	20.5927	5.5800e-003	0.0000	20.7099

3.2 Demolition - 2015

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	2.7500e-003	0.0388	0.0279	8.0000e-005	1.8900e-003	5.8000e-004	2.4700e-003	5.2000e-004	5.3000e-004	1.0500e-003	0.0000	7.7630	7.7630	7.0000e-005	0.0000	7.7644
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.4000e-004	4.8000e-004	4.6900e-003	1.0000e-005	7.5000e-004	1.0000e-005	7.6000e-004	2.0000e-004	1.0000e-005	2.1000e-004	0.0000	0.6856	0.6856	4.0000e-005	0.0000	0.6864
Total	3.0900e-003	0.0393	0.0326	9.0000e-005	2.6400e-003	5.9000e-004	3.2300e-003	7.2000e-004	5.4000e-004	1.2600e-003	0.0000	8.4486	8.4486	1.1000e-004	0.0000	8.4508

3.3 Site Preparation - 2015

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					0.0903	0.0000	0.0903	0.0497	0.0000	0.0497	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0263	0.2845	0.2132	2.0000e-004		0.0154	0.0154		0.0142	0.0142	0.0000	18.6506	18.6506	5.5700e-003	0.0000	18.7675
Total	0.0263	0.2845	0.2132	2.0000e-004	0.0903	0.0154	0.1058	0.0497	0.0142	0.0639	0.0000	18.6506	18.6506	5.5700e-003	0.0000	18.7675

3.3 Site Preparation - 2015

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	3.7000e-004	5.3000e-004	5.1200e-003	1.0000e-005	8.2000e-004	1.0000e-005	8.3000e-004	2.2000e-004	1.0000e-005	2.2000e-004	0.0000	0.7479	0.7479	4.0000e-005	0.0000	0.7488
Total	3.7000e-004	5.3000e-004	5.1200e-003	1.0000e-005	8.2000e-004	1.0000e-005	8.3000e-004	2.2000e-004	1.0000e-005	2.2000e-004	0.0000	0.7479	0.7479	4.0000e-005	0.0000	0.7488

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					0.0407	0.0000	0.0407	0.0223	0.0000	0.0223	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	6.1500e-003	0.1721	0.1170	2.0000e-004		7.2000e-004	7.2000e-004		7.2000e-004	7.2000e-004	0.0000	18.6505	18.6505	5.5700e-003	0.0000	18.7675
Total	6.1500e-003	0.1721	0.1170	2.0000e-004	0.0407	7.2000e-004	0.0414	0.0223	7.2000e-004	0.0231	0.0000	18.6505	18.6505	5.5700e-003	0.0000	18.7675

3.3 Site Preparation - 2015**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	3.7000e-004	5.3000e-004	5.1200e-003	1.0000e-005	8.2000e-004	1.0000e-005	8.3000e-004	2.2000e-004	1.0000e-005	2.2000e-004	0.0000	0.7479	0.7479	4.0000e-005	0.0000	0.7488
Total	3.7000e-004	5.3000e-004	5.1200e-003	1.0000e-005	8.2000e-004	1.0000e-005	8.3000e-004	2.2000e-004	1.0000e-005	2.2000e-004	0.0000	0.7479	0.7479	4.0000e-005	0.0000	0.7488

3.4 Grading - 2015**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					0.0664	0.0000	0.0664	0.0338	0.0000	0.0338	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0383	0.4042	0.2667	3.0000e-004		0.0233	0.0233		0.0214	0.0214	0.0000	28.3860	28.3860	8.4700e-003	0.0000	28.5639
Total	0.0383	0.4042	0.2667	3.0000e-004	0.0664	0.0233	0.0897	0.0338	0.0214	0.0552	0.0000	28.3860	28.3860	8.4700e-003	0.0000	28.5639

3.4 Grading - 2015

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	0.0230	0.3245	0.2335	7.0000e-004	0.0158	4.8400e-003	0.0207	4.3500e-003	4.4500e-003	8.8000e-003	0.0000	64.9807	64.9807	5.5000e-004	0.0000	64.9921
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	6.2000e-004	8.8000e-004	8.5300e-003	2.0000e-005	1.3700e-003	1.0000e-005	1.3800e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.2465	1.2465	7.0000e-005	0.0000	1.2479
Total	0.0236	0.3254	0.2420	7.2000e-004	0.0172	4.8500e-003	0.0221	4.7100e-003	4.4600e-003	9.1700e-003	0.0000	66.2271	66.2271	6.2000e-004	0.0000	66.2401

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					0.0299	0.0000	0.0299	0.0152	0.0000	0.0152	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0110	0.2626	0.2038	3.0000e-004		1.2300e-003	1.2300e-003		1.2300e-003	1.2300e-003	0.0000	28.3859	28.3859	8.4700e-003	0.0000	28.5639
Total	0.0110	0.2626	0.2038	3.0000e-004	0.0299	1.2300e-003	0.0311	0.0152	1.2300e-003	0.0164	0.0000	28.3859	28.3859	8.4700e-003	0.0000	28.5639

3.4 Grading - 2015**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	0.0230	0.3245	0.2335	7.0000e-004	0.0158	4.8400e-003	0.0207	4.3500e-003	4.4500e-003	8.8000e-003	0.0000	64.9807	64.9807	5.5000e-004	0.0000	64.9921
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	6.2000e-004	8.8000e-004	8.5300e-003	2.0000e-005	1.3700e-003	1.0000e-005	1.3800e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.2465	1.2465	7.0000e-005	0.0000	1.2479
Total	0.0236	0.3254	0.2420	7.2000e-004	0.0172	4.8500e-003	0.0221	4.7100e-003	4.4600e-003	9.1700e-003	0.0000	66.2271	66.2271	6.2000e-004	0.0000	66.2401

3.5 Building Construction - 2015**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	0.2854	2.3423	1.4621	2.0900e-003		0.1651	0.1651		0.1553	0.1553	0.0000	190.3156	190.3156	0.0478	0.0000	191.3183
Total	0.2854	2.3423	1.4621	2.0900e-003		0.1651	0.1651		0.1553	0.1553	0.0000	190.3156	190.3156	0.0478	0.0000	191.3183

3.5 Building Construction - 2015

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	0.0340	0.2956	0.3701	6.1000e-004	0.0166	4.8100e-003	0.0214	4.7700e-003	4.4200e-003	9.1900e-003	0.0000	56.3117	56.3117	5.1000e-004	0.0000	56.3223
Worker	0.0495	0.0698	0.6784	1.2600e-003	0.1087	9.2000e-004	0.1096	0.0289	8.4000e-004	0.0297	0.0000	99.1679	99.1679	5.6200e-003	0.0000	99.2859
Total	0.0835	0.3654	1.0485	1.8700e-003	0.1253	5.7300e-003	0.1310	0.0337	5.2600e-003	0.0389	0.0000	155.4796	155.4796	6.1300e-003	0.0000	155.6082

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	0.0841	1.8300	1.3896	2.0900e-003		0.0106	0.0106		0.0106	0.0106	0.0000	190.3154	190.3154	0.0478	0.0000	191.3181
Total	0.0841	1.8300	1.3896	2.0900e-003		0.0106	0.0106		0.0106	0.0106	0.0000	190.3154	190.3154	0.0478	0.0000	191.3181

3.5 Building Construction - 2015**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	0.0340	0.2956	0.3701	6.1000e-004	0.0166	4.8100e-003	0.0214	4.7700e-003	4.4200e-003	9.1900e-003	0.0000	56.3117	56.3117	5.1000e-004	0.0000	56.3223
Worker	0.0495	0.0698	0.6784	1.2600e-003	0.1087	9.2000e-004	0.1096	0.0289	8.4000e-004	0.0297	0.0000	99.1679	99.1679	5.6200e-003	0.0000	99.2859
Total	0.0835	0.3654	1.0485	1.8700e-003	0.1253	5.7300e-003	0.1310	0.0337	5.2600e-003	0.0389	0.0000	155.4796	155.4796	6.1300e-003	0.0000	155.6082

3.5 Building Construction - 2016**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	0.3764	3.1500	2.0450	2.9600e-003		0.2174	0.2174		0.2043	0.2043	0.0000	267.5797	267.5797	0.0664	0.0000	268.9734
Total	0.3764	3.1500	2.0450	2.9600e-003		0.2174	0.2174		0.2043	0.2043	0.0000	267.5797	267.5797	0.0664	0.0000	268.9734

3.5 Building Construction - 2016

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	0.0433	0.3641	0.4930	8.7000e-004	0.0236	5.4600e-003	0.0290	6.7500e-003	5.0200e-003	0.0118	0.0000	78.8576	78.8576	6.3000e-004	0.0000	78.8709
Worker	0.0629	0.0885	0.8595	1.7800e-003	0.1539	1.2300e-003	0.1552	0.0409	1.1300e-003	0.0421	0.0000	135.6298	135.6298	7.2500e-003	0.0000	135.7820
Total	0.1062	0.4526	1.3526	2.6500e-003	0.1775	6.6900e-003	0.1842	0.0477	6.1500e-003	0.0538	0.0000	214.4874	214.4874	7.8800e-003	0.0000	214.6529

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	0.1191	2.5925	1.9686	2.9600e-003		0.0149	0.0149		0.0149	0.0149	0.0000	267.5794	267.5794	0.0664	0.0000	268.9731
Total	0.1191	2.5925	1.9686	2.9600e-003		0.0149	0.0149		0.0149	0.0149	0.0000	267.5794	267.5794	0.0664	0.0000	268.9731

3.5 Building Construction - 2016

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	0.0433	0.3641	0.4930	8.7000e-004	0.0236	5.4600e-003	0.0290	6.7500e-003	5.0200e-003	0.0118	0.0000	78.8576	78.8576	6.3000e-004	0.0000	78.8709
Worker	0.0629	0.0885	0.8595	1.7800e-003	0.1539	1.2300e-003	0.1552	0.0409	1.1300e-003	0.0421	0.0000	135.6298	135.6298	7.2500e-003	0.0000	135.7820
Total	0.1062	0.4526	1.3526	2.6500e-003	0.1775	6.6900e-003	0.1842	0.0477	6.1500e-003	0.0538	0.0000	214.4874	214.4874	7.8800e-003	0.0000	214.6529

3.6 Paving - 2016

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	0.0209	0.2239	0.1482	2.2000e-004		0.0126	0.0126		0.0116	0.0116	0.0000	21.0138	21.0138	6.3400e-003	0.0000	21.1469
Paving	9.4000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0218	0.2239	0.1482	2.2000e-004		0.0126	0.0126		0.0116	0.0116	0.0000	21.0138	21.0138	6.3400e-003	0.0000	21.1469

3.6 Paving - 2016

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	5.6000e-004	7.8000e-004	7.6300e-003	2.0000e-005	1.3700e-003	1.0000e-005	1.3800e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.2034	1.2034	6.0000e-005	0.0000	1.2047
Total	5.6000e-004	7.8000e-004	7.6300e-003	2.0000e-005	1.3700e-003	1.0000e-005	1.3800e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.2034	1.2034	6.0000e-005	0.0000	1.2047

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	9.1200e-003	0.1970	0.1693	2.2000e-004		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	21.0138	21.0138	6.3400e-003	0.0000	21.1469
Paving	9.4000e-004					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	0.0101	0.1970	0.1693	2.2000e-004		9.8000e-004	9.8000e-004		9.8000e-004	9.8000e-004	0.0000	21.0138	21.0138	6.3400e-003	0.0000	21.1469

3.6 Paving - 2016

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	5.6000e-004	7.8000e-004	7.6300e-003	2.0000e-005	1.3700e-003	1.0000e-005	1.3800e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.2034	1.2034	6.0000e-005	0.0000	1.2047
Total	5.6000e-004	7.8000e-004	7.6300e-003	2.0000e-005	1.3700e-003	1.0000e-005	1.3800e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.2034	1.2034	6.0000e-005	0.0000	1.2047

3.7 Architectural Coating - 2016

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	2.2730					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6800e-003	0.0237	0.0188	3.0000e-005		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	2.5533	2.5533	3.0000e-004	0.0000	2.5596
Total	2.2766	0.0237	0.0188	3.0000e-005		1.9700e-003	1.9700e-003		1.9700e-003	1.9700e-003	0.0000	2.5533	2.5533	3.0000e-004	0.0000	2.5596

3.7 Architectural Coating - 2016

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	1.1500e-003	1.6200e-003	0.0158	3.0000e-005	2.8200e-003	2.0000e-005	2.8400e-003	7.5000e-004	2.0000e-005	7.7000e-004	0.0000	2.4869	2.4869	1.3000e-004	0.0000	2.4897
Total	1.1500e-003	1.6200e-003	0.0158	3.0000e-005	2.8200e-003	2.0000e-005	2.8400e-003	7.5000e-004	2.0000e-005	7.7000e-004	0.0000	2.4869	2.4869	1.3000e-004	0.0000	2.4897

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	2.2730					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.1400e-003	0.0235	0.0183	3.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	2.5533	2.5533	3.0000e-004	0.0000	2.5596
Total	2.2741	0.0235	0.0183	3.0000e-005		1.4000e-004	1.4000e-004		1.4000e-004	1.4000e-004	0.0000	2.5533	2.5533	3.0000e-004	0.0000	2.5596

3.7 Architectural Coating - 2016

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	1.1500e-003	1.6200e-003	0.0158	3.0000e-005	2.8200e-003	2.0000e-005	2.8400e-003	7.5000e-004	2.0000e-005	7.7000e-004	0.0000	2.4869	2.4869	1.3000e-004	0.0000	2.4897
Total	1.1500e-003	1.6200e-003	0.0158	3.0000e-005	2.8200e-003	2.0000e-005	2.8400e-003	7.5000e-004	2.0000e-005	7.7000e-004	0.0000	2.4869	2.4869	1.3000e-004	0.0000	2.4897

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

	ROG	NOx	CO	SO2	Fugitive 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	0.5660	1.0802	5.1341	0.0100	0.7166	0.0136	0.7302	0.1916	0.0125	0.2041	0.0000	766.9306	766.9306	0.0323	0.0000	767.6089
Unmitigated	0.5935	1.2629	5.7996	0.0121	0.8727	0.0162	0.8889	0.2333	0.0149	0.2482	0.0000	926.2995	926.2995	0.0382	0.0000	927.1023

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	784.21	852.04	722.33	1,752,541	1,439,029
Condo/Townhouse	210.88	229.12	194.24	471,272	386,966
Enclosed Parking Structure	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Single Family Housing	57.42	60.48	52.62	127,628	104,796
Total	1,052.51	1,141.64	969.19	2,351,440	1,930,791

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
Apartments Mid Rise	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Condo/Townhouse	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Single Family Housing	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.551854	0.058218	0.185395	0.123453	0.029544	0.004438	0.012761	0.022956	0.001780	0.001269	0.006045	0.000523	0.001763

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive 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	302.1195	302.1195	0.0137	2.8300e-003	303.2826
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	310.8030	310.8030	0.0141	2.9100e-003	311.9995
NaturalGas Mitigated	8.9300e-003	0.0763	0.0325	4.9000e-004		6.1700e-003	6.1700e-003		6.1700e-003	6.1700e-003	0.0000	88.3434	88.3434	1.6900e-003	1.6200e-003	88.8810
NaturalGas Unmitigated	9.7200e-003	0.0830	0.0353	5.3000e-004		6.7100e-003	6.7100e-003		6.7100e-003	6.7100e-003	0.0000	96.1654	96.1654	1.8400e-003	1.7600e-003	96.7507

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					
Condo/Townhouse	623188	3.3600e-003	0.0287	0.0122	1.8000e-004		2.3200e-003	2.3200e-003		2.3200e-003	2.3200e-003	0.0000	33.2557	33.2557	6.4000e-004	6.1000e-004	33.4581
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	211698	1.1400e-003	9.7500e-003	4.1500e-003	6.0000e-005		7.9000e-004	7.9000e-004		7.9000e-004	7.9000e-004	0.0000	11.2970	11.2970	2.2000e-004	2.1000e-004	11.3658
Apartments Mid Rise	967187	5.2200e-003	0.0446	0.0190	2.8000e-004		3.6000e-003	3.6000e-003		3.6000e-003	3.6000e-003	0.0000	51.6128	51.6128	9.9000e-004	9.5000e-004	51.9269
Total		9.7200e-003	0.0830	0.0353	5.2000e-004		6.7100e-003	6.7100e-003		6.7100e-003	6.7100e-003	0.0000	96.1654	96.1654	1.8500e-003	1.7700e-003	96.7507

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Land Use	kBTU/yr	tons/yr										MT/yr						
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	194054	1.0500e-003	8.9400e-003	3.8000e-003	6.0000e-005		7.2000e-004	7.2000e-004		7.2000e-004	7.2000e-004	0.0000	10.3555	10.3555	2.0000e-004	1.9000e-004	10.4185	
Apartments Mid Rise	891126	4.8100e-003	0.0411	0.0175	2.6000e-004		3.3200e-003	3.3200e-003		3.3200e-003	3.3200e-003	0.0000	47.5539	47.5539	9.1000e-004	8.7000e-004	47.8433	
Condo/Townhouse	570312	3.0800e-003	0.0263	0.0112	1.7000e-004		2.1200e-003	2.1200e-003		2.1200e-003	2.1200e-003	0.0000	30.4340	30.4340	5.8000e-004	5.6000e-004	30.6192	
Total		8.9400e-003	0.0763	0.0325	4.9000e-004		6.1600e-003	6.1600e-003		6.1600e-003	6.1600e-003	0.0000	88.3434	88.3434	1.6900e-003	1.6200e-003	88.8810	

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	419661	122.0841	5.5200e-003	1.1400e-003	122.5541
Condo/Townhouse	137958	40.1337	1.8100e-003	3.8000e-004	40.2882
Enclosed Parking Structure	440160	128.0476	5.7900e-003	1.2000e-003	128.5405
Parking Lot	28160	8.1921	3.7000e-004	8.0000e-005	8.2236
Single Family Housing	42437.6	12.3456	5.6000e-004	1.2000e-004	12.3931
Total		310.8030	0.0141	2.9200e-003	311.9995

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	416964	121.2997	5.4800e-003	1.1300e-003	121.7667
Condo/Townhouse	137369	39.9622	1.8100e-003	3.7000e-004	40.1160
Enclosed Parking Structure	413818	120.3843	5.4400e-003	1.1300e-003	120.8477
Parking Lot	28160	8.1921	3.7000e-004	8.0000e-005	8.2236
Single Family Housing	42216.5	12.2813	5.6000e-004	1.1000e-004	12.3285
Total		302.1195	0.0137	2.8200e-003	303.2826

6.0 Area Detail

6.1 Mitigation Measures Area

Use Low VOC Paint - Residential Interior

Use Low VOC Paint - Residential Exterior

Use Low VOC Paint - Non-Residential Interior

Use Low VOC Paint - Non-Residential Exterior

Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive 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	1.7160	0.0138	1.1798	6.0000e-005		6.7800e-003	6.7800e-003		6.7800e-003	6.7800e-003	0.0000	7.3406	7.3406	2.0300e-003	1.0000e-004	7.4140
Unmitigated	1.8679	0.0164	1.4019	2.6000e-004		0.0387	0.0387		0.0387	0.0387	3.3078	6.1339	9.4418	8.3300e-003	2.5000e-004	9.6941

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	0.2273					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4513					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.1524	2.6600e-003	0.2221	2.0000e-004		0.0323	0.0323		0.0323	0.0323	3.3078	4.2253	7.5331	6.4000e-003	2.5000e-004	7.7451
Landscaping	0.0369	0.0138	1.1798	6.0000e-005		6.4000e-003	6.4000e-003		6.4000e-003	6.4000e-003	0.0000	1.9087	1.9087	1.9200e-003	0.0000	1.9491
Total	1.8679	0.0164	1.4019	2.6000e-004		0.0387	0.0387		0.0387	0.0387	3.3078	6.1339	9.4418	8.3200e-003	2.5000e-004	9.6941

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	0.2273					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	1.4513					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	5.5000e-004	0.0000	3.0000e-005	0.0000		3.8000e-004	3.8000e-004		3.8000e-004	3.8000e-004	0.0000	5.4319	5.4319	1.0000e-004	1.0000e-004	5.4650
Landscaping	0.0369	0.0138	1.1798	6.0000e-005		6.4000e-003	6.4000e-003		6.4000e-003	6.4000e-003	0.0000	1.9087	1.9087	1.9200e-003	0.0000	1.9491
Total	1.7160	0.0138	1.1798	6.0000e-005		6.7800e-003	6.7800e-003		6.7800e-003	6.7800e-003	0.0000	7.3406	7.3406	2.0200e-003	1.0000e-004	7.4140

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	25.9134	0.3343	8.0700e-003	35.4349
Unmitigated	25.9134	0.3343	8.0800e-003	35.4401

7.2 Water by Land Use

Unmitigated

	Indoor/ Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	7.75333 / 4.88797	19.6413	0.2534	6.1300e- 003	26.8623
Condo/ Townhouse	2.08493 / 1.31441	5.2817	0.0682	1.6500e- 003	7.2235
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.390924 / 0.246452	0.9903	0.0128	3.1000e- 004	1.3544
Total		25.9134	0.3344	8.0900e- 003	35.4401

7.2 Water by Land Use

Mitigated

	Indoor/ Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	7.75333 / 4.88797	19.6413	0.2534	6.1200e- 003	26.8583
Condo/ Townhouse	2.08493 / 1.31441	5.2817	0.0681	1.6400e- 003	7.2224
Enclosed Parking Structure	0 / 0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0 / 0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.390924 / 0.246452	0.9903	0.0128	3.1000e- 004	1.3542
Total		25.9134	0.3343	8.0700e- 003	35.4349

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	15.3786	0.9089	0.0000	34.4644
Unmitigated	15.3786	0.9089	0.0000	34.4644

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	54.74	11.1117	0.6567	0.0000	24.9021
Condo/Townhouse	14.72	2.9880	0.1766	0.0000	6.6964
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	6.3	1.2788	0.0756	0.0000	2.8660
Total		15.3786	0.9089	0.0000	34.4644

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	54.74	11.1117	0.6567	0.0000	24.9021
Condo/Townhouse	14.72	2.9880	0.1766	0.0000	6.6964
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000
Single Family Housing	6.3	1.2788	0.0756	0.0000	2.8660
Total		15.3786	0.9089	0.0000	34.4644

9.0 Operational Offroad

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

Campbell Residences at Railway Santa Clara County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	168.00	Space	1.51	67,200.00	0
Parking Lot	80.00	Space	0.72	32,000.00	0
Apartments Mid Rise	119.00	Dwelling Unit	3.13	203,000.00	260
Condo/Townhouse	32.00	Dwelling Unit	2.00	58,000.00	65
Single Family Housing	6.00	Dwelling Unit	1.95	11,400.00	15

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2017
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Response to Data Request dated January 26, 2015

Construction Phase - Response to Data Request dated January 26, 2015

Demolition -

Grading -

Architectural Coating - Super Low VOC Content

Construction Off-road Equipment Mitigation - BAAQMD Enhanced Mitigation Measures

Mobile Land Use Mitigation -

Area Mitigation - Response to Data Request dated January 26, 2015

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	230.00	377.00
tblConstructionPhase	NumDays	20.00	11.00
tblConstructionPhase	PhaseEndDate	12/30/2016	12/31/2016
tblConstructionPhase	PhaseEndDate	11/4/2016	11/6/2016
tblConstructionPhase	PhaseEndDate	12/2/2016	12/4/2016

tblGrading	MaterialExported	0.00	15,000.00
tblLandUse	LandUseSquareFeet	119,000.00	203,000.00
tblLandUse	LandUseSquareFeet	32,000.00	58,000.00
tblLandUse	LandUseSquareFeet	10,800.00	11,400.00
tblLandUse	Population	340.00	260.00
tblLandUse	Population	92.00	65.00
tblLandUse	Population	17.00	15.00
tblProjectCharacteristics	OperationalYear	2014	2017

2.0 Emissions Summary

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	73.5860	1.0208	91.8675	0.0319		11.2426	11.2426		11.2412	11.2412	1,161.3727	2,156.7299	3,318.1027	1.1396	0.1213	3,379.6353
Energy	0.0532	0.4550	0.1936	2.9000e-003		0.0368	0.0368		0.0368	0.0368		580.8451	580.8451	0.0111	0.0107	584.3801
Mobile	3.6649	7.0671	33.8099	0.0764	5.3809	0.0963	5.4772	1.4346	0.0887	1.5232		6,437.2047	6,437.2047	0.2511		6,442.4784
Total	77.3042	8.5430	125.8710	0.1112	5.3809	11.3757	16.7566	1.4346	11.3667	12.8012	1,161.3727	9,174.7797	10,336.1525	1.4019	0.1319	10,406.4937

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	9.8571	0.1528	13.1226	6.9000e-004		0.2436	0.2436		0.2417	0.2417	0.0000	2,745.7182	2,745.7182	0.0757	0.0499	2,762.7806
Energy	0.0489	0.4180	0.1779	2.6700e-003		0.0338	0.0338		0.0338	0.0338		533.5995	533.5995	0.0102	9.7800e-003	536.8469
Mobile	3.4967	6.0488	29.3561	0.0632	4.4183	0.0807	4.4990	1.1779	0.0743	1.2522		5,327.8812	5,327.8812	0.2122		5,332.3375
Total	13.4027	6.6195	42.6565	0.0666	4.4183	0.3581	4.7764	1.1779	0.3498	1.5278	0.0000	8,607.1988	8,607.1988	0.2982	0.0597	8,631.9650

	ROG	NOx	CO	SO2	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	82.66	22.51	66.11	40.08	17.89	96.85	71.50	17.89	96.92	88.07	100.00	6.19	16.73	78.73	54.76	17.05

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2015	4/15/2015	5	11	
2	Site Preparation	Site Preparation	4/16/2015	4/29/2015	5	10	
3	Grading	Grading	4/30/2015	5/27/2015	5	20	
4	Building Construction	Building Construction	5/28/2015	11/6/2016	5	377	
5	Paving	Paving	11/7/2016	12/4/2016	5	20	
6	Architectural Coating	Architectural Coating	12/5/2016	12/31/2016	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 551,610; Residential Outdoor: 183,870; Non-Residential Indoor: 102,240; Non-Residential Outdoor: 34,080 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	224.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	1,875.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	153.00	33.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	31.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2015

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					4.4028	0.0000	4.4028	0.6666	0.0000	0.6666			0.0000			0.0000
Off-Road	4.5083	48.3629	36.0738	0.0399		2.4508	2.4508		2.2858	2.2858		4,127.1934	4,127.1934	1.1188		4,150.6886
Total	4.5083	48.3629	36.0738	0.0399	4.4028	2.4508	6.8536	0.6666	2.2858	2.9524		4,127.1934	4,127.1934	1.1188		4,150.6886

3.2 Demolition - 2015

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	0.4664	6.7983	4.3766	0.0153	0.3547	0.1049	0.4596	0.0971	0.0965	0.1936		1,557.3904	1,557.3904	0.0130		1,557.6641
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0667	0.0782	0.9138	1.7000e-003	0.1415	1.1600e-003	0.1426	0.0375	1.0600e-003	0.0386		147.5966	147.5966	7.7900e-003		147.7601
Total	0.5331	6.8765	5.2904	0.0170	0.4961	0.1061	0.6022	0.1346	0.0976	0.2322		1,704.9870	1,704.9870	0.0208		1,705.4242

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					1.9812	0.0000	1.9812	0.3000	0.0000	0.3000			0.0000			0.0000
Off-Road	1.2905	33.4676	25.2649	0.0399		0.1401	0.1401		0.1401	0.1401	0.0000	4,127.1934	4,127.1934	1.1188		4,150.6886
Total	1.2905	33.4676	25.2649	0.0399	1.9812	0.1401	2.1213	0.3000	0.1401	0.4401	0.0000	4,127.1934	4,127.1934	1.1188		4,150.6886

3.2 Demolition - 2015

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	0.4664	6.7983	4.3766	0.0153	0.3547	0.1049	0.4596	0.0971	0.0965	0.1936		1,557.3904	1,557.3904	0.0130		1,557.6641
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0667	0.0782	0.9138	1.7000e-003	0.1415	1.1600e-003	0.1426	0.0375	1.0600e-003	0.0386		147.5966	147.5966	7.7900e-003		147.7601
Total	0.5331	6.8765	5.2904	0.0170	0.4961	0.1061	0.6022	0.1346	0.0976	0.2322		1,704.9870	1,704.9870	0.0208		1,705.4242

3.3 Site Preparation - 2015

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					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	5.2609	56.8897	42.6318	0.0391		3.0883	3.0883		2.8412	2.8412		4,111.7444	4,111.7444	1.2275		4,137.5225
Total	5.2609	56.8897	42.6318	0.0391	18.0663	3.0883	21.1545	9.9307	2.8412	12.7719		4,111.7444	4,111.7444	1.2275		4,137.5225

3.3 Site Preparation - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0801	0.0938	1.0966	2.0400e-003	0.1698	1.3900e-003	0.1711	0.0450	1.2700e-003	0.0463		177.1159	177.1159	9.3400e-003		177.3121
Total	0.0801	0.0938	1.0966	2.0400e-003	0.1698	1.3900e-003	0.1711	0.0450	1.2700e-003	0.0463		177.1159	177.1159	9.3400e-003		177.3121

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					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000
Off-Road	1.2300	34.4240	23.4003	0.0391		0.1442	0.1442		0.1442	0.1442	0.0000	4,111.744 4	4,111.744 4	1.2275		4,137.522 4
Total	1.2300	34.4240	23.4003	0.0391	8.1298	0.1442	8.2740	4.4688	0.1442	4.6130	0.0000	4,111.744 4	4,111.744 4	1.2275		4,137.522 4

3.3 Site Preparation - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0801	0.0938	1.0966	2.0400e-003	0.1698	1.3900e-003	0.1711	0.0450	1.2700e-003	0.0463		177.1159	177.1159	9.3400e-003		177.3121
Total	0.0801	0.0938	1.0966	2.0400e-003	0.1698	1.3900e-003	0.1711	0.0450	1.2700e-003	0.0463		177.1159	177.1159	9.3400e-003		177.3121

3.4 Grading - 2015

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					6.6372	0.0000	6.6372	3.3803	0.0000	3.3803			0.0000			0.0000
Off-Road	3.8327	40.4161	26.6731	0.0298		2.3284	2.3284		2.1421	2.1421		3,129.0158	3,129.0158	0.9341		3,148.6328
Total	3.8327	40.4161	26.6731	0.0298	6.6372	2.3284	8.9655	3.3803	2.1421	5.5224		3,129.0158	3,129.0158	0.9341		3,148.6328

3.4 Grading - 2015

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	2.1473	31.2978	20.1489	0.0704	1.6329	0.4831	2.1160	0.4471	0.4443	0.8913		7,169.9057	7,169.9057	0.0600		7,171.1655
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0667	0.0782	0.9138	1.7000e-003	0.1415	1.1600e-003	0.1426	0.0375	1.0600e-003	0.0386		147.5966	147.5966	7.7900e-003		147.7601
Total	2.2140	31.3760	21.0627	0.0721	1.7744	0.4842	2.2586	0.4846	0.4453	0.9299		7,317.5022	7,317.5022	0.0678		7,318.9256

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					2.9867	0.0000	2.9867	1.5212	0.0000	1.5212			0.0000			0.0000
Off-Road	1.0980	26.2602	20.3762	0.0298		0.1234	0.1234		0.1234	0.1234	0.0000	3,129.0158	3,129.0158	0.9341		3,148.6328
Total	1.0980	26.2602	20.3762	0.0298	2.9867	0.1234	3.1102	1.5212	0.1234	1.6446	0.0000	3,129.0158	3,129.0158	0.9341		3,148.6328

3.4 Grading - 2015

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	2.1473	31.2978	20.1489	0.0704	1.6329	0.4831	2.1160	0.4471	0.4443	0.8913		7,169.9057	7,169.9057	0.0600		7,171.1655
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0667	0.0782	0.9138	1.7000e-003	0.1415	1.1600e-003	0.1426	0.0375	1.0600e-003	0.0386		147.5966	147.5966	7.7900e-003		147.7601
Total	2.2140	31.3760	21.0627	0.0721	1.7744	0.4842	2.2586	0.4846	0.4453	0.9299		7,317.5022	7,317.5022	0.0678		7,318.9256

3.5 Building Construction - 2015

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	3.6591	30.0299	18.7446	0.0268		2.1167	2.1167		1.9904	1.9904		2,689.5771	2,689.5771	0.6748		2,703.7483
Total	3.6591	30.0299	18.7446	0.0268		2.1167	2.1167		1.9904	1.9904		2,689.5771	2,689.5771	0.6748		2,703.7483

3.5 Building Construction - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.3959	3.6672	3.8999	7.8800e-003	0.2195	0.0614	0.2808	0.0627	0.0564	0.1191		798.3587	798.3587	7.0900e-003			798.5075
Worker	0.6805	0.7976	9.3207	0.0174	1.4428	0.0118	1.4546	0.3827	0.0108	0.3935		1,505.4851	1,505.4851	0.0794			1,507.1529
Total	1.0765	4.4647	13.2206	0.0252	1.6623	0.0732	1.7355	0.4454	0.0672	0.5126		2,303.8438	2,303.8438	0.0865			2,305.6605

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	1.0782	23.4615	17.8156	0.0268		0.1352	0.1352		0.1352	0.1352	0.0000	2,689.5771	2,689.5771	0.6748			2,703.7483
Total	1.0782	23.4615	17.8156	0.0268		0.1352	0.1352		0.1352	0.1352	0.0000	2,689.5771	2,689.5771	0.6748			2,703.7483

3.5 Building Construction - 2015**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.3959	3.6672	3.8999	7.8800e-003	0.2195	0.0614	0.2808	0.0627	0.0564	0.1191		798.3587	798.3587	7.0900e-003		798.5075
Worker	0.6805	0.7976	9.3207	0.0174	1.4428	0.0118	1.4546	0.3827	0.0108	0.3935		1,505.4851	1,505.4851	0.0794		1,507.1529
Total	1.0765	4.4647	13.2206	0.0252	1.6623	0.0732	1.7355	0.4454	0.0672	0.5126		2,303.8438	2,303.8438	0.0865		2,305.6605

3.5 Building Construction - 2016**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	3.4062	28.5063	18.5066	0.0268		1.9674	1.9674		1.8485	1.8485		2,669.2864	2,669.2864	0.6620		2,683.1890
Total	3.4062	28.5063	18.5066	0.0268		1.9674	1.9674		1.8485	1.8485		2,669.2864	2,669.2864	0.6620		2,683.1890

3.5 Building Construction - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.3553	3.1900	3.6202	7.8700e-003	0.2195	0.0492	0.2686	0.0627	0.0452	0.1079		789.1921	789.1921	6.2600e-003			789.3236
Worker	0.6139	0.7140	8.3667	0.0174	1.4428	0.0111	1.4540	0.3827	0.0102	0.3929		1,453.5683	1,453.5683	0.0723			1,455.0866
Total	0.9692	3.9040	11.9870	0.0252	1.6623	0.0603	1.7226	0.4454	0.0554	0.5008		2,242.7604	2,242.7604	0.0786			2,244.4102

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	1.0782	23.4615	17.8156	0.0268		0.1352	0.1352		0.1352	0.1352	0.0000	2,669.2864	2,669.2864	0.6620			2,683.1890
Total	1.0782	23.4615	17.8156	0.0268		0.1352	0.1352		0.1352	0.1352	0.0000	2,669.2864	2,669.2864	0.6620			2,683.1890

3.5 Building Construction - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.3553	3.1900	3.6202	7.8700e-003	0.2195	0.0492	0.2686	0.0627	0.0452	0.1079		789.1921	789.1921	6.2600e-003			789.3236
Worker	0.6139	0.7140	8.3667	0.0174	1.4428	0.0111	1.4540	0.3827	0.0102	0.3929		1,453.5683	1,453.5683	0.0723			1,455.0866
Total	0.9692	3.9040	11.9870	0.0252	1.6623	0.0603	1.7226	0.4454	0.0554	0.5008		2,242.7604	2,242.7604	0.0786			2,244.4102

3.6 Paving - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Off-Road	2.0898	22.3859	14.8176	0.0223		1.2610	1.2610		1.1601	1.1601		2,316.3767	2,316.3767	0.6987			2,331.0495
Paving	0.0943					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
Total	2.1841	22.3859	14.8176	0.0223		1.2610	1.2610		1.1601	1.1601		2,316.3767	2,316.3767	0.6987			2,331.0495

3.6 Paving - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0602	0.0700	0.8203	1.7000e-003	0.1415	1.0900e-003	0.1425	0.0375	1.0000e-003	0.0385		142.5067	142.5067	7.0900e-003			142.6556
Total	0.0602	0.0700	0.8203	1.7000e-003	0.1415	1.0900e-003	0.1425	0.0375	1.0000e-003	0.0385		142.5067	142.5067	7.0900e-003			142.6556

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Off-Road	0.9122	19.6998	16.9276	0.0223		0.0981	0.0981		0.0981	0.0981	0.0000	2,316.3767	2,316.3767	0.6987			2,331.0495
Paving	0.0943					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
Total	1.0065	19.6998	16.9276	0.0223		0.0981	0.0981		0.0981	0.0981	0.0000	2,316.3767	2,316.3767	0.6987			2,331.0495

3.6 Paving - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0602	0.0700	0.8203	1.7000e-003	0.1415	1.0900e-003	0.1425	0.0375	1.0000e-003	0.0385		142.5067	142.5067	7.0900e-003			142.6556
Total	0.0602	0.0700	0.8203	1.7000e-003	0.1415	1.0900e-003	0.1425	0.0375	1.0000e-003	0.0385		142.5067	142.5067	7.0900e-003			142.6556

3.7 Architectural Coating - 2016

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	227.2946					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
Off-Road	0.3685	2.3722	1.8839	2.9700e-003		0.1966	0.1966		0.1966	0.1966		281.4481	281.4481	0.0332			282.1449
Total	227.6631	2.3722	1.8839	2.9700e-003		0.1966	0.1966		0.1966	0.1966		281.4481	281.4481	0.0332			282.1449

3.7 Architectural Coating - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.1244	0.1447	1.6952	3.5100e-003	0.2923	2.2500e-003	0.2946	0.0775	2.0700e-003	0.0796		294.5138	294.5138	0.0147			294.8215
Total	0.1244	0.1447	1.6952	3.5100e-003	0.2923	2.2500e-003	0.2946	0.0775	2.0700e-003	0.0796		294.5138	294.5138	0.0147			294.8215

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	227.2946					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
Off-Road	0.1139	2.3524	1.8324	2.9700e-003		0.0143	0.0143		0.0143	0.0143	0.0000	281.4481	281.4481	0.0332			282.1449
Total	227.4085	2.3524	1.8324	2.9700e-003		0.0143	0.0143		0.0143	0.0143	0.0000	281.4481	281.4481	0.0332			282.1449

3.7 Architectural Coating - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.1244	0.1447	1.6952	3.5100e-003	0.2923	2.2500e-003	0.2946	0.0775	2.0700e-003	0.0796		294.5138	294.5138	0.0147			294.8215
Total	0.1244	0.1447	1.6952	3.5100e-003	0.2923	2.2500e-003	0.2946	0.0775	2.0700e-003	0.0796		294.5138	294.5138	0.0147			294.8215

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.4967	6.0488	29.3561	0.0632	4.4183	0.0807	4.4990	1.1779	0.0743	1.2522		5,327.881 2	5,327.881 2	0.2122		5,332.337 5
Unmitigated	3.6649	7.0671	33.8099	0.0764	5.3809	0.0963	5.4772	1.4346	0.0887	1.5232		6,437.204 7	6,437.204 7	0.2511		6,442.478 4

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	784.21	852.04	722.33	1,752,541	1,439,029
Condo/Townhouse	210.88	229.12	194.24	471,272	386,966
Enclosed Parking Structure	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Single Family Housing	57.42	60.48	52.62	127,628	104,796
Total	1,052.51	1,141.64	969.19	2,351,440	1,930,791

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
Apartments Mid Rise	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Condo/Townhouse	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Single Family Housing	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.551854	0.058218	0.185395	0.123453	0.029544	0.004438	0.012761	0.022956	0.001780	0.001269	0.006045	0.000523	0.001763

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive 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	0.0489	0.4180	0.1779	2.6700e-003		0.0338	0.0338		0.0338	0.0338		533.5995	533.5995	0.0102	9.7800e-003	536.8469
NaturalGas Unmitigated	0.0532	0.4550	0.1936	2.9000e-003		0.0368	0.0368		0.0368	0.0368		580.8451	580.8451	0.0111	0.0107	584.3801

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						
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	579.994	6.2500e-003	0.0535	0.0227	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003		68.2346	68.2346	1.3100e-003	1.2500e-003	68.6498	
Apartments Mid Rise	2649.83	0.0286	0.2442	0.1039	1.5600e-003		0.0197	0.0197		0.0197	0.0197		311.7443	311.7443	5.9800e-003	5.7200e-003	313.6416	
Condo/Townhouse	1707.36	0.0184	0.1574	0.0670	1.0000e-003		0.0127	0.0127		0.0127	0.0127		200.8662	200.8662	3.8500e-003	3.6800e-003	202.0887	
Total		0.0532	0.4550	0.1936	2.9000e-003		0.0368	0.0368		0.0368	0.0368		580.8451	580.8451	0.0111	0.0107	584.3801	

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.531655	5.7300e-003	0.0490	0.0209	3.1000e-004		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003		62.5477	62.5477	1.2000e-003	1.1500e-003	62.9283
Apartments Mid Rise	2.44144	0.0263	0.2250	0.0957	1.4400e-003		0.0182	0.0182		0.0182	0.0182		287.2285	287.2285	5.5100e-003	5.2700e-003	288.9765
Condo/Townhouse	1.5625	0.0169	0.1440	0.0613	9.2000e-004		0.0116	0.0116		0.0116	0.0116		183.8234	183.8234	3.5200e-003	3.3700e-003	184.9421
Total		0.0489	0.4180	0.1779	2.6700e-003		0.0338	0.0338		0.0338	0.0338		533.5995	533.5995	0.0102	9.7900e-003	536.8469

6.0 Area Detail

6.1 Mitigation Measures Area

- Use Low VOC Paint - Residential Interior
- Use Low VOC Paint - Residential Exterior
- Use Low VOC Paint - Non-Residential Interior
- Use Low VOC Paint - Non-Residential Exterior
- Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive 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	9.8571	0.1528	13.1226	6.9000e-004		0.2436	0.2436		0.2417	0.2417	0.0000	2,745.7182	2,745.7182	0.0757	0.0499	2,762.7806
Unmitigated	73.5860	1.0208	91.8675	0.0319		11.2426	11.2426		11.2412	11.2412	1,161.3727	2,156.7299	3,318.1027	1.1396	0.1213	3,379.6353

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	1.2455					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.9522					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	63.9785	0.8681	78.7586	0.0312		11.1715	11.1715		11.1701	11.1701	1,161.3727	2,133.3529	3,294.7257	1.1161	0.1213	3,355.7635
Landscaping	0.4098	0.1528	13.1090	6.9000e-004		0.0711	0.0711		0.0711	0.0711		23.3770	23.3770	0.0236		23.8717
Total	73.5860	1.0208	91.8675	0.0319		11.2426	11.2426		11.2412	11.2412	1,161.3727	2,156.7299	3,318.1027	1.1396	0.1213	3,379.6352

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	1.2455					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.9522					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2496	1.0000e-005	0.0136	0.0000		0.1724	0.1724		0.1706	0.1706	0.0000	2,722.3412	2,722.3412	0.0522	0.0499	2,738.9089
Landscaping	0.4098	0.1528	13.1090	6.9000e-004		0.0711	0.0711		0.0711	0.0711		23.3770	23.3770	0.0236		23.8717
Total	9.8571	0.1528	13.1226	6.9000e-004		0.2435	0.2435		0.2417	0.2417	0.0000	2,745.7182	2,745.7182	0.0757	0.0499	2,762.7806

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

Campbell Residences at Railway Santa Clara County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking Structure	168.00	Space	1.51	67,200.00	0
Parking Lot	80.00	Space	0.72	32,000.00	0
Apartments Mid Rise	119.00	Dwelling Unit	3.13	203,000.00	260
Condo/Townhouse	32.00	Dwelling Unit	2.00	58,000.00	65
Single Family Housing	6.00	Dwelling Unit	1.95	11,400.00	15

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	2.2	Precipitation Freq (Days)	58
Climate Zone	4			Operational Year	2017
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MW hr)	641.35	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Response to Data Request dated January 26, 2015

Construction Phase - Response to Data Request dated January 26, 2015

Demolition -

Grading -

Architectural Coating - Super Low VOC Content

Construction Off-road Equipment Mitigation - BAAQMD Enhanced Mitigation Measures

Mobile Land Use Mitigation -

Area Mitigation - Response to Data Request dated January 26, 2015

Energy Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
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tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	DPF	No Change	Level 3
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00

tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	4.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	3.00
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tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	2.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	6.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	10.00
tblConstEquipMitigation	NumberOfEquipmentMitigated	0.00	1.00
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
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tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstEquipMitigation	Tier	No Change	Tier 2
tblConstructionPhase	NumDays	230.00	377.00
tblConstructionPhase	NumDays	20.00	11.00
tblConstructionPhase	PhaseEndDate	12/30/2016	12/31/2016
tblConstructionPhase	PhaseEndDate	11/4/2016	11/6/2016
tblConstructionPhase	PhaseEndDate	12/2/2016	12/4/2016

tblGrading	MaterialExported	0.00	15,000.00
tblLandUse	LandUseSquareFeet	119,000.00	203,000.00
tblLandUse	LandUseSquareFeet	32,000.00	58,000.00
tblLandUse	LandUseSquareFeet	10,800.00	11,400.00
tblLandUse	Population	340.00	260.00
tblLandUse	Population	92.00	65.00
tblLandUse	Population	17.00	15.00
tblProjectCharacteristics	OperationalYear	2014	2017

2.0 Emissions Summary

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	73.5860	1.0208	91.8675	0.0319		11.2426	11.2426		11.2412	11.2412	1,161.3727	2,156.7299	3,318.1027	1.1396	0.1213	3,379.6353
Energy	0.0532	0.4550	0.1936	2.9000e-003		0.0368	0.0368		0.0368	0.0368		580.8451	580.8451	0.0111	0.0107	584.3801
Mobile	3.8132	7.8416	37.5469	0.0714	5.3809	0.0969	5.4778	1.4346	0.0891	1.5237		6,026.3060	6,026.3060	0.2514		6,031.5847
Total	77.4525	9.3174	129.6080	0.1062	5.3809	11.3763	16.7572	1.4346	11.3671	12.8017	1,161.3727	8,763.8811	9,925.2538	1.4021	0.1319	9,995.6000

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	9.8571	0.1528	13.1226	6.9000e-004		0.2436	0.2436		0.2417	0.2417	0.0000	2,745.7182	2,745.7182	0.0757	0.0499	2,762.7806
Energy	0.0489	0.4180	0.1779	2.6700e-003		0.0338	0.0338		0.0338	0.0338		533.5995	533.5995	0.0102	9.7800e-003	536.8469
Mobile	3.6482	6.7037	33.5687	0.0592	4.4183	0.0813	4.4996	1.1779	0.0748	1.2527		4,989.1032	4,989.1032	0.2124		4,993.5644
Total	13.5542	7.2745	46.8691	0.0625	4.4183	0.3586	4.7769	1.1779	0.3503	1.5282	0.0000	8,268.4208	8,268.4208	0.2984	0.0597	8,293.1919

	ROG	NOx	CO	SO2	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	82.50	21.93	63.84	41.12	17.89	96.85	71.49	17.89	96.92	88.06	100.00	5.65	16.69	78.72	54.76	17.03

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	4/1/2015	4/15/2015	5	11	
2	Site Preparation	Site Preparation	4/16/2015	4/29/2015	5	10	
3	Grading	Grading	4/30/2015	5/27/2015	5	20	
4	Building Construction	Building Construction	5/28/2015	11/6/2016	5	377	
5	Paving	Paving	11/7/2016	12/4/2016	5	20	
6	Architectural Coating	Architectural Coating	12/5/2016	12/31/2016	5	20	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 10

Acres of Paving: 0

Residential Indoor: 551,610; Residential Outdoor: 183,870; Non-Residential Indoor: 102,240; Non-Residential Outdoor: 34,080 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	3	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	4	8.00	97	0.37
Grading	Excavators	1	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	1	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Pavers	2	8.00	125	0.42
Paving	Paving Equipment	2	8.00	130	0.36
Paving	Rollers	2	8.00	80	0.38
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	6	15.00	0.00	224.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	1,875.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	153.00	33.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	31.00	0.00	0.00	12.40	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Use Cleaner Engines for Construction Equipment

Use DPF for Construction Equipment

Water Exposed Area

Clean Paved Roads

3.2 Demolition - 2015

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					4.4028	0.0000	4.4028	0.6666	0.0000	0.6666			0.0000			0.0000
Off-Road	4.5083	48.3629	36.0738	0.0399		2.4508	2.4508		2.2858	2.2858		4,127.1934	4,127.1934	1.1188		4,150.6886
Total	4.5083	48.3629	36.0738	0.0399	4.4028	2.4508	6.8536	0.6666	2.2858	2.9524		4,127.1934	4,127.1934	1.1188		4,150.6886

3.2 Demolition - 2015

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	0.5401	7.1566	5.8017	0.0153	0.3547	0.1054	0.4600	0.0971	0.0969	0.1940		1,553.7630	1,553.7630	0.0132		1,554.0398
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0670	0.0956	0.8828	1.5600e-003	0.1415	1.1600e-003	0.1426	0.0375	1.0600e-003	0.0386		135.7179	135.7179	7.7900e-003		135.8814
Total	0.6072	7.2522	6.6846	0.0169	0.4961	0.1065	0.6027	0.1346	0.0980	0.2326		1,689.4808	1,689.4808	0.0210		1,689.9212

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					1.9812	0.0000	1.9812	0.3000	0.0000	0.3000			0.0000			0.0000
Off-Road	1.2905	33.4676	25.2649	0.0399		0.1401	0.1401		0.1401	0.1401	0.0000	4,127.1934	4,127.1934	1.1188		4,150.6886
Total	1.2905	33.4676	25.2649	0.0399	1.9812	0.1401	2.1213	0.3000	0.1401	0.4401	0.0000	4,127.1934	4,127.1934	1.1188		4,150.6886

3.2 Demolition - 2015

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	0.5401	7.1566	5.8017	0.0153	0.3547	0.1054	0.4600	0.0971	0.0969	0.1940		1,553.7630	1,553.7630	0.0132		1,554.0398
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0670	0.0956	0.8828	1.5600e-003	0.1415	1.1600e-003	0.1426	0.0375	1.0600e-003	0.0386		135.7179	135.7179	7.7900e-003		135.8814
Total	0.6072	7.2522	6.6846	0.0169	0.4961	0.1065	0.6027	0.1346	0.0980	0.2326		1,689.4808	1,689.4808	0.0210		1,689.9212

3.3 Site Preparation - 2015

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					18.0663	0.0000	18.0663	9.9307	0.0000	9.9307			0.0000			0.0000
Off-Road	5.2609	56.8897	42.6318	0.0391		3.0883	3.0883		2.8412	2.8412		4,111.7444	4,111.7444	1.2275		4,137.5225
Total	5.2609	56.8897	42.6318	0.0391	18.0663	3.0883	21.1545	9.9307	2.8412	12.7719		4,111.7444	4,111.7444	1.2275		4,137.5225

3.3 Site Preparation - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0804	0.1147	1.0594	1.8800e-003	0.1698	1.3900e-003	0.1711	0.0450	1.2700e-003	0.0463		162.8614	162.8614	9.3400e-003			163.0577
Total	0.0804	0.1147	1.0594	1.8800e-003	0.1698	1.3900e-003	0.1711	0.0450	1.2700e-003	0.0463		162.8614	162.8614	9.3400e-003			163.0577

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					8.1298	0.0000	8.1298	4.4688	0.0000	4.4688			0.0000			0.0000	
Off-Road	1.2300	34.4240	23.4003	0.0391		0.1442	0.1442		0.1442	0.1442	0.0000	4,111.7444	4,111.7444	1.2275			4,137.5224
Total	1.2300	34.4240	23.4003	0.0391	8.1298	0.1442	8.2740	4.4688	0.1442	4.6130	0.0000	4,111.7444	4,111.7444	1.2275			4,137.5224

3.3 Site Preparation - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0804	0.1147	1.0594	1.8800e-003	0.1698	1.3900e-003	0.1711	0.0450	1.2700e-003	0.0463		162.8614	162.8614	9.3400e-003			163.0577
Total	0.0804	0.1147	1.0594	1.8800e-003	0.1698	1.3900e-003	0.1711	0.0450	1.2700e-003	0.0463		162.8614	162.8614	9.3400e-003			163.0577

3.4 Grading - 2015

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					6.6372	0.0000	6.6372	3.3803	0.0000	3.3803			0.0000			0.0000
Off-Road	3.8327	40.4161	26.6731	0.0298		2.3284	2.3284		2.1421	2.1421		3,129.0158	3,129.0158	0.9341		3,148.6328
Total	3.8327	40.4161	26.6731	0.0298	6.6372	2.3284	8.9655	3.3803	2.1421	5.5224		3,129.0158	3,129.0158	0.9341		3,148.6328

3.4 Grading - 2015

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	2.4866	32.9474	26.7100	0.0704	1.6329	0.4851	2.1179	0.4471	0.4461	0.8931		7,153.2056	7,153.2056	0.0607		7,154.4802
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0670	0.0956	0.8828	1.5600e-003	0.1415	1.1600e-003	0.1426	0.0375	1.0600e-003	0.0386		135.7179	135.7179	7.7900e-003		135.8814
Total	2.5537	33.0430	27.5928	0.0719	1.7744	0.4862	2.2606	0.4846	0.4471	0.9317		7,288.9235	7,288.9235	0.0685		7,290.3616

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					2.9867	0.0000	2.9867	1.5212	0.0000	1.5212			0.0000			0.0000
Off-Road	1.0980	26.2602	20.3762	0.0298		0.1234	0.1234		0.1234	0.1234	0.0000	3,129.0158	3,129.0158	0.9341		3,148.6328
Total	1.0980	26.2602	20.3762	0.0298	2.9867	0.1234	3.1102	1.5212	0.1234	1.6446	0.0000	3,129.0158	3,129.0158	0.9341		3,148.6328

3.4 Grading - 2015

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	2.4866	32.9474	26.7100	0.0704	1.6329	0.4851	2.1179	0.4471	0.4461	0.8931		7,153.2056	7,153.2056	0.0607		7,154.4802
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0670	0.0956	0.8828	1.5600e-003	0.1415	1.1600e-003	0.1426	0.0375	1.0600e-003	0.0386		135.7179	135.7179	7.7900e-003		135.8814
Total	2.5537	33.0430	27.5928	0.0719	1.7744	0.4862	2.2606	0.4846	0.4471	0.9317		7,288.9235	7,288.9235	0.0685		7,290.3616

3.5 Building Construction - 2015

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	3.6591	30.0299	18.7446	0.0268		2.1167	2.1167		1.9904	1.9904		2,689.5771	2,689.5771	0.6748		2,703.7483
Total	3.6591	30.0299	18.7446	0.0268		2.1167	2.1167		1.9904	1.9904		2,689.5771	2,689.5771	0.6748		2,703.7483

3.5 Building Construction - 2015

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.4869	3.8356	5.6197	7.8500e-003	0.2195	0.0621	0.2816	0.0627	0.0571	0.1198		792.2859	792.2859	7.2500e-003			792.4382
Worker	0.6837	0.9751	9.0049	0.0160	1.4428	0.0118	1.4546	0.3827	0.0108	0.3935		1,384.3222	1,384.3222	0.0794			1,385.9900
Total	1.1706	4.8107	14.6245	0.0238	1.6623	0.0739	1.7362	0.4454	0.0679	0.5133		2,176.6081	2,176.6081	0.0867			2,178.4282

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	1.0782	23.4615	17.8156	0.0268		0.1352	0.1352		0.1352	0.1352	0.0000	2,689.5771	2,689.5771	0.6748			2,703.7483
Total	1.0782	23.4615	17.8156	0.0268		0.1352	0.1352		0.1352	0.1352	0.0000	2,689.5771	2,689.5771	0.6748			2,703.7483

3.5 Building Construction - 2015

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.4869	3.8356	5.6197	7.8500e-003	0.2195	0.0621	0.2816	0.0627	0.0571	0.1198		792.2859	792.2859	7.2500e-003			792.4382
Worker	0.6837	0.9751	9.0049	0.0160	1.4428	0.0118	1.4546	0.3827	0.0108	0.3935		1,384.3222	1,384.3222	0.0794			1,385.9900
Total	1.1706	4.8107	14.6245	0.0238	1.6623	0.0739	1.7362	0.4454	0.0679	0.5133		2,176.6081	2,176.6081	0.0867			2,178.4282

3.5 Building Construction - 2016

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	3.4062	28.5063	18.5066	0.0268		1.9674	1.9674		1.8485	1.8485		2,669.2864	2,669.2864	0.6620			2,683.1890
Total	3.4062	28.5063	18.5066	0.0268		1.9674	1.9674		1.8485	1.8485		2,669.2864	2,669.2864	0.6620			2,683.1890

3.5 Building Construction - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.4369	3.3350	5.3223	7.8400e-003	0.2195	0.0497	0.2691	0.0627	0.0457	0.1083		783.1572	783.1572	6.4100e-003			783.2919
Worker	0.6129	0.8730	8.0322	0.0159	1.4428	0.0111	1.4540	0.3827	0.0102	0.3929		1,336.4293	1,336.4293	0.0723			1,337.9476
Total	1.0498	4.2080	13.3545	0.0238	1.6623	0.0608	1.7231	0.4454	0.0559	0.5012		2,119.5865	2,119.5865	0.0787			2,121.2394

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	1.0782	23.4615	17.8156	0.0268		0.1352	0.1352		0.1352	0.1352	0.0000	2,669.2864	2,669.2864	0.6620			2,683.1890
Total	1.0782	23.4615	17.8156	0.0268		0.1352	0.1352		0.1352	0.1352	0.0000	2,669.2864	2,669.2864	0.6620			2,683.1890

3.5 Building Construction - 2016**Mitigated Construction Off-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.4369	3.3350	5.3223	7.8400e-003	0.2195	0.0497	0.2691	0.0627	0.0457	0.1083		783.1572	783.1572	6.4100e-003			783.2919
Worker	0.6129	0.8730	8.0322	0.0159	1.4428	0.0111	1.4540	0.3827	0.0102	0.3929		1,336.4293	1,336.4293	0.0723			1,337.9476
Total	1.0498	4.2080	13.3545	0.0238	1.6623	0.0608	1.7231	0.4454	0.0559	0.5012		2,119.5865	2,119.5865	0.0787			2,121.2394

3.6 Paving - 2016**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Off-Road	2.0898	22.3859	14.8176	0.0223		1.2610	1.2610		1.1601	1.1601		2,316.3767	2,316.3767	0.6987			2,331.0495
Paving	0.0943					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
Total	2.1841	22.3859	14.8176	0.0223		1.2610	1.2610		1.1601	1.1601		2,316.3767	2,316.3767	0.6987			2,331.0495

3.6 Paving - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.0601	0.0856	0.7875	1.5600e-003	0.1415	1.0900e-003	0.1425	0.0375	1.0000e-003	0.0385		131.0225	131.0225	7.0900e-003			131.1713
Total	0.0601	0.0856	0.7875	1.5600e-003	0.1415	1.0900e-003	0.1425	0.0375	1.0000e-003	0.0385		131.0225	131.0225	7.0900e-003			131.1713

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Off-Road	0.9122	19.6998	16.9276	0.0223		0.0981	0.0981		0.0981	0.0981	0.0000	2,316.3767	2,316.3767	0.6987			2,331.0495
Paving	0.0943					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
Total	1.0065	19.6998	16.9276	0.0223		0.0981	0.0981		0.0981	0.0981	0.0000	2,316.3767	2,316.3767	0.6987			2,331.0495

3.6 Paving - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0601	0.0856	0.7875	1.5600e-003	0.1415	1.0900e-003	0.1425	0.0375	1.0000e-003	0.0385		131.0225	131.0225	7.0900e-003		131.1713
Total	0.0601	0.0856	0.7875	1.5600e-003	0.1415	1.0900e-003	0.1425	0.0375	1.0000e-003	0.0385		131.0225	131.0225	7.0900e-003		131.1713

3.7 Architectural Coating - 2016

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	227.2946					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3685	2.3722	1.8839	2.9700e-003		0.1966	0.1966		0.1966	0.1966		281.4481	281.4481	0.0332		282.1449
Total	227.6631	2.3722	1.8839	2.9700e-003		0.1966	0.1966		0.1966	0.1966		281.4481	281.4481	0.0332		282.1449

3.7 Architectural Coating - 2016

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.1242	0.1769	1.6274	3.2300e-003	0.2923	2.2500e-003	0.2946	0.0775	2.0700e-003	0.0796		270.7798	270.7798	0.0147			271.0874
Total	0.1242	0.1769	1.6274	3.2300e-003	0.2923	2.2500e-003	0.2946	0.0775	2.0700e-003	0.0796		270.7798	270.7798	0.0147			271.0874

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	227.2946					0.0000	0.0000		0.0000	0.0000			0.0000				0.0000
Off-Road	0.1139	2.3524	1.8324	2.9700e-003		0.0143	0.0143		0.0143	0.0143	0.0000	281.4481	281.4481	0.0332			282.1449
Total	227.4085	2.3524	1.8324	2.9700e-003		0.0143	0.0143		0.0143	0.0143	0.0000	281.4481	281.4481	0.0332			282.1449

3.7 Architectural Coating - 2016

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e	
Category	lb/day										lb/day						
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000			0.0000
Worker	0.1242	0.1769	1.6274	3.2300e-003	0.2923	2.2500e-003	0.2946	0.0775	2.0700e-003	0.0796		270.7798	270.7798	0.0147			271.0874
Total	0.1242	0.1769	1.6274	3.2300e-003	0.2923	2.2500e-003	0.2946	0.0775	2.0700e-003	0.0796		270.7798	270.7798	0.0147			271.0874

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

Increase Transit Accessibility

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	3.6482	6.7037	33.5687	0.0592	4.4183	0.0813	4.4996	1.1779	0.0748	1.2527		4,989.103 2	4,989.103 2	0.2124		4,993.564 4
Unmitigated	3.8132	7.8416	37.5469	0.0714	5.3809	0.0969	5.4778	1.4346	0.0891	1.5237		6,026.306 0	6,026.306 0	0.2514		6,031.584 7

4.2 Trip Summary Information

Land Use	Average Daily Trip Rate			Unmitigated	Mitigated
	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	784.21	852.04	722.33	1,752,541	1,439,029
Condo/Townhouse	210.88	229.12	194.24	471,272	386,966
Enclosed Parking Structure	0.00	0.00	0.00		
Parking Lot	0.00	0.00	0.00		
Single Family Housing	57.42	60.48	52.62	127,628	104,796
Total	1,052.51	1,141.64	969.19	2,351,440	1,930,791

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
Apartments Mid Rise	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Condo/Townhouse	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3
Enclosed Parking Structure	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Parking Lot	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
Single Family Housing	12.40	4.30	5.40	26.10	29.10	44.80	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.551854	0.058218	0.185395	0.123453	0.029544	0.004438	0.012761	0.022956	0.001780	0.001269	0.006045	0.000523	0.001763

5.0 Energy Detail

4.4 Fleet Mix

Historical Energy Use: N

5.1 Mitigation Measures Energy

Exceed Title 24

	ROG	NOx	CO	SO2	Fugitive 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	0.0489	0.4180	0.1779	2.6700e-003		0.0338	0.0338		0.0338	0.0338		533.5995	533.5995	0.0102	9.7800e-003	536.8469
NaturalGas Unmitigated	0.0532	0.4550	0.1936	2.9000e-003		0.0368	0.0368		0.0368	0.0368		580.8451	580.8451	0.0111	0.0107	584.3801

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					
Condo/Townhouse	1707.36	0.0184	0.1574	0.0670	1.0000e-003		0.0127	0.0127		0.0127	0.0127		200.8662	200.8662	3.8500e-003	3.6800e-003	202.0887
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	579.994	6.2500e-003	0.0535	0.0227	3.4000e-004		4.3200e-003	4.3200e-003		4.3200e-003	4.3200e-003		68.2346	68.2346	1.3100e-003	1.2500e-003	68.6498
Apartments Mid Rise	2649.83	0.0286	0.2442	0.1039	1.5600e-003		0.0197	0.0197		0.0197	0.0197		311.7443	311.7443	5.9800e-003	5.7200e-003	313.6416
Total		0.0532	0.4550	0.1936	2.9000e-003		0.0368	0.0368		0.0368	0.0368		580.8451	580.8451	0.0111	0.0107	584.3801

5.2 Energy by Land Use - NaturalGas

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Enclosed Parking Structure	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Parking Lot	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
Single Family Housing	0.531655	5.7300e-003	0.0490	0.0209	3.1000e-004		3.9600e-003	3.9600e-003		3.9600e-003	3.9600e-003		62.5477	62.5477	1.2000e-003	1.1500e-003	62.9283
Apartments Mid Rise	2.44144	0.0263	0.2250	0.0957	1.4400e-003		0.0182	0.0182		0.0182	0.0182		287.2285	287.2285	5.5100e-003	5.2700e-003	288.9765
Condo/Townhouse	1.5625	0.0169	0.1440	0.0613	9.2000e-004		0.0116	0.0116		0.0116	0.0116		183.8234	183.8234	3.5200e-003	3.3700e-003	184.9421
Total		0.0489	0.4180	0.1779	2.6700e-003		0.0338	0.0338		0.0338	0.0338		533.5995	533.5995	0.0102	9.7900e-003	536.8469

6.0 Area Detail

6.1 Mitigation Measures Area

- Use Low VOC Paint - Residential Interior
- Use Low VOC Paint - Residential Exterior
- Use Low VOC Paint - Non-Residential Interior
- Use Low VOC Paint - Non-Residential Exterior
- Use only Natural Gas Hearths

	ROG	NOx	CO	SO2	Fugitive 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	9.8571	0.1528	13.1226	6.9000e-004		0.2436	0.2436		0.2417	0.2417	0.0000	2,745.7182	2,745.7182	0.0757	0.0499	2,762.7806
Unmitigated	73.5860	1.0208	91.8675	0.0319		11.2426	11.2426		11.2412	11.2412	1,161.3727	2,156.7299	3,318.1027	1.1396	0.1213	3,379.6353

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	1.2455					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.9522					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	63.9785	0.8681	78.7586	0.0312		11.1715	11.1715		11.1701	11.1701	1,161.3727	2,133.3529	3,294.7257	1.1161	0.1213	3,355.7635
Landscaping	0.4098	0.1528	13.1090	6.9000e-004		0.0711	0.0711		0.0711	0.0711		23.3770	23.3770	0.0236		23.8717
Total	73.5860	1.0208	91.8675	0.0319		11.2426	11.2426		11.2412	11.2412	1,161.3727	2,156.7299	3,318.1027	1.1396	0.1213	3,379.6352

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	1.2455					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	7.9522					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.2496	1.0000e-005	0.0136	0.0000		0.1724	0.1724		0.1706	0.1706	0.0000	2,722.3412	2,722.3412	0.0522	0.0499	2,738.9089
Landscaping	0.4098	0.1528	13.1090	6.9000e-004		0.0711	0.0711		0.0711	0.0711		23.3770	23.3770	0.0236		23.8717
Total	9.8571	0.1528	13.1226	6.9000e-004		0.2435	0.2435		0.2417	0.2417	0.0000	2,745.7182	2,745.7182	0.0757	0.0499	2,762.7806

7.0 Water Detail

7.1 Mitigation Measures Water

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

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

**Campbell Residences at Railway
Santa Clara County, Mitigation Report**

Construction Mitigation Summary

Phase	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio-CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.01	0.02	0.00	0.92	0.92	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	0.54	0.17	0.03	0.00	0.90	0.90	0.00	0.00	0.00	0.00	0.00	0.00
Demolition	0.63	0.27	0.26	0.00	0.90	0.90	0.00	0.00	0.00	0.00	0.00	0.00
Grading	0.44	0.19	0.12	0.00	0.78	0.78	0.00	0.00	0.00	0.00	0.00	0.00
Paving	0.53	0.12	-0.14	0.00	0.92	0.91	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	0.76	0.39	0.44	0.00	0.95	0.95	0.00	0.00	0.00	0.00	0.00	0.00

OFFROAD Equipment Mitigation

Equipment Type	Fuel Type	Tier	Number Mitigated	Total Number of Equipment	DPF	Oxidation Catalyst
Air Compressors	Diesel	Tier 2	1	1	Level 3	0.00
Concrete/Industrial Saws	Diesel	Tier 2	1	1	Level 3	0.00
Cranes	Diesel	Tier 2	1	1	Level 3	0.00
Excavators	Diesel	Tier 2	4	4	Level 3	0.00
Forklifts	Diesel	Tier 2	3	3	Level 3	0.00
Generator Sets	Diesel	Tier 2	1	1	Level 3	0.00
Graders	Diesel	Tier 2	1	1	Level 3	0.00
Pavers	Diesel	Tier 2	2	2	Level 3	0.00
Paving Equipment	Diesel	Tier 2	2	2	Level 3	0.00
Rollers	Diesel	Tier 2	2	2	Level 3	0.00
Rubber Tired Dozers	Diesel	Tier 2	6	6	Level 3	0.00
Tractors/Loaders/Backhoes	Diesel	Tier 2	10	10	Level 3	0.00
Welders	Diesel	Tier 2	1	1	Level 3	0.00

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
	Unmitigated tons/yr						Unmitigated mt/yr					
Air Compressors	3.68000E-003	2.37200E-002	1.88400E-002	3.00000E-005	1.97000E-003	1.97000E-003	0.00000E+000	2.55325E+000	2.55325E+000	3.00000E-004	0.00000E+000	2.55958E+000
Concrete/ Industrial Saws	3.92000E-003	2.74700E-002	2.09200E-002	3.00000E-005	2.13000E-003	2.13000E-003	0.00000E+000	2.95711E+000	2.95711E+000	3.20000E-004	0.00000E+000	2.96378E+000
Cranes	1.20280E-001	1.42617E+000	4.97920E-001	9.30000E-004	6.48800E-002	5.96900E-002	0.00000E+000	8.80964E+001	8.80964E+001	2.64600E-002	0.00000E+000	8.86521E+001
Excavators	1.10400E-002	1.28920E-001	9.11400E-002	1.40000E-004	6.36000E-003	5.85000E-003	0.00000E+000	1.33558E+001	1.33558E+001	3.99000E-003	0.00000E+000	1.34395E+001
Forklifts	1.31680E-001	1.13243E+000	7.17190E-001	8.60000E-004	9.48800E-002	8.72900E-002	0.00000E+000	8.17756E+001	8.17756E+001	2.45600E-002	0.00000E+000	8.22914E+001
Generator Sets	1.26290E-001	9.42050E-001	7.19450E-001	1.24000E-003	6.71100E-002	6.71100E-002	0.00000E+000	1.06542E+002	1.06542E+002	1.02100E-002	0.00000E+000	1.06756E+002
Graders	1.06200E-002	1.08680E-001	4.98100E-002	6.00000E-005	6.11000E-003	5.62000E-003	0.00000E+000	5.96081E+000	5.96081E+000	1.78000E-003	0.00000E+000	5.99818E+000
Pavers	8.02000E-003	9.02600E-002	5.70400E-002	9.00000E-005	4.49000E-003	4.13000E-003	0.00000E+000	8.50987E+000	8.50987E+000	2.57000E-003	0.00000E+000	8.56378E+000
Paving Equipment	6.14000E-003	7.13400E-002	5.08600E-002	8.00000E-005	3.54000E-003	3.26000E-003	0.00000E+000	7.56019E+000	7.56019E+000	2.28000E-003	0.00000E+000	7.60807E+000
Rollers	6.74000E-003	6.22600E-002	4.02700E-002	5.00000E-005	4.58000E-003	4.22000E-003	0.00000E+000	4.94376E+000	4.94376E+000	1.49000E-003	0.00000E+000	4.97507E+000
Rubber Tired Dozers	4.58300E-002	5.17930E-001	3.95150E-001	3.20000E-004	2.41600E-002	2.22300E-002	0.00000E+000	3.05009E+001	3.05009E+001	9.11000E-003	0.00000E+000	3.06922E+001
Tractors/Loaders/ Backhoes	1.90590E-001	1.81851E+000	1.31774E+000	1.70000E-003	1.41130E-001	1.29840E-001	0.00000E+000	1.60857E+002	1.60857E+002	4.82900E-002	0.00000E+000	1.61871E+002
Welders	1.10960E-001	3.44730E-001	3.76030E-001	4.80000E-004	2.79400E-002	2.79400E-002	0.00000E+000	3.54796E+001	3.54796E+001	9.03000E-003	0.00000E+000	3.56692E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Mitigated tons/yr							Mitigated mt/yr					
Air Compressors	1.14000E-003	2.35200E-002	1.83200E-002	3.00000E-005	1.40000E-004	1.40000E-004	0.00000E+000	2.55325E+000	2.55325E+000	3.00000E-004	0.00000E+000	2.55957E+000
Concrete/Industrial Saws	1.32000E-003	2.72500E-002	2.12200E-002	3.00000E-005	1.70000E-004	1.70000E-004	0.00000E+000	2.95711E+000	2.95711E+000	3.20000E-004	0.00000E+000	2.96378E+000
Cranes	2.28800E-002	7.91220E-001	4.95700E-001	9.30000E-004	2.52000E-003	2.52000E-003	0.00000E+000	8.80963E+001	8.80963E+001	2.64600E-002	0.00000E+000	8.86520E+001
Excavators	5.47000E-003	1.19980E-001	1.06460E-001	1.40000E-004	5.50000E-004	5.50000E-004	0.00000E+000	1.33558E+001	1.33558E+001	3.99000E-003	0.00000E+000	1.34395E+001
Forklifts	4.08300E-002	8.43280E-001	6.56870E-001	8.60000E-004	5.11000E-003	5.11000E-003	0.00000E+000	8.17755E+001	8.17755E+001	2.45600E-002	0.00000E+000	8.22913E+001
Generator Sets	4.75300E-002	9.81610E-001	7.64620E-001	1.24000E-003	5.95000E-003	5.95000E-003	0.00000E+000	1.06541E+002	1.06541E+002	1.02100E-002	0.00000E+000	1.06756E+002
Graders	2.39000E-003	5.24700E-002	4.65500E-002	6.00000E-005	2.40000E-004	2.40000E-004	0.00000E+000	5.96080E+000	5.96080E+000	1.78000E-003	0.00000E+000	5.99817E+000
Pavers	3.52000E-003	7.72200E-002	6.85200E-002	9.00000E-005	3.60000E-004	3.60000E-004	0.00000E+000	8.50986E+000	8.50986E+000	2.57000E-003	0.00000E+000	8.56377E+000
Paving Equipment	3.14000E-003	6.88400E-002	6.10800E-002	8.00000E-005	3.20000E-004	3.20000E-004	0.00000E+000	7.56018E+000	7.56018E+000	2.28000E-003	0.00000E+000	7.60807E+000
Rollers	2.47000E-003	5.09400E-002	3.96800E-002	5.00000E-005	3.10000E-004	3.10000E-004	0.00000E+000	4.94375E+000	4.94375E+000	1.49000E-003	0.00000E+000	4.97507E+000
Rubber Tired Dozers	7.77000E-003	2.68770E-001	1.68380E-001	3.20000E-004	8.50000E-004	8.50000E-004	0.00000E+000	3.05009E+001	3.05009E+001	9.11000E-003	0.00000E+000	3.06921E+001
Tractors/Loaders/Backhoes	7.93200E-002	1.63809E+000	1.27599E+000	1.70000E-003	9.93000E-003	9.93000E-003	0.00000E+000	1.60856E+002	1.60856E+002	4.82900E-002	0.00000E+000	1.61870E+002
Welders	1.99600E-002	3.18630E-001	2.82160E-001	4.80000E-004	2.89000E-003	2.89000E-003	0.00000E+000	3.54796E+001	3.54796E+001	9.03000E-003	0.00000E+000	3.56692E+001

Equipment Type	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Air Compressors	6.90217E-001	8.43170E-003	2.76008E-002	0.00000E+000	9.28934E-001	9.28934E-001	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	3.90689E-006
Concrete/Industrial Saws	6.63265E-001	8.00874E-003	-1.43403E-002	0.00000E+000	9.20188E-001	9.20188E-001	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000	0.00000E+000
Cranes	8.09777E-001	4.45213E-001	4.45855E-003	0.00000E+000	9.61159E-001	9.57782E-001	0.00000E+000	1.24863E-006	1.24863E-006	0.00000E+000	0.00000E+000	1.24081E-006
Excavators	5.04529E-001	6.93453E-002	-1.68093E-001	0.00000E+000	9.13522E-001	9.05983E-001	0.00000E+000	7.48741E-007	7.48741E-007	0.00000E+000	0.00000E+000	1.48815E-006
Forklifts	6.89930E-001	2.55336E-001	8.41060E-002	0.00000E+000	9.46142E-001	9.41460E-001	0.00000E+000	1.10057E-006	1.10057E-006	0.00000E+000	0.00000E+000	1.21519E-006
Generator Sets	6.23644E-001	-4.19935E-002	-6.27841E-002	0.00000E+000	9.11340E-001	9.11340E-001	0.00000E+000	1.12632E-006	1.12632E-006	0.00000E+000	0.00000E+000	1.21773E-006
Graders	7.74953E-001	5.17206E-001	6.54487E-002	0.00000E+000	9.60720E-001	9.57295E-001	0.00000E+000	1.67762E-006	1.67762E-006	0.00000E+000	0.00000E+000	1.66717E-006
Pavers	5.61097E-001	1.44472E-001	-2.01262E-001	0.00000E+000	9.19822E-001	9.12833E-001	0.00000E+000	1.17511E-006	1.17511E-006	0.00000E+000	0.00000E+000	1.16771E-006
Paving Equipment	4.88599E-001	3.50435E-002	-2.00944E-001	0.00000E+000	9.09605E-001	9.01840E-001	0.00000E+000	1.32272E-006	1.32272E-006	0.00000E+000	0.00000E+000	0.00000E+000
Rollers	6.33531E-001	1.81818E-001	1.46511E-002	0.00000E+000	9.32314E-001	9.26540E-001	0.00000E+000	2.02275E-006	2.02275E-006	0.00000E+000	0.00000E+000	0.00000E+000
Rubber Tired Dozers	8.30460E-001	4.81069E-001	5.73883E-001	0.00000E+000	9.64818E-001	9.61763E-001	0.00000E+000	9.83577E-007	9.83577E-007	0.00000E+000	0.00000E+000	1.30326E-006
Tractors/Loaders/Backhoes	5.83819E-001	9.92131E-002	3.16830E-002	0.00000E+000	9.29639E-001	9.23521E-001	0.00000E+000	1.18118E-006	1.18118E-006	0.00000E+000	0.00000E+000	1.17378E-006
Welders	8.20115E-001	7.57114E-002	2.49634E-001	0.00000E+000	8.96564E-001	8.96564E-001	0.00000E+000	1.12741E-006	1.12741E-006	0.00000E+000	0.00000E+000	1.12142E-006

Fugitive Dust Mitigation

Yes/No Mitigation Measure Mitigation Input Mitigation Input Mitigation Input

No	Soil Stabilizer for unpaved Roads	PM10 Reduction	0.00	PM2.5 Reduction	0.00	
No	Replace Ground Cover of Area Disturbed	PM10 Reduction	0.00	PM2.5 Reduction	0.00	
Yes	Water Exposed Area	PM10 Reduction	55.00	PM2.5 Reduction	55.00	Frequency (per day) 2.00

No	Unpaved Road Mitigation	Moisture Content %	0.00	Vehicle Speed (mph)	0.00		
Yes	Clean Paved Road	% PM Reduction	0.00				

Phase	Source	Unmitigated		Mitigated		Percent Reduction	
		PM10	PM2.5	PM10	PM2.5	PM10	PM2.5
Architectural Coating	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Architectural Coating	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Building Construction	Roads	0.30	0.08	0.30	0.08	0.00	0.00
Demolition	Fugitive Dust	0.02	0.00	0.01	0.00	0.55	0.55
Demolition	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Grading	Fugitive Dust	0.07	0.03	0.03	0.02	0.55	0.55
Grading	Roads	0.02	0.00	0.02	0.00	0.00	0.00
Paving	Fugitive Dust	0.00	0.00	0.00	0.00	0.00	0.00
Paving	Roads	0.00	0.00	0.00	0.00	0.00	0.00
Site Preparation	Fugitive Dust	0.09	0.05	0.04	0.02	0.55	0.55
Site Preparation	Roads	0.00	0.00	0.00	0.00	0.00	0.00

Operational Percent Reduction Summary

Category	ROG	NOx	CO	SO2	Exhaust PM10	Exhaust PM2.5	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Percent Reduction												
Architectural Coating	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Consumer Products	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Electricity	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2.79	2.79	2.78	3.42	2.79
Hearth	99.64	100.00	99.99	100.00	98.82	98.82	100.00	-28.56	27.89	98.44	60.00	29.44
Landscaping	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mobile	4.62	14.47	11.48	17.12	16.12	16.17	0.00	17.20	17.20	15.51	0.00	17.20
Natural Gas	8.02	8.14	8.15	5.77	8.20	8.20	0.00	8.13	8.13	8.65	8.47	8.13
Water Indoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.25	0.01
Water Outdoor	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Operational Mobile Mitigation

Project Setting:

Mitigation	Category	Measure	% Reduction	Input Value 1	Input Value 2	Input Value 3
No	Land Use	Increase Density	0.00			
No	Land Use	Increase Diversity	0.09	0.30		
No	Land Use	Improve Walkability Design	0.00			
No	Land Use	Improve Destination Accessibility	0.00			
Yes	Land Use	Increase Transit Accessibility	0.18	0.20		
No	Land Use	Integrate Below Market Rate Housing	0.00			
	Land Use	Land Use SubTotal	0.18			

No	Neighborhood Enhancements	Improve Pedestrian Network			
No	Neighborhood Enhancements	Provide Traffic Calming Measures			
No	Neighborhood Enhancements	Implement NEV Network	0.00		
	Neighborhood Enhancements	Neighborhood Enhancements Subtotal	0.00		
No	Parking Policy Pricing	Limit Parking Supply	0.00		
No	Parking Policy Pricing	Unbundle Parking Costs	0.00		
No	Parking Policy Pricing	On-street Market Pricing	0.00		
	Parking Policy Pricing	Parking Policy Pricing Subtotal	0.00		
No	Transit Improvements	Provide BRT System	0.00		
No	Transit Improvements	Expand Transit Network	0.00		
No	Transit Improvements	Increase Transit Frequency	0.00		
	Transit Improvements	Transit Improvements Subtotal	0.00		
		Land Use and Site Enhancement Subtotal	0.18		
No	Commute	Implement Trip Reduction Program			
No	Commute	Transit Subsidy			
No	Commute	Implement Employee Parking "Cash Out"			
No	Commute	Workplace Parking Charge			
No	Commute	Encourage Telecommuting and Alternative Work Schedules	0.00		
No	Commute	Market Commute Trip Reduction Option	0.00		
No	Commute	Employee Vanpool/Shuttle	0.00		2.00
No	Commute	Provide Ride Sharing Program			
	Commute	Commute Subtotal	0.00		

No	School Trip	Implement School Bus Program	0.00		
		Total VMT Reduction	0.18		

Area Mitigation

Measure Implemented	Mitigation Measure	Input Value
Yes	Only Natural Gas Hearth	
No	No Hearth	
No	Use Low VOC Cleaning Supplies	
Yes	Use Low VOC Paint (Residential Interior)	100.00
Yes	Use Low VOC Paint (Residential Exterior)	150.00
Yes	Use Low VOC Paint (Non-residential Interior)	100.00
Yes	Use Low VOC Paint (Non-residential Exterior)	150.00
No	% Electric Lawnmower	0.00
No	% Electric Leafblower	0.00
No	% Electric Chainsaw	0.00

Energy Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
Yes	Exceed Title 24	10.00	
No	Install High Efficiency Lighting	0.00	
No	On-site Renewable	0.00	0.00

Appliance Type	Land Use Subtype	% Improvement
ClothWasher		30.00

DishWasher		15.00
Fan		50.00
Refrigerator		15.00

Water Mitigation Measures

Measure Implemented	Mitigation Measure	Input Value 1	Input Value 2
No	Apply Water Conservation on Strategy		
No	Use Reclaimed Water		
No	Use Grey Water		
No	Install low-flow bathroom faucet	32.00	
No	Install low-flow Kitchen faucet	18.00	
No	Install low-flow Toilet	20.00	
No	Install low-flow Shower	20.00	
No	Turf Reduction		
No	Use Water Efficient Irrigation Systems	6.10	
No	Water Efficient Landscape		

Solid Waste Mitigation

Mitigation Measures	Input Value
Institute Recycling and Composting Services Percent Reduction in Waste Disposed	

Attachment B

Health Risk Assessment Assumptions and Methodologies

A health risk assessment (HRA) is accomplished in four steps: 1) hazards identification, 2) exposure assessment, 3) toxicity assessment, and 4) risk characterization. These steps cover the estimation of air emissions, the estimation of the air concentrations resulting from a dispersion analysis, the incorporation of the toxicity of the pollutants emitted, and the characterization of the risk based on exposure parameters such as breathing rate, age adjustment factors, and exposure duration; each depending on receptor type.

This HRA was conducted in accordance with technical guidelines developed by federal, state, and regional agencies, including U.S. Environmental Protection Agency (USEPA), California Environmental Protection Agency (CalEPA), California Office of Environmental Health Hazard Assessment (OEHHA) *Air Toxics Hot Spots Program Guidance*¹, and the Bay Area Air Quality Management District (BAAQMD) *Health Risk Screening Analysis Guidelines*.²

According to CalEPA, a HRA should not be interpreted as the expected rates of cancer or other potential human health effects, but rather as estimates of potential risk or likelihood of adverse effects based on current knowledge, under a number of highly conservative assumptions and the best assessment tools currently available.

TERMS AND DEFINITIONS

As the practice of conducting a HRA is particularly complex and involves concepts that are not altogether familiar to most people, several terms and definitions are provided that are considered essential to the understanding of the approach, methodology and results:

Acute effect – a health effect (non-cancer) produced within a short period of time (few minutes to several days) following an exposure to Toxic Air Contaminants (TACs).

Cancer risk – the probability of an individual contracting cancer from a lifetime (i.e., 70 year) exposure to TAC such as DPM in the ambient air.

Chronic effect – a health effect (non-cancer) produced from a continuous exposure occurring over an extended period of time (weeks, months, years).

Hazard Index (HI) – the unitless ratio of an exposure level over the acceptable reference dose (RfC). The HI can be applied to multiple compounds in an additive manner.

Hazard Quotient (HQ) – the unitless ratio of an exposure level over the acceptable reference dose (RfC). The HQ is applied to individual compounds.

1 Office of Environmental Health Hazard Assessment, 2003. *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, http://www.oehha.org/air/hot_spots/pdf/HRAguidefinal.pdf.

2 Bay Area Air Quality Management District, 2005. *BAAQMD Health Risk Screening Analysis Guidelines*, http://www.baaqmd.gov/pmt/air_toxics/risk_procedures_policies/hrsa_guidelines.pdf.

Toxic air contaminants (TAC) – any air pollutant that is capable of causing short-term (acute) and/or long-term (chronic or carcinogenic, i.e., cancer causing) adverse human health effects (i.e., injury or illness). The current California list of TAC lists approximately 200 compounds, including particulate emissions from diesel-fueled engines.

Human Health Effects - comprise disorders such as eye watering, respiratory or heart ailments, and other (i.e., non-cancer) related diseases.

Health Risk Assessment (HRA) – an analysis designed to predict the generation and dispersion of TAC in the outdoor environment, evaluate the potential for exposure of human populations, and to assess and quantify both the individual and population-wide health risks associated with those levels of exposure.

Incremental – under CEQA, the net difference (or change) in conditions or impacts when comparing the baseline to future year project conditions.

Maximum exposed individual (MEI) – an individual assumed to be located at the point where the highest concentrations of TACs, and therefore, health risks are predicted to occur.

Non-cancer risks – health risks such as eye watering, respiratory or heart ailments, and other non-cancer related diseases.

Receptors – the locations where potential health impacts or risks are predicted (i.e., schools, residences, and recreational sites).

LIMITATIONS AND UNCERTAINTIES

There are a number of important limitations and uncertainties commonly associated with a HRA due to the wide variability of human exposures to TACs, the extended timeframes over which the exposures are evaluated and the inability to verify the results. Among these challenges are the following:

- The HRA exposure estimates do not take into account that people do not usually reside at the same location for 70 years and that other exposures (i.e., school children) are also of much shorter durations than was assumed in this analysis. Therefore, the results of the HRA are highly overstated for those cases.
- Other limitations and uncertainties associated with HRA and identified by the CalEPA include: (a.) lack of reliable monitoring data; (b.) extrapolation of toxicity data in animals to humans; (c.) estimation errors in calculating TACs emissions; (d.) concentration prediction errors with dispersion models; and (e.) the variability in lifestyles, fitness and other confounding factors of the human population.

HAZARDS IDENTIFICATION

Diesel exhaust is a complex mixture of numerous individual gaseous and particulate compounds emitted from diesel-fueled combustion engines. Diesel particulate matter (DPM) is formed primarily through the incomplete combustion of diesel fuel. DPM is removed from the

atmosphere through physical processes including atmospheric fall-out and washout by rain. Humans can be exposed to airborne DPM by deposition on water, soil, and vegetation; although the main pathway of exposure is inhalation.

In August 1998, the California Air Resource Board (CARB) identified DPM as an air toxic. The CARB developed the *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles* and *Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines* and approved these documents on September 28, 2000.³⁴ The documents represent proposals to reduce DPM emissions, with the goal of reducing emissions and the associated health risk by 75 percent in 2010 and by 85 percent in 2020. The program aimed to require the use of state-of-the-art catalyzed DPM filters and ultra-low-sulfur diesel fuel.

In 2001, CARB assessed the state-wide health risks from exposure to diesel exhaust and to other toxic air contaminants. It is difficult to distinguish the health risks of diesel emissions from those of other air toxics, since diesel exhaust contains approximately 40 different TACs. The CARB study detected diesel exhaust by using ambient air carbon soot measurements as a surrogate for diesel emissions. The study reported that the state-wide cancer risk from exposure to diesel exhaust was about 540 per million population as compared to a total risk for exposure to all ambient air toxics of 760 per million. This estimate, which accounts for about 70 percent of the total risk from TACs, included both urban and rural areas in the state. The estimate can also be considered an average worst-case for the state, since it assumes constant exposure to outdoor concentrations of diesel exhaust and does not account for expected lower concentrations indoors, where most of time is spent.

EXPOSURE ASSESSMENT

Dispersion is the process by which atmospheric pollutants disseminate due to wind and vertical stability. The results of a dispersion analysis are used to assess pollutant concentrations at or near an emission source. The results of an analysis allow predicted concentrations of pollutants to be compared directly to air quality standards and other criteria such as health risks based on modeled concentrations.

Dispersion Modeling Approach

This section presents the methodology used for the dispersion modeling analysis. This section addresses all of the fundamental components of an air dispersion modeling analysis including:

- Model selection and options
- Receptor locations
- Meteorological data

³ California Air Resources Board. *Risk Reduction Plan to Reduce Particulate Matter Emissions from Diesel-Fueled Engines and Vehicles*. October 2000. <http://www.arb.ca.gov/diesel/documents/rrpfinal.pdf>

⁴ California Air Resources Board. *Risk Management Guidance for the Permitting of New Stationary Diesel-Fueled Engines*. October 2000. <http://www.arb.ca.gov/diesel/documents/rmgfinal.pdf>

- Source release characteristics

Air dispersion modeling was performed to estimate the downwind dispersion of DPM exhaust emissions resulting from construction activities and rail operations. A description of the air quality modeling parameters, including air dispersion model selection, modeling domain, source exhaust parameters, meteorological data selection, and receptor network, is provided.

Model Selection and Options

AERMOD (Version 14134)⁵ was used for the dispersion analysis. AERMOD is the USEPA preferred atmospheric dispersion modeling system for general industrial sources. The model can simulate point, area, volume, and line sources. AERMOD is the appropriate model for this analysis based on the coverage of simple, intermediate, and complex terrain. It also predicts both short-term and long-term (annual) average concentrations. The model was executed using the regulatory default options (stack-tip downwash, buoyancy-induced dispersion, and final plume rise), default wind speed profile categories, default potential temperature gradients, and assuming no pollutant decay.

The selection of the appropriate dispersion coefficients depends on the land use within three kilometers (km) of the Project site. The types of land use were based on the classification method defined by Auer (1978); using pertinent United States Geological Survey (USGS) 1:24,000 scale (7.5 minute) topographic maps of the area. If the Auer land use types of heavy industrial, light-to-moderate industrial, commercial, and compact residential account for 50 percent or more of the total area, the USEPA *Guideline on Air Quality Models* recommends using urban dispersion coefficients; otherwise, the appropriate rural coefficients can be used. Based on observation of the area surrounding the project site, rural (urban is only designated within dense city centers such as downtown San Francisco) dispersion coefficients were applied in the analysis.

Receptor Locations

Some receptors are considered more sensitive to air pollutants than others, because of preexisting health problems, proximity to the emissions source, or duration of exposure to air pollutants. Land uses such as primary and secondary schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because the very young, the old, and the infirm are more susceptible to respiratory infections and other air quality-related health problems than the general public. Residential areas are also considered sensitive to poor air quality because people in residential areas are often at home for extended periods. Recreational land uses are moderately sensitive to air pollution because vigorous exercise associated with recreation places having a high demand on respiratory system function.

Sensitive receptors such as residences, schools, and outdoor recreational areas near the Project were chosen as the receptors to be analyzed. The project property is generally bound by the Avalon Campbell high-density multifamily community to the south, the Los Gatos Creek Trail

⁵ US Environmental Protection Agency, AERMOD Modeling System, http://www.epa.gov/scram001/dispersion_prefrec.htm.

and City of Campbell maintenance yard to the east, light industrial uses to the north, and the Downtown Campbell Transit Station and vacant light industrial buildings to the west across Railway Avenue. The nearest existing residential land uses are within 100 feet to the south and 100 feet to the west. Nelly's Childcare is located 550 feet to the north of the project site. Montessori Academy of Campbell is located 890 feet to the northwest of the project site. The Saint Lucy School is located approximately 1,050 feet from the project site. The Los Gatos Creek Trail is located to the east of the project site and is used for recreational purposes. Traffic on Highway 17, located 600 feet to the east of the project site, are sources of air pollutants that would affect future project residents.

Receptors were placed at a height of 1.8 meters (typical breathing height). Terrain elevations for receptor locations were used (i.e., complex terrain) based on available USGS information for the area. **Figure B-1** displays the location of the sensitive receptors used in the HRA. Sensitive receptors were placed at existing residences and schools to estimate health impacts due to proposed project construction on existing receptors. Sensitive receptors were also placed at the proposed project to estimate health impacts on new residences from existing sources such as the Union Pacific Railroad (UPRR) and Highway 17.

Meteorological Data

Air quality is a function of both the rate and location of pollutant emissions under the influence of meteorological conditions and topographic features affecting pollutant movement and dispersal. Atmospheric conditions such as wind speed, wind direction, atmospheric stability, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants, and consequently affect air quality.

Hourly meteorological data from San Jose International Airport (surface data), located approximately five miles to the north of the project, and Oakland International Airport (upper air) were used in the dispersion modeling analysis. Meteorological data from 2010 through 2014 were used. **Figure B-2** displays the wind rose during this period. Wind directions are predominately from the northwest and southeast and a high frequency of calm and low wind conditions, as shown in **Figure B-3**. The regional average annual wind speed is 6.6 miles per hour.

FIGURE B-1
HEALTH RISK ASSESSMENT RECEPTORS

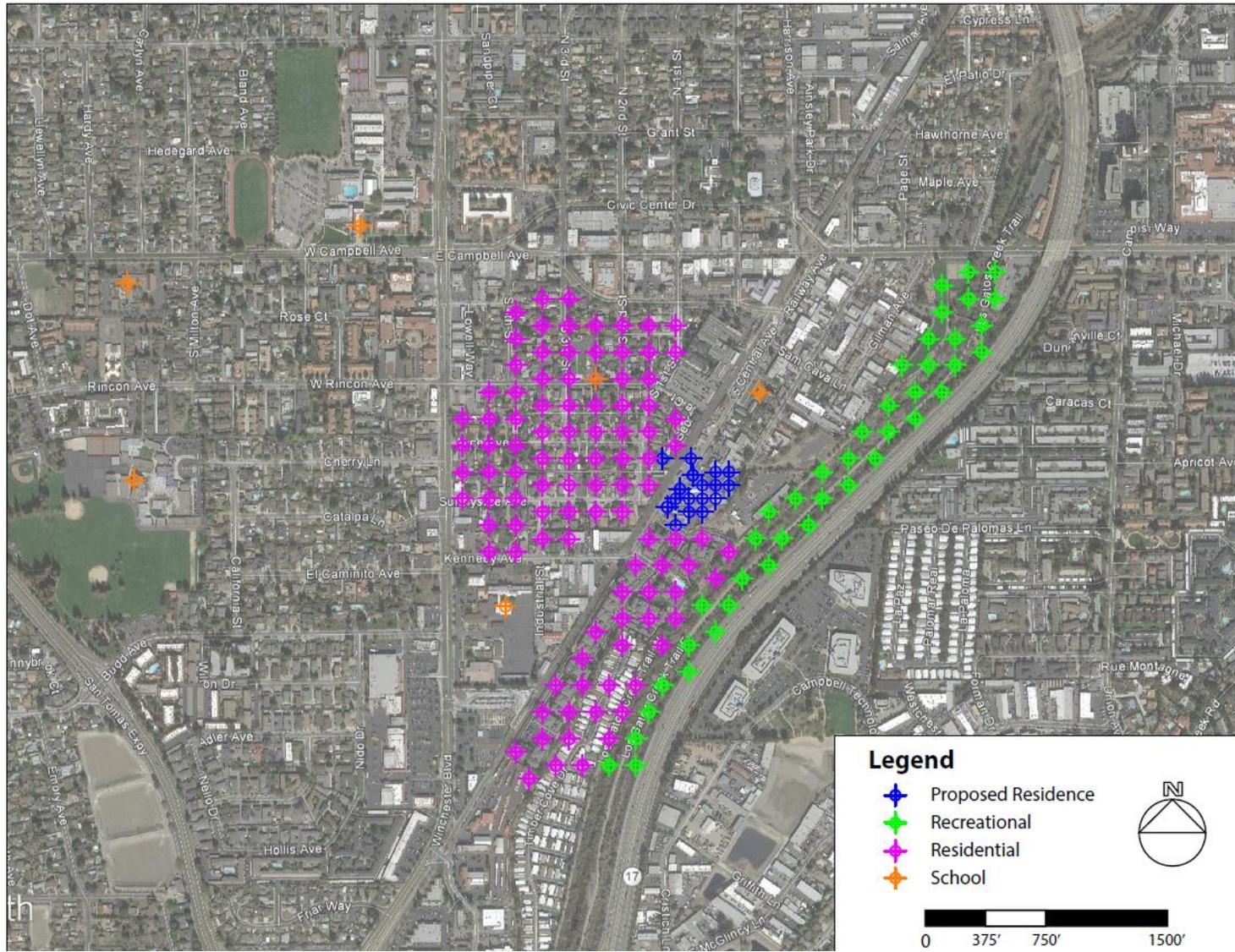


FIGURE B-2
WINDROSE FOR SAN JOSE INTERNATIONAL AIRPORT

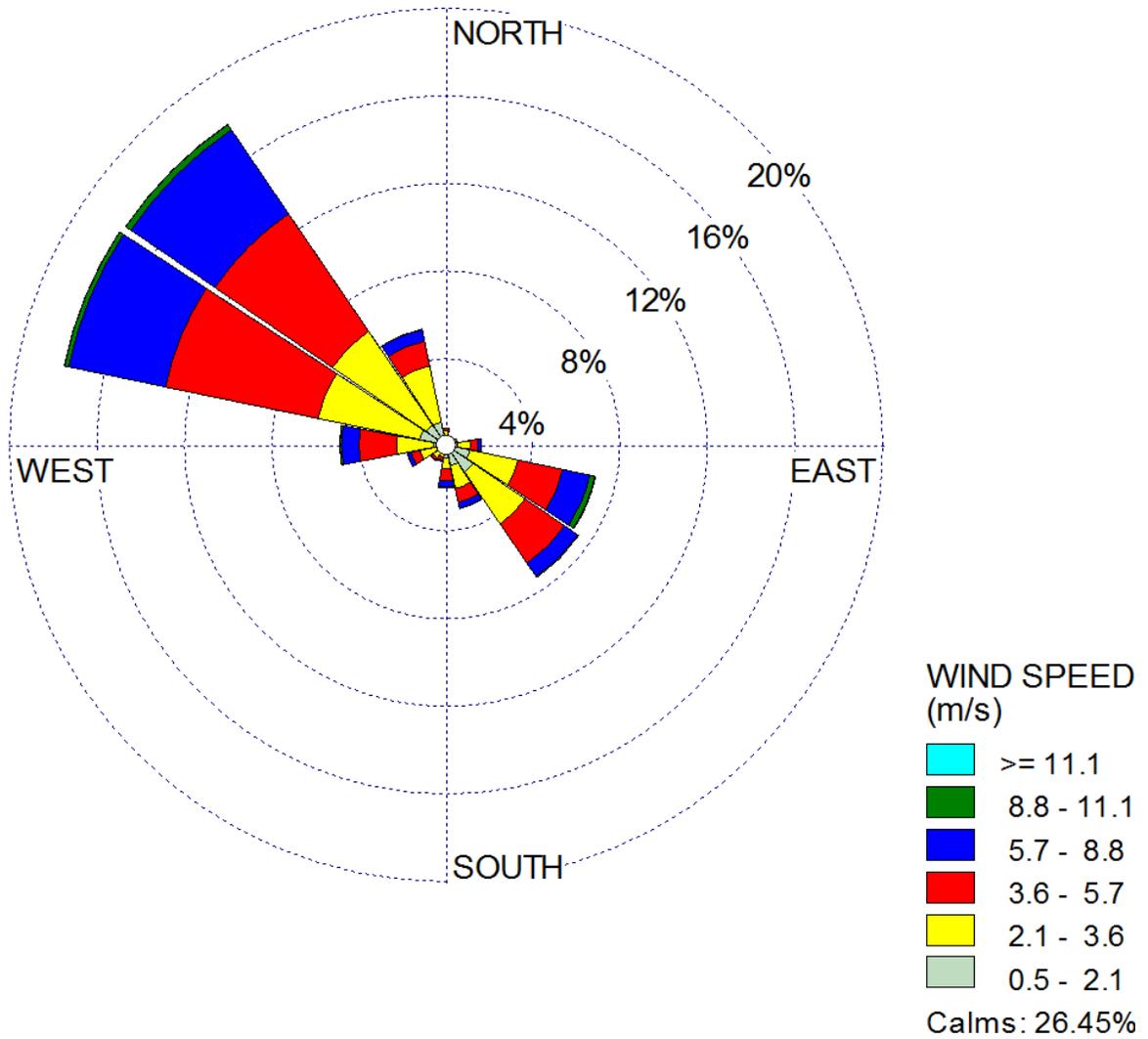
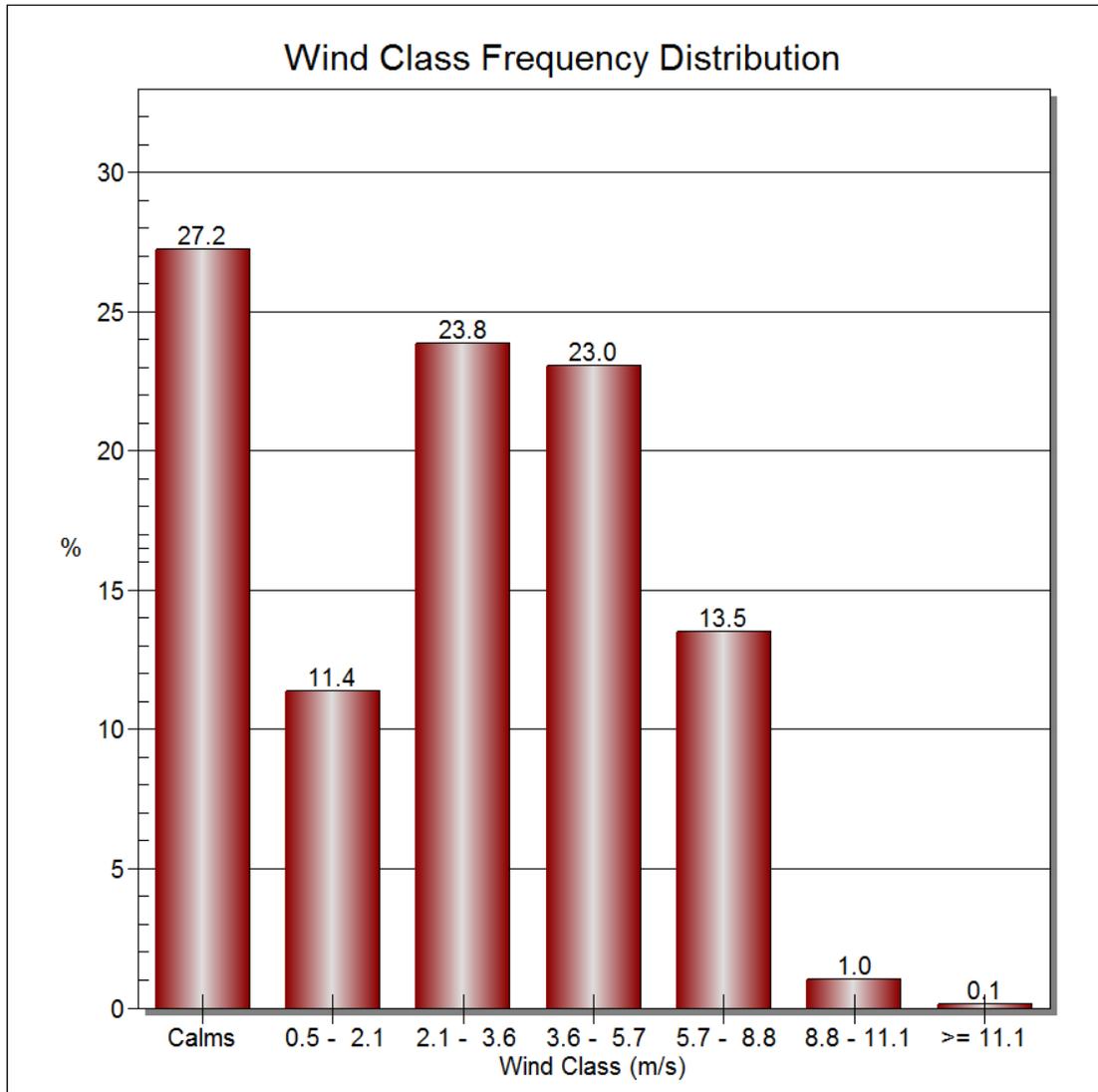


FIGURE B-3
WIND SPEED DISTRIBUTION FOR SAN JOSE INTERNATIONAL AIRPORT



Source Release Characteristics

Construction equipment activities were treated as an area source. The release height of the off-road equipment exhaust was 3.05 meters. Haul trucks and employee trips were treated as a line source (i.e., volume sources placed at regular intervals) located along the access road. The haul trucks were assigned a release height of 3.05 meters and an initial vertical dimension of 4.15 meters, which accounts for dispersion from the movement of vehicles. Model parameters for volume sources include emission rate, release height, and plume width. Locomotive switch/line haul activities for the UPRR are simulated as volume sources with a release height of 5 meters, and a plume width of 3 meters. Notably, light rail is an electric powered transit system that runs on a track along Railway Avenue and thus, does not cause local emissions. Terrain elevations for emission source locations were used (i.e., complex terrain) based on available USGS DEM for the area. AERMAP (Version 11103)⁶ was used to develop the terrain elevations, although the project site is generally flat.

Temporal factors (**Table B-1**) are used to describe the relationship of activity levels in one period of time to another period of time (i.e., the relationship of the activity during one-hour to the activity during a 24-hour period). The use of temporal factors gives the model the ability to more accurately reflect real world conditions.

Table B-1: Emission Source Temporal Distribution

Source	Period	Activity Distribution	Hours per Day
Rail	6 am – 6 pm	80%	12
	6 pm – 6 am	20%	12

SOURCE: CARB's *Diesel Particulate Matter Exposure Assessment Study for the Ports of Los Angeles and Long Beach*, April 2006.

Railroad operations are typically described in terms of two different types of operation, line haul and switching. Line haul operations involve long-distance transportation between the Port and points across the country whereas switching is the local movement of railcars to prepare them for line haul transportation or to distribute them to destination terminals upon their arrival.

The types of information available for these two types of activity differs – for the on-port switching locomotives, information on each locomotive and its activity (e.g., fuel use and throttle notch setting frequency) can be used to estimate emissions, whereas for the line haul locomotives the information is more general (e.g., in terms of fuel use per ton of cargo and total tons of cargo carried). Published emissions information for switch and line haul locomotive operations in both throttle notch and fuel consumption modes along with facility operational data was used to estimate emissions.⁷

⁶ US Environmental Protection Agency, AERMAP, http://www.epa.gov/ttn/scram/dispersion_related.htm#aermap.

⁷ U.S. Environmental Protection Agency. Emission Factors for Locomotives. April 2009. <http://www.epa.gov/nonroad/locomotv/420f09025.pdf>

Locomotives operate differently from other types of mobile sources with respect to how they transmit power from engine to wheels. While most mobile sources use a physical coupling such as a transmission to transfer power from the engine to the wheels, a locomotive's engine turns a generator or alternator powering an electric motor that, in turn, powers the locomotive's wheels. The physical connection of a typical mobile source means that the engine's speed is dictated by the vehicle's speed through a fixed set of gear ratios, resulting in the highly transient operating conditions (particularly engine speed and load) that characterize mobile source operations.

In contrast, the locomotive's engine and drive system operate more independently, such that the engine can be operated at a particular speed without respect to the speed of the locomotive itself. This allows operation under more steady-state load and speed conditions, and as a result locomotives have been designed to operate in a series of discrete throttle settings called notches, ranging from notch positions one through eight, plus an idle position.

Many locomotives also have a feature known as dynamic braking, in which the electric drive engine operates as a generator to help slow the locomotive, with the resistance-generated power being dissipated as heat. While the engine is not generating motive power under dynamic braking, it is generating power to run cooling fans, so this operating condition is somewhat different from idling. Switch engines typically do not feature dynamic braking.

Locomotive switching activities consist of:

- Breaking up inbound trains and sorting railcars into contiguous fragments, and delivering the fragments to terminals.
- Delivering empty container flat cars to terminals.
- Delivering rail cars to non-container facilities, and removing previously delivered rail cars.
- Rearranging full and empty railcars to facilitate loading by a terminal.
- Picking up outbound containers in less than full train configuration and transporting them to a yard for assembly into full trains – to be transported out of the facility by one of the line haul railroads.

Line haul locomotives are typically operated in groups of two to five units, with three or four units being most common, depending on the power requirements of the specific train being pulled and the horsepower capacities of available locomotives. Thus, two higher-horsepower locomotives may be able to pull a train that would take three units with lower power outputs. Locomotives operated in sets are connected such that every engine in the set is operated in unison by an engineer in one of the locomotives. Based on Federal Railroad Administration's Office of Safety Analysis, the air quality analysis included nine haul daily rail and six switching daily rail operations.⁸ ⁹Two line haul engines were assumed to operate simultaneously.

⁸ Federal Railroad Administration, Office of Safety Analysis.
<http://safetydata.fra.dot.gov/OfficeofSafety/PublicSite/Crossing/Crossing.aspx>.

Emission estimates were estimated for the UPRR activities. For locomotives, emissions were estimated as a function of power demand (expressed in horsepower-hours) multiplied by an emission factor (shown in **Table B-2**), expressed in terms of grams per horsepower-hour (g/hp-hr), and then applied to the various activity data (**Table B-3**).

Table B-2: Emission Factors for Locomotives

Pollutant	Switch Emission Factor (g/hp-hr)	Haul Emission Factor (g/hp-hr)
PM ₁₀	0.19	0.18
PM _{2.5}	0.18	0.17

SOURCE: U.S. Environmental Protection Agency. Emission Factors for Locomotives, April 2009.

Table B-3: Operational Assumptions for Locomotives

Parameters	Line Haul	Switching
Load Factor	0.20	0.25
Horsepower	3,300	2,500
Daily Operations	9	6

SOURCE: September 2013. Detroit Diesel specification 4000 Series. Federal Railroad Administration, Office of Safety Analysis. U.S. DOT Crossing Inventory. U.S. Environmental Protection Agency. Emission Factors for Locomotives, April 2009.

Dispersion Modeling Results

Using AERMOD, the maximum annual and 70-year average annual concentrations were determined for DPM emissions for the emission sources of concern. These concentrations were estimated for a unit emission rate (1 gram per second) and adjusted based on the calculated emission rate.

The HRA was conducted following methodologies in BAAQMD’s *Health Risk Screening Analysis Guidelines*¹⁰ and OEHHA’s *Air Toxics Hot Spots Program Guidance*¹¹. This was accomplished by applying the highest estimated concentrations at the receptors analyzed to the established cancer risk estimates and acceptable reference concentrations (RfC) for non-cancer health effects.

The toxicity values used in this analysis were based on OEHHA guidance. These toxicity values are for carcinogenic effects and acute/chronic health impacts. The primary pathway for exposures was assumed to be inhalation and carcinogenic and non-carcinogenic effects were

⁹ U.S. DOT Crossing Inventory, BNSF Railroad at East Sunnyvale Avenue (Crossing # 750170N). <http://safetydata.fra.dot.gov/OfficeofSafety/PublicSite/Crossing/Crossing.aspx>

¹⁰ Bay Area Air Quality Management District, 2005. *BAAQMD Health Risk Screening Analysis Guidelines*, June 2005, http://www.baaqmd.gov/pmt/air_toxics/risk_procedures_policies/hrsa_guidelines.pdf.

¹¹ Office of Environmental Health Hazard Assessment, 2003. *Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, http://www.oehha.org/air/hot_spots/pdf/HRAguidefinal.pdf.

evaluated separately. The incremental risks were determined for each emission source of TAC and summed to obtain an estimated total incremental carcinogenic health risk.

The 80th percentile adult breathing rate of 302 liters per kilogram per day (L/kg-day) was used to determine cancer risks to residents from exposure to TAC. The residential exposure frequency and duration was assumed to be 350 days per year and 70 years. For children, OEHHA recommends assuming a breathing rate of 581 L/kg-day to assess potential risk via the inhalation exposure pathway. This value represents the upper 95th percentile of daily breathing rates for children. The modeled DPM concentrations were used to represent the exposure concentrations in the air. The inhalation absorption factor was assumed to be 1.

Cancer risk estimates also incorporate age sensitivity factors (ASFs). This approach provides updated calculation procedures that factor in the increased susceptibility of infants and children to carcinogens as compared to adults. OEHHA recommends that cancer risks be weighted by a factor of 10 for exposures that occur from the third trimester of pregnancy to 2 years of age, and by a factor of 3 for exposures from 2 years through 15 years of age. For estimating cancer risks for residential receptors over a 70 year lifetime, the incorporation of the ASFs results in a cancer risk adjustment factor (CRAF) of 1.7.

For occupational receptors, BAAQMD guidance suggests that the exposure be based on 8 hours per day, 5 days per week, 245 working days per year, and a 40-year working lifetime. This is a conservative assumption, since most people do not remain at the same job for 40 years.

Based on OEHHA recommendations (see **Table B-4**), the cancer risk to residential receptors assumes exposure occurs 24 hours per day for 350 days per year. For children at school sites, exposure is assumed to occur 10 hours per day for 180 days (or 36 weeks) per year. Cancer risk to residential receptors based on a 70-year lifetime exposure. Cancer risk estimates for children at school sites are calculated based on 9 year exposure duration.

Table B-4: Health Risk Assessment Exposure Parameters

Receptor	Breathing Rate (DBR)	Cancer Risk Adjustment Factor (CRAF)	Daily Exposure	Annual Exposure	Exposure Duration (ED)
Adult	302	1.7	24 hours	350 days	70 years
Child	581	10	24 hours	350 days	3 years
School	581	3	10 hours	180 days	9 years

SOURCE: Bay Area Air Quality Management District, *Health Risk Screening Analysis Guidelines*, June 2005, http://www.baaqmd.gov/pmt/air_toxics/risk_procedures_policies/hrsa_guidelines.pdf.

RISK CHARACTERIZATION

Cancer risk is defined as the lifetime probability of developing cancer from exposure to carcinogenic substances. Cancer risks are expressed as the chance in one million of getting cancer (i.e., number of cancer cases among one million people exposed). The cancer risks are

assumed to occur exclusively through the inhalation pathway. The cancer risk can be estimated by using the cancer potency factor (milligrams per kilogram of body weight per day [mg/kg-day]), the 70-year annual average concentration (microgram per cubic meter [$\mu\text{g}/\text{m}^3$]), and the lifetime exposure adjustment.

Following guidelines established by OEHHA, the incremental cancer risks attributable to the Project were calculated by applying exposure parameters to modeled DPM concentrations in order to determine the inhalation dose (mg/kg-day) or the amount of pollutants inhaled per body weight mass per day. The cancer risks occur exclusively through the inhalation pathway; therefore, the cancer risks can be estimated from the following equation:

$$\text{Dose-inh} = \frac{C_{\text{air}} * \{\text{DBR}\} * A * \text{CRAF} * \text{EF} * \text{ED} * 10^{-6}}{\text{AT}}$$

Where:

Dose-inh	= Dose of the toxic substance through inhalation in mg/kg-day
10^{-6}	= Micrograms to milligrams conversion, Liters to cubic meters conversion
C_{air}	= Concentration in air in microgram (μg)/cubic meter (m^3)
{DBR}	= Daily breathing rate in liter (L)/kg body weight – day
A	= Inhalation absorption factor
CRAF	= Cancer Risk Adjustment Factor, Age Sensitivity Factor
EF	= Exposure frequency (days/year)
ED	= Exposure duration (years)
AT	= Averaging time period over which exposure is averaged in days (25,550 days for a 70 year cancer risk)

To determine incremental cancer risk, the estimated inhalation dose attributed to the Project was multiplied by the cancer potency slope factor (cancer risk per mg/kg-day). The cancer potency slope factor is the upper bound on the increased cancer risk from a lifetime exposure to a pollutant. These slope factors are based on epidemiological studies and are different values for different pollutants. This allows the estimated inhalation dose to be equated to a cancer risk.

Non-cancer adverse health impacts, acute (short-term) and chronic (long-term), are measured against a hazard index (HI), which is defined as the ratio of the predicted incremental exposure concentration from the Project to a published reference exposure level (REL) that could cause adverse health effects as established by OEHHA. The ratio (referred to as the Hazard Quotient [HQ]) of each non-carcinogenic substance that affects a certain organ system is added to produce an overall HI for that organ system. The overall HI is calculated for each organ system. If the overall HI for the highest-impacted organ system is greater than one, then the impact is considered to be significant.

The HI is an expression used for the potential for non-cancer health effects. The relationship for the non-cancer health effects is given by the annual concentration (in $\mu\text{g}/\text{m}^3$) and the REL (in $\mu\text{g}/\text{m}^3$). The acute hazard index was determined using the “simple” concurrent maximum approach, which tends to be conservative (i.e., overpredicts).

The relationship for the non-cancer health effects is given by the following equation:

$$HI = C/REL$$

Where:

HI	= Hazard index; an expression of the potential for non-cancer health effects.
C	= Annual average concentration ($\mu\text{g}/\text{m}^3$) during the 70 year exposure period.
REL	= Concentration at which no adverse health effects are anticipated.

The chronic REL for DPM was established by the California OEHHA¹² as $5 \mu\text{g}/\text{m}^3$. There is no acute REL for DPM. However, diesel exhaust does contain acrolein and other compounds, which do have an acute REL. BAAQMD's DPM speciation table (based on profile 4674 within the USEPA Speciate 4.2)¹³ was used to assess the acute impacts. Acrolein emissions are approximately 1.3 percent of the total emissions. The acute REL for acrolein was established by the California OEHHA¹⁴ as $2.5 \mu\text{g}/\text{m}^3$.

CUMULATIVE SOURCES

The BAAQMD's *CEQA Air Quality Guidelines* include standards and methods for determining the significance of cumulative health risk impacts.¹⁵ The method for determining cumulative health risk requires the tallying of health risk from permitted sources and major roadways in the vicinity of a project (i.e., within a 1,000-foot radius of the location of the new project-related receptors), then adding the Project impacts to determine whether the cumulative health risk thresholds are exceeded.

BAAQMD has developed a geo-referenced database of permitted emissions sources throughout the San Francisco Bay Area, and has developed the *Stationary Source Risk & Hazard Analysis Tool* for estimating cumulative health risks from permitted sources. Six permitted sources are located within 1,000 feet of the Project impact area. **Table B-5** provides the estimated screening cancer risk, hazard impacts, and the $\text{PM}_{2.5}$ concentrations for the cumulative permitted source.

¹² California Office of Environmental Health Hazards Assessment Toxicity Criteria Database, 2010, <http://www.oehha.ca.gov/>.

¹³ Provides for a speciation fraction of 1.3 percent of acrolein per DPM emission rate, <http://www.epa.gov/html>.

¹⁴ California Office of Environmental Health Hazards Assessment Toxicity Criteria Database, 2010, <http://www.oehha.ca.gov/>.

¹⁵ Bay Area Air Quality Management District. CEQA Air Quality Guidelines. May 2012. http://www.baaqmd.gov/~media/Files/Planning%20and%20Research/CEQA/BAAQMD%20CEQA%20Guidelines_Final_May%202012.ashx?la=en

Table B-5: Cumulative Health Impacts – Permitted Sources

Facility #	Facility Type	Address	Adjustment Factor	Cancer Risk	Hazard Impact	PM _{2.5} Concentration
6043	A-Superior Collision Shop	300 Railway Ave			To be removed as part of project	
10606	Mike's Auto Body	300 Railway Ave			To be removed as part of project	
12222	Wood Classics	418 Industrial Street			No risk/concentration. No further study needed.	
11736	Campbell Plaza Cleaners	2345 South Winchester Blvd			Now using non-perc machine. No risk/concentration.	
19046	City of Campbell	290 South Dillon Ave	0.63	9.02	0.00	0.02
G7099	City of Campbell Public Works Department	290 South Dillon Ave	0.559	0.30	0.00	0.00

SOURCE: Email from Alison Kirk at BAAQMD on January 22, 2015 - Stationary Source Inquiry Form Request – Residences at Railway.

Information (cancer risks and chronic index) was adjusted for distance from source to receptor, based on BAAQMD’s *Distance Adjustment Multiplier for Diesel Internal Combustion Engine* and the *Distance Adjustment Multiplier for Gasoline Dispensing Facilities*.

BAAQMD has also developed a geo-referenced database of roadways throughout the San Francisco Bay Area and has developed the *Highway Screening Analysis Tool* for estimating cumulative health risks from roadways. Highway 17 is located 600 feet to the east of the project site (new residences). **Table B-6** display the health impacts from Highway 17 in association with the new and existing residences. BAAQMD *CEQA Air Quality Guidelines* also require the inclusion of surface streets within 1,000 feet of the Project with annual average daily traffic of 10,000 or greater.¹⁶ Upon review of nearby roadways, no roadways meets the criteria. The proposed residences are within 600 feet of Highway 17 and existing residences are within 500 feet of Highway 17.

¹⁶ Bay Area Air Quality Management District County Surface Street Screening Tables, May 2011 and CEHTP Traffic Linkage Service Demonstration, http://www.ehib.org/traffic_tool.jsp.

Table B-6: Highway 17 Health Impacts

Distance from Nearest Travel Lane (feet)	Cancer Risk	Acute Impact	Chronic Impact	PM_{2.5} Concentration
10	86.8	0.079	0.084	0.654
25	75.0	0.067	0.072	0.562
50	61.9	0.055	0.059	0.463
75	53.4	0.050	0.051	0.398
100	47.3	0.046	0.045	0.351
200	33.7	0.036	0.032	0.248
300	27.0	0.031	0.025	0.198
400	22.6	0.028	0.021	0.165
500	19.5	0.023	0.018	0.142
600	17.8	0.022	0.016	0.129
750	15.1	0.020	0.014	0.109
1000	12.4	0.018	0.011	0.089

SOURCE: BAAQMD *Highway Screening Analysis Tool*, May 2011.

ATTACHMENT 4

BIOLOGICAL RESOURCES REPORT



Environmental Consulting,
Regulatory Compliance and
Aerial Photographic Services

5214 El Cemente Avenue
Davis, CA 95618-4418
Tel/Fax: 530.758.9235
Cell: 530.902.9670

bruce@barnettenvironmental.com
barnettenvironmental.com
flickr.com/photos/bioflyer

April 24, 2015

St. Anton Capital
1801 I Street, Suite 200
Sacramento, CA 95811

ATTN: Ardie Zahedani

Subject: St. Anton "Residences at Railway", Campbell CA – Biological Resources

Dear Ardie,

Per the City of Campbell's request to provide a "report that documents the presence (or lack thereof) of species identified as a candidate, sensitive or special status species, or habitat for such species, within the project site", I conducted a survey within and around this approximately 3.88-acre site (comprised of APNs 412-03-005, -006, & -007; 412-07-006, &-042; and 412-08-006, -054, -057, -061, -062, -065, & -066) on either side of Railway Avenue in Campbell California, on Tuesday, April 21, 2015.

The project area, located between Kennedy Ave. and Rincon Ave., currently consists of industrial properties and associated parking/loading areas, and is surrounded on all sides by similar properties and parking lots and the Valley Transportation Authority's Light Rail line along the western boundary. The entire area is developed with no natural habitat in the immediate vicinity. Some trees have been planted along Railway Avenue and the light rail line, with larger trees along the borders of 300 – 328 Railway Avenue. These trees have little value to wildlife beyond potential nesting habitat for urban birds and squirrels.

Los Gatos Creek and its associated riparian zone occur approximately 250' from the project's eastern limit on its southern side up to 550' feet away farther north. As this natural habitat would be unaffected by proposed project activities due to its distance, I did not conduct a detailed survey of this stream corridor.

From the City of Campbell General Plan (2001), "... native vegetation in the City was eliminated decades ago for ranching and orchards ... There are currently no rare, threatened, endangered or sensitive animals, plants or natural communities within the City limits, according to the California Department of Fish and Game's Natural Diversity Database. However, the absence of any special status species from this Database does not necessarily mean that there is no chance that they may be found in the City, only that no occurrence data is currently entered into the Database. However, since Campbell is a very urbanized environment, it is not likely that there are any unrecorded species in the City."

While It seems unlikely that any special status species would populate the project area in the intervening 14 years since publication of this General Plan, I again performed searches of the California Natural Diversity (Rarefind) Database (CNDDDB 2015); California Wildlife Habitat Relationships System; Santa Clara County Breeding Bird Atlas; United States Fish & Wildlife Service (USFWS) list of special-status species potentially occurring in the project vicinity; and the California Native Plant Society's Online Inventory.

All of the special species returned from these database searches occur in habitats not currently occurring within or immediately adjacent to the project area, though there is a remote possibility that western pond turtles (*Emys marmorata*) could occur in Los Gatos Creek.

I would recommend, however, that preconstruction bird nesting surveys be performed in and around the site within two weeks prior to any clearing or construction activity to avoid any possible U.S. Migratory Bird Treaty Act violation. Apart from this, I see no biological constraints to re-development of this site.

Please do not hesitate to contact me if you have questions concerning these survey results or would like to discuss the matter further.

Sincerely,

A handwritten signature in black ink that reads "Bruce D. Barnett" followed by a horizontal line.

Bruce D. Barnett, Ph.D.



Figure 1 – Residences @ Railway Study Area

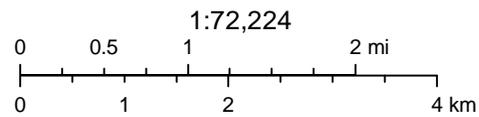
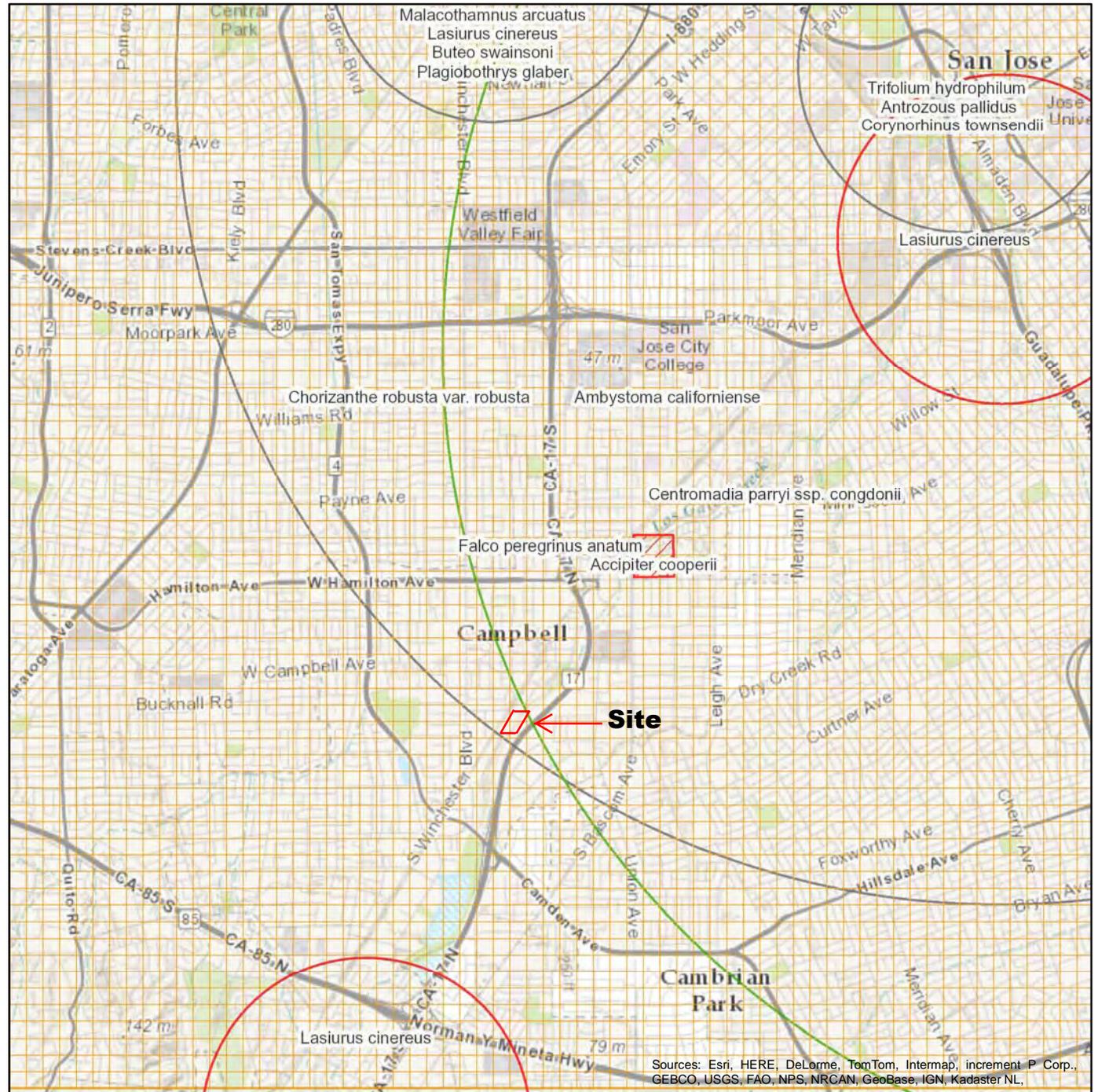
Total Acreage = 3.88 acres

Centered @ W 121.94452 Longitude

N 037.28237 Latitude

Figure 2 - CNDDDB Occurrences

- Plant (80m)
- Plant (specific)
- Plant (non-specific)
- Plant (circular)
- Animal (80m)
- Animal (specific)
- Animal (non-specific)
- Animal (circular)
- Terrestrial Comm. (80m)
- Terrestrial Comm. (specific)
- Terrestrial Comm. (non-specific)
- Terrestrial Comm. (circular)
- Aquatic Comm. (80m)
- Aquatic Comm. (specific)
- Aquatic Comm. (non-specific)
- Aquatic Comm. (circular)
- Multiple (80m)
- Multiple (specific)
- Multiple (non-specific)
- Multiple (circular)
- Sensitive EO's (Commercial only)



January 8, 2015

Sources: Esri, HERE, DeLorme, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL,



Multiple Occurrences per Page
California Department of Fish and Wildlife
California Natural Diversity Database



Query Criteria: Quad is (San Jose West (3712138))
 St. Anton Capital - Residences @ Railway, Campbell CA

Ambystoma californiense		Element Code: AAAAA01180	
California tiger salamander			
Listing Status:	Federal: Threatened	CNDDB Element Ranks:	Global: G2G3
	State: Threatened		State: S2S3
	Other: CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable		
Habitat:	General: CENTRAL VALLEY DPS FEDERALLY LISTED AS THREATENED. SANTA BARBARA & SONOMA COUNTIES DPS FEDERALLY LISTED AS ENDANGERED.		
	Micro: NEED UNDERGROUND REFUGES, ESPECIALLY GROUND SQUIRREL BURROWS, & VERNAL POOLS OR OTHER SEASONAL WATER SOURCES FOR BREEDING.		

Occurrence No.	41	Map Index:	37885	EO Index:	32892	Element Last Seen:	1895-01-09
Occ. Rank:	None	Presence:	Extirpated	Site Last Seen:		1895-01-09	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		2001-11-14	

Quad Summary: San Jose East (3712137), San Jose West (3712138), Calaveras Reservoir (3712147), Milpitas (3712148)
County Summary: Santa Clara

Lat/Long:	37.33789 / -121.89131	Accuracy:	5 miles
UTM:	Zone-10 N4132933 E598210	Elevation (ft):	85
PLSS:	T07S, R01E, Sec. 08 (M)	Acres:	0.0

Location: SAN JOSE.
Detailed Location: NO OTHER LOCATIONAL INFORMATION GIVEN.
Ecological:
General: HISTORIC RECORD. MUSEUM COLLECTION SU 879. JENNINGS CONSIDERS THIS SITE EXTIRPATED.
Owner/Manager: UNKNOWN



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California Department of Fish and Wildlife
California Natural Diversity Database



Accipiter cooperii		Element Code: ABNKC12040	
Cooper's hawk			
Listing Status:	Federal: None	CNDDDB Element Ranks:	Global: G5
	State: None		State: S4
	Other: CDFW_WL-Watch List, IUCN_LC-Least Concern		
Habitat:	General: WOODLAND, CHIEFLY OF OPEN, INTERRUPTED OR MARGINAL TYPE.		
	Micro: NEST SITES MAINLY IN RIPARIAN GROWTHS OF DECIDUOUS TREES, AS IN CANYON BOTTOMS ON RIVER FLOOD-PLAINS; ALSO, LIVE OAKS.		

Occurrence No.	85	Map Index:	51557	EO Index:	51557	Element Last Seen:	2003-06-13
Occ. Rank:	Fair	Presence:	Presumed Extant	Site Last Seen:		2003-06-13	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		2003-06-17	

Quad Summary: San Jose West (3712138)
County Summary: Santa Clara

Lat/Long:	37.29633 / -121.92925	Accuracy:	nonspecific area
UTM:	Zone-10 N4128283 E594901	Elevation (ft):	175
PLSS:	T07S, R01W, Sec. 25 (M)	Acres:	38.4

Location: NE OF THE INTERSECTION OF BASCOM AVENUE AND HAMILTON AVENUE, SAN JOSE.
Detailed Location:
Ecological: HABITAT CONSISTS OF A MIX OF ORNAMENTAL REDWOOD, PINE, AND BIRCH TREES IN A COMMERCIAL PARKING LOT; SURROUNDED BY A MIX OF COMMERCIAL AND RESIDENTIAL.
General: 2 ADULTS OBSERVED NESTING ON 13 JUN 2003; AN UNKNOWN NUMBER OF JUVENILES PRESENT IN THE NEST.
Owner/Manager: UNKNOWN



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California Department of Fish and Wildlife
California Natural Diversity Database



<i>Buteo swainsoni</i>		Element Code: ABNKC19070		
Swainson's hawk				
Listing Status:	Federal: None	CNDDDB Element Ranks:	Global: G5	
	State: Threatened		State: S3	
	Other: BLM_S-Sensitive, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern			
Habitat:	General: BREEDS IN GRASSLANDS WITH SCATTERED TREES, JUNIPER-SAGE FLATS, RIPARIAN AREAS, SAVANNAHS, & AGRICULTURAL OR RANCH LANDS WITH GROVES OR LINES OF TREES.			
	Micro: REQUIRES ADJACENT SUITABLE FORAGING AREAS SUCH AS GRASSLANDS, OR ALFALFA OR GRAIN FIELDS SUPPORTING RODENT POPULATIONS.			
Occurrence No.	2570	Map Index: 28363	EO Index: 91540	Element Last Seen: 1889-04-30
Occ. Rank:	None		Presence: Possibly Extirpated	Site Last Seen: 1889-04-30
Occ. Type:	Natural/Native occurrence		Trend: Unknown	Record Last Updated: 2013-10-22
Quad Summary:	San Jose West (3712138)			
County Summary:	Santa Clara			
Lat/Long:	37.34871 / -121.94696		Accuracy:	1 mile
UTM:	Zone-10 N4134077 E593267		Elevation (ft):	50
PLSS:	T07S, R01W, Sec. 02 (M)		Acres:	0.0
Location:	SANTA CLARA.			
Detailed Location:	SPECIMEN LOCALITY GIVEN AS "SANTA CLARA, CAL...IN 'FERGUSON'S SWAMP;" THE LATTER PLACE NAME UNKNOWN, SO MAPPED GENERALLY TO TOWN OF SANTA CLARA. EXACT COLLECTION LOCATION UNKNOWN.			
Ecological:	REFURBISHED STICK NEST LINED SPARSELY WITH LEAVES AND DRY GRASS FOUND 45' UP IN A SYCAMORE. THIS HISTORICAL OCCURRENCE IS OUTSIDE WHAT IS GENERALLY CONSIDERED TO BE THE PRESENT BREEDING RANGE OF THE SPECIES IN CALIFORNIA.			
General:	BIRD FLUSHED FROM NEST, 2 EGGS COLLECTED ON 30 APR 1889.			
Owner/Manager:	UNKNOWN			



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California Department of Fish and Wildlife
California Natural Diversity Database



<i>Falco peregrinus anatum</i>		Element Code: ABNKD06071	
American peregrine falcon			
Listing Status:	Federal: Delisted	CNDDDB Element Ranks:	Global: G4T4
	State: Delisted		State: S3S4
	Other: CDF_S-Sensitive, CDFW_FP-Fully Protected, USFWS_BCC-Birds of Conservation Concern		
Habitat:	General: NEAR WETLANDS, LAKES, RIVERS, OR OTHER WATER; ON CLIFFS, BANKS, DUNES, MOUNDS; ALSO, HUMAN-MADE STRUCTURES.		
	Micro: NEST CONSISTS OF A SCRAPE OR A DEPRESSION OR LEDGE IN AN OPEN SITE.		

*** SENSITIVE ***

Occurrence No.	33	Map Index:	69305	EO Index:	70087	Element Last Seen:	2007-05-17
Occ. Rank:	Unknown	Presence:	Presumed Extant	Site Last Seen:			2007-05-17
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:			2011-05-12

Quad Summary: San Jose West (3712138)

County Summary: Santa Clara

Lat/Long:		Accuracy:	80 meters
UTM:		Elevation (ft):	85
PLSS:		Acres:	0.0

Location: *SENSITIVE* LOCATION INFORMATION SUPPRESSED.

Detailed Location: PLEASE CONTACT THE CALIFORNIA NATURAL DIVERSITY DATABASE, CALIFORNIA DEPARTMENT OF FISH AND WILDLIFE, FOR MORE INFORMATION: (916) 322-2493

Ecological: HIGH RISE OFFICE BUILDING. THE SANTA CRUZ PREDATORY BIRD RESEARCH GROUP PROVIDED A NEST BOX IN 2006.

General:

Owner/Manager:

<i>Athene cucularia</i>		Element Code: ABNSB10010	
burrowing owl			
Listing Status:	Federal: None	CNDDDB Element Ranks:	Global: G4
	State: None		State: S3
	Other: BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFWS_BCC-Birds of Conservation Concern		
Habitat:	General: OPEN, DRY ANNUAL OR PERENNIAL GRASSLANDS, DESERTS & SCRUBLANDS CHARACTERIZED BY LOW-GROWING VEGETATION.		
	Micro: SUBTERRANEAN NESTER, DEPENDENT UPON BURROWING MAMMALS, MOST NOTABLY, THE CALIFORNIA GROUND SQUIRREL.		



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California Department of Fish and Wildlife
California Natural Diversity Database



Occurrence No.	132	Map Index:	21008	EO Index:	9205	Element Last Seen:	1992-04-01
Occ. Rank:	Fair	Presence:	Presumed Extant	Site Last Seen:		1992-04-01	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		2003-03-10	

Quad Summary: San Jose West (3712138), Milpitas (3712148)

County Summary: Santa Clara

Lat/Long:	37.37451 / -121.92095	Accuracy:	1/10 mile
UTM:	Zone-10 N4136965 E595538	Elevation (ft):	40
PLSS:	T06S, R01W, Sec. 25 (M)	Acres:	0.0

Location: NW OF THE JUNCTION OF KARINA COURT AND NORTH FIRST STREET, SAN JOSE.

Detailed Location:

Ecological: HABITAT CONSISTS OF FAIRLY OPEN UPLAND/RUDERAL, MADE UP PRIMARILY OF ANNUAL GRASSES. CHUNKS OF CONCRETE AT THE SITE SERVE AS PERCHES. MANY GROUND SQUIRRELS INHABIT THE SITE.

General: SITE APPEARS TO HAVE BEEN DISKED PRIOR TO 1992, BUT NO DISKING HAD TAKEN PLACE AS OF 12 APRIL 1992. TWO ADULT BIRDS OBSERVED.

Owner/Manager: PVT

Occurrence No.	184	Map Index:	24670	EO Index:	6556	Element Last Seen:	1993-08-28
Occ. Rank:	None	Presence:	Possibly Extirpated	Site Last Seen:		1993-08-28	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		2009-12-22	

Quad Summary: San Jose West (3712138)

County Summary: Santa Clara

Lat/Long:	37.36948 / -121.92050	Accuracy:	80 meters
UTM:	Zone-10 N4136407 E595584	Elevation (ft):	45
PLSS:	T06S, R01W, Sec. 35 (M)	Acres:	0.0

Location: 0.2 MILE NE OF THE INTERSECTION OF AIRPORT PARKWAY AND GUADALUPE PARKWAY, EAST OF SAN JOSE MUNICIPAL AIRPORT.

Detailed Location: TWO BURROWS LOCATED ABOUT 10 FEET APART IN A MOWED, UNIRRIGATED STRIP BETWEEN PARKING LOTS OF AN OFFICE PARK.

Ecological: BURROW SITES ARE LOCATED IN A STRIP MEASURING 200 X 1000 FEET, WITH DAISY BUSHES AND EARTH BERMS AROUND THE EDGES THAT SERVE AS PERCHES. 2009 AERIAL PHOTO SHOWS THAT THE SITE HAS BEEN COMPLETELY DEVELOPED.

General: 4 ADULTS AND 2 JUVENILES OBSERVED IN TOTAL FOR BOTH BURROW SITES ON 28 AUGUST 1993. 9 OWLS (2 ADULTS, 7 JUVENILES) WERE BANDED BY BARCLAY IN 1993.

Owner/Manager: PVT



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California Department of Fish and Wildlife
California Natural Diversity Database



Occurrence No.	341	Map Index: 42084	EO Index: 42084	Element Last Seen:	2009-07-08
Occ. Rank:	Excellent		Presence: Presumed Extant	Site Last Seen:	2009-07-08
Occ. Type:	Natural/Native occurrence		Trend: Stable	Record Last Updated:	2009-12-23
Quad Summary:	San Jose West (3712138), Milpitas (3712148)				
County Summary:	Santa Clara				
Lat/Long:	37.36360 / -121.92987		Accuracy:	nonspecific area	
UTM:	Zone-10 N4135746 E594762		Elevation (ft):	56	
PLSS:	T06S, R01W, Sec. 36 (M)		Acres:	868.1	
Location:	SAN JOSE INTERNATIONAL AIRPORT, SAN JOSE.				
Detailed Location:	SITE IS AN ON-GOING MONITORING/MGMT PROGRAM (SINCE 1990), W/ OWLS UTILIZING ARTIFICIAL & NATURAL BURROWS. SITES PRIMARILY AROUND PERIMETER OF RUNWAYS TO THE NORTHWEST & SOUTH; T06S R01W SEC 35 EAST, T07S R01W SEC 1 NE. OWLS COLOR BANDED.				
Ecological:	HABITAT CONSISTS OF MOWED HERBACEOUS VEGETATION BETWEEN THE RUNWAYS AND TAXIWAYS OF THE AIRPORT. AIRPORT IS SURROUNDED BY URBAN DEVELOPMENT.				
General:	YR:JUV/AD (RATIO). 90:19/28(0.7). 91:11/12(0.9). 97:68/30(2.3). 98:92/50(1.8). 99:101/48(2.1). 00:90/42(2.1). 01:129/62(2.1). 02:126/82(1.5). 03:70/57(1.2). 04:109/49(2.2). 05:87/47(1.9). 06:64/50(1.3). 08:38/16(2.4). 09:40/19(2.1).				
Owner/Manager:	CITY OF SAN JOSE				

Occurrence No.	428	Map Index: 46956	EO Index: 46956	Element Last Seen:	2001-07-01
Occ. Rank:	Poor		Presence: Presumed Extant	Site Last Seen:	2009-06-26
Occ. Type:	Natural/Native occurrence		Trend: Decreasing	Record Last Updated:	2009-12-23
Quad Summary:	San Jose West (3712138)				
County Summary:	Santa Clara				
Lat/Long:	37.37336 / -121.91451		Accuracy:	80 meters	
UTM:	Zone-10 N4136845 E596109		Elevation (ft):	40	
PLSS:	T06S, R01W, Sec. 36 (M)		Acres:	0.0	
Location:	SOUTH SIDE OF DEVCON COURT, NEAR N 1ST STREET & HWY 101, SAN JOSE.				
Detailed Location:	BURROWS LOCATED UNDER THE SIDEWALK ON THE SOUTH SIDE OF DEVCON COURT.				
Ecological:	HABITAT CONSISTS OF MIXED RUDERAL VEGETATION ON A FLAT, VACANT SITE (ABOUT 7 HECTARES) SURROUNDED BY BUSSINESS PARKS AND HIGH VOLUME ROADS. SITE QUALITY = FAIR TO POOR.				
General:	4 ADULTS & 4 JUVENILES OBSERVED USING 2 BURROWS DURING MONITORING FROM 17 APR - 4 SEP 2001. 2 OWLS FOUND DEAD IN JUL 2001, LIKELY KILLED BY FERAL ANIMALS. 2 ADULTS OBS 12 JUN 2008. NO OWLS OBS ON 5, 10, & 26 JUN 2009.				
Owner/Manager:	UNKNOWN				

Lasiurus cinereus			Element Code: AMACC05030		
hoary bat					
Listing Status:	Federal:	None	CNDDB Element Ranks:	Global:	G5
	State:	None		State:	S4
	Other:	IUCN_LC-Least Concern, WBWG_M-Medium Priority			
Habitat:	General:	PREFERS OPEN HABITATS OR HABITAT MOSAICS, WITH ACCESS TO TREES FOR COVER & OPEN AREAS OR HABITAT EDGES FOR FEEDING.			
	Micro:	ROOSTS IN DENSE FOLIAGE OF MEDIUM TO LARGE TREES. FEEDS PRIMARILY ON MOTHS. REQUIRES WATER.			



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California Department of Fish and Wildlife
California Natural Diversity Database



Occurrence No.	96	Map Index: 68531	EO Index: 68859	Element Last Seen: 1988-11-15
Occ. Rank:	Unknown		Presence: Presumed Extant	Site Last Seen: 1988-11-15
Occ. Type:	Natural/Native occurrence		Trend: Unknown	Record Last Updated: 2007-03-19

Quad Summary: Los Gatos (3712128), San Jose West (3712138)
County Summary: Santa Clara

Lat/Long:	37.24691 / -121.96088	Accuracy:	1 mile
UTM:	Zone-10 N4122769 E592158	Elevation (ft):	
PLSS:	T08S, R01W, Sec. 10 (M)	Acres:	0.0

Location: LOS GATOS.
Detailed Location: MAPPED ACCORDING TO LAT/LONG COORDINATES PROVIDED BY MANIS, WITH UNCERTAINTY OF 3288.688 M.
Ecological:
General: 1 FEMALE SPECIMEN (MVZ #182427) COLLECTED BY WILLIAM E. RAINEY ON 15 NOV 1988.
Owner/Manager: UNKNOWN

Occurrence No.	98	Map Index: 68532	EO Index: 68861	Element Last Seen: 1990-12-04
Occ. Rank:	Unknown		Presence: Presumed Extant	Site Last Seen: 1990-12-04
Occ. Type:	Natural/Native occurrence		Trend: Unknown	Record Last Updated: 2007-03-19

Quad Summary: San Jose East (3712137), San Jose West (3712138)
County Summary: Santa Clara

Lat/Long:	37.32404 / -121.89103	Accuracy:	1 mile
UTM:	Zone-10 N4131397 E598252	Elevation (ft):	
PLSS:	T07S, R01E, Sec. 17 (M)	Acres:	0.0

Location: SAN JOSE.
Detailed Location: MAPPED ACCORDING TO LAT/LONG COORDINATES PROVIDED BY MANIS, WITH UNCERTAINTY OF 16093.44 M.
Ecological:
General: 1 FEMALE SPECIMEN (MVZ #182428) COLLECTED BY WILLIAM E. RAINEY ON 4 DEC 1990.
Owner/Manager: UNKNOWN

Occurrence No.	99	Map Index: 28363	EO Index: 68862	Element Last Seen: 1893-05-01
Occ. Rank:	Unknown		Presence: Presumed Extant	Site Last Seen: 1893-05-01
Occ. Type:	Natural/Native occurrence		Trend: Unknown	Record Last Updated: 2007-03-19

Quad Summary: San Jose West (3712138)
County Summary: Santa Clara

Lat/Long:	37.34871 / -121.94696	Accuracy:	1 mile
UTM:	Zone-10 N4134077 E593267	Elevation (ft):	
PLSS:	T07S, R01W, Sec. 02 (M)	Acres:	0.0

Location: SANTA CLARA.
Detailed Location: EXACT LOCATION UNKNOWN. MAPPED AS BEST ESTIMATE CENTERED ON SANTA CLARA.
Ecological:
General: LACM #1373 COLLECTED BY J.M. HYDE ON 1 MAY 1893.
Owner/Manager: UNKNOWN



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California Natural Diversity Database



Corynorhinus townsendii

Element Code: AMACC08010

Townsend's big-eared bat

Listing Status:	Federal: None	CNDDDB Element Ranks:	Global: G3G4
	State: Candidate Threatened		State: S2
Other:	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive, WBWG_H-High Priority		
Habitat:	General: THROUGHOUT CALIFORNIA IN A WIDE VARIETY OF HABITATS. MOST COMMON IN MESIC SITES.		
	Micro: ROOSTS IN THE OPEN, HANGING FROM WALLS & CEILINGS. ROOSTING SITES LIMITING. EXTREMELY SENSITIVE TO HUMAN DISTURBANCE.		

Occurrence No.	418	Map Index:	66585	EO Index:	93484	Element Last Seen:	1943-04-24
Occ. Rank:	Unknown	Presence:	Presumed Extant	Site Last Seen:		1943-04-24	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		2014-05-13	

Quad Summary: San Jose West (3712138)

County Summary: Santa Clara

Lat/Long:	37.33910 / -121.89534	Accuracy:	1 mile
UTM:	Zone-10 N4133063 E597851	Elevation (ft):	90
PLSS:	T07S, R01E, Sec. 08 (M)	Acres:	0.0

Location: SAN JOSE.

Detailed Location: EXACT LOCATION UNKNOWN. MAPPED IN THE GENERAL VICINITY OF SAN JOSE.

Ecological:

General: 1935: 1 FEMALE 10 MAY (UBCBBM #M000069), 4 FEMALES & 1 MALE 13 MAY (MVZ #M000067, M000068, M017230, M017231, UBCBBM #M00069, M017229). 1942: 1 FEMALE 22 MAR (LACM #8920). 1943: 5 COLLECTED 24 APR (UAM #3447, LACM #69485-69487,69525).

Owner/Manager: UNKNOWN



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<i>Antrozous pallidus</i>		Element Code: AMACC10010	
pallid bat			
Listing Status:	Federal: None	CNDDB Element Ranks:	Global: G5
	State: None		State: S3
Other:	BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_LC-Least Concern, USFS_S-Sensitive, WBWG_H-High Priority		
Habitat:	General: DESERTS, GRASSLANDS, SHRUBLANDS, WOODLANDS & FORESTS. MOST COMMON IN OPEN, DRY HABITATS WITH ROCKY AREAS FOR ROOSTING.		
	Micro: ROOSTS MUST PROTECT BATS FROM HIGH TEMPERATURES. VERY SENSITIVE TO DISTURBANCE OF ROOSTING SITES.		

Occurrence No.	255	Map Index: 66585	EO Index: 66722	Element Last Seen: 1943-04-24
Occ. Rank:	Unknown	Presence: Presumed Extant	Site Last Seen: 1943-04-24	
Occ. Type:	Natural/Native occurrence	Trend: Unknown	Record Last Updated: 2006-10-04	
Quad Summary:	San Jose West (3712138)			
County Summary:	Santa Clara			
Lat/Long:	37.33910 / -121.89534	Accuracy:	1 mile	
UTM:	Zone-10 N4133063 E597851	Elevation (ft):	90	
PLSS:	T07S, R01E, Sec. 08 (M)	Acres:	0.0	
Location:	SAN JOSE.			
Detailed Location:	EXACT LOCATION UNKNOWN. MAPPED IN THE GENERAL VICINITY OF SAN JOSE.			
Ecological:				
General:	5 FEMALES COLLECTED BY STAGER 14 & 23 APR 1942, LACM #8922-8926. 5 MALES & 5 FEMALES COLLECTED 14 APR, 6, 13, 20 & 26 MAY 1942, LACM #69449, 11659-11667, 3 MALE, 1 FEMALE & 1 UNK. COLLECTED 24 APR 1943, LACM #69528-69531, BY CONSTANTINE.			
Owner/Manager:	UNKNOWN			



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California Natural Diversity Database



<i>Emys marmorata</i>		Element Code: ARAAD02030	
western pond turtle			
Listing Status:	Federal: None	CNDDDB Element Ranks:	Global: G3G4
	State: None		State: S3
	Other: BLM_S-Sensitive, CDFW_SSC-Species of Special Concern, IUCN_VU-Vulnerable, USFS_S-Sensitive		
Habitat:	General: A THOROUGHLY AQUATIC TURTLE OF PONDS, MARSHES, RIVERS, STREAMS & IRRIGATION DITCHES, USUALLY WITH AQUATIC VEGETATION, BELOW 6000 FT ELEVATION.		
	Micro: NEED BASKING SITES AND SUITABLE (SANDY BANKS OR GRASSY OPEN FIELDS) UPLAND HABITAT UP TO 0.5 KM FROM WATER FOR EGG-LAYING.		
Occurrence No.	301	Map Index: 62431	EO Index: 62468
Occ. Rank:	Fair	Presence: Presumed Extant	Element Last Seen: 1997-03-11
Occ. Type:	Natural/Native occurrence	Trend: Unknown	Site Last Seen: 1997-03-11
			Record Last Updated: 2005-08-30
Quad Summary:	San Jose West (3712138)		
County Summary:	Santa Clara		
Lat/Long:	37.26934 / -121.87861		Accuracy: specific area
UTM:	Zone-10 N4125341 E599425		Elevation (ft): 160
PLSS:	T08S, R01E, Sec. 05 (M)		Acres: 23.1
Location:	GUADALUPE RIVER, VICINITY OF ALMADEN EXPRESSWAY UPSTREAM TO THE BRANHAM LANE CROSSING, SAN JOSE.		
Detailed Location:			
Ecological:	HABITAT CONSISTS OF AN URBAN STREAM WITH ENGINEERED BANKS IN SOME REACHES; DOMINATED BY STREAMSIDE RIPARIAN, EMERGENT VEGETATION, AND RUDERAL VEGETATION.		
General:	3 ADULTS OBSERVED DURING SALMON REDD SURVEYS ON 11 MAR 1997.		
Owner/Manager:	PVT-SANTA CLARA VALLEY WD		



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California Department of Fish and Wildlife
California Natural Diversity Database



Centromadia parryi ssp. congdonii

Element Code: PDAST4R0P1

Congdon's tarplant

Listing Status:	Federal: None	CNDDDB Element Ranks:	Global: G3T2
	State: None		State: S2
	Other: Rare Plant Rank - 1B.1, BLM_S-Sensitive, SB_RSABG-Rancho Santa Ana Botanic Garden		
Habitat:	General: VALLEY AND FOOTHILL GRASSLAND.		
	Micro: ALKALINE SOILS, SOMETIMES DESCRIBED AS HEAVY WHITE CLAY. 1-230 M.		

Occurrence No.	40	Map Index:	42346	EO Index:	42346	Element Last Seen:	1908-09-19
Occ. Rank:	None	Presence:	Extirpated	Site Last Seen:		1998-10-04	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		2000-02-07	

Quad Summary: Santa Teresa Hills (3712127), Los Gatos (3712128), San Jose East (3712137), San Jose West (3712138), Calaveras Reservoir (3712147), Milpitas (3712148)

County Summary: Santa Clara

Lat/Long:	37.31441 / -121.86207	Accuracy:	5 miles
UTM:	Zone-10 N4130359 E600832	Elevation (ft):	100
PLSS:	T07S, R01E, Sec. 21 (M)	Acres:	0.0

Location: EAST SAN JOSE.

Detailed Location: EXACT LOCATION NOT KNOWN. MAPPED IN GENERAL AREA OF EASTERN SAN JOSE. TOPOGRAPHY AND SOILS OF AREA AROUND ALUM ROCK AVENUE AND SILVER CREEK ARE APPROPRIATE FOR C. PARRYI SSP. CONGDONII (R. PRESTON 1998).

Ecological:

General: SITE BASED UPON 1908 COLLECTION BY MCMURPHY. AREA SEARCHED IN 1998 BUT HABITAT IS GONE.

Owner/Manager: UNKNOWN

Plagiobothrys glaber

Element Code: PDBOR0V0B0

hairless popcornflower

Listing Status:	Federal: None	CNDDDB Element Ranks:	Global: GH
	State: None		State: SH
	Other: Rare Plant Rank - 1A		
Habitat:	General: MEADOWS AND SEEPS, MARSHES AND SWAMPS.		
	Micro: COASTAL SALT MARSHES AND ALKALINE MEADOWS. 5-180M.		

Occurrence No.	4	Map Index:	28363	EO Index:	29537	Element Last Seen:	1892-XX-XX
Occ. Rank:	Unknown	Presence:	Possibly Extirpated	Site Last Seen:		1892-XX-XX	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		1996-10-09	

Quad Summary: San Jose West (3712138)

County Summary: Santa Clara

Lat/Long:	37.34871 / -121.94696	Accuracy:	1 mile
UTM:	Zone-10 N4134077 E593267	Elevation (ft):	80
PLSS:	T07S, R01W, Sec. 02 (M)	Acres:	0.0

Location: SANTA CLARA.

Detailed Location:

Ecological:

General: ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1892 COLLECTION BY MICHENER AND BIOLETTI.

Owner/Manager: UNKNOWN



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California Department of Fish and Wildlife
California Natural Diversity Database



<i>Trifolium hydrophilum</i>		Element Code: PDFAB400R5	
saline clover			
Listing Status:	Federal: None	CNDDB Element Ranks:	Global: G2
	State: None		State: S2
	Other: Rare Plant Rank - 1B.2		
Habitat:	General: MARSHES AND SWAMPS, VALLEY AND FOOTHILL GRASSLAND, VERNAL POOLS.		
	Micro: MESIC, ALKALINE SITES. 0-300 M.		

Occurrence No.	25	Map Index: 66585	EO Index: 84579	Element Last Seen:	1903-06-01
Occ. Rank:	Unknown		Presence: Presumed Extant	Site Last Seen:	1903-06-01
Occ. Type:	Natural/Native occurrence		Trend: Unknown	Record Last Updated:	2011-09-07
Quad Summary:	San Jose West (3712138)				
County Summary:	Santa Clara				
Lat/Long:	37.33910 / -121.89534		Accuracy:	1 mile	
UTM:	Zone-10 N4133063 E597851		Elevation (ft):		
PLSS:	T07S, R01E, Sec. 08 (M)		Acres:	0.0	
Location:	SAN JOSE.				
Detailed Location:	EXACT LOCATION UNKNOWN. MAPPED BY CNDDB IN GENERAL VICINITY OF SAN JOSE BUT COLLECTION LOCALITY IS VERY VAGUE.				
Ecological:					
General:	ONLY SOURCE OF INFORMATION FOR THIS OCCURRENCE IS A 1903 COLLECTION BY ELMER. NEEDS FIELDWORK.				
Owner/Manager:	UNKNOWN				

<i>Malacothamnus arcuatus</i>		Element Code: PDMAL0Q0E0	
arcuate bush-mallow			
Listing Status:	Federal: None	CNDDB Element Ranks:	Global: G1Q
	State: None		State: S1
	Other: Rare Plant Rank - 1B.2		
Habitat:	General: CHAPARRAL, CISMONTANE WOODLAND.		
	Micro: GRAVELLY ALLUVIUM. 15-355 M.		

Occurrence No.	23	Map Index: 28363	EO Index: 56207	Element Last Seen:	1961-XX-XX
Occ. Rank:	None		Presence: Possibly Extirpated	Site Last Seen:	1961-XX-XX
Occ. Type:	Natural/Native occurrence		Trend: Unknown	Record Last Updated:	2004-07-23
Quad Summary:	San Jose West (3712138)				
County Summary:	Santa Clara				
Lat/Long:	37.34871 / -121.94696		Accuracy:	1 mile	
UTM:	Zone-10 N4134077 E593267		Elevation (ft):	90	
PLSS:	T07S, R01W, Sec. 02 (M)		Acres:	0.0	
Location:	SANTA CLARA.				
Detailed Location:	EXACT LOCATION UNKNOWN. MAPPED AS BEST GUESS BY CNDDB, IN THE VICINITY OF DOWNTOWN SANTA CLARA.				
Ecological:					
General:	ONLY INFORMATION FOR THIS SITE IS REFERENCE BY THOMAS IN 1961 FLORA OF THE SANTA CRUZ MOUNTAINS OF CALIFORNIA. PLANTS POSSIBLY EXTIRPATED DUE TO DEVELOPMENT IN AREA. NEEDS FIELDWORK.				
Owner/Manager:	UNKNOWN				



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California Department of Fish and Wildlife
California Natural Diversity Database



<i>Malacothamnus hallii</i>		Element Code: PDMAL0Q0F0	
Hall's bush-mallow			
Listing Status:	Federal: None	CNDDDB Element Ranks:	Global: G2Q
	State: None		State: S2
	Other: Rare Plant Rank - 1B.2, BLM_S-Sensitive		
Habitat:	General: CHAPARRAL.		
	Micro: SOME POPULATIONS ON SERPENTINE. 10-550M.		

Occurrence No.	9	Map Index:	28970	EO Index:	30509	Element Last Seen:	1976-10-20
Occ. Rank:	None	Presence:	Possibly Extirpated	Site Last Seen:		1993-07-24	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		1997-03-19	
Quad Summary:	San Jose West (3712138)						
County Summary:	Santa Clara						
Lat/Long:	37.35508 / -121.91338		Accuracy:	1/5 mile			
UTM:	Zone-10 N4134817 E596232		Elevation (ft):	40			
PLSS:	T07S, R01E, Sec. 06 (M)		Acres:	0.0			
Location:	EAST SIDE OF GUADALUPE CREEK JUST NORTH OF HIGHWAY 17, SAN JOSE.						
Detailed Location:	25 YARDS EAST OF THE CREEK AND 200 YARDS NORTH OF THE HIGHWAY.						
Ecological:	OBSERVED IN 1976 WITH BACCHARIS AND WEEDY FORBS. IN 1993 SITE VEGETATED WITH BACCHARIS, TYPHA, CAREX, POPULUS FREMONTII, AND WEEDY FORBS. DISTURBED CREEKBED WITH LEVEES BUILT UP ON BOTH SIDES.						
General:	CHANDIK SEARCHED THIS AREA IN 1993 BUT NO MALACOTHAMNUS WERE OBSERVED.						
Owner/Manager:	UNKNOWN						

<i>Chorizanthe robusta var. robusta</i>		Element Code: PDPGN040Q2	
robust spineflower			
Listing Status:	Federal: Endangered	CNDDDB Element Ranks:	Global: G2T1
	State: None		State: S1
	Other: Rare Plant Rank - 1B.1, BLM_S-Sensitive		
Habitat:	General: CISMONTANE WOODLAND, COASTAL DUNES, COASTAL SCRUB.		
	Micro: SANDY TERRACES AND BLUFFS OR IN LOOSE SAND. 3-120M.		

Occurrence No.	19	Map Index:	37885	EO Index:	41067	Element Last Seen:	1882-XX-XX
Occ. Rank:	None	Presence:	Possibly Extirpated	Site Last Seen:		1882-XX-XX	
Occ. Type:	Natural/Native occurrence	Trend:	Unknown	Record Last Updated:		1999-05-18	
Quad Summary:	San Jose East (3712137), San Jose West (3712138), Calaveras Reservoir (3712147), Milpitas (3712148)						
County Summary:	Santa Clara						
Lat/Long:	37.33789 / -121.89131		Accuracy:	5 miles			
UTM:	Zone-10 N4132933 E598210		Elevation (ft):	200			
PLSS:	T07S, R01E, Sec. 08 (M)		Acres:	0.0			
Location:	SAN JOSE.						
Detailed Location:	EXACT LOCATION NOT KNOW; SITE MAPPED IN GENERAL VICINITY OF SAN JOSE.						
Ecological:							
General:	ONLY SOURCE OF INFORMATION FOR THIS SITE IS 1882 COLLECTION BY PARRY. THIS SPECIMEN WAS NOT REVIEWED BY B. ERTTER ET AL. IN 1990.						
Owner/Manager:	UNKNOWN						



Summary Table Report

California Department of Fish and Wildlife

California Natural Diversity Database



Query Criteria: Quad is (San Jose West (3712138))

St. Anton Capital - Residences @ Railway, Campbell CA

Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Accipiter cooperii</i> Cooper's hawk	G5 S4	None None	CDFW_WL-Watch List IUCN_LC-Least Concern	175 175	103 S:1	0	0	1	0	0	0	0	1	1	0	0
<i>Ambystoma californiense</i> California tiger salamander	G2G3 S2S3	Threatened Threatened	CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable	85 85	1112 S:1	0	0	0	0	1	0	1	0	0	0	1
<i>Antrozous pallidus</i> pallid bat	G5 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	90 90	402 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Athene cunicularia</i> burrowing owl	G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	40 56	1862 S:4	1	0	1	1	1	0	2	2	3	1	0
<i>Buteo swainsoni</i> Swainson's hawk	G5 S3	None Threatened	BLM_S-Sensitive IUCN_LC-Least Concern USFWS_BCC-Birds of Conservation Concern	50 50	2394 S:1	0	0	0	0	1	0	1	0	0	1	0
<i>Centromadia parryi ssp. congdonii</i> Congdon's tarplant	G3T2 S2	None None	Rare Plant Rank - 1B.1 BLM_S-Sensitive SB_RSABG-Rancho Santa Ana Botanic Garden	100 100	91 S:1	0	0	0	0	1	0	1	0	0	0	1
<i>Chorizanthe robusta var. robusta</i> robust spineflower	G2T1 S1	Endangered None	Rare Plant Rank - 1B.1 BLM_S-Sensitive	200 200	22 S:1	0	0	0	0	1	0	1	0	0	1	0



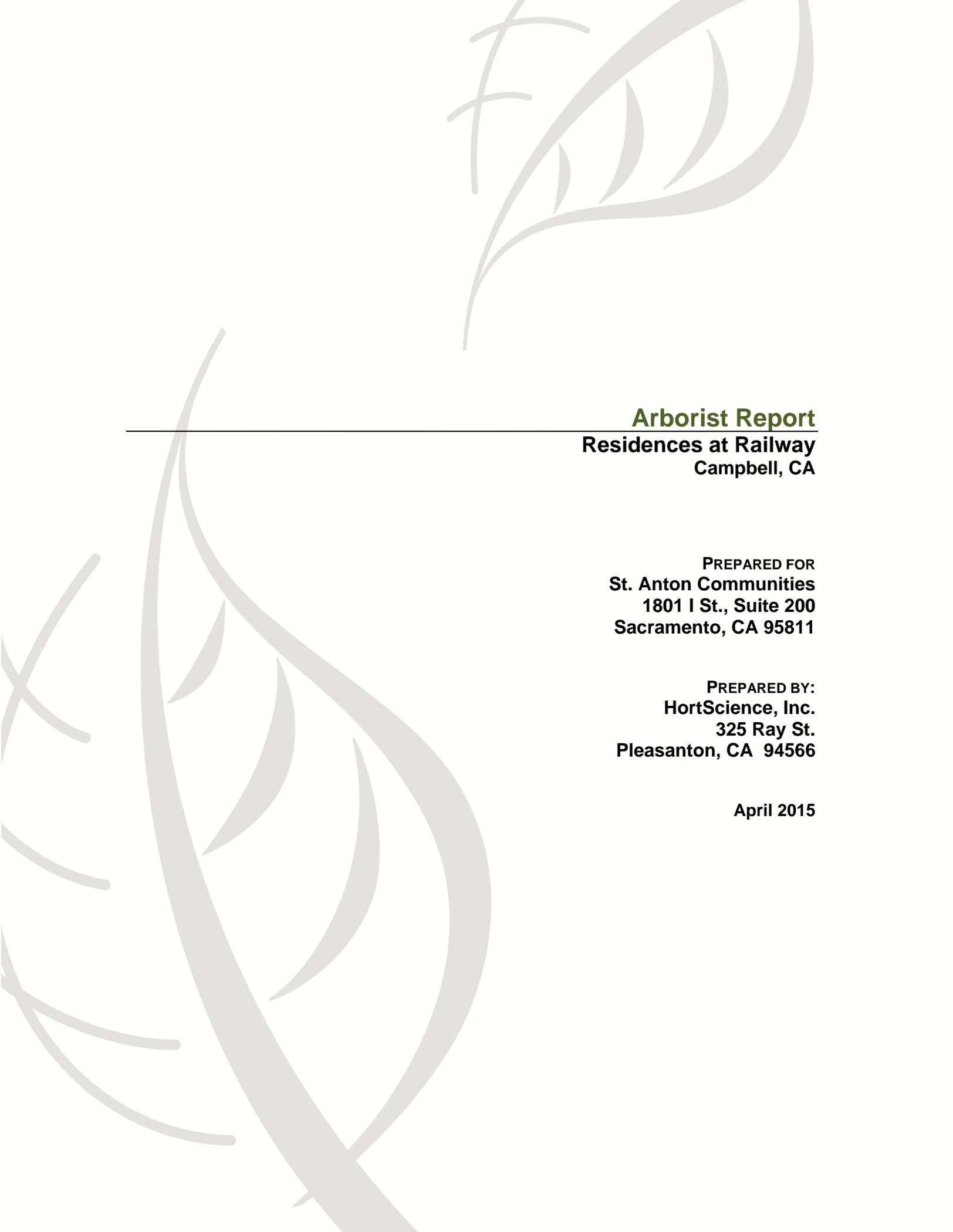
Summary Table Report
California Department of Fish and Wildlife
California Natural Diversity Database



Name (Scientific/Common)	CNDDB Ranks	Listing Status (Fed/State)	Other Lists	Elev. Range (ft.)	Total EO's	Element Occ. Ranks						Population Status		Presence		
						A	B	C	D	X	U	Historic > 20 yr	Recent <= 20 yr	Extant	Poss. Extirp.	Extirp.
<i>Corynorhinus townsendii</i> Townsend's big-eared bat	G3G4 S2	None Candidate Threatened	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_LC-Least Concern USFS_S-Sensitive WBWG_H-High Priority	90 90	619 S:1	0	0	0	0	0	1	1	0	1	0	0
<i>Emys marmorata</i> western pond turtle	G3G4 S3	None None	BLM_S-Sensitive CDFW_SSC-Species of Special Concern IUCN_VU-Vulnerable USFS_S-Sensitive	160 160	1137 S:1	0	0	1	0	0	0	0	1	1	0	0
<i>Falco peregrinus anatum</i> American peregrine falcon	G4T4 S3S4	Delisted Delisted	CDF_S-Sensitive CDFW_FP-Fully Protected USFWS_BCC-Birds of Conservation Concern	85 85	38 S:1	0	0	0	0	0	1	0	1	1	0	0
<i>Lasiurus cinereus</i> hoary bat	G5 S4	None None	IUCN_LC-Least Concern WBWG_M-Medium Priority		235 S:3	0	0	0	0	0	3	3	0	3	0	0
<i>Malacothamnus arcuatus</i> arcuate bush-mallow	G1Q S1	None None	Rare Plant Rank - 1B.2	90 90	25 S:1	0	0	0	0	1	0	1	0	0	1	0
<i>Malacothamnus hallii</i> Hall's bush-mallow	G2Q S2	None None	Rare Plant Rank - 1B.2 BLM_S-Sensitive	40 40	37 S:1	0	0	0	0	1	0	1	0	0	1	0
<i>Plagiobothrys glaber</i> hairless popcornflower	GH SH	None None	Rare Plant Rank - 1A	80 80	9 S:1	0	0	0	0	0	1	1	0	0	1	0
<i>Trifolium hydrophilum</i> saline clover	G2 S2	None None	Rare Plant Rank - 1B.2		49 S:1	0	0	0	0	0	1	1	0	1	0	0

ATTACHMENT 5

ARBORIST REPORT



Arborist Report
Residences at Railway
Campbell, CA

PREPARED FOR
St. Anton Communities
1801 I St., Suite 200
Sacramento, CA 95811

PREPARED BY:
HortScience, Inc.
325 Ray St.
Pleasanton, CA 94566

April 2015

**Arborist Report
208-300 Railway Ave.
Campbell, CA**

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Description of Trees	2
Suitability for Preservation	5
Evaluation of Impacts and Recommendations for Preservation	7
Tree Preservation Guidelines	8

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Table 2. Tree Suitability for Preservation	6
Table 3. Trees Identified for Removal	7

Attachments

Tree Assessment Form
Tree Location Map
Photo Exhibit: Trees Identified for Removal

Introduction and Overview

St. Anton Communities plans to redevelop the sites at 208, 216, and 300 Railway Ave. in Campbell. Currently, site use consists of automotive shops, private residences, and vacant lots across the street. HortScience, Inc. was asked to prepare an **Arborist Report** for the site as part of the application to the City of Campbell.

This report provides the following information:

1. An evaluation of the health and structural condition of the trees within the proposed project area based on a visual inspection from the ground.
2. An assessment of the trees that would be possibly preserved and removed based on the site plan provided by St. Anton Communities.
3. Guidelines for tree preservation during the design, construction and maintenance phases of development.

Tree Assessment Methods

Trees were assessed on November 20, 2014, February 9, 2015, and April 27, 2015. The evaluation included trees 6" in diameter and greater, located within and adjacent to the proposed project area. Trees located off-site that had canopies extending over the property line were included. The assessment procedure consisted of the following steps:

1. Identifying the tree as to species;
2. Tagging each tree with an identifying number and recording its location on a map;
3. Measuring the trunk diameter at a point 4.5' above grade;
4. Evaluating the health and structural condition using a scale of 1 – 5:
 - 5** - A healthy, vigorous tree, reasonably free of signs and symptoms of disease, with good structure and form typical of the species.
 - 4** - Tree with slight decline in vigor, small amount of twig dieback, minor structural defects that could be corrected.
 - 3** - Tree with moderate vigor, moderate twig and small branch dieback, thinning of crown, poor leaf color, moderate structural defects that might be mitigated with regular care.
 - 2** - Tree in decline, epicormic growth, extensive dieback of medium to large branches, significant structural defects that cannot be abated.
 - 1** - Tree in severe decline, dieback of scaffold branches and/or trunk; most of foliage from epicormics; extensive structural defects that cannot be abated.
5. Rating the suitability for preservation as "high", "moderate" or "low". Suitability for preservation considers the health, age and structural condition of the tree, and its potential to remain an asset to the site for years to come.

High: Trees with good health and structural stability that have the potential for longevity at the site.

Moderate: Trees with somewhat declining health and/or structural defects that can be abated with treatment. The tree will require more intense management and monitoring, and may have shorter life span than those in 'high' category.

Low: Tree in poor health or with significant structural defects that cannot be mitigated. Tree is expected to continue to decline, regardless of treatment. The species or individual may have characteristics that are undesirable for landscapes, and generally are unsuited for use areas.

Description of Trees

Fifty-seven trees representing fifteen species were evaluated (Table 1), including 17 street trees, 20 off-site trees with canopies overhanging the site, and 20 on-site trees, including three on the property line. Trees were in fair condition (31 trees/54% of the total) with 13 trees both in good and poor condition (13/23% each). Descriptions of each tree are found in the **Tree Assessment Form** and approximate locations are plotted on the **Tree Inventory Map** (see Attachments).

**Table 1. Condition ratings and frequency of occurrence of trees
 208-300 Railway Ave., Campbell**

Common Name	Scientific Name	Condition			Total
		Poor (1-2)	Fair (3)	Good (4-5)	
Tree of heaven	<i>Ailanthus altissima</i>	6	4	-	10
Incense cedar	<i>Calocedrus decurrens</i>	-	1	-	1
Camphor	<i>Cinnamomum camphora</i>	-	4	-	4
Lemon	<i>Citrus limon</i>	-	1	-	1
Orange	<i>Citrus sinensis</i>	-	2	-	2
Italian cypress	<i>Cupressus sempervirens</i>	-	1	-	1
Afghan pine	<i>Pinus eldarica</i>	1	-	-	1
Monterey pine	<i>Pinus radiata</i>	1	6	1	8
London plane	<i>Platanus x hispanica</i>	-	5	12	17
Cherry	<i>Prunus avium</i>	2	-	-	2
Almond	<i>Prunus dulcis</i>	2	1	-	3
Pear	<i>Pyrus communis</i>	1	-	-	1
Coast live oak	<i>Quercus agrifolia</i>	-	1	-	1
Holly oak	<i>Quercus ilex</i>	-	1	-	1
American arborvitae	<i>Thuja orientalis</i>	-	4	-	4
Total		13 23%	31 54%	13 23%	57 100%

Twenty on-site trees across all sites were evaluated. The most common species was Tree of Heaven, with 10 trees or 18% of the population. Trees were located along the north property line of the 300 Railway Ave. site and were in fair condition (four trees) and poor condition (six trees). Trees were young and were characterized as having codominant trunks or multiple attachments, and many trees were growing into the chain link fence (Photo 1). Trees in poor condition had trunk cavities with decay. Tree of heaven is a fast-growing, short-lived tree, and these trees were likely spread by seed or had sprouted from old trunks.

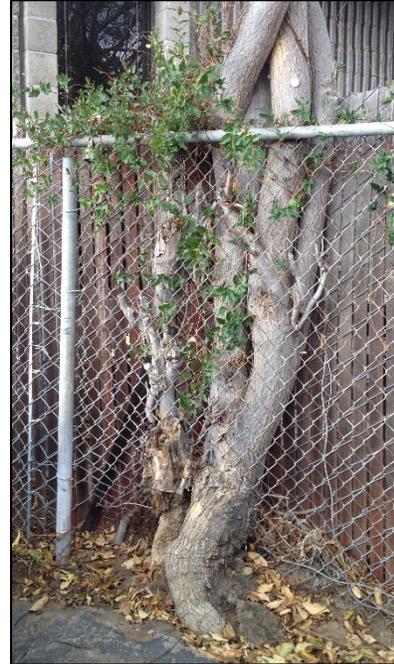


Photo 1: Tree of heaven #218 was in poor condition with multiple attachments at the base, a basal cavity with decay, and the trunk was growing into the fence.

The ten remaining on-site trees included incense cedar #220, located behind the sidewalk on Railway Ave. The tree was in fair condition with a slightly thin crown and a history of branch failures. Branches had been pruned on the west side for utility line

clearance. Italian cypress #221 was also in fair condition, and Afghan pine #70 was in poor condition. Several fruit trees were located on the residential parcels to the north, including one lemon (#63) in fair condition and two orange (#64, 69) in good condition, and three trees in poor condition: cherries (#66 and 67), pear (#68) and almond (#245).

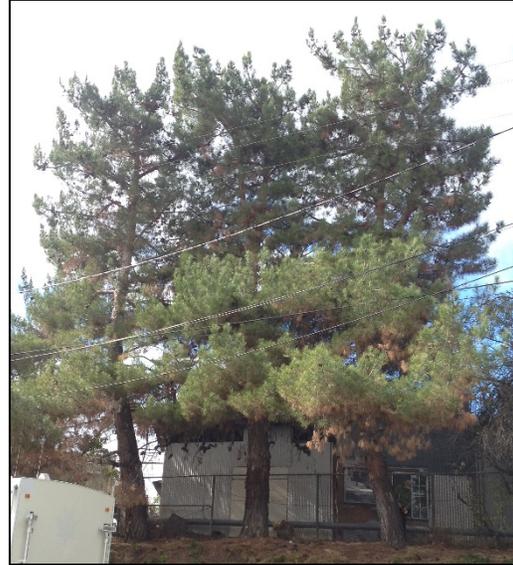
Seventeen street trees were evaluated along Railway Ave. London planes were semi-mature in development with trunk diameters ranging from 9-13". Trees were in fair (five trees) and good (12 trees) condition (Photo 2). Trees had good form and structure and most had minor twig dieback. Trees on the east side of Railway Ave. were growing beneath utility lines; trees #229-231 and 65 had been topped for line clearance.



Photo 2: London plane #229 (far right) had been topped for utility line clearance

Twenty off-site trees, located along the east property line, were evaluated and included eight Monterey pine mostly in fair condition with one tree (#238) in good condition and one (#242) in poor condition. Monterey pines were mature with fair form and structure, and all had signs of pitch moth. Pitch moth larvae cause masses of sap to form along the trunks of trees and rarely cause significant damage or death to trees. Limbs extended west over the site and the bases of trees were approximately 3' from the property line (Photo 3).

Photo 3: Monterey pines #252-254, located on the east property line, were in fair condition.



Nine additional off-site trees included the following:

- Four American arborvitae in fair condition;
- Four camphor in fair condition;
- Two almond in fair to poor condition;
- One coast live oak and one holly oak, both in fair condition.

Campbell Municipal Code Chapter 21.32 protects trees measuring 12" in diameter or greater. By this definition, 18 trees qualified as *Protected*, including on-site tree of heaven #219 and the largest tree on site, incense cedar #220.

Suitability for Preservation

Before evaluating the impacts that will occur during development, it is important to consider the quality of the tree resource itself, and the potential for individual trees to function well over an extended length of time. Trees that are preserved on development sites must be carefully selected to make sure that they may survive development impacts, adapt to a new environment and perform well in the landscape.

Our goal is to identify trees that have the potential for long-term health, structural stability and longevity. For trees growing in open fields, away from areas where people and property are present, structural defects and/or poor health presents a low risk of damage or injury if they fail. However, we must be concerned about safety in use areas. Therefore, where development encroaches into existing plantings, we must consider their structural stability as well as their potential to grow and thrive in a new environment. Where development will not occur, the normal life cycles of decline, structural failure and death should be allowed to continue.

Evaluation of suitability for preservation considers several factors:

- **Tree health**
Healthy, vigorous trees are better able to tolerate impacts such as root injury, demolition of existing structures, changes in soil grade and moisture, and soil compaction than are non-vigorous trees.

- **Structural integrity**
Trees with significant amounts of wood decay and other structural defects that cannot be corrected are likely to fail. Such trees should not be preserved in areas where damage to people or property is likely. Incense cedar #220 with a history of branch failure is an example of such a tree.

- **Species response**
There is a wide variation in the response of individual species to construction impacts and changes in the environment. For example, London plane is tolerant of construction impacts while Monterey pine is relatively intolerant.

- **Tree age and longevity**
Old trees, while having significant emotional and aesthetic appeal, have limited physiological capacity to adjust to an altered environment. Young trees are better able to generate new tissue and respond to change.

- **Species invasiveness**
Species that spread across a site and displace desired vegetation are not always appropriate for retention. This is particularly true when indigenous species are displaced. The California Invasive Plant Inventory Database (<http://www.cal-ipc.org/paf/>) lists species identified as being invasive. Campbell is part of the Central West Floristic Province. Tree of heaven is identified as moderate invasive. Moderate is defined as “species [that] have substantial and apparent-but generally not severe-ecological impacts on physical processes, plant and animal communities, and vegetation structure. Their reproductive biology and other attributes are conducive to moderate to high rates of dispersal, though establishment is generally dependent upon ecological disturbance. Ecological amplitude and distribution may range from limited to widespread.”

Each tree was rated for suitability for preservation based upon its age, health, structural condition and ability to safely coexist within a development environment (see ***Tree Assessment Form*** in Attachments, and Table 2). We consider trees with good suitability for preservation to be the best candidates for preservation. We do not recommend retention of trees with poor suitability for preservation in areas where people or property will be present. Retention of trees with moderate suitability for preservation depends upon the intensity of proposed site changes.

**Table 2: Tree suitability for preservation
208-300 Railway Ave., Campbell**

High These are trees with good health and structural stability that have the potential for longevity at the site. Fifteen trees had high suitability for preservation.

Tag #	Species	Diameter	Tag #	Species	Diameter
222	London plane	9	231	London plane	11
223	London plane	9	232	London plane	9
224	London plane	10	233	London plane	12
225	London plane	13	234	London plane	11
226	London plane	10	235	London plane	10
228	London plane	10	236	London plane	10
229	London plane	11	237	London plane	10
230	London plane	11			

Moderate Trees in this category have fair health and/or structural defects that may be abated with treatment. These trees require more intense management and monitoring, and may have shorter life-spans than those in the “high” category. Twenty-three trees had moderate suitability for preservation.

Tag #	Species	Diameter	Tag #	Species	Diameter
64	Orange	9,4,4	241	Monterey pine	16
69	Orange	4,4,4,3,3,3,2	243	Almond	9,9
71	Camphor	12	244	American arborvitae	7,5
72	Camphor	13	246	American arborvitae	8,5,4
73	Camphor	14	247	American arborvitae	11
74	Camphor	12	248	Holly oak	5
220	Incense cedar	30	249	Coast live oak	7
221	Italian cypress	9	250	American arborvitae	12
227	London plane	9	252	Monterey pine	20
238	Monterey pine	23	253	Monterey pine	23
239	Monterey pine	20	254	Monterey pine	24
240	Monterey pine	14			

Low Trees in this category are in poor health or have significant defects in structure that cannot be abated with treatment. These trees can be expected to decline regardless of management. The species or individual tree may possess either characteristics that are undesirable in landscape settings or be unsuited for use areas. Nineteen trees had low suitability for preservation.

Tag #	Species	Diameter	Tag #	Species	Diameter
63	Lemon	5	214	Tree of heaven	8,6,2
65	London plane	10	215	Tree of heaven	8
66	Cherry	10,9,8,6	216	Tree of heaven	10,9,7
67	Cherry	6,5,5,5,3	217	Tree of heaven	8,5,5,4,3
68	Pear	5,2	218	Tree of heaven	5,5,4,4,3
70	Afghan pine	4	219	Tree of heaven	12,12,9
210	Tree of heaven	10,6	242	Monterey pine	23
211	Tree of heaven	7	245	Almond	8,3
212	Tree of heaven	10	251	Almond	17,11,4,3,3
213	Tree of heaven	10			

Evaluation of Impacts and Recommendations for Preservation

Appropriate tree retention develops a practical match between the location and intensity of construction activities and the quality and health of trees. The **Tree Assessment** was the reference point for tree condition and quality. I referred to the Overall Landscape Plan created by LPAS (dated 11/17/2014) to estimate impacts to trees. Grading, elevations, and utilities were not included on the plan. Plans show a new apartment building and townhomes along the east side of Railway Ave., new duplexes on the west side, and associated parking and landscaping. Railway Ave. will be widened by 2'. The most significant impacts would occur during demolition of the existing sites, from grading and construction of new buildings, driveways, parking lot, and by road widening. Based on my evaluation of the plans, removal would be required for all 17 on-site trees and 16 street trees (See Photo Exhibit). Table 3 shows trees identified for removal with reasons for removal and their protection status.

**Table 3: Trees identified for removal
208-300 Railway Ave., Campbell**

Tag #	Species	Diameter	Protected?	Reason for removal
63	Lemon	5	No	Low suitability for preservation
64	Orange	9,4,4	No	Low suitability for preservation
65	London plane	10	No	Street widening
66	Cherry	10,9,8,6	No	Low suitability for preservation
67	Cherry	6,5,5,5,3	No	Low suitability for preservation
68	Pear	5,2	No	Low suitability for preservation
69	Orange	4,4,4,3,3,3	No	Within building footprint
70	Afghan pine	4	No	Low suitability for preservation
210	Tree of heaven	10,6	No	Low suitability for preservation
211	Tree of heaven	7	No	Low suitability for preservation
212	Tree of heaven	10	No	Low suitability for preservation
213	Tree of heaven	10	No	Low suitability for preservation
214	Tree of heaven	8,6,2	No	Low suitability for preservation
215	Tree of heaven	8	No	Low suitability for preservation
216	Tree of heaven	10,9,7	No	Low suitability for preservation
217	Tree of heaven	8,5,5,4,3	No	Low suitability for preservation
218	Tree of heaven	5,5,4,4,3	No	Low suitability for preservation
219	Tree of heaven	12,12,9	Yes	Low suitability for preservation
220	Incense cedar	30	Yes	Within building footprint
221	Italian cypress	9	No	Within building footprint
222	London plane	9	No	Street widening
223	London plane	9	No	Street widening
224	London plane	10	No	Street widening
225	London plane	13	Yes	Street widening
226	London plane	10	No	Street widening
227	London plane	9	No	Street widening
228	London plane	10	No	Street widening
229	London plane	11	No	Street widening
230	London plane	11	No	Street widening
231	London plane	11	No	Street widening
232	London plane	9	No	Street widening
233	London plane	12	Yes	Street widening
234	London plane	11	No	Street widening
235	London plane	10	No	Street widening
236	London plane	10	No	Street widening
237	London plane	10	No	Street widening

Twenty off-site trees along the east boundary would be preserved but may require clearance pruning for vehicle access or building construction. Excavation along the east property line near off-site Monterey pines and north property line near camphor trees may encounter tree roots. Construction activities that may encroach within the canopies of off-site trees should be monitored by a Consulting Arborist. Preservation of the trees is predicated on the construction impacts being within the tolerances of the trees and on the implementation of specific recommendations in the ***Tree Preservation Guidelines***.

Tree Preservation Guidelines

The goal of tree preservation is not merely tree survival during development but maintenance of tree health and beauty for many years. Trees retained on sites that are either subject to extensive injury during construction or are inadequately maintained become a liability rather than an asset. The response of individual trees depends on the amount of excavation and grading, care with which demolition is undertaken, and construction methods.

The following recommendations will help reduce impacts to trees from development as well as maintain and improve their health and vitality through the clearing, grading and construction phases.

Design recommendations

1. For off-site trees #238-254, designate a **TREE PROTECTION ZONE (TPZ)** in which no construction, grading, and underground services including utilities, sub-drains, water, or sewer will be located. For design purposes, the **TREE PROTECTION ZONE** should be either edge of the existing planting area or the tree's dripline.
2. Include ***Tree Preservation Guidelines***, prepared by the Consulting Arborist, on all plans.
3. Design irrigation systems so that no trenching will occur within the **TREE PROTECTION ZONE**.
4. Do not lime soil within 20' of any tree designated for preservation. Lime is toxic to tree roots.

Pre-construction treatments and recommendations

1. Have the construction superintendent meet with the Consulting Arborist before beginning work to discuss work procedures and tree protection.
2. Enclose the **TREE PROTECTION ZONE** prior to demolition, grubbing or grading. Fences shall be 6 ft. chain link or equivalent as approved by the City. Fences are to remain in place until all grading and construction is completed.
3. Prune off-site trees to be preserved to provide construction clearance, as necessary. Any pruning of off-site trees must be done with the property owner's permission. All pruning shall be completed by a Certified Arborist or Tree Worker and adhere to the Tree Pruning Guidelines of the International Society of Arboriculture. Brush shall be chipped and spread beneath the trees within the **TREE PROTECTION ZONE**.
4. Structures, infrastructure, and underground features to be removed within the **TREE PROTECTION ZONE** of trees to be preserved shall use the smallest equipment, and operate from outside the **TREE PROTECTION ZONE**. The Consulting Arborist shall be on-site during all operations within the **TREE PROTECTION ZONE** to monitor demolition activity.

Recommendations for tree protection during construction

1. Prior to beginning work, the contractors working in the vicinity of trees to be preserved are required to meet with the Consulting Arborist at the site to review all work procedures, access routes, storage areas and tree protection measures.
2. All contractors shall conduct operations in a manner that will prevent damage to trees to be preserved.

3. Tree protection fences are to remain until all site work has been completed. Fences may not be relocated or removed without permission of the Consulting Arborist.
4. Prohibit grading, construction, demolition or other work within the **TREE PROTECTION ZONE**. Any modifications must be approved and monitored by the Consulting Arborist.
5. Ensure that any root pruning required for construction purposes shall receive the prior approval of, and be supervised by, the Consulting Arborist.
6. Evaluate any injury to trees that should occur during construction. Notify the Consulting Arborist as soon as possible so that appropriate treatments can be applied.
7. No excess soil, chemicals, debris, equipment or other materials shall be dumped or stored within the **TREE PROTECTION ZONE**.

Maintenance of impacted trees

Trees preserved at the 208-300 Railway Ave. sites will experience a different physical environment than pre-development. As a result, tree health and structural stability should be monitored, and monitoring tree health and structural stability following construction must be made a priority.

As trees age, the likelihood of failure of branches or entire trees increases. Therefore, it is recommended that the property owner have the trees inspected annually for structural condition and health and take appropriate action to preserve the trees.

HortScience, Inc.



Deanne Ecklund
Certified Arborist #WE-9067A

**Attachments: *Tree Assessment Form*
*Tree Inventory Map***

Tree Assessment

St. Anton Communities
 208-300 Railway Ave
 Campbell, California
 November 2014, February & April 2015



TREE No.	SPECIES	SIZE DIAMETER (in inches)	CONDITION 1=POOR 5=EXCELLENT	SUITABILITY FOR PRESERVATION	PROTECTED TREE?	COMMENTS
63	Lemon	5	3	Low	No	One-sided to N; trunk decay; branch failure; chlorotic.
64	Orange	9,4,4	4	Moderate	No	Multiple attachments at 2'; one-sided to E in lower trunk; full canopy.
65	London plane	10	3	Low	No	Street tree; multiple attachments at 12'; growing into overhead wires and street light; topped.
66	Cherry	10,9,8,6	1	Low	No	Mostly dead.
67	Cherry	6,5,5,5,3	1	Low	No	Mostly dead.
68	Pear	5,2	1	Low	No	Codominant trunks at 3'; crown half dead; trunk wounds.
69	Orange	4,4,4,3,3,3,2	4	Moderate	No	Multiple attachments at 2'; dense crown; minor twig dieback in inner crown.
70	Afghan pine	4	2	Low	No	Poor form and structure; stisted trunk; thin crown.
71	Camphor	12	3	Moderate	Yes	Off-site, no tag; leans southwest; canopy extends over site 15'.
72	Camphor	13	3	Moderate	Yes	Off-site, no tag; leans southwest; canopy extends over site 15'.
73	Camphor	14	3	Moderate	Yes	Off-site, no tag; leans southwest; canopy extends over site 15'.
74	Camphor	12	3	Moderate	Yes	Off-site, no tag; leans southwest; canopy extends over site 15'.
210	Tree of heaven	10,6	3	Low	No	On property line; growing into chain link fence; codominant trunks at base.
211	Tree of heaven	7	2	Low	No	On property line; growing into chain link fence; trunk cavity.
212	Tree of heaven	10	2	Low	No	Codominant trunks at 3.5'; on property line; growing into chain link fence; trunk cavity.
213	Tree of heaven	10	3	Low	No	Multiple attachments at 10'; on property line; growing into chain link fence; trunk cavity.
214	Tree of heaven	8,6,2	2	Low	No	Multiple attachments at 3'; on property line; growing into chain link fence; trunk cavity at base.
215	Tree of heaven	8	3	Low	No	Multiple attachments at 9'; on property line; growing into chain link fence.
216	Tree of heaven	10,9,7	2	Low	No	Multiple attachments at base; roots lifting asphalt; on property line; growing into fence.

Tree Assessment

St. Anton Communities
 208-300 Railway Ave
 Campbell, California
 November 2014, February & April 2015



TREE No.	SPECIES	SIZE DIAMETER (in inches)	CONDITION 1=POOR 5=EXCELLENT	SUITABILITY FOR PRESERVATION	PROTECTED TREE?	COMMENTS
217	Tree of heaven	8,5,5,4,3	2	Low	No	Multiple attachments at base; roots lifting asphalt; on property line; growing into fence.
218	Tree of heaven	5,5,4,4,3	2	Low	No	Multiple attachments at base; roots lifting asphalt; on property line; growing into fence; basal cavity with decay.
219	Tree of heaven	12,12,9	3	Low	Yes	Multiple attachments at base; spreading form; beneath utility lines.
220	Incense cedar	30	3	Moderate	Yes	Slightly thin crown; pruned for utility lines; history of branch failure;
221	Italian cypress	9	3	Moderate	No	Good form and structure; on property line.
222	London plane	9	4	High	No	Street tree; good form and structure; minor twig dieback; trunk growing into grate; beneath utility lines.
223	London plane	9	4	High	No	Street tree; good form and structure; minor twig dieback; beneath utility lines.
224	London plane	10	4	High	No	Street tree; good form and structure; minor twig dieback; beneath utility lines.
225	London plane	13	4	High	Yes	Street tree; good form and structure; minor twig dieback; trunk
226	London plane	10	4	High	No	Street tree; good form and structure; minor twig dieback; beneath utility lines.
227	London plane	9	3	Moderate	No	Street tree; good form and structure; twig dieback; beneath utility lines; guy wires grown into trunk.
228	London plane	10	4	High	No	Street tree; good form and structure; minor twig dieback; trunk growing into grate; beneath utility lines.
229	London plane	11	3	High	No	Street tree; good form and structure; minor twig dieback; trunk growing into grate; topped for utility lines.
230	London plane	11	3	High	No	Street tree; good form and structure; minor twig dieback; topped for utility lines.
231	London plane	11	3	High	No	Street tree; good form and structure; minor twig dieback; trunk growing into grate; topped for utility lines.
232	London plane	9	4	High	No	Street tree; good form and structure; minor twig dieback; trunk growing into grate; beneath utility lines.
233	London plane	12	4	High	Yes	Street tree; good form and structure; minor twig dieback.

Tree Assessment

St. Anton Communities
 208-300 Railway Ave
 Campbell, California
 November 2014, February & April 2015



TREE No.	SPECIES	SIZE DIAMETER (in inches)	CONDITION 1=POOR 5=EXCELLENT	SUITABILITY FOR PRESERVATION	PROTECTED TREE?	COMMENTS
234	London plane	11	4	High	No	Street tree; good form and structure; minor twig dieback.
235	London plane	10	4	High	No	Street tree; good form and structure; minor twig dieback.
236	London plane	10	4	High	No	Street tree; good form and structure; minor twig dieback.
237	London plane	10	4	High	No	Street tree; good form and structure; minor twig dieback.
238	Monterey pine	23	4	Moderate	Yes	Off-site, no tag; fair form; pitch moth; minor dieback.
239	Monterey pine	20	3	Moderate	Yes	Off-site, no tag; fair form; pitch moth; branch and twig dieback.
240	Monterey pine	14	3	Moderate	Yes	Off-site, no tag; fair form; pitch moth; minor dieback.
241	Monterey pine	16	3	Moderate	Yes	Off-site, no tag; fair form; pitch moth; history of branch failure; minor dieback.
242	Monterey pine	23	2	Low	Yes	Off-site, no tag; thin crown; one-sided form.
243	Almond	9,9	3	Moderate	No	Off-site, no tag; codominant trunks at 2'.
244	American arborvitae	7,5	3	Moderate	No	Off-site, no tag; fair form; codominant trunks at 2'
245	Almond	8,3	2	Low	No	On property line; thin crown; dieback; growing into fence.
246	American arborvitae	8,5,4	3	Moderate	No	Off-site, no tag; slightly thin crown.
247	American arborvitae	11	3	Moderate	No	Off-site, no tag; slightly thin crown; curved trunk.
248	Holly oak	5	3	Moderate	No	Off-site, no tag; crowded form.
249	Coast live oak	7	3	Moderate	No	Off-site, no tag; on property line; leans over site.
250	American arborvitae	12	3	Moderate	Yes	Off-site, no tag; slightly thin crown.
251	Almond	17,11,4,3,3	1	Low	Yes	Off-site, no tag; mostly dead.
252	Monterey pine	20	3	Moderate	Yes	Off-site, no tag; fair form; pitch moth; minor dieback; pruned for utility lines.
253	Monterey pine	23	3	Moderate	Yes	Off-site, no tag; fair form; pitch moth; minor dieback; pruned for utility lines; heavy lateral limb over site.
254	Monterey pine	24	3	Moderate	Yes	Off-site, no tag; fair form; pitch moth; minor dieback; pruned for utility lines.

Tree Inventory Map

**208-300 Railway Avenue
Campbell, CA**

Prepared for:
**St. Anton Capital
Sacramento, CA**

November 2014

February & April 2015

No Scale

Notes:

- Base map provided by:
Civil Engineering Associates
San Jose, CA
- Numbered tree locations are approximate.



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ATTACHMENT 6

PRELIMINARY GEOTECHNICAL INVESTIGATION



PRELIMINARY GEOTECHNICAL EVALUATION

**Proposed Development
Railway Avenue
Campbell, California**

May 30, 2014

EEI Project No.: STA-71881.4

PRELIMINARY GEOTECHNICAL EVALUATION

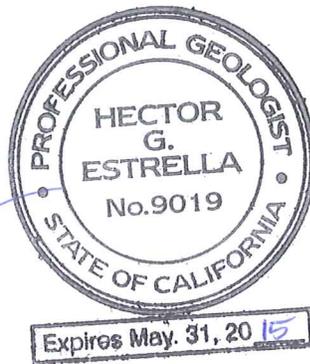
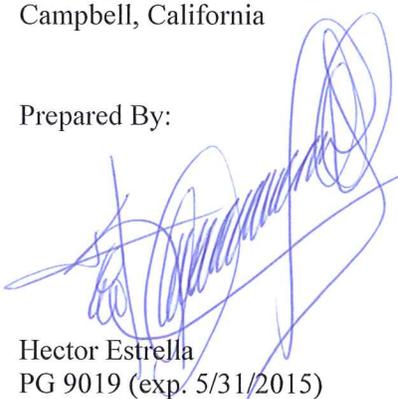
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Sacramento, CA 95811

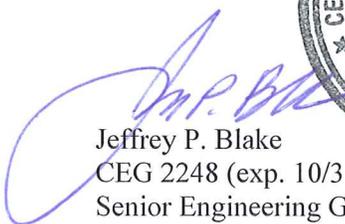
Project Site Location:

Proposed Development
Railway Avenue
Campbell, California

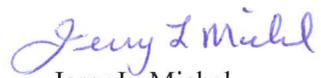
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EEI

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EEI Project No.: STA-71881.4

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Distribution: (1) Addressee
 (1) Addressee (electronic copy)

1.0 INTRODUCTION

1.1 Purpose

The purpose of this Preliminary Geotechnical Evaluation was to provide geotechnical information to St. Anton Capital (hereinafter referred to as “Client”), regarding the proposed development in Campbell, California. The information in this Preliminary Geotechnical Evaluation is intended to provide the Client with an understanding of the physical conditions of subsurface soil and groundwater conditions at the site, as well as the regional geologic setting which could affect the cost or design of the proposed development (Site Location Map-**Figure 1**, Aerial Site Map-**Figure 2**).

This Preliminary Geotechnical Evaluation has been conducted in general accordance with the accepted geotechnical engineering principles and in general conformance with the approved proposal and cost estimate for the project by EEI, dated April 16, 2014.

EEI conducted an onsite field exploration on May 9, 2014 that included drilling, logging and sampling of four (4) hollow-stem auger geotechnical borings and the advancement of two (2) cone penetration soundings for the proposed development. This Preliminary Geotechnical Evaluation has been prepared for the sole use of St. Anton. Other parties, without the express written consent of EEI and the Client, should not rely upon this geotechnical study.

1.2 Project Description

Based on the information provided by St. Anton Capital (“Client”), and a review of the Google Earth® online database, the overall subject property consists of a total of roughly 3.3-acres, including the 1.55-acre main property located at 300 Railway Avenue; the three adjacent parcels to the south totaling roughly one-acre; the parcel immediately north of 300 Railway (0.5-acres); and another 0.3-acres located across Railway Avenue to the north. The subject property is currently developed with a mixture of residential (north of Railway Ave.) and industrial/commercial properties. The larger property is developed with two large one-story metal buildings and several attached smaller structures on the west; the smaller parcel to the south is developed with several smaller buildings of similar construction which cover the majority of the site. The overall site is located within an area of mixed industrial/commercial and residential; residential is primarily located north across Railway Avenue. The Client is considering developing the property for multi-family residential; no site plans or related information is currently available. Review of the conceptual plans prepared by KTG Y Group Inc. (2014), suggest the buildings are anticipated to be three-story with conventional slab-on-grade construction with one level of at grade parking and one level of subterranean parking. No grading plans were available at the time of our preparation of this report; however, grading at the site is anticipated to include cut and fill of no more than 15 feet (exclusive of any remedial earthwork). No foundation plans are available at this time. Foundations are assumed to be typical for the type of building construction proposed. Other improvements anticipated include underground utilities, paved parking and drive areas, and other associated improvements.

1.3 Scope of Services

The scope of our services included:

- A review of readily available data pertinent to the subject property, including published and unpublished geologic reports/maps, and soils data for the area (**References**).
- Conducting a geotechnical reconnaissance of the site and nearby vicinity.

- Coordination with Underground Service Alert to identify the presence of underground utilities for clearance of proposed boring locations.
- The drilling and logging of four (4) hollow-stem auger (HSA) borings to a maximum depth of 46.5 feet below the existing ground surface across the site and the advancement of two (2) cone penetration test (CPT) soundings advanced to a maximum depth of approximately 18.5 feet due to refusal. Because the locations of the proposed buildings are not known at this time, the borings and CPTs were located in selected locations to provide sufficient coverage. The approximate locations of each of our borings and CPTs are presented on **Figure 3** (Boring Location Map).
- An evaluation of seismicity and geologic hazards to include an evaluation of faulting and liquefaction potential.
- Completion of laboratory testing of representative earth materials encountered onsite to ascertain their pertinent soils engineering properties, including corrosion potential (**Appendix B**).
- The preparation of this report which presents our preliminary findings, conclusions, and recommendations.

2.0 BACKGROUND

2.1 Site Description

The proposed development site consists of an approximately 3.3-acre, irregularly-shaped site consisting of up to nine adjoining parcels located centrally around the site address 300 Railway Avenue in the City of Campbell, Santa Clara County, California. The majority of the subject property is located on the east side of Railway Avenue aside from a singular parcel addressed 259 and 261 Railway Avenue located on the west. Other addresses associated with the site include 226, 232, 238, 264, 320, 328 and 330 Railway Avenue. The subject property is currently developed with a mixture of industrial and commercial properties, as well as some storage buildings, sheds, and barns. The overall site is located within an area of mixed industrial/commercial and residential; residential is primarily located west and northwest across Railway Avenue, and immediately to the south.

The center of the subject property is approximately situated at 37.2832° north latitude and 121.9444° west longitude (GoogleEarth®, 2013).

2.2 Site Topography

Our review of a current aerial image provided by GoogleEarth® indicates that the elevation at the subject property is approximately 205 feet above mean sea level (amsl). The ground surface was observed to be relatively level with no noticeable gradient at the time of our subsurface exploration. Surface drainage appears to be directed generally towards Railway Avenue.

2.3 Geologic Setting

Review of the available references indicates that the area of study is located within the Coast Ranges geomorphic province of Northern California. The Coast Ranges are characterized as parallel mountain ranges and valleys displaced by strike-slip earthquake faults which include the nearby Hayward and San Andreas Fault systems. Campbell is situated directly south of the San Francisco Bay structural basin.

Our review of geological literature that is pertinent to the site (DMG, 2002) indicates that the area of study is underlain by Holocene alluvial fan levee deposits (Qh1) consisting of mixed gravel, sand, silt and clay.

2.4 Groundwater

Data obtained from the GeoTracker® website regarding a Santa Clara County Environmental Health Department underground tank case at the adjacent Campbell City Service Center (290 Dillon Avenue, adjacent to the east), indicates that depth to groundwater in the site vicinity ranges between 84.7 feet to 120 feet below ground surface (bgs). The case summary indicated groundwater flow direction was reported to be south-southeast.

Within the subject property, groundwater was not encountered in any of our exploratory borings to the maximum explored depth of 46.5 feet below existing ground surface. Review of the available references indicate that historic high groundwater in the general vicinity of the subject site is estimated to be deeper than 50 feet below existing surface elevations. It should be noted that variations in subsurface water (including perched water zones and seepage) may result from fluctuations in the ground surface topography, subsurface stratification, precipitation, irrigation and other factors that may not have been evident at the time of our subsurface exploration.

3.0 FAULTING AND SEISMICITY

The portion of Northern California that includes the subject site is considered to be seismically active. Due to the proximity of the site area to several nearby active faults, strong ground shaking could occur at the site as a result of an earthquake on any one of the faults. Our review indicates that there are no known active faults crossing the site (Blake, 2000) and the site is not within an Earthquake Fault Zone (Hart and Bryant, 1997, CDMG, 1985). It is our opinion, therefore, that the likelihood of surface fault rupture at the site is low. **Table 1** lists the major active faults within 50 miles that are likely to affect the project site.

TABLE 1 Summary of Major Active Faults		
Fault Name	Approximate Distance From Site miles (kilometers)	Maximum Moment Magnitude
MONTE VISTA - SHANNON	2.7 (4.4)	6.7
SAN ANDREAS (SAP+SAN+SAO)	7.3 (11.8)	7.8
SAN ANDREAS (SAS+SAP+SAN+SAO)	7.3 (11.8)	7.9
SAN ANDREAS (SAP)	7.3 (11.8)	7.2
SAN ANDREAS (SAP+SAN)	7.3 (11.8)	7.7
SAN ANDREAS (SAS+SAP+SAN)	7.3 (11.8)	7.8
SAN ANDREAS (FLOATING)	7.3 (11.8)	6.9
SAN ANDREAS (SAS+SAP)	7.3 (11.8)	7.4
SAN ANDREAS (SAS)	8.1 (13.0)	7.0
CALAVERAS (CS+CC)	12.8 (20.6)	6.4
CALAVERAS (CC+CN)	12.8 (20.6)	6.2
CALAVERAS (CS+CC FLOATING)	12.8 (20.6)	6.2

TABLE 1		
Summary of Major Active Faults		
Fault Name	Approximate Distance From Site miles (kilometers)	Maximum Moment Magnitude
CALAVERAS (CC)	12.8 (20.6)	6.2
CALAVERAS (FLOATING)	12.8 (20.6)	6.2
CALAVERAS (CS+CC+CN)	12.8 (20.6)	6.9
HAYWARD (HS+HN+RC)	12.9 (20.8)	7.3
HAYWARD (HS+HN)	12.9 (20.8)	6.9
HAYWARD (FLOATING)	12.9 (20.8)	6.9
HAYWARD (HS)	12.9 (20.8)	6.7
CALAVERAS (CN)	13.5 (21.7)	6.8
ZAYANTE-VERGELES	13.5 (21.8)	7.0
SAN GREGORIO (SGN)	22.4 (36.1)	7.2
SAN GREGORIO (SGS+SGN)	22.4 (36.1)	7.4
SAN GREGORIO (FLOATING)	22.4 (36.1)	6.9

3.1 Seismic Parameters and Peak-Ground Acceleration

Maximum considered ground motion maps provided in the California Building Code (CBC, 2013) were utilized with coordinates of 37.2832° north latitude and 121.9444° west longitude, to determine the site seismic parameters. EEI utilized seismic design criteria provided in the CBC (2013). **Table 2** presents the seismic parameters.

In accordance with the guidelines of the CBC (2013), the spectral parameters for the site (based on a Site Class B soil) are estimated to be $S_s = 1.662g$ and $S_1 = 0.607g$. Based on the geotechnical data obtained during our subsurface exploration, it is our opinion that the site can be classified as Class D per the CBC, (2013) (Table 1613.5.2). Consequently, Site Coefficients $F_a = 1.0$ and $F_v = 1.5$ appear to be appropriate for the site. Based on this information, the adjusted maximum considered earthquake spectral response parameters $S_{MS} = 1.662g$ and $S_{M1} = 0.910g$ are recommended for seismic design of the project. Assuming an occupancy category of II (Table 1604.5), an S_{DS} value of 1.108g and an S_{D1} value of 0.607g, the proposed medical office building at the site is assigned a seismic design category of D Table 1613.5.6 (1) and (2). Final selection of the appropriate seismic design coefficients should be made by the structural consultant based on the local laws and ordinances, expected building response and desired level of conservatism.

Structures should be designed in accordance with seismic design criteria developed by the Structural Engineers Association of California.

TABLE 2			
Seismic Hazard Response Parameters and Design Parameters CBC (2013)			
Latitude: 37.2832° - Longitude: -121.9444° Seismic Parameter	Period (Sec)		Value
Mapped Spectral Acceleration Value, Soil Class B	0.2	S_s	1.602g.
Mapped Spectral Acceleration Value, Soil Class B	1.0	S_1	0.607g.
Site Coefficient, Subject Site Soil Classification D per 2013 CBC Table 1613.5.2	--	F_a	1.0
Site Coefficient, Subject Site Soil Classification D per 2013 CBC Table 1613.5.2	--	F_v	1.5
Adjusted Maximum Considered Earthquake (MCE_R) Spectral Response Acceleration Site Class D	0.2	S_{MS}	1.662g.
Adjusted Maximum Considered Earthquake (MCE_R) Spectral Response Acceleration Site Class D	1.0	S_{M1}	0.910g
Design Spectral Response Acceleration Occupancy Category II per 2013 CBC Table 1604.5	0.2	S_{DS}	1.108
Design Spectral Response Acceleration Occupancy Category II per 2013 CBC Table 1604.5	1.0	S_{D1}	0.607g
Peak Ground Acceleration Adjusted For Site Class Effects.		PGA_M	0.634g
Building Assigned Seismic Design Category per Table 1613.5.6 (1) and (2)	--	--	D

3.2 Ground Lurching or Shallow Ground Rupture

Based on the geography, topography and site-specific geotechnical conditions encountered during our geotechnical evaluation at the site, we consider the potential for ground lurching or shallow ground rupture at the site to be low; however, due to the active seismicity of California, this possibility cannot be completely ruled out. In light of this, the unlikely hazard of lurching or ground-rupture should not preclude consideration of “flexible” design for onsite utility lines and connections.

3.3 Liquefaction

Liquefaction is a phenomenon in which the strength and stiffness of a soil is reduced by earthquake shaking or other rapid loading. Liquefaction and related phenomena have been responsible for substantial structural damage in historical earthquakes, and are a design concern under certain conditions. Liquefaction occurs in saturated soils, that is - soils in which the space between individual particles is completely filled with water. This pore water exerts a pressure on the soil particles that influences how tightly the particles themselves are pressed together.

Prior to an earthquake, pore water pressure is typically low; however, earthquake motion can cause the pore water pressure to increase to the point where the soil particles can readily move with respect to each other. When liquefaction occurs; the strength of the soil decreases and the ability of a soil deposit to support structural loads are reduced.

Based on a review of the California Geological Survey (CGS), Seismic Hazard Zones, San Jose West Quadrangle, dated February 7, 2002, the site is NOT mapped within an area of liquefaction potential. Due to the observed lack of a near surface static groundwater at the site, and the presence of medium dense to very dense/stiff to hard, clayey sand to sandy clay, as well as sandy, clayey gravel, to the maximum depth explored at the site, it appears that liquefaction is not a significant geotechnical concern at the site.

3.4 Seismic Induced Settlement

Seismically induced settlement can occur due to the reorientation of soil particles during strong shaking of unsaturated sands, as well as in response to liquefaction of saturated loose granular soils. As noted above, the potential for liquefaction-induced settlement is considered to be very low. We estimate the total seismic induced settlement within the upper unsaturated soils to be less than ½-inch across the site. Differential seismic induced settlements are estimated to be less than ¼- inch across a 50-foot span. These estimated settlements are based on the assumption that the recommendations contained herein are properly incorporated into the proposed construction.

4.0 FIELD EXPLORATION AND LABORATORY TESTING

4.1 Field Exploration - Exploratory Borings

Fieldwork for our Preliminary Geotechnical Evaluation was conducted on May 9, 2014. A total of four (4) hollow-stem auger borings were drilled on the subject property in readily accessible areas. Boring depths ranged from approximately 20 to 46.5-feet below the existing ground surface, and were logged and sampled under the supervision of a Certified Engineering Geologist with EEI.

Blow count (N) values were determined utilizing a 140 pound automatic hammer, falling 30-inches onto a Standard Penetration Test (SPT) split-spoon sampler and a Modified California split-tube sampler. A truck-mounted Mobile B-40 Hollow Stem Auger drill rig was used during fieldwork. The blows per foot (N value) required to advance the 18-inch long SPT and 12-inch long Modified California split-tube samplers a distance of 12-inches and were measured at 2½-, 5-, and 10-foot intervals. The N values were recorded on the boring logs, which are presented in **Appendix A-Soil Classification Chart and Boring Logs**. Relatively “undisturbed” samples were collected in a 2.42-inch (inside diameter) California Modified split-tube sampler for visual examination and laboratory testing. The soils were classified in accordance with the Unified Soil Classification System (ASTM, 2008). Representative bulk samples were also collected for appropriate laboratory testing. Borings were backfilled with cement grout following completion of drilling, logging, and sampling.

4.2 Field Exploration – Cone Penetration Soundings

CPT soundings were performed at two (2) locations across the site. Due to the presence dense, shallow gravel deposits, practical advancement refusal was met in the two CPTs at 7 and 18 feet bgs. The remaining three CPT locations initially proposed were not attempted due to the gravels encountered. The approximate locations of the CPT soundings are shown on **Figure 3**. Following testing, each CPT hole was backfilled with grout, in accordance with the guidelines of the Santa Clara County Environmental Health Services Division.

The CPT soundings were performed by California Push Technologies, Inc. (CPT) under the supervision of a representative of EEI. Cone penetration testing was conducted using a cone system manufactured by Vertek and was performed in general accordance with ASTM Test Method D5778. The CPT procedure includes pushing an electronic piezocone penetrometer, which records data including tip resistance, sleeve friction and dynamic pore pressure as it is advanced. A track-mounted CPT rig with a 22-ton of push capacity equipped with a 15 square centimeter cone was used to conduct the in-situ testing. The CPT data, along with CPT’s interpretation of the data, are presented in **Appendix C**.

4.3 Subsurface Conditions

As noted previously, review of the available references indicates that the subject site is underlain by Holocene alluvial fan levee deposits (Qhl). The alluvial deposits are mantled by a surficial layer of fill approximately one to two feet thick. As encountered in our exploratory borings the fill consisted of medium to dark brown, dry, medium dense, fine sandy silt to silty sand with trace gravel (ML/SM). Underlying the near surface fine-grained soil, the general soil profile consisted of dry to moist, medium dense to very dense, gravelly sand to sandy gravel with variable silt (SM/SP/SW/GW). Gravels were fine to very coarse-grained, sub-rounded to sub-angular. This coarse-grained layer of alluvium was encountered generally at depths between 15 and 25-feet bsg. Also at depth, from 15 and 25-feet bsg to the maximum depth explored, we encountered layers of stiff to hard/medium dense to very dense, dry to very moist, variable lean clay with sand and gravel (CL), clayey, sandy gravel (GW), and silty, clayey, gravelly sand (SM/SC/SW). Detailed descriptions of the encountered soils are provided on the boring logs included as Appendix A.

Groundwater was not encountered in any of our exploratory borings to the maximum explored depth of 46.5 feet below the existing ground surface. It is our opinion that this is a reasonable representation of the local groundwater depths in the vicinity at the time of our subsurface exploration. It should be noted that variations in groundwater may result from fluctuations in the ground surface topography, subsurface stratification, precipitation, irrigation and other factors that may not have been evident at the time of our subsurface exploration.

4.4 Laboratory Testing and Classification

Representative samples were selected for laboratory testing to check their field classification(s) and to evaluate their pertinent engineering characteristics. Field descriptions and soil classifications were visually classified according to the American Society for Testing and Materials (ASTM D2488) which classifies soils under the USCS. Representative soil samples were tested in the lab for grain size distribution to determine actual classifications by ASTM D2487 Standard Practice for Classification of Soils for Engineering Purposes in accordance with the USCS. Final classifications of soils can be found on the boring logs in **Appendix A** and the laboratory test data in **Appendix B** (ASTM, 2011).

4.4.1 Moisture Content and Dry Density

The in-situ moisture content and dry density of soils was determined for soil samples obtained from the borings. In-place moisture content and dry density of soils help in the evaluation of engineering design parameters for foundations, retaining walls, and other engineering structures.

The moisture content determination of soil samples was conducted in general accordance with ASTM D2216, and was recorded as a percentage. The determination of dry density of soil samples was conducted in accordance with ASTM 2937, and recorded in pounds per cubic foot. Moisture content and dry density for soil samples retrieved from the field can be found on the boring logs located in **Appendix A**.

4.4.2 Grain Size Analysis

To help check field classifications of soils, the grain size distribution of representative soil samples was determined. In order to find the percentages of different sized particles in a particular soil stratum, soils were tested in general accordance with ASTM D422-Standard Test Method for Particle-Size Analysis of Soils. Grain size distribution curves and gradation results are presented in **Appendix B**.

4.4.3 Expansion Index

A bulk sample of soils obtained from within five feet of the existing grade in the proposed building envelope was tested for its expansion potential. Our expansion index testing was conducted in general accordance to ASTM D4829. The results of our expansion index testing are presented in **Appendix B**.

4.4.4 Maximum Dry Density and Optimum Moisture Content

The maximum dry density and optimum moisture content was determined from a bulk soil sample obtained from boring B-3 and B-4 within the upper five feet of existing grade. Our testing was performed in general accordance with ASTM D1557, Method A. Results of our testing are presented in **Appendix B**.

4.4.5 Direct Shear

Direct shear testing was conducted on a representative sample of the upper soils that was remolded to 90 percent of its Maximum Density (based on ASTM D1557). The sample was inundated for at least 18 hours prior to testing. The sample was placed in a shear box and a normal load was applied (10, 20, and 40 kilogram weights were used). The sample was then sheared at a controlled strain rate in a direct shear apparatus that measures horizontal displacement and shear resistance. Direct shear testing was run in general accordance with ASTM D3080. The results of our testing are presented in **Appendix B**.

4.4.6 Sulfate/Corrosion

A representative sample of the encountered onsite earth material was collected for analysis at Clarkson Laboratory and Supply, Inc. located in Chula Vista, California for corrosion/soluble sulfate potential. This corrosion testing included soil minimum resistivity and pH by California Test 643, sulfate by California Test 417, and chloride by California Test 422. Results of these tests are presented in **Appendix B**.

5.0 CONCLUSIONS

Based on our field exploration, laboratory testing and engineering and geologic analysis, it is our opinion that the site is suitable for the proposed development from a geotechnical engineering and geologic viewpoint; however, there are existing geotechnical conditions associated with the property that will warrant mitigation and/or consideration during planning stages. If site plans and/or the proposed building locations are made available in the future, additional field studies may be warranted to address proposed site-specific conditions. As a result, EEI is providing the following conclusions:

- According to our review of readily available regional geologic reports and maps, the area of the subject site is underlain by Holocene alluvial fan levee deposits (Qhl) consisting of mixed gravel, sand, silt and clay. A relatively thin layer of fill overlies the alluvial fan deposits.
- A total of four (4) exploratory hollow-stem auger (HSA) borings were advanced within the subject property during this evaluation. HSA boring depths ranged from approximately 20 to 46.5 feet below ground surface (bgs).

- Groundwater was not encountered in any of our exploratory borings during our fieldwork. Due to over-pumping of the Santa Clara Valley groundwater basin during the 20th century, groundwater in the area is quite deep. However, it should be noted that variations in groundwater may result from fluctuations in the ground surface topography, subsurface stratification, precipitation, irrigation and other factors that may not have been evident at the time of our subsurface exploration.
- Laboratory test results performed on a sample of the upper soils obtained from the proposed building pad area indicate that the tested soils are neutral (tested pH value of 6.9 and 7.2) and are highly corrosive to ferrous metals with a tested minimum resistivity value of 1,100 and 660 ohm-cm. Laboratory testing also yielded soluble sulfate concentrations of 0.045 and .007 percent within the tested samples, indicating a negligible potential for sulfate attack on concrete. A chloride concentration of 0.002 and .003 percent was detected within the sample of the upper soils, indicating that the upper soils possess a negligible potential for corrosion of steel reinforcement in concrete.
- The subject property is located within an area of Northern California recognized as having a number of active and potentially-active faults. Our review indicates that there are no known active faults crossing the site and the site is not located within an Earthquake Fault Zone. The nearest active fault that could affect the subject property is the Monte Vista – Shannon located at approximately 2.7 miles from the subject site. Other nearby seismic sources includes the San Andreas and Calaveras fault zones. Each of these active faults is capable of generating significant ground shaking at the site.
- Based on EEI's evaluation, earth materials underlying the site of the proposed development are not considered susceptible to liquefaction or significant amounts of seismic settlement.
- Shallow foundations appear to be suitable for use to support the proposed building, provided the property is graded and improved in general conformance with guidelines presented herein, as well as the requirements of the Santa Clara County Building Code and the California Building Code (CBC, 2013).
- EEI estimates total static settlement of less than ½ inch within the building envelopes. Differential settlement is estimated to be approximately ¼ inch or less over a distance of 50 feet.
- The results of our laboratory Expansion Index (EI) testing of the sampled soils underlying the site indicate an EI of 54, which represents a medium expansion potential.

6.0 RECOMMENDATIONS

The recommendations presented herein should be incorporated into the planning and design phases of development. Guidelines for site preparation, earthwork, and onsite improvements are provided in the following sections.

6.1 General

Grading should conform to the guidelines presented in the 2013 California Building Code (CBC, 2013), the requirements of the current edition of the Santa Clara County Building Code. Additionally, general Earthwork and Grading Guidelines are provided herein as **Appendix C**.

During earthwork construction, removals and reprocessing of fill materials, as well as general grading procedures of the contractor should be observed and the fill placed selectively tested by representatives of the Geotechnical Engineer, EEI. If any unusual or unexpected conditions are exposed in the field, they should be reviewed by the Geotechnical Engineer and if warranted, modified and/or additional remedial recommendations will be offered. Specific guidelines and comments pertinent to the planned development are provided herein.

The recommendations presented herein have been completed using the information provided to us regarding site development. If information concerning the proposed development is revised, or any changes in the design and location of the proposed property improvements are made, the conclusions and recommendations contained in this report should not be considered applicable unless the changes are reviewed and conclusions of this report modified or approved in writing by this office.

6.2 Site Preparation and Grading

Debris and other deleterious material, such as excessively organic soils, building foundations, landscaping materials and/or environmentally impacted earth materials should be removed from the site prior to the start of grading. Areas to receive fill should be properly benched in accordance with current industry standards of practice and guidelines specified in the CBC (2013).

Existing utilities and foundations should be removed within the proposed building envelopes. Abandoned trenches should be properly backfilled and tested. If unanticipated subsurface improvements (utility lines, septic systems, wells, utilities, etc.) are encountered during earthwork construction, the Geotechnical Engineer should be informed and appropriate remedial recommendations would then be provided.

6.3 Remedial Earthwork

As noted above, artificial fill materials having a variable thickness of approximately one to two feet were encountered across the site. These materials are considered to be undocumented and were observed to be somewhat variable in moisture content and consistency in our exploratory borings. Consequently, these materials are considered to be potentially compressible and are considered unsuitable for the support of the proposed building loads and additional fill loads in their current condition. Therefore, we recommend that these materials be completely removed and replaced with compacted fill in those areas to receive new buildings or other settlement-sensitive improvements. In addition the upper portions of the encountered alluvium should be removed in areas to receive the proposed building and settlement sensitive improvements. These removals should extend to a minimum depth of 4 feet below the existing ground surface or 24-inches below the bottoms of the proposed foundations, whichever is deeper. Reprocessing of the upper 12-inches of subgrade in pavement areas is also recommended.

Following removal of the upper soils, the bottom of the resulting excavation(s) should be observed by a representative of EEI to check that unsuitable materials have been sufficiently removed. It should be understood that based on the observations of our field representative, localized deeper removals may be recommended. Some areas may encounter thicker zones of fill or other unsuitable materials based on actual field conditions encountered during earthwork.

The base of the removal areas should be level to avoid differential fill thicknesses under proposed improvements. This remedial earthwork should extend at least five feet outside the proposed building limits and/or five feet beyond the area to receive fill. Note that vertical sides exceeding five feet in depth may be prone to sloughing and may require laying back to an inclination of 1:1 (horizontal to vertical).

After removal of the upper soils and observation of the excavation bottoms, the over-excavated areas should be scarified to a minimum depth of 8-inches, moisture conditioned as needed to achieve at least optimum moisture content and re-compacted to at least 90 percent of the maximum dry density (based on ASTM D1557). The over-excavated areas should then be backfilled with onsite and/or imported soils that are placed and compacted as recommended herein until design finish grades are reached.

6.4 Fill Placement

Fill material should possess a low to medium expansion potential, (expansion index of less than 90 as determined by ASTM D4829) be free of organic matter (less than three percent organics by weight) and other deleterious material. As an option, selective grading may take place to improve the soils conditions in the upper 3 feet of subgrade. Much of the onsite materials appear to be suitable for re-use as fill, provided they do not contain rocks greater than six-inches in maximum dimension, organic debris and other deleterious materials. Rock fragments exceeding six-inches in one dimension should be segregated and exported from the site, or utilized for landscaping.

If import soils are needed, the earthwork contractor should ensure that all proposed fill materials are approved by the Geotechnical Engineer prior to use. Representative soil samples should be made available for testing at least ten (10) working days prior to hauling to the site to allow for laboratory tests.

Fill materials should be placed in 6- to 8-inch loose lifts, moisture conditioned as necessary to at least optimum moisture and compacted to a minimum of 90 percent maximum density according to ASTM D1557. The upper 12-inches of pavement subgrade (including curb and gutter areas) should be moisture conditioned to at least optimum moisture and compacted to at least 95 percent of the maximum dry density as determined by ASTM D1557. Suitable heavy grading equipment should be utilized to properly mix, spread, moisture condition or dry, and compact each fill lift.

Those areas to receive fill (including over-excavated areas) or surface improvements should be scarified at least 8-inches, moisture conditioned to at least one percent over optimum moisture content and recompacted to at least 90 percent of the maximum dry density (based on ASTM D1557).

6.5 Yielding Subgrade Conditions

The soils encountered at the site can often exhibit “pumping” or yielding once they become saturated. This can often occur in response to periods of significant precipitation, such as during the winter rainy season. If this occurs and in order to help stabilize the yielding subgrade soils within the bottom of the removal areas, the contractor can consider as an option, the placement of uniform sized, ¾- to 2-inch crushed rock within areas exhibiting the “pumping” conditions. The crushed rock should be properly tracked into the underlying soils such that it is adequately intruded into and interlocks with the soils. We expect that a 6- to 12-inch thick section of the crushed rock will be required. Following the placement and tracking of the gravel layer into the underlying “pumping” soils, it is recommended that Mirafi 600X stabilization fabric (or approved equivalent) then be placed upon the gravel layer. Fill soils, which should be placed and compacted in accordance with the recommendations presented herein, should then be placed upon the fabric until design finish grades are reached. The gravel and stabilization fabric should extend at least five feet laterally beyond the limits of the “pumping” areas. These operations should be performed under the observation and testing of a representative of EEI in order to evaluate the effectiveness of these measures and to provide additional recommendations for mitigative measures, as warranted.

6.6 Shrinkage and Bulking

Several factors will impact earthwork balancing on the site, including shrinkage, bulking, subsidence, trench spoils from utilities and footing excavations, and final pavement section thickness as well as the accuracy of topography.

Shrinkage, bulking and subsidence are primarily dependent upon the degree of compactive effort achieved during construction. For planning purposes, the shrinkage factor is estimated to be on the order of 10 to 15 percent for the onsite natural soils to be utilized as fill. This shrinkage factor may vary with methods employed by the contractor. Subsidence is estimated to be on the order of 0.1 feet. Losses from site clearing and removal of existing site improvements may affect earthwork quantity calculation and should be considered.

The previous estimates are intended as an aid for the project engineers in estimating earthwork quantities. It is recommended that the site development be planned to include an area that could be raised or lowered to accommodate final site balancing.

6.7 Temporary Excavations

Based on available information, it is anticipated that the entire site will be excavated to approximate depths of less than 15 feet below existing grade to allow for the construction of the subterranean level. Excavations in the encountered materials should generally be accomplished with heavy-duty earthmoving equipment in good operating condition.

We were unable to directly evaluate the caving potential of the onsite soils at depth during our field evaluation. However, our experience with projects in the general vicinity of the site indicates the caving potential within the encountered alluvial materials is generally low.

Temporary excavations within the onsite fill materials (considered to be a Type C soil per OSHA guidelines) and alluvial materials (considered to be a Type B soil per OSHA guidelines) should be stable at 1H:1V inclinations for short durations during construction, and where cuts do not exceed 15 feet in height. Some sloughing of surface soils should be anticipated. Where space for the slopes is not available, shoring will be required which is most likely the case at this site. Soil parameters for the design of a shoring system are discussed in Section 6.8.

Silty sand and silt layers that exhibit low cohesion will likely be encountered during excavation activities. These layers may ravel and might create potentially unstable slope conditions during installation of shoring. In addition, our experience in the vicinity of the site indicates that the more granular layers above the finer grained layers could have a higher potential for raveling. This may result in lost ground and voids during installation of wooden lagging.

Following excavation for the subterranean levels, we recommend that the contractor take appropriate measures to limit desiccation of the soils exposed at the bottom and the sides of the excavation while it is open. Such measures may include regular moisture conditioning of the subgrade soils and/or sealing the exposed soils to reduce evaporation of moisture.

All temporary excavations for grading purposes and installation of underground utilities should be constructed in accordance with OSHA guidelines. Temporary excavations or backcuts within the onsite materials should be stable at 1H:1V inclination for short durations during construction but should not exceed 15 feet in height. All temporary excavations should be constructed in accordance with OSHA guidelines and local safety codes.

6.8 Preliminary Geotechnical Parameters for Shoring Design

It is understood that a temporary or permanent shoring system may be used for the proposed subterranean excavation where space is not available for properly sloped backcuts. We anticipate that the shoring system may consist of closely spaced steel H-Pile soldier piles and wooden lagging. Preliminary design considerations are presented in the following sections for this anticipated shoring method. Please note that the method of temporary support can impact the design earth pressures. As such, EEI should perform a review of the shoring design and provide additional recommendations, as warranted. We are providing preliminary geotechnical parameters for a shoring system that is to consist of a cantilever soldier pile and lagging system. **Table 3** presents preliminary geotechnical parameters for each of the soil units that are recommended for the design of the shoring system. Active equivalent fluid pressures are provided for a retained ground surface that is level.

Table 3			
Preliminary Geotechnical Parameters for Cantilever Shoring Design			
Soil Unit	Unit Weight	Passive Fluid Pressure	Active Fluid Pressure (level)
Existing Fill (0 to 2.0 feet)	96 pcf	200 pcf	30 pcf
Alluvium (2.0 feet to less than 15 feet)	110 pcf	200 pcf	29 pcf

The shoring contractor should coordinate with the earthmoving contractor regarding sequence and requirements of installing the shoring system. While groundwater was not encountered during our subsurface exploration to depths of approximately 46.5 feet below the existing ground surface, the shoring contractor should also consider the presence of localized perched groundwater in the design and installation procedures of the shoring system.

Horizontal and vertical movements of the shoring system should be monitored by a licensed surveyor. The construction monitoring and performance of the shoring system are ultimately the contractor's responsibility. At a minimum, we recommend that the tops of the soldier beams should be surveyed prior to excavation and that the top and bottom of the soldier beams be surveyed on a weekly basis until the foundation is completed. The surveyed soldier beam data points should be located at approximately 50 feet on-center. Surveying should consist of measuring movements in vertical and two perpendicular horizontal directions.

If possible, structural walls should be cast directly against the shoring, thus eliminating the need for placing backfill within a narrow space. Voids between the soil and lagging should be grouted or slurred to reduce the potential for the voids to propagate to the surface. Special provisions for wall drainage (such as the use of prefabricated composite drain) may be necessary above any groundwater table where this type of construction is used.

Temporary excavations or backcuts within the onsite materials should be stable at 1.1H:1V inclination for short durations during construction but should not exceed 15 feet in height. All temporary excavations should be constructed in accordance with OSHA guidelines and local safety codes.

7.0 PRELIMINARY FOUNDATION RECOMMENDATIONS

7.1 General

In the event that plans concerning the three-story condominium buildings are revised in the project design and/or location, or loading conditions of the planned structure are made, conclusions and recommendations contained in this report should not be considered valid unless they are reviewed, revised and/or approved in writing by EEI. If a below-grade parking structure is proposed beneath the site building, revised recommendations will be provided by EEI in a separate letter. The foundation recommendations provided herein are based on the soil materials near finish grade possessing a moderate expansion potential ($EI < 50$).

7.2 Preliminary Foundation Design

An allowable bearing capacity of 2,500 pounds per square foot (psf) can be used for design of footings founded at a minimum depth of 10 feet below the existing ground surface within relatively competent materials comprising the alluvial deposits. The foundations should be embedded at least 24-inches below lowest adjacent finish subgrade. A minimum base width of 24-inches for continuous wall footings and a minimum bearing area of 4 square feet (2 ft by 2 ft) for isolated spread (pad) foundations should be used.

The bearing capacity value can be increased by 300 psf for each additional foot of width or depth to a maximum of 4,500 psf. Additionally; an increase of one-third may be applied when considering short-term live loads (e.g., seismic and wind loads). Based on geotechnical considerations, footings should be provided with reinforcement consisting of at least two No. 5 rebars, top and two bottom.

Shallow foundations for ancillary structures embedded a minimum of 12-inches below finish grade into firm natural soils or properly compacted fill should be designed using a net allowable soil bearing value of 2,000 psf. The allowable soil bearing value may be increased by 350 psf for each additional foot of embedment and width to a maximum of 3,000 psf. The allowable soil bearing value may also be increased by one-third when considering short-term live loads (e.g. seismic and wind loads).

The passive earth pressure within artificial fill materials may be computed as an equivalent fluid having a density of 200 psf per foot of depth, to a maximum earth pressure of 1,500 psf, while that within materials comprising the alluvial deposits can be computed as an equivalent fluid having a density of 300 psf per foot, to a maximum pressure of 2,000 psf. A coefficient of friction between alluvial soil and concrete of 0.30 may be used with dead load forces. When combining passive pressure and frictional resistance, the passive pressure component should be reduced by one-third.

Based on the above design recommendations, the total settlement is expected to be less than one-inch based on the proposed loading conditions. It is anticipated that the majority of the settlement will occur during construction. Differential settlement is expected to be less than one-half of the total settlement. The values given above may be increased by one-third for transient wind or seismic loads.

7.3 Footing Setbacks

All footings should maintain, at a minimum, a seven-foot horizontal setback from the base of the footing to any descending slope (if existing or proposed). This distance is measured from the outside footing face at the bearing elevation. Footings should maintain a minimum horizontal setback of $H/3$ (H =slope height) from the base of the footing to the descending slope face and should be no less than seven feet, and does not need to be greater than 40 feet.

Footings adjacent to unlined drainage swales or underground utilities (if any) should be deepened to a minimum of six-inches below the invert of the adjacent unlined swale or utilities. This distance is measured from the footing face at the bearing elevation. Footings for structures adjacent to retaining walls should be deepened so as to extend below a 1:1 projection from the heel of the wall. Alternatively, walls may be designed to accommodate structural loads from buildings or appurtenances as described in the retaining wall section of this report.

7.4 Construction

The following foundation construction recommendations contained herein are presented as minimum recommendations from a soils engineering standpoint. Laboratory test results indicate the onsite soils' swell (expansion) potential is medium (CBC, 2013). As a result, design parameters provided herein assume that finish grade soil materials will have a medium expansion potential. We recommend that expansion index testing be performed on the soils exposed at finish grade following the completion of any additional grading. At that time, additional recommendations may be warranted.

7.5 Concrete Slab-on-Grade

Interior slabs can be designed to be grade supported by at least 24-inches of competent structural fill whose placement/compaction is observed and tested by the project soils engineer/engineer geologist. Concrete slabs-on-grade should be a minimum of 5-inches in thickness. Concrete slabs should be underlain by at least 2-inches of clean sand with a Sand Equivalent (SE) of at least 30 and having particles that do not exceed ¼-inch in grain size. Where moisture condensation is undesirable, concrete slabs should be underlain with a moisture/vapor retarder consisting of a minimum 10-mil, visqueen membrane, with all laps sealed. The membrane should be underlain by a 2-inch layer of clean sand or 1-inch of pea gravel. The visqueen moisture barrier should then be overlain by a 1-inch layer of clean sand to aid in concrete curing. To reduce the potential for buildup of hydrostatic pressures, the free draining material under the slabs should have positive drainage with no low lying areas (i.e., depressions) created. As an option, the architect and/or structural engineer may follow the guidelines of ACI 302.2R-06 for the design of measures for underslab moisture protection and the development of appropriate construction specifications for slab construction.

Floor slabs should be suitably reinforced and jointed (in accordance with Structural Engineer's recommendations) so that a small amount of independent movement can occur without causing damage. Based on the encountered geotechnical conditions, we recommend that floor slabs be reinforced with No. 3 bars spaced on 18-inch centers (each way). The contractor should take the appropriate precautions to make sure that the reinforcement is placed and maintained within the middle one-third of the slab. Exterior slabs, such as walkways and driveways, can be adequately supported on approved structural fill, being a minimum of 12-inches in thickness that is placed and compacted in accordance with the recommendations contained herein.

In preparation for slab or flatwork construction, the earthwork contractor should ensure that the onsite soils have been prepared as recommended and that field density tests have been performed to document the relative compaction of all structural fill. The preparation of the native soils should be documented prior to placement of aggregate, structural components and/or fill.

Some minor cracking of slabs can be expected due to shrinkage. The potential for this slab cracking can be reduced by carefully controlling the water/cement ratios in the concrete. The contractor should take appropriate curing precautions during the pouring of concrete in hot or windy weather to reduce the potential for cracking of slabs. We recommend that a slipsheet (or equivalent) be utilized if grouted fill, tile, or other crack-sensitive floor covering is planned directly on concrete slabs. All slabs should be designed in accordance with structural considerations.

All dedicated exterior flatwork should conform to standards provided by the governing agency including section composition, supporting material thickness and any requirements for reinforcing steel. Concrete mix proportions and construction techniques, including the addition of water and improper curing, can adversely affect the finished quality of the concrete and result in cracking and spalling of the slab. We recommend that all placement and curing be performed in accordance with the procedures outlined by the American Concrete Institute and/or Portland Cement Association. Special consideration should be given to concrete placed and cured during hot or cold weather conditions. Proper control joints should be provided to reduce the potential for damage resulting from shrinkage.

As noted above, laboratory test results indicate that the upper soils possess a negligible corrosion potential to concrete. As such, Type II cement can be used in concrete elements that will be in contact with the upper soils.

7.6 Permanent Subterranean Walls

We anticipate that where temporary shoring is installed, the permanent restrained retaining walls for the subterranean levels will predominantly be placed directly against the temporary shoring.

Permanent subterranean walls should be designed to resist the pressure exerted by retained soils plus any additional lateral forces due to loads placed adjacent to or near the wall. Retaining walls that are free-draining, are situated above groundwater and are to be restrained from movement at the top, such as walls for the subterranean levels within the podium (where floor levels between the proposed ground level and the bottom of the subterranean levels will serve as braces to resist lateral earth forces), should be designed utilizing a trapezoidal lateral earth pressure distribution as shown in **Figure 4**. If traffic loads are planned adjacent to the walls, the walls should be designed for an additional uniform horizontal pressure of 75 and 150 psf for passenger car and truck traffic, respectively. For other surcharge loads, we recommend the walls be designed to resist a uniform horizontal pressure equal to 30 percent of the uniform surcharge load.

Utilizing the Mononobe-Okabe method of analysis and incorporating one-half of the estimated Peak-Ground Acceleration (estimated by dividing the seismic parameter S_{DS} by 2.5, where S_{DS} is the design spectral response acceleration at a short period presented in Section 3.1 of this report), we estimate the seismic resultant of lateral pressure for a wall with level backfill to be $25H^2$ lbs, where H is the retained height in (feet).

The seismic resultant is expected to be exerted in addition to the lateral earth pressures. The seismic resultant may be assumed to be applied at a height of 0.6H above the wall base. The magnitude and location of the seismic resultant are based on the assumption that the walls are constructed in accordance with the recommendations contained herein.

The permanent subterranean wall should be provided with an adequate backdrain system to reduce the potential for build-up of hydrostatic pressures. Backdrains should consist of a 4-inch diameter perforated PVC pipe (Schedule 40) surrounded by ½-inch to ¾-inch clean crushed rock and wrapped in Mirafi 140N filter fabric (or approved equivalent). Free-draining backwall material such as a continuous, clean gravel layer (also wrapped in filter fabric) or geocomposite (Miradrain 6000 or approved equivalent) should be placed along the height of the wall to 18-inches below finish grade and tied into the backdrain system. The drain system should be connected to a suitable outlet.

For those portions of the wall not placed against shoring, granular backfill should be utilized to provide free-draining conditions to prevent buildup of hydrostatic pressure in the backfill. Backfill materials should meet the recommendations described in the following section of this report. Import fill materials should be approved by the soils engineer prior to placement. Wall backfill should be compacted by mechanical methods to at least 90 percent of the maximum dry density as determined by ASTM D 1557.

7.7 Other Retaining Walls

The design parameters provided below assume that granular non-expansive soils ($EI < 21$) are used to backfill any retaining walls. If expansive soils are used to backfill the proposed walls, increased active and at-rest earth pressures will need to be utilized for retaining wall design, and may be provided upon request. Building walls below grade should be waterproofed or damp-proofed, depending on the degree of moisture protection desired. The foundation system for the retaining walls should be designed in accordance with the recommendations presented in the preceding sections of this report, as appropriate. Footings should be embedded at a minimum of 18-inches below adjacent grade (excluding 6-inch landscape layer). There should be no increase in bearing for footing width. Recommendations pertaining to “landscape” walls (i.e., Crib, Loffel, Earthstone, Geogrid, etc.) may vary from those provided herein, and should be provided upon request.

The design active earth pressure on a retaining wall may be considered equivalent to that produced by a fluid weighing 30 pounds per cubic foot (pcf). This design equivalent fluid pressure of 30 pcf is appropriate for cantilevered walls retaining non-expansive granular soils with a level ground surface, subject to lateral deflection at distances above grade due to lateral earth pressures. Restrained walls (i.e., basement walls and re-entrant corners within cantilevered walls) with a level granular backfill should be designed for an equivalent fluid pressure of 60 pcf for at-rest conditions. If backfill conditions (including the slope of the retained ground surface) differ from those assumed herein, EEI should be consulted to provide additional evaluation and/or recommendations as warranted. A safety factor for sliding and overturning of 1.5 is typically incorporated into the design of a cantilevered structure as described herein. All retaining structures should be fully free draining.

For resistance to lateral loads, an allowable coefficient of friction of 0.30 between the base of the foundation elements and underlying material is recommended. In addition, an allowable passive resistance equal to an equivalent fluid weighing 200 pcf acting against the foundation may be used to resist lateral forces. Passive pressure in the upper 1.0-foot should be neglected unless confined by concrete slabs-on-grade or asphaltic pavement. These values may be increased by one-third for transient wind or seismic loads.

Adequate drainage should be provided behind all retaining walls. The drainage system should consist of a minimum of four-inch diameter perforated PVC pipe (schedule 40 or approved equivalent) placed at the base of the retaining wall and surrounded by $\frac{3}{4}$ -inch clean crushed rock wrapped in a Mirafi 140N filter fabric, or equivalent approved by the Geotechnical Engineer. The drain rock wrapped in fabric should be at least 12-inches wide and extend from the base of the wall to within two feet of the ground surface. The upper two feet of backfill should consist of compacted native soil. The retaining wall drainage system should be sloped to outfall to the storm drain system or other appropriate facility.

8.0 PAVEMENT DESIGN RECOMMENDATIONS

Deleterious material, excessively wet or dry pockets, concentrated zones of oversized rock fragments, and any other unsuitable yielding materials encountered during grading should be removed. Once existing compacted fill and/or native soils are brought to the proposed pavement subgrade elevations, the subgrade should be proof-rolled in order to check for a uniform firm and unyielding surface. Representatives of the project Geotechnical Engineer should observe grading and fill placement.

The upper 12-inches of pavement subgrade soils should be scarified; moisture conditioned to at least optimum moisture content and recompact to at least 95 percent of the laboratory maximum dry density (ASTM D1557). Rock fragments over 6-inches in one dimension are not recommended within the upper 12-inches of subgrade. If loose or yielding materials are encountered during the subgrade preparation, additional evaluation of these areas should be performed by EEL. Aggregate base materials should be properly prepared (i.e., processed and moisture conditioned) and compacted to at least 95 percent of the maximum dry density as determined by ASTM D1557. Aggregate base should conform to Caltrans specifications for Class 2 aggregate base.

All pavement section changes should be properly transitioned. Although not anticipated, if adverse conditions are encountered during the preparation of subgrade materials, special construction methods may need to be employed. A representative of the project Geotechnical Engineer should be present for the preparation of subgrade and aggregate base.

For preliminary design purposes, we have utilized traffic indices of 6.0 for the main drive areas and 4.5 for the parking stalls at the site. These assumed TI’s should be verified as necessary by the Civil Engineer or Traffic Engineer.

Based on the results of our laboratory testing of a sample obtained in the general area of the drive and parking areas, we have utilized a design R-Value of 20 for the soils likely to be exposed at pavement subgrade. Pavement design was calculated for the parking lot structural section requirements for asphalt concrete in accordance with the guidelines presented in the Caltrans Highway Design Manual. Rigid pavement sections were evaluated in general accordance with ACI 330R-08, based on an average daily truck traffic value of 10.

TABLE 4 Preliminary Pavement Design Recommendations		
Traffic Index (TI)	Pavement Surface	Aggregate Base Material ⁽¹⁾
4.5 – Parking Stalls	3-inches Asphalt Concrete	6 inches
6.0 – Main Drive Areas	4-inches Asphalt Concrete	8.0 inches
Concrete Pavement – Trash	5.5-inches Portland Cement Concrete ⁽²⁾	Optional
Concrete Pavement – Drive Through	5-inches Portland Cement Concrete ⁽²⁾	Optional
(1) R-Value of 78 for Caltrans Class II aggregate base		
(2) Reinforcement and control joints placed in accordance with the structural engineer’s requirements		

The recommended pavement sections provided above are intended as a minimum guideline. If thinner or highly variable pavement sections are constructed, increased maintenance and repair could be expected. If the ADT (average daily traffic) or ADTT (average daily truck traffic) increases beyond that intended, as reflected by the assumed and provided traffic index used for design, increased maintenance and repair could be required for the pavement section. Final pavement design should be checked by testing of soils exposed at subgrade after grading has been completed. However, it should be noted that the Alameda County may require minimum pavement structural sections that are thicker than the sections shown above in **Table 4**.

9.0 DEVELOPMENT RECOMMENDATIONS

9.1 Landscape Maintenance and Planting

Water is known to decrease the physical strength of earth materials, significantly reducing stability by high moisture conditions. Surface drainage away from foundations and graded slopes should be maintained. Only the volume and frequency of irrigation necessary to sustain plant life should be applied.

Consideration should be given to selecting lightweight, deep-rooted types of landscape vegetation which require low irrigation that are capable of surviving the local climate. From a soils engineering viewpoint, “leaching” of the onsite soils is not recommended for establishing landscaping. If landscape soils are processed for the addition of amendments, the processed soils should be re-compacted to at least 90 percent relative compaction (based on ASTM D1557).

9.2 Site Drainage

Positive site drainage should be maintained at all times. Drainage should not flow uncontrolled over slopes or the subject parcel. Runoff should be channeled away from slopes and structures and should not be allowed to pond and/or seep uncontrolled into the ground. Pad drainage should be directed toward an acceptable outlet. Although not required, roof gutters and down spouts may be considered to control roof drainage, discharging a minimum of ten feet from proposed structures, or into a subsurface drainage system. Consideration should be given to eliminating open-bottom planters directly adjacent to proposed structures for a minimum distance of ten feet. As an alternative, closed-bottom type planters could be utilized, with a properly designed drain outlet placed in the bottom of the planter.

9.3 Site Runoff-Stormwater Disposal Systems

It is EEI understanding that current plans do not call for runoff generated from the project to be disposed of in engineered subsurface features onsite. Should final plans and design require a storm water disposal system, we recommend that percolation testing be conducted at the site to determine the infiltration rate for the site. This infiltration rate can then be used in the design of subsurface stormwater retention/disposal devices.

9.4 Structural Setback from Retention Devices

It is recommended that retention/disposal devices be situated at least three times their depth, or a minimum of 15 feet (whichever is greater), from the outside bottom edge of structural foundations. Structural foundations include (but are not limited to) buildings, retaining walls, equipment pads.

9.5 Additional Site Improvements

Recommendations for additional grading, exterior concrete flatwork design and construction can be provided upon request. If in the future, additional property improvements were planned for the site, recommendations concerning the design and construction of improvements would be provided upon request.

9.6 Trenching

All temporary excavations for grading purposes and installation of underground utilities should be constructed in accordance with OSHA guidelines. Temporary excavations within the onsite soils should be stable at 1:1 inclinations for cuts less than 10 feet in height.

Footing trench excavations for structures and walls should be observed and approved by a representative of the project soils engineer prior to placing reinforcement. Footing trench spoil and excess soils generated from utility trench excavations should be compacted to a minimum relative compaction of 90 percent (based on ASTM D1557) if not removed from the site. All excavations should conform to OSHA and local safety codes.

9.7 Utility Backfill

Fill around the pipe should be placed in accordance with details shown on the drawings, and should be placed in layers not to exceed eight-inches loose (unless otherwise approved by the Geotechnical Engineer) and compacted to at least 90 percent of the maximum dry density as determined in accordance with ASTM D1557 (Modified Proctor). The Geotechnical Engineer should approve all backfill material. Select material should be used when called for on the drawings, or when recommended by the Geotechnical Engineer. Care should be taken during backfill and compaction operations to maintain alignment and prevent damage to the joints. The backfill should be kept free from stones, chunks of highly plastic clay, or other objectionable material. Backfill soils should be non-expansive, non-corrosive, and compatible with native earth materials. Backfill materials and testing should be in accordance with the CBC (2013) and the City of Campbell and/or Santa Clara County specifications.

All pipe backfill areas should be graded and maintained in such a condition that erosion or saturation will not damage the pipe bed or backfill. Flooding trench backfill is not recommended. Heavy equipment should not be operated over any pipe until it has been properly backfilled with a minimum two to three feet of cover. The utility trench should be systematically backfilled to allow maximum time for natural settlement. Backfill should not occur over porous, wet, or spongy subgrade surfaces. Should these conditions exist, the areas should be removed, replaced and recompacted.

10.0 PLAN REVIEW

Once the detailed site and grading plans are available, they should be submitted to this office for review and comment, to reduce the potential for discrepancies between plans and recommendations presented herein. If conditions were found to differ substantially from those stated, appropriate recommendations would be provided. Additional field studies may be warranted once the final conceptual plans are produced.

11.0 LIMITATIONS

This Preliminary Geotechnical Evaluation has been conducted in accordance with the generally accepted geotechnical engineering principles and practices. Findings provided herein have been derived in accordance with the current standards of practice, and no warranty is expressed or implied. Standards of practice are subject to change with time. This report has been prepared for the sole use of St. Anton Capital (Client), within a reasonable time from its authorization. Site conditions, land use (both onsite and offsite), or other factors may change as a result of manmade influences, and additional work may be required with the passage of time.

This Preliminary Geotechnical Evaluation should not be relied upon by other parties without the express written consent of EEI and the Client; therefore, any use or reliance upon this geotechnical evaluation by a party other than the Client should be solely at the risk of such third party and without legal recourse against EEI, its employees, officers, or directors, regardless of whether the action in which recovery of damages is brought or based upon contract, tort, statute, or otherwise. The Client has the responsibility to see that all parties to the project, including the designer, contractor, subcontractor, and building official, etc. are aware of this report in its complete form. This report contains information that may be used in the preparation of contract specifications; however, the report is not designed as a specification document, and may not contain sufficient information for use without additional assessment. EEI assumes no responsibility or liability for work or testing performed by others. In addition, this report may be subject to review by the controlling authorities.

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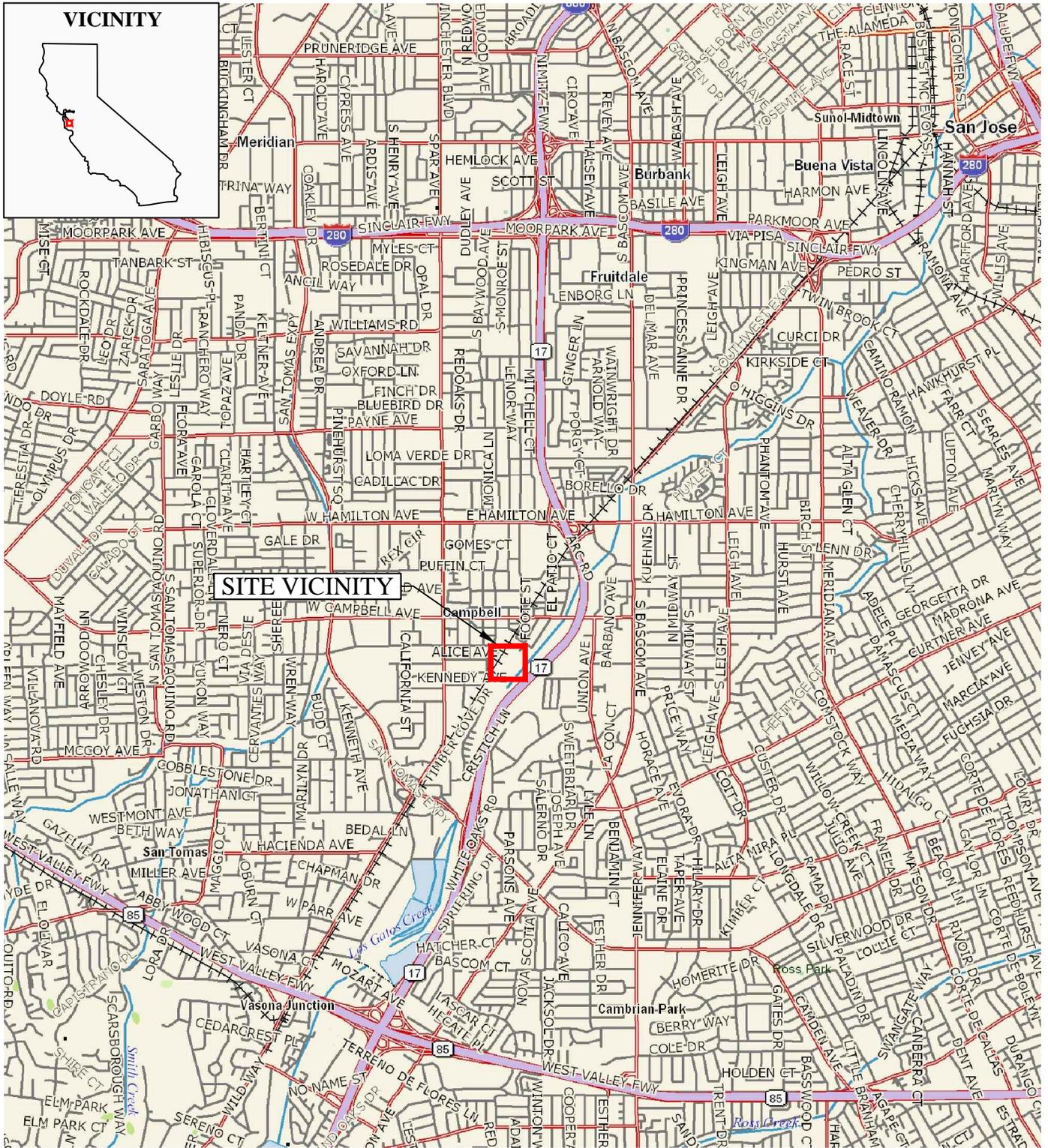
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<http://geohazards.usgs.gov/qfaults/map.php>

FIGURES

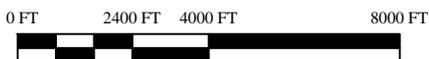


Map Source: © 2007 DeLorme. Topo USA ® 7.0 West Region

SITE VICINITY MAP

ST. ANTON CAPITAL
 Railway Avenue
 Campbell, California
 EEI Project No. STA-71881.4
 Created May 2014

Scale: 1" = 4000'



Note: All locations are approximate

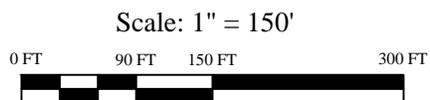


CREATED BY:	JAB
REVISION DATE:	
REVISION NO.:	

FIGURE 1



Map Source: © Google Earth 2014, Imagery Date 2/23/14



Note: All locations are approximate



AERIAL SITE MAP

ST. ANTON CAPITAL
 Railway Avenue
 Campbell, California
 EEI Project No. STA-71881.4
 Created May 2014



CREATED BY:
 JAB
 REVISION DATE:
 .
 REVISION NO.:

FIGURE 2



Map Source: © Google Earth 2014, Imagery Date 2/23/14

-  Approximate Location of Boring
- B4
-  Approximate Location of Cone Penetration Test
- CPT2

Scale: 1" = 150'



Note: All locations are approximate



BORING LOCATION MAP

ST. ANTON CAPITAL
 Railway Avenue
 Campbell, California
 EEI Project No. STA-71881.4
 Created May 2014

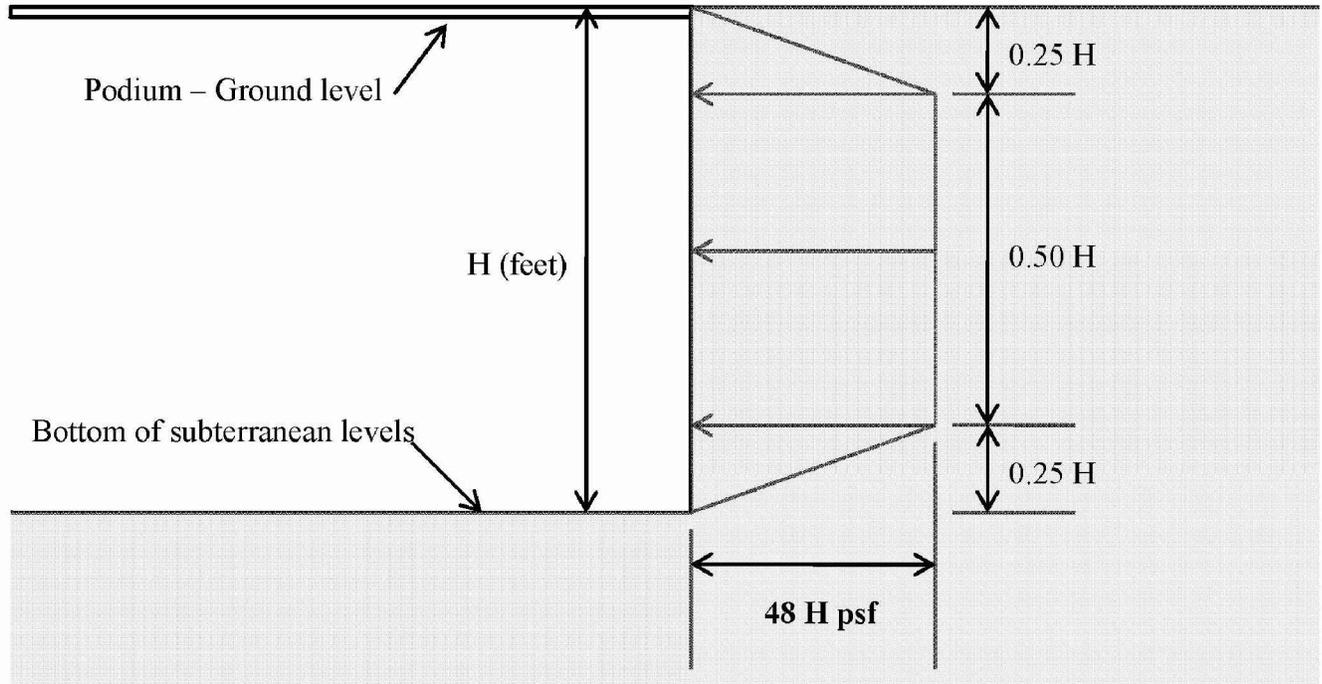


CREATED BY:
JAB

REVISION DATE:

REVISION NO.:

FIGURE 3



Map Source: NONE

**RECOMMENDED LATERAL EARTH PRESSURES
FOR SUBTERRANEAN WALLS**

ST. ANTON CAPITAL
 Railway Avenue
 Campbell, California
 EEI Project No. STA-71881.4
 Created May 2014



CREATED BY:

JAB

REVISION DATE:

.

REVISION NO.:

.

FIGURE 4

**APPENDIX A
SOIL CLASSIFICATION CHART AND BORING LOGS**



BOREHOLE LOG

Number:

B-1

Client:

St. Anton - Campbell

Sheet:

1 of 1

Location:

Railway Avenue
Campbell, California

Date Started:

5/9/2014

Date Finished:

5/9/2014

EEI Rep:

MH

Project No.:

STA-71881.4

Drill Rig/Sampling Method:

Truck Mounted Hollow-Stem Auger / 8" Hollow Stem Auger

Borehole Diameter:

8 in

SAMPLE LOG

BOREHOLE LOG

Bulk	Sample Type	Blows Per 6"	Dry Unit Wt. (pcf)	Moisture (%)	Depth In Feet	USCS Symbol	Graphic Log	Geologic Description (SoilType, Color, Grain, Minor Soil Component, Moisture, Density, Odor, Etc.)
					1			4" ASPHALT OVER 6" OF BASE
	MC	5 6 7	92	9	2	ML		FILL SILT, moderate brown, with sand, dry, stiff
	MC	5 7 9	88	9	3	ML		ALLUVIUM SILT, moderate brown, with sand, dry, stiff
	MC	10 8 10	98	6	4			
	MC	13 16 18	78	7	5			SILT/SAND, moderate brown, fine grained, dry, stiff/medium dense
	MC				6			
	MC				7	SM		more silt, some gravel
	MC				8			
	MC				9			
	MC				10			SILTY, moderate to dark brown, with gravel, dry, medium dense
	MC				11			
	MC				12			more gravel; tough drilling at approximately 12'
	SPT	11 80 20		3	13			becomes grayish brown, less silt
	SPT	16 19 25		4	14	SM		very difficult drilling at approximately 16'
					15			
					16			@18.5 becomes dense
					17			
					18			
					19			
					20			
					21			Total boring depth = 20'
					22			Groundwater was not encountered.
					23			MC = Modified California Sampler
					24			SPT = Standard Penetration Test
					25			Hole was backfilled with cement grout and soil cuttings on 5/9/14.
					26			
					27			
					28			
					29			
					30			
					31			
					32			
					33			

BOREHOLE LOG STA-71881.4.GPJ EEI.GDT 5/29/14



BOREHOLE LOG

Number:

B-2

Client:

St. Anton - Campbell

Sheet:

1 of 1

Location:

Railway Avenue
Campbell, California

Date Started:

5/9/2014

Date Finished:

5/9/2014

EEI Rep:

MH

Project No.:

STA-71881.4

Drill Rig/Sampling Method:

Truck Mounted Hollow-Stem Auger / 8" Hollow Stem Auger

Borehole Diameter:

8 in

SAMPLE LOG

BOREHOLE LOG

Bulk	Sample Type	Blows Per 6"	Dry Unit Wt. (pcf)	Moisture (%)	Depth In Feet	USCS Symbol	Graphic Log	Geologic Description <small>(Soil Type, Color, Grain, Minor Soil Component, Moisture, Density, Odor, Etc.)</small>
					1			3" ASPHALT OVER 6" OF BASE
					2	ML		FILL SILT, moderate brown, with sand, dry, stiff, few fine gravel
	MC	7 8 10	95	12	3			ALLUVIUM SILT, moderate brown, with sand, dry, stiff, few fine gravel
	MC	6 9 8	94	10	4	ML		
	MC	7 10 14	108	6	7			
	MC	18 20 46	82	4	10	SM		SILTY SAND, moderate brown, fine grained, with gravel, dry, medium dense
	SPT	18 26 27		2	15	SW		WELL GRADED GRAVELLY SAND, moderate brown to grayish brown, dry, dense
	SPT	42 45 28		3	19			becomes more sandy, less gravelly; very dense
					21			
					22			
					23			
					24			
					25			
					26			
					27			
					28			
					29			
					30			
					31			
					32			
					33			
								Total boring depth = 20' Groundwater was not encountered. MC = Modified California Sampler SPT = Standard Penetration Test Hole was backfilled with cement grout and soil cuttings on 5/9/14.

BOREHOLE LOG STA-71881.4.GPJ EEI.GDT 5/29/14



BOREHOLE LOG

Number:

B-3

Client:

St. Anton - Campbell

Sheet:

1 of 2

Location:

Railway Avenue
Campbell, California

Date Started:

5/9/2014

Date Finished:

5/9/2014

EEI Rep:

MH

Project No.:

STA-71881.4

Drill Rig/Sampling Method:

Truck Mounted Hollow-Stem Auger / 8" Hollow Stem Auger

Borehole Diameter:

8 in

SAMPLE LOG

BOREHOLE LOG

Bulk	Sample Type	Blows Per 6"	Dry Unit Wt. (pcf)	Moisture (%)	Depth In Feet	USCS Symbol	Graphic Log	Geologic Description (SoilType, Color, Grain, Minor Soil Component, Moisture, Density, Odor, Etc.)
					1			3" ASPHALT OVER 6" OF BASE
					2	SM		FILL SILTY SAND/SANDY SILT, moderate brown, fine grained, dry, loose/soft
	MC	7 7 7	85	14	3			ALLUVIUM SILTY SAND, moderate brown, fine grained, dry, loose, with fine to medium subrounded to subangular gravel
	MC	7 12 15	105	11	5	SM		becoming darker brown, medium dense, more silty
	MC	19 17 14	103	6	8			becoming very gravelly; difficult drilling
	MC	19 20 19	116	3	10	SP		POORLY GRADED SAND, moderate brown to orange brown, fine to medium sand, with silt and gravel, dry, medium dense
					11			@ 10' very gravelly
					12			POORLY GRADED SANDY GRAVEL, brown, dry, medium dense to dense
	SPT	5 10 9		9	15	CL		LEAN CLAY, moderate brown, abundant sand and gravel, moist, very stiff
					16			
	MC	34 40 49	127	3	20			WELL GRADED GRAVEL, brown, fine to coarse and subround to subangular, sandy, dry, very dense
					21			
	SPT	24 30 28		6	25	GW		
					26			
	MC	30 39 50	120	8	30			
					31			
					32			
					33			

BOREHOLE LOG STA-71881.4.GPJ EEI.GDT 5/29/14



BOREHOLE LOG

Number:

B-3

Client:

St. Anton - Campbell

Sheet:

2 of 2

Location:

Railway Avenue
Campbell, California

Date Started:

5/9/2014

Date Finished:

5/9/2014

EEI Rep:

MH

Project No.:

STA-71881.4

Drill Rig/Sampling Method:

Truck Mounted Hollow-Stem Auger / 8" Hollow Stem Auger

Borehole Diameter:

8 in

SAMPLE LOG

BOREHOLE LOG

Bulk	Sample Type	Blows Per 6"	Dry Unit Wt. (pcf)	Moisture (%)	Depth in Feet	USCS Symbol	Graphic Log	Geologic Description (SoilType, Color, Grain, Minor Soil Component, Moisture, Density, Odor, Etc.)	
	SPT	30 33 28		7	35	GW		WELL GRADED GRAVEL, brown, fine to coarse and subround to subangular, sandy, dry, very dense	
	MC	33 40 50 for 5"	128	8	40				less clayey
	SPT	24 35 23		10	45				GC
					46				
					47			Total boring depth = 46.5' Groundwater was not encountered. MC = Modified California Sampler SPT = Standard Penetration Test Hole was backfilled with cement grout and soil cuttings on 5/9/14.	
					48				
					49				
					50				
					51				
					52				
					53				
					54				
					55				
					56				
					57				
					58				
					59				
					60				
					61				
					62				
					63				
					64				
					65				
					66				
					67				



BOREHOLE LOG

Number:

B-4

Client:

St. Anton - Campbell

Sheet:

1 of 2

Location:

Railway Avenue
Campbell, California

Date Started:

5/9/2014

Date Finished:

5/9/2014

EEI Rep:

MH

Project No.:

STA-71881.4

Drill Rig/Sampling Method:

Truck Mounted Hollow-Stem Auger / 8" Hollow Stem Auger

Borehole Diameter:

8 in

SAMPLE LOG

BOREHOLE LOG

Bulk	Sample Type	Blows Per 6"	Dry Unit Wt. (pcf)	Moisture (%)	Depth In Feet	USCS Symbol	Graphic Log	Geologic Description (SoilType, Color, Grain, Minor Soil Component, Moisture, Density, Odor, Etc.)
					1			6" CONCRETE OVER 6" OF BASE
					2	ML		FILL SANDY SILT, moderate brown, fine grained, trace gravel, dry, stiff
	MC	6 8 9	89	10	3			ALLUVIUM SANDY SILT, moderate brown, fine grained, trace gravel, dry, stiff
					4			
	MC	7 9 14	93	11	5			becoming very stiff, less sandy
					6	ML		
					7			
	MC	6 7 9	87	6	8			becoming light orange brown, stiff; trace rootlets
					9			
	MC	6 8 9	119	5	10			
					11			SILTY SAND, moderate brown, gravelly, dry, medium dense
					12	SM		
					13			
	SPT	24 25 23			14			
					15			SANDY GRAVEL/GRAVELLY SAND, moderate brown to grayish brown, fine to coarse grained, silty, dry, dense to very dense, subround to subangular gravel
				2	16			
					17			
	MC	50 8 50 for 1"			18			
					19			
					20			
					21			
					22			
	SPT	23 23 24			23	GW-GM		
					24			at 24' becomes brown, slightly moist, dense; clayey
					25			
					26			
					27			
	MC	33 50 for 4"			28			
					29			at 29' becomes very dense; increase in clay
			112		30			
					31			
					32			
					33	CL		LEAN CLAY, light to moderate brown, moist to very moist, stiff
	SPT	8						

BOREHOLE LOG STA-71881.4.GPJ EEI.GDT 5/29/14



BOREHOLE LOG

Number:
B-4

Client:
St. Anton - Campbell

Sheet:
2 of 2

Location:
Railway Avenue
Campbell, California

Date Started: 5/9/2014
Date Finished: 5/9/2014

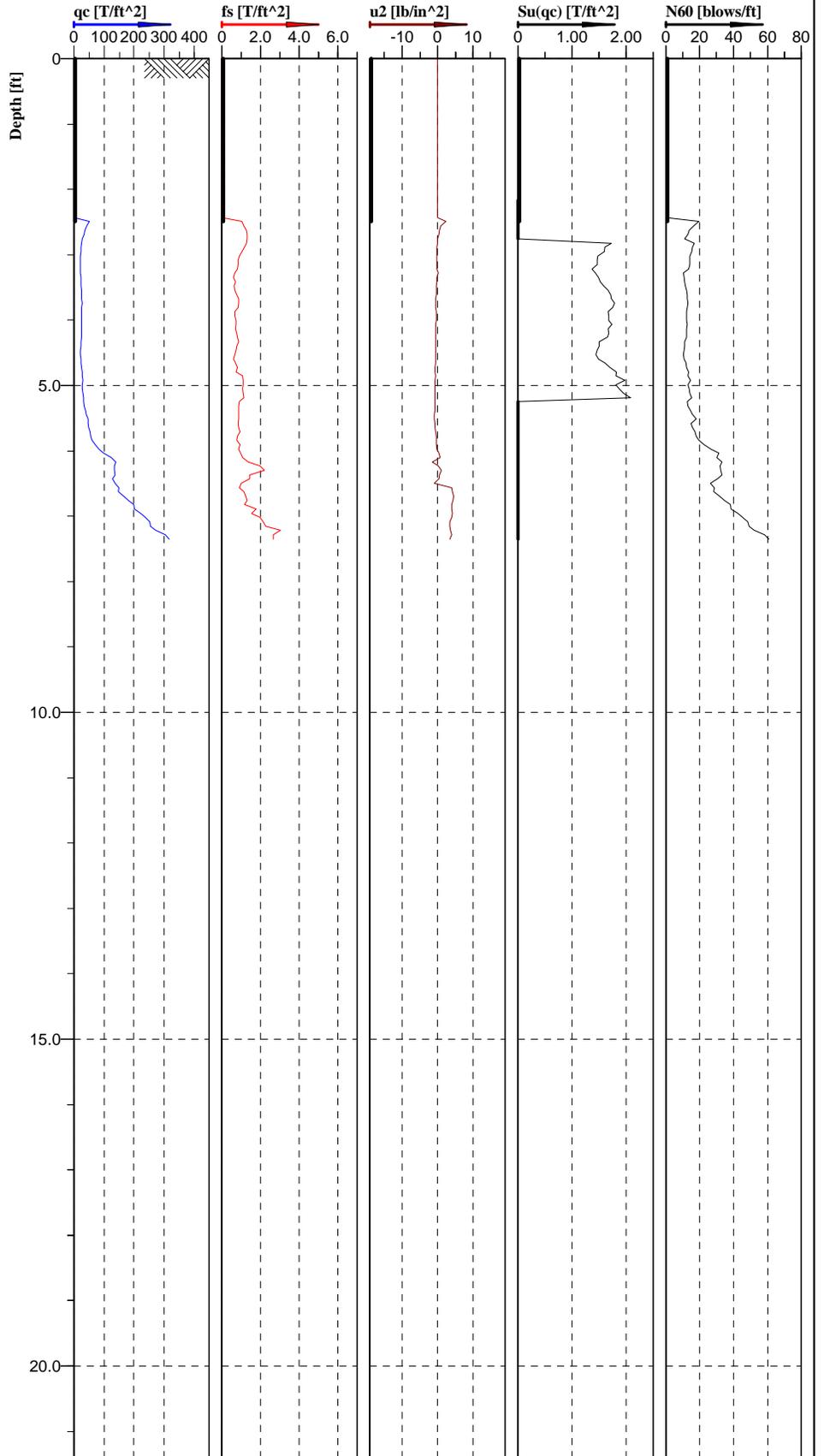
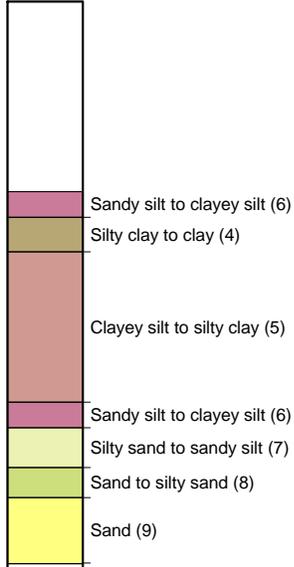
EEI Rep: MH **Project No.:** STA-71881.4 **Drill Rig/Sampling Method:** Truck Mounted Hollow-Stem Auger / 8" Hollow Stem Auger **Borehole Diameter:** 8 in

SAMPLE LOG

BOREHOLE LOG

Bulk	Sample Type	Blows Per 6"	Dry Unit Wt. (pcf)	Moisture (%)	Depth In Feet	USCS Symbol	Graphic Log	Geologic Description (Soil Type, Color, Grain, Minor Soil Component, Moisture, Density, Odor, Etc.)				
	X	6 8	116	21	35	CL		LEAN CLAY, light to moderate brown, moist to very moist, stiff				
	X	10 12 15			36				37	38		SLIGHTLY SANDY SILT, moderate brown, fine grained, moist to very moist, very stiff/medium dense
	X	14 24 20			39				40	41		
			43	44	45							
			46	47	48							
			49	50	51			Total boring depth = 46' Groundwater was not encountered. MC = Modified California Sampler SPT = Standard Penetration Test Hole was backfilled with cement grout and soil cuttings on 5/9/14.				
			52	53	54							
			55	56	57							
			58	59	60							
			61	62	63							
			64	65	66							
			67									

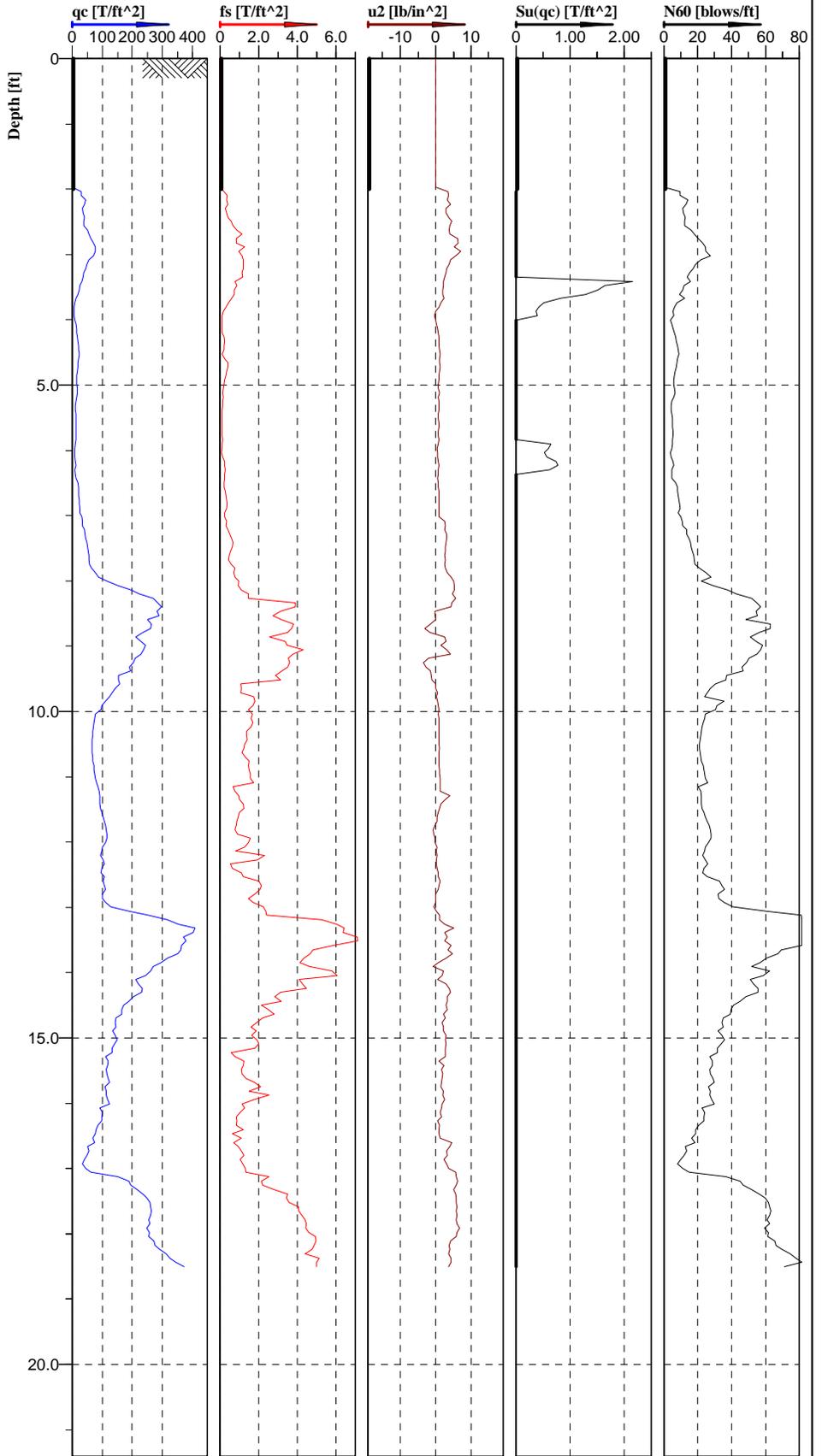
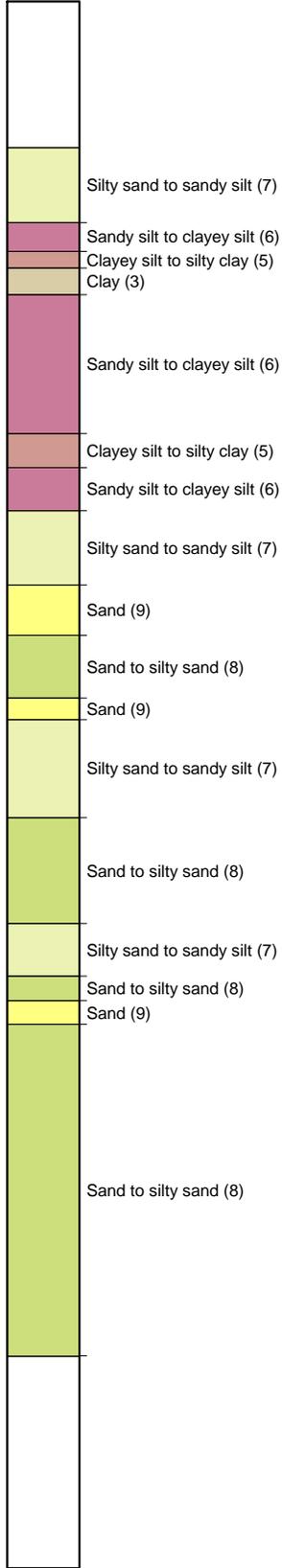
Classification by
Robertson 1986



Cone No: 4141
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Campbell, California	Position:	Ground level:	Test no: CPT-1
Project ID:	Client: EEI	Date: 5/9/2014	Scale: 1 : 30
Project: Railway Avenue		Page: 1/1	Fig:
		File: CPT-1.cpd	

Classification by
Robertson 1986



Cone No: 4141
Tip area [cm²]: 10
Sleeve area [cm²]: 150

Location: Campbell, California	Position:	Ground level:	Test no: CPT-2
Project ID:	Client: EEI	Date: 5/9/2014	Scale: 1 : 30
Project: Railway Avenue		Page: 1/1	Fig:
		File: CPT-2.cpd	

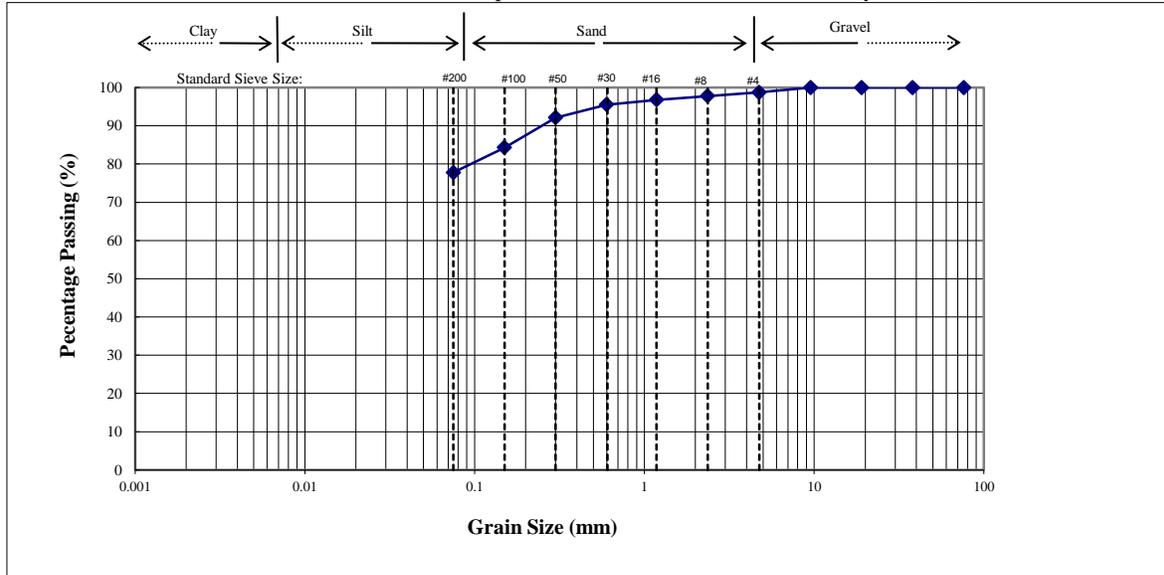
**APPENDIX B
LABORATORY TEST DATA**

PARTICLE-SIZE ANALYSIS OF SOILS

ASTM METHOD D 422 (SIEVE ANALYSIS)

Sample :	B-4 @ 5 ft.		D10 (mm)	N/A
Total Weight (g)	123.7		D30 (mm)	N/A
Dry Weight (g)	111.5		D60 (mm)	N/A
Wet Sieve Weight (g)	24.8		Cu	N/A
Initial Moisture (%)	10.9		Cc	N/A

According to ASTM D 2487 Unified Soil Classification System (USCS) and ASTM D 422 (Standard Test Method for Particle-Size Analysis) test method results, soil sample B-4 at 5 feet is classified as a Sandy Silt (ML)



Sieve Size (in)	Sieve Size (mm)	Cumulative Weight of dry soil (gm)	Percent Retained (%)	Percent Passing (%)
3"	76.2		0.0	100.0
1.5"	38.1		0.0	100.0
3/4"	19.05		0.0	100.0
3/8"	9.53		0.0	100.0
#4	4.75	1.4	1.3	98.7
#8	2.36	2.5	2.2	97.8
#16	1.18	3.6	3.2	96.8
#30	0.6	5.0	4.5	95.5
#50	0.3	8.8	7.9	92.1
#100	0.15	17.5	15.7	84.3
#200	0.075	24.8	22.2	77.8



2195 Faraday Avenue, Suite K, Carlsbad CA 92008

Client: ST. Anton

Project Name: Campbell

Job Number: STA-71881.4

Date: 5/16/14

Boring Number: B-4

Depth: 5 ft.

Soil Description: Brown Sandy Silt (ML)

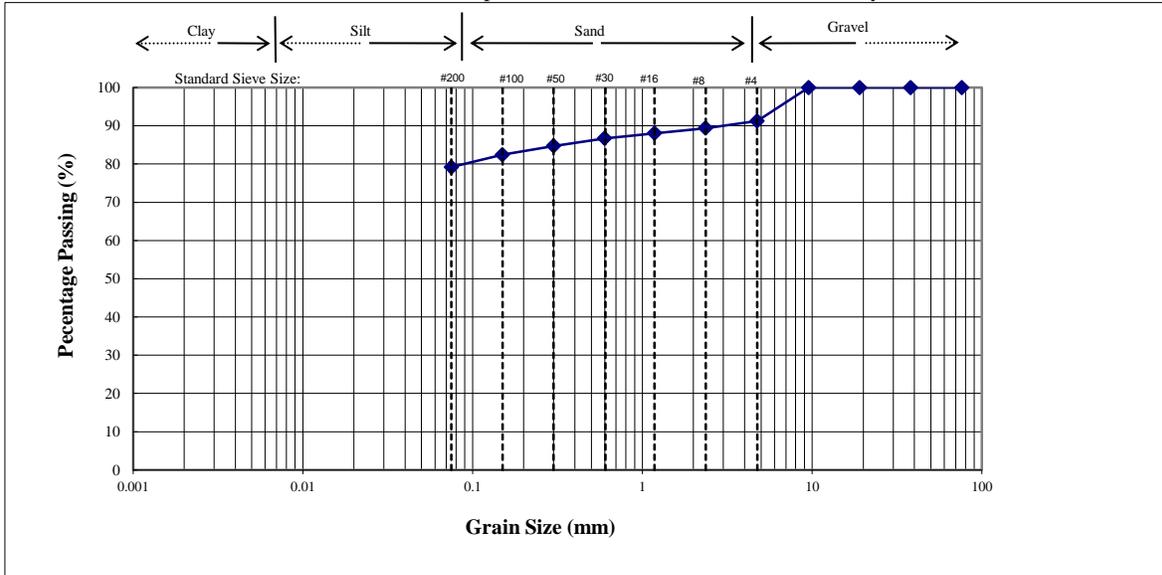
Tested by: B D

PARTICLE-SIZE ANALYSIS OF SOILS

ASTM METHOD D 422 (SIEVE ANALYSIS)

Sample :	B-4 @ 7.5 ft.		D10 (mm)	N/A
Total Weight (g)	135.9		D30 (mm)	N/A
Dry Weight (g)	128.1		D60 (mm)	N/A
Wet Sieve Weight (g)	26.7		Cu	N/A
Initial Moisture (%)	6.1		Cc	N/A

According to ASTM D 2487 Unified Soil Classification System (USCS) and ASTM D 422 (Standard Test Method for Particle-Size Analysis) test method results, soil sample B-4 at 7.5 feet is classified as a Sandy Silt (ML)



Sieve Size (in)	Sieve Size (mm)	Cumulative Weight of dry soil (gm)	Percent Retained (%)	Percent Passing (%)
3"	76.2		0.0	100.0
1.5"	38.1		0.0	100.0
3/4"	19.05		0.0	100.0
3/8"	9.53		0.0	100.0
#4	4.75	11.2	8.7	91.3
#8	2.36	13.6	10.6	89.4
#16	1.18	15.3	11.9	88.1
#30	0.6	17.0	13.3	86.7
#50	0.3	19.6	15.3	84.7
#100	0.15	22.5	17.6	82.4
#200	0.075	26.7	20.8	79.2



2195 Faraday Avenue, Suite K, Carlsbad CA 92008

Client: ST. Anton

Project Name: Campbell

Job Number: STA-71881.4

Date: 5/16/14

Boring Number: B-4

Depth: 7.5 ft.

Soil Description: Brown Sandy Silt (ML)

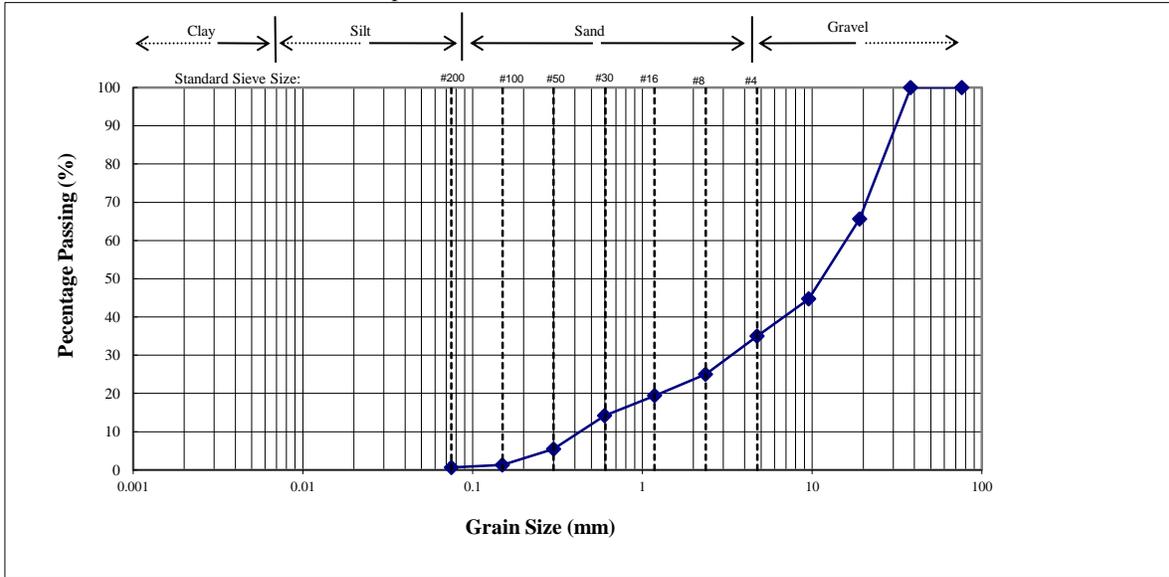
Tested by: B D

PARTICLE-SIZE ANALYSIS OF SOILS

ASTM METHOD D 422 (SIEVE ANALYSIS)

Sample :	B-4 @ 10.0 ft.		D10 (mm)	0.42
Total Weight (g)	138.3		D30 (mm)	3.50
Dry Weight (g)	132.0		D60 (mm)	16.00
Wet Sieve Weight (g)	139.6		Cu	38.10
Initial Moisture (%)	4.8		Cc	1.82

According to ASTM D 2487 Unified Soil Classification System (USCS) and ASTM D 422 (Standard Test Method for Particle-Size Analysis) test method results, soil sample B-4 at 7.5 feet is classified as a Well Graded Gravel with Sand (GP)



Sieve Size (in)	Sieve Size (mm)	Cumulative Weight of dry soil (gm)	Percent Retained (%)	Percent Passing (%)
3"	76.2		0.0	100.0
1.5"	38.1		0.0	100.0
3/4"	19.05	45.4	34.4	65.6
3/8"	9.53	73.0	55.3	44.7
#4	4.75	85.8	65.0	35.0
#8	2.36	99.0	75.0	25.0
#16	1.18	106.4	80.6	19.4
#30	0.6	113.3	85.8	14.2
#50	0.3	124.8	94.5	5.5
#100	0.15	130.3	98.7	1.3
#200	0.075	131.2	99.4	0.6



2195 Faraday Avenue, Suite K, Carlsbad CA 92008

Client: ST. Anton

Project Name: Campbell

Job Number: STA-71881.4

Date: 5/16/14

Boring Number: B-4

Depth: 10 ft.

Soil Description: Brown Well Graded Gravel with Sand (GP)

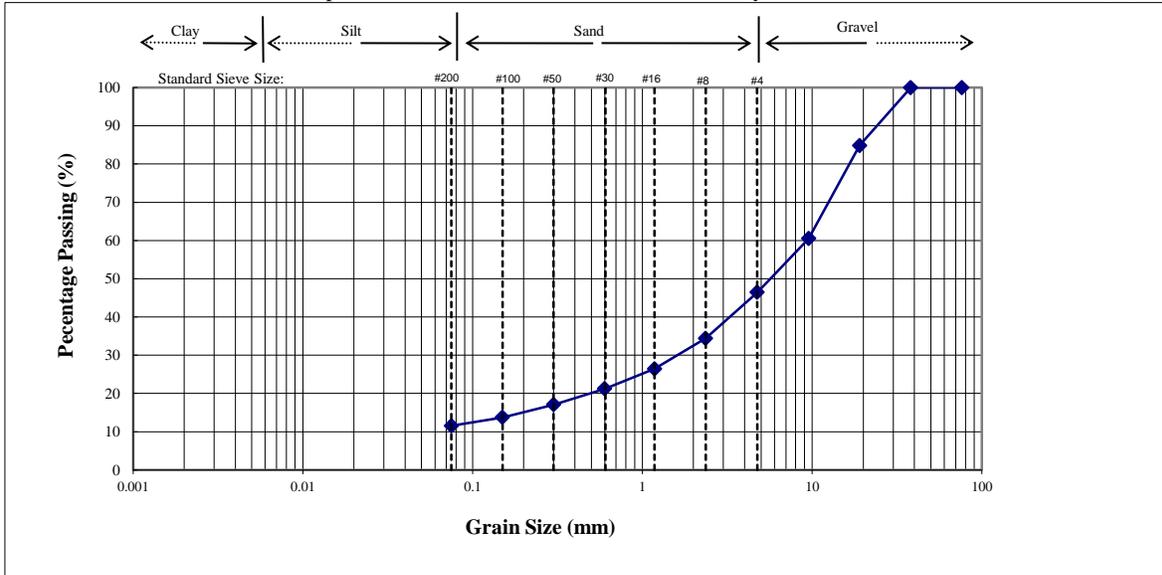
Tested by: B D

PARTICLE-SIZE ANALYSIS OF SOILS

ASTM METHOD D 422 (SIEVE ANALYSIS)

Sample :	B-4 @ 25.0 ft.	D10 (mm)	NA
Total Weight (g)	153.0	D30 (mm)	NA
Dry Weight (g)	146.5	D60 (mm)	NA
Wet Sieve Weight (g)	129.6	Cu	NA
Initial Moisture (%)	4.4	Cc	NA

According to ASTM D 2487 Unified Soil Classification System (USCS) and ASTM D 422 (Standard Test Method for Particle-Size Analysis) test method results, soil sample B-6 at 6 feet is classified as Brown Poorly Graded Sand with Silt and Gravel (SP)



Sieve Size (in)	Sieve Size (mm)	Cumulative Weight of dry soil (gm)	Percent Retained (%)	Percent Passing (%)
3"	76.2		0.0	100.0
1.5"	38.1		0.0	100.0
3/4"	19.05	22.2	15.2	84.8
3/8"	9.53	57.9	39.5	60.5
#4	4.75	78.5	53.6	46.4
#8	2.36	96.1	65.6	34.4
#16	1.18	107.8	73.6	26.4
#30	0.6	115.4	78.8	21.2
#50	0.3	121.5	82.9	17.1
#100	0.15	126.4	86.3	13.7
#200	0.075	129.6	88.5	11.5



2195 Faraday Avenue, Suite K, Carlsbad CA 92008

Client: ST. Anton

Project Name: Campbell

Job Number: STA-71881.4

Date: 5/16/14

Boring Number: B-4

Depth: 25 ft.

Soil Description: Brown Poorly Graded Sand with Silt and Gravel (SP)

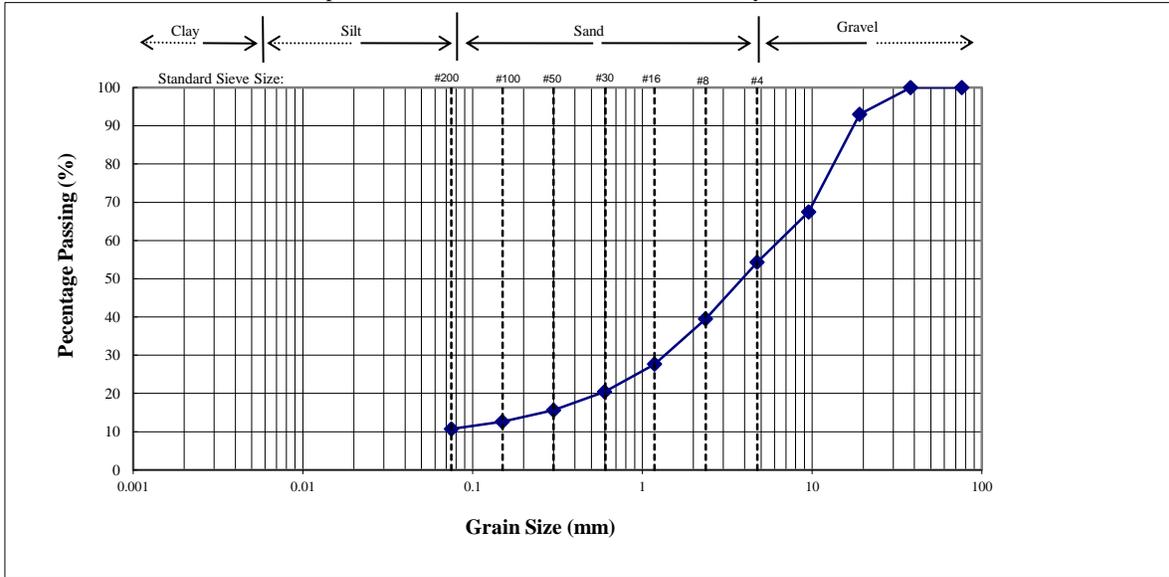
Tested by: B D

PARTICLE-SIZE ANALYSIS OF SOILS

ASTM METHOD D 422 (SIEVE ANALYSIS)

Sample :	B-4 @ 30.0 ft.	D10 (mm)	NA
Total Weight (g)	158.7	D30 (mm)	1.50
Dry Weight (g)	149.9	D60 (mm)	6.50
Wet Sieve Weight (g)	133.9	Cu	NA
Initial Moisture (%)	5.9	Cc	NA

According to ASTM D 2487 Unified Soil Classification System (USCS) and ASTM D 422 (Standard Test Method for Particle-Size Analysis) test method results, soil sample B-6 at 6 feet is classified as Brown Poorly Graded Sand with Silt and Gravel (SP)



Sieve Size (in)	Sieve Size (mm)	Cumulative Weight of dry soil (gm)	Percent Retained (%)	Percent Passing (%)
3"	76.2		0.0	100.0
1.5"	38.1		0.0	100.0
3/4"	19.05	10.5	7.0	93.0
3/8"	9.53	48.8	32.6	67.4
#4	4.75	68.5	45.7	54.3
#8	2.36	90.7	60.5	39.5
#16	1.18	108.5	72.4	27.6
#30	0.6	119.3	79.6	20.4
#50	0.3	126.5	84.4	15.6
#100	0.15	131.0	87.4	12.6
#200	0.075	133.9	89.3	10.7



2195 Faraday Avenue, Suite K, Carlsbad CA 92008

Client: ST. Anton

Project Name: Campbell

Job Number: STA-71881.4

Date: 5/16/14

Boring Number: B-4

Depth: 30 ft.

Soil Description: Brown Poorly Graded Sand with Silt and Gravel (SP)

Tested by: B D

EXPANSION INDEX TEST

ASTM METHOD D 4829

Sample B-4 @ 1-5 ft.

Moisture Content of Initial Sample	% Saturation of Re-molded Sample	Moisture Content of Final Sample
Tare No. - S-6	Wt. of Soil and Ring (g) - 601.6	Wt. of Soil and Ring (g) - 634.6
Wet Weight and Tare (g) - 158.8	Ring Weight (g) - 199.0	Ring Weight (g) - 199.0
Dry Weight and Tare (g) - 148.0	Wet Weight of Soil (g) - 402.6	Wet Weight of Soil (g) - 435.6
Tare Weight (g) - 51.4	Dry Weight of Soil (g) - 362.1	Dry Weight of Soil (g) - 362.1
Water Loss (g) - 10.8	Volume of Ring (ft ³) - 0.0073	Weight of Water (g) - 73.5
Dry Weight (g) - 96.6	Dry Density (pcf) - 109.4	Final Moisture (%) - 20.3
Initial Moisture (%) - 11.2	Initial Saturation (%) - 55.8	Final Saturation (%) - 101.4

Expansion Test - UBC (144 PSF)			
	Date	Time	Reading
Add Weight	5/16/2014	9:45	0.000
10 Minutes		9:55	0.000
Add Water		11:00	0.043
		2:10	0.047
	5/19/2014	6:37	0.050

Initial Reading
Final Reading

EI _{measured}	=	50
EI₅₀	=	54

Expansion Index, EI ₅₀	Potential Expansion
0-20	Very Low
21-50	Low
51-90	Medium
91-130	High
>130	Very High



2195 Faraday Avenue, Suite K, Carlsbad, CA 92008

Client: ST. Anton
Job Name; Campbell
Job Number: STA-71881.4
Date:5/16/14
Boring Number: B-4
Depth: 1-5 ft.
Soil Description: Brown Sandy Silt
Tested by: BD

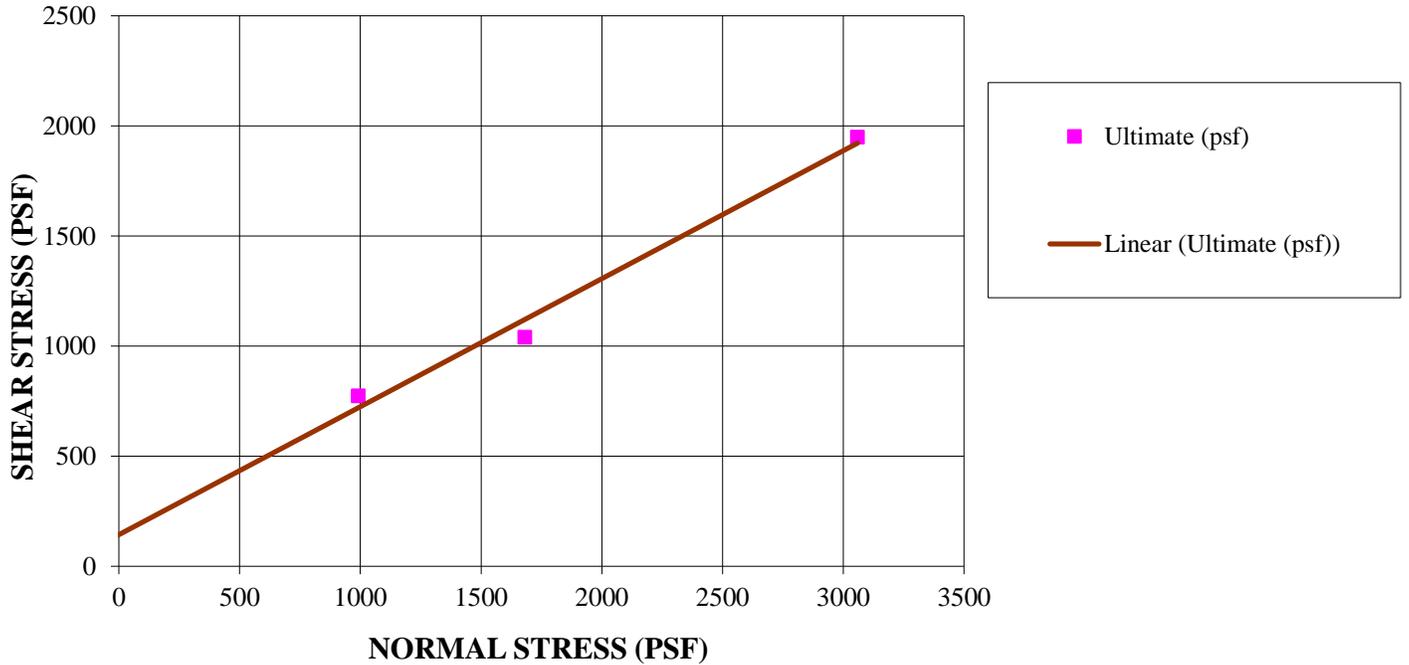
DIRECT SHEAR TEST ASTM D 3080

Job Data	
Job No.:	STA-71881.4
Client:	ST. Anton
Date:	5/19/14
Sample Data	
Sample:	B-4 @ 1- 5 ft.
Remolded: to 90 % Relative Compaction	
Remarks: Soaked Before Placing in Shear Box	
Soil Description: Brn. Sandy Silt ML	



2195 Faraday Avenue, Suite K, Carlsbad, CA 92008

SHEAR TEST DIAGRAM



Test Results

	Phi	Cohesion
Ultimate (psf)	30 degrees	143 psf

Average Initial Moisture	11.3%
Average Dry Density	111.1 pcf
Average Final Moisture	17.9%

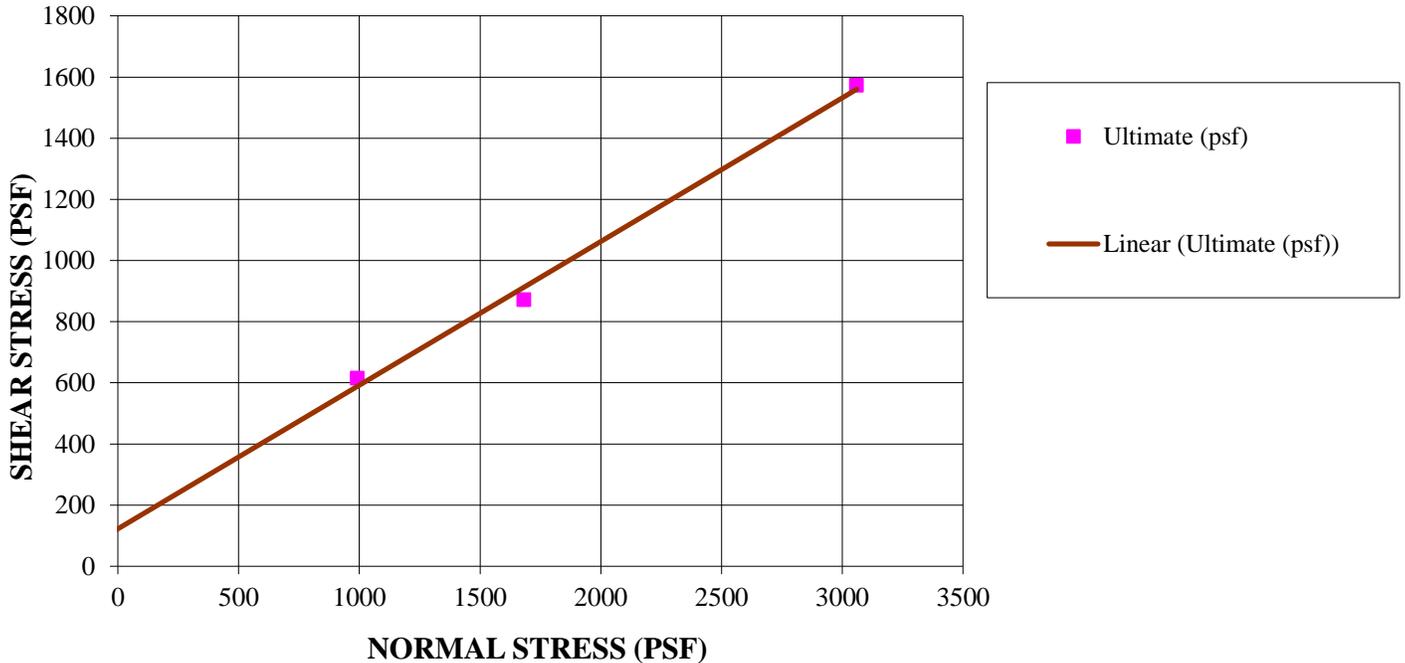
DIRECT SHEAR TEST ASTM D 3080



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Job Data	
Job No.:	STA-71881.4
Client:	ST. Anton
Date:	5/19/14
Sample Data	
Sample:	B-3 @ 5 ft.
Remolded:	Natural
Remarks:	Soaked Before Placing in Shear Box
Soil Description:	Brn. Sandy Silt ML

SHEAR TEST DIAGRAM



Test Results

	Phi		Cohesion	
Ultimate (psf)	25	degrees	122	psf

Average Initial Moisture	11.0%
Average Dry Density	103.2 pcf
Average Final Moisture	20.3%

L A B O R A T O R Y R E P O R T

Telephone (619) 425-1993 Fax 425-7917 Established 1928

C L A R K S O N L A B O R A T O R Y A N D S U P P L Y I N C.
350 Trousdale Dr. Chula Vista, Ca. 91910 www.clarksonlab.com
A N A L Y T I C A L A N D C O N S U L T I N G C H E M I S T S

Date: May 22, 2014
Purchase Order Number: STA-71881-4
Sales Order Number: 22451
Account Number: EEI

To:

EEI Environmental Equalizers Inc
2195 Faraday Avenue Suite K
Carlsbad, CA 92008
Attention: Hector Estrella/Jeff Blake

Laboratory Number: S05303-1 Customers Phone: 760-431-3747
Fax:

Sample Designation:

One soil sample received on 05/20/14 at 3:40pm, taken on 05/16/14
taken from ST Anton Campbell Project# Sta-71881-4 marked as B-3 0-5'.

Analysis By California Test 643, 1999, Department of Transportation
Division of Construction, Method for Estimating the Service Life of
Steel Culverts.

pH 6.9

Water Added (ml)	Resistivity (ohm-cm)
10	7000
5	4600
5	2300
5	1400
5	1200
5	1100
5	1100
5	1200
5	1400

20 years to perforation for a 16 gauge metal culvert.
26 years to perforation for a 14 gauge metal culvert.
36 years to perforation for a 12 gauge metal culvert.
46 years to perforation for a 10 gauge metal culvert.
56 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417 0.007%
Water Soluble Chloride Calif. Test 422 0.003%



Laura Torres
LT/ram

L A B O R A T O R Y R E P O R T

Telephone (619) 425-1993

Fax 425-7917

Established 1928

C L A R K S O N L A B O R A T O R Y A N D S U P P L Y I N C.
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A N A L Y T I C A L A N D C O N S U L T I N G C H E M I S T S

Date: May 22, 2014

Purchase Order Number: STA-71881-4

Sales Order Number: 22451

Account Number: EEI

To:

EEI Environmental Equalizers Inc
2195 Faraday Avenue Suite K
Carlsbad, CA 92008
Attention: Hector Estrella/Jeff Blake

Laboratory Number: S05303-2

Customers Phone: 760-431-3747

Fax:

Sample Designation:

One soil sample received on 05/20/14 at 3:40pm, taken on 05/16/14
taken from ST Anton Campbell Project# Sta-71881-4 marked as B-4 1-5'.

Analysis By California Test 643, 1999, Department of Transportation
Division of Construction, Method for Estimating the Service Life of
Steel Culverts.

pH 7.3

Water Added (ml)

Resistivity (ohm-cm)

25	1000
5	860
5	800
5	770
5	750
5	670
5	660
5	720
5	770

26 years to perforation for a 16 gauge metal culvert.

34 years to perforation for a 14 gauge metal culvert.

46 years to perforation for a 12 gauge metal culvert.

59 years to perforation for a 10 gauge metal culvert.

72 years to perforation for a 8 gauge metal culvert.

Water Soluble Sulfate Calif. Test 417

0.045%

Water Soluble Chloride Calif. Test 422

0.002%



Laura Torres
LT/ram

**APPENDIX C
EARTHWORK AND GRADING GUIDELINES**



EARTHWORK AND GRADING GUIDELINES

GENERAL

These guidelines present general procedures and recommendations for earthwork and grading as required on the approved grading plans, including preparation of areas to be filled, placement of fill and installation of subdrains and excavations. The recommendations contained in the geotechnical report are applicable to each specific project, are part of the earthwork and grading guidelines and would supersede the provisions contained hereafter in the case of conflict. Observations and/or testing performed by the consultant during the course of grading may result in revised recommendations which could supersede these guidelines or the recommendations contained in the geotechnical report. Figures A through O are provided at the back of this appendix, exhibiting generalized cross sections relating to these guidelines.

The contractor is responsible for the satisfactory completion of all earthworks in accordance with provisions of the project plans and specifications. The project soil engineer and engineering geologist (geotechnical consultant) or their representatives should provide observation and testing services, and geotechnical consultation throughout the duration of the project.

EARTHWORK OBSERVATIONS AND TESTING

Geotechnical Consultant

Prior to the commencement of grading, a qualified geotechnical consultant (a soil engineer and engineering geologist) should be employed for the purpose of observing earthwork procedures and testing the fills for conformance with the recommendations of the geotechnical report, the approved grading plans, and applicable grading codes and ordinances.

The geotechnical consultant should provide testing and observation so that determination may be made that the work is being completed as specified. It is the responsibility of the contractor to assist the consultant and keep them aware of work schedules and predicted changes, so that the consultant may schedule their personnel accordingly.

All removals, prepared ground to receive fill, key excavations, and subdrains should be observed and documented by the project engineering geologist and/or soil engineer prior to placing any fill. It is the contractor's responsibility to notify the engineering geologist and soil engineer when such areas are ready for observation.

Earthwork and Grading Guidelines

Laboratory and Field Tests

Maximum dry density tests to determine the degree of compaction should be performed in accordance with American Standard Testing Materials test method ASTM designation D-1557-78. Random field compaction tests should be performed in accordance with test method ASTM designations D-1556-82, D-2937 or D-2922 & D-3017, at intervals of approximately two (2) feet of fill height per 10,000 sq. ft. or every one thousand cubic yards of fill placed. These criteria would vary depending on the soil conditions and the size of the project. The location and frequency of testing would be at the discretion of the geotechnical consultant

Contractor's Responsibility

All clearing, site preparation, and earthwork performed on the project should be conducted by the contractor, with observation by geotechnical consultants and staged approval by the appropriate governing agencies. It is the contractor's responsibility to prepare the ground surface to receive the fill to the satisfaction of the soil engineer, and to place, spread, moisture condition, mix and compact the fill in accordance with the recommendations of the soil engineer. The contractor should also remove all major deleterious material considered unsatisfactory by the soil engineer.

It is the sole responsibility of the contractor to provide adequate equipment and methods to accomplish the earthwork in accordance with applicable grading guidelines, codes or agency ordinances, and approved grading plans. Sufficient watering apparatus and compaction equipment should be provided by the contractor with due consideration for the fill material, rate of placement, and climatic conditions. If, in the opinion of the geotechnical consultant, unsatisfactory conditions such as questionable weather, excessive oversized rock, deleterious material or insufficient support equipment are resulting in a quality of work that is not acceptable, the consultant will inform the contractor, and the contractor is expected to rectify the conditions, and if necessary, stop work until conditions are satisfactory.

The contractor will properly grade all surfaces to maintain good drainage and prevent ponding of water. The contractor will take action to control surface water and to prevent erosion control measures that have been installed.

SITE PREPARATION

All vegetation including brush, trees, thick grasses, organic debris, and other deleterious material should be removed and disposed of offsite, and must be concluded prior to placing fill. Existing fill, soil, alluvium, colluvium, or rock materials determined by the soil engineer or engineering geologist as unsuitable for structural in-place support should be removed prior to fill placement. Depending upon the soil conditions, these materials may be reused as compacted fills. Any materials incorporated as part of the compacted fills should be approved by the soil engineer.

Any underground structures such as cesspools, cisterns, mining shafts, tunnels, septic tanks, wells, pipelines, or other structures not located prior to grading are to be removed or treated in a manner recommended by the soil engineer. Soft, dry, spongy, highly fractured, or otherwise unsuitable ground extending to such a depth that surface processing cannot adequately improve the condition should be over excavated down to firm ground and approved by the soil engineer before compaction and filling operations continue. Over excavated and processed soils which have been properly mixed and moisture-conditioned should be recompacted to the minimum relative compaction as specified in these guidelines.

Earthwork and Grading Guidelines

Existing ground which is determined to be satisfactory for support of the fills should be scarified to a minimum depth of six (6) inches, or as directed by the soil engineer. After the scarified ground is brought to optimum moisture (or greater) and mixed, the materials should be compacted as specified herein. If the scarified zone is greater than 6 inches in depth, it may be necessary to remove the excess and place the material in lifts restricted to six (6) inches in compacted thickness.

Existing grind which is not satisfactory to support compacted fill should be over excavated as required in the geotechnical report or by the onsite soils engineer and/or engineering geologists. Scarification, discing, or other acceptable form of mixing should continue until the soils are broken down and free of large fragments or clods, until the working surface is reasonably uniform and free from ruts, hollows, hummocks, or other uneven features which would inhibit compaction as described above.

Where fills are to be placed on ground with slopes steeper than 5:1 (horizontal to vertical) gradient, the ground should be benched. The lowest bench, which will act as a key, should be a minimum of 12 feet wide and should be at least two (2) feet deep into competent material, approved by the soil engineer and/or engineering geologist. In fill over cut slope conditions, the recommended minimum width of the lowest bench or key is at least 15 feet with the key excavated on competent material, as designated by the Geotechnical Consultant. As a general rule, unless superseded by the Soil Engineer, the minimum width of fill keys should be approximately equal to one-half ($\frac{1}{2}$) the height of the slope.

Standard benching is typically four feet (minimum) vertically, exposing competent material. Benching may be used to remove unsuitable materials, although it is understood that the vertical height of the bench may exceed four feet. Pre stripping may be considered for removal of unsuitable materials in excess of four feet in thickness.

All areas to receive fill, including processed areas, removal areas, and toe of fill benches should be observed and approved by the soil engineer and/or engineering geologist prior to placement of fill. Fills may then be properly placed and compacted until design grades are attained.

COMPACTED FILLS

Earth materials imported or excavated on the property may be utilized as fill provided that each soil type has been accepted by the soil engineer. These materials should be free of roots, tree branches, other organic matter or other deleterious materials. All unsuitable materials should be removed from the fill as directed by the soil engineer. Soils of poor gradation, undesirable expansion potential, or substandard strength characteristics may be designated unsuitable by the consultant and may require mixing with other earth materials to serve as a satisfactory fill material.

Fill materials generated from benching operations should be dispersed throughout the fill area. Benching operations should not result in the benched material being placed only within a single equipment width away from the fill/bedrock contact.

Earthwork and Grading Guidelines

Oversized materials, defined as rock or other irreducible materials with a maximum size exceeding 12 inches in one dimension, should not be buried or placed in fills unless the location of materials and disposal methods are specifically approved by the soil engineer. Oversized material should be taken offsite or placed in accordance with recommendations of the soil engineer in areas designated as suitable for rock disposal. Oversized material should not be placed vertically within 10 feet of finish grade or horizontally within 20 feet of slope faces.

To facilitate trenching, rock should not be placed within the range of foundation excavations or future utilities unless specifically approved by the soil engineer and/or the representative developers.

If import fill material is required for grading, representative samples of the material should be analyzed in the laboratory by the soil engineer to determine its physical properties. If any material other than that previously analyzed is imported to the fill or encountered during grading, analysis of this material should be conducted by the soil engineer as soon as practical.

Fill material should be placed in areas prepared to receive fill in near-horizontal layers that should not exceed six (6) inches compacted in thickness. The soil engineer may approve thicker lifts if testing indicates the grading procedures are such that adequate compaction is being achieved. Each layer should be spread evenly and mixed to attain uniformity of material and moisture suitable for compaction.

Fill materials at moisture content less than optimum should be watered and mixed, and “wet” fill materials should be aerated by scarification, or should be mixed with drier material. Moisture conditioning and mixing of fill materials should continue until the fill materials have uniform moisture content at or above optimum moisture.

After each layer has been evenly spread, moisture-conditioned and mixed, it should be uniformly compacted to a minimum of 90 percent of maximum density as determined by ASTM test designation, D 1557-78, or as otherwise recommended by the soil engineer. Compaction equipment should be adequately sized and should be reliable to efficiently achieve the required degree of compaction.

Where tests indicate that the density of any layer of fill, or portion thereof, is below the required relative compaction or improper moisture content, the particular layer or portion will be reworked until the required density and/or moisture content has been attained. No additional fill will be placed in an area until the last placed lift of fill has been tested and found to meet the density and moisture requirements, and is approved by the soil engineer.

Compaction of slopes should be accomplished by over-building the outside edge a minimum of three (3) feet horizontally, and subsequently trimming back to the finish design slope configuration. Testing will be performed as the fill is horizontally placed to evaluate compaction as the fill core is being developed. Special efforts may be necessary to attain the specified compaction in the fill slope zone. Final slope shaping should be performed by trimming and removing loose materials with appropriate equipment. A final determination of fill slope compaction should be based on observation and/or testing of the finished slope face.

Earthwork and Grading Guidelines

If an alternative to over-building and cutting back the compacted fill slope is selected, then additional efforts should be made to achieve the required compaction in the outer 10 feet of each lift of fill by undertaking the following:

- Equipment consisting of a heavy short-shanked sheepsfoot should be used to roll (horizontal) parallel to the slopes continuously as fill is placed. The sheepsfoot roller should also be used to roll perpendicular to the slopes, and extend out over the slope to provide adequate compaction to the face slope.
- Loose fill should not be spilled out over the face of the slope as each lift is compacted. Any loose fill spilled over a previously completed slope face should be trimmed off or be subject to re-rolling.
- Field compaction tests will be made in the outer two (2) to five (5) feet of the slope at two (2) to three (3) foot vertical intervals, subsequent to compaction operations.
- After completion of the slope, the slope face should be shaped with a small dozer and then re-rolled with a sheepsfoot to achieve compaction to near the slope face. Subsequent to testing to verify compaction, the slopes should be grid-rolled to achieve adequate compaction to the slope face. Final testing should be used to confirm compaction after grid rolling.
- Where testing indicates less than adequate compaction, the contractor will be responsible to process, moisture condition, mix and recompact the slope materials as necessary to achieve compaction. Additional testing should be performed to verify compaction.
- Erosion control and drainage devices should be designed by the project civil engineer in compliance with the ordinances of the controlling governmental agencies, and/or in accordance with the recommendations of the soil engineer or engineering geologist.

EXCAVATIONS

Excavations and cut slopes should be observed and mapped during grading by the engineering geologist. If directed by the engineering geologist, further excavations or over-excavation and refilling of cut areas should be performed. When fills over cut slopes are to be graded, the cut portion of the slope should be observed by the engineering geologist prior to placement of the overlying fill portion of the slope. The engineering geologist should observe all cut slopes and should be notified by the contractor when cut slopes are started.

If, during the course of grading, unanticipated adverse or potentially adverse geologic conditions are encountered, the engineering geologist and soil engineer should investigate, evaluate and make recommendations to mitigate (or limit) these conditions. The need for cut slope buttressing or stabilizing should be based on as-grading evaluations by the engineering geologist, whether anticipated previously or not.

Unless otherwise specified in soil and geological reports, no cut slopes should be excavated higher or steeper than that allowed by the ordinances of controlling governmental agencies. Additionally, short-term stability of temporary cut slopes is the contractor's responsibility.

Earthwork and Grading Guidelines

Erosion control and drainage devices should be designed by the project civil engineer and should be constructed in compliance with the ordinances of the controlling governmental agencies, and/or in accordance with the recommendations of the soil engineer or engineering geologist.

SUBDRAIN INSTALLATION

Subdrains should be installed in accordance with the approved embedment material, alignment and details indicated by the geotechnical consultant. Subdrain locations or construction materials should not be changed or modified without approval of the geotechnical consultant. The soil engineer and/or engineering geologist may recommend and direct changes in subdrain line, grade and drain material in the field, pending exposed conditions. The location of constructed subdrains should be recorded by the project civil engineer.

COMPLETION

Consultation, observation and testing by the geotechnical consultant should be completed during grading operations in order to state an opinion that all cut and filled areas are graded in accordance with the approved project specifications.

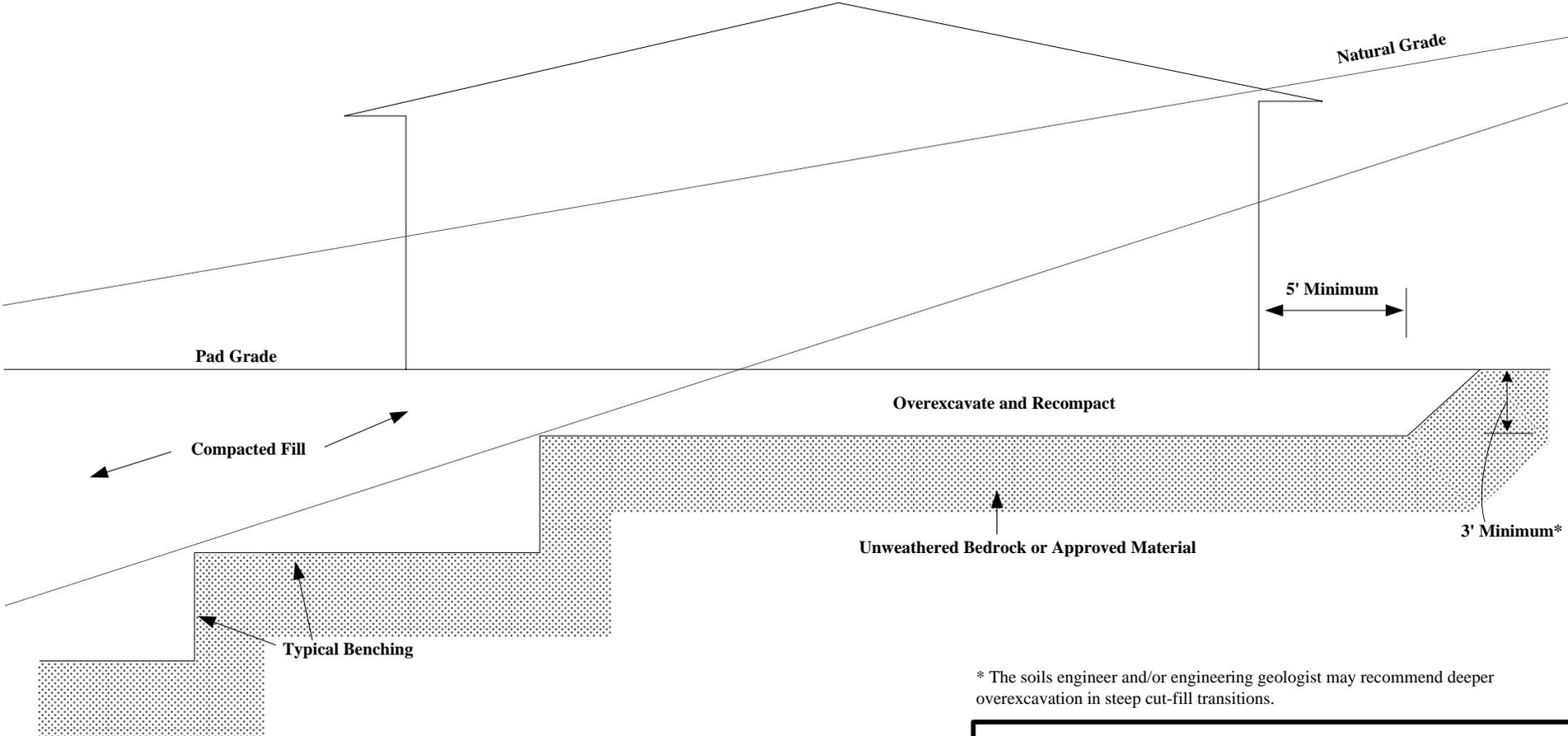
After completion of grading and after the soil engineer and engineering geologist have finished their observations, final reports should be submitted subject to review by the controlling governmental agencies. No additional grading should be undertaken without prior notification of the soil engineer and/or engineering geologist.

All finished cut and fill slopes should be protected from erosion, including but not limited to planting in accordance with the plan design specifications and/or as recommended by a landscape architect. Such protection and/or planning should be undertaken as soon as possible after completion of grading.

ATTACHMENTS

- Figure A – Transition Lot Detail Cut Lot
- Figure B – Transition Lot Detail Cut - Fill
- Figure C – Rock Disposal Pits
- Figure D – Detail for Fill Slope Toeing out on a Flat Alluviated Canyon
- Figure E – Removal Adjacent to Existing Fill
- Figure F – Daylight Cut Lot Detail
- Figure G – Skin Fill of Natural Ground
- Figure H – Typical Stabilization Buttress Fill Design
- Figure I – Stabilization Fill for Unstable Material Exposed in Portion of Cut Slope
- Figure J – Fill Over Cut Detail
- Figure K – Fill Over Natural Detail
- Figure L – Oversize Rock Disposal
- Figure M – Canyon Subdrain Detail
- Figure N – Canyon Subdrain Alternate Details
- Figure O – Typical Stabilization Buttress Subdrain Detail
- Figure P – Retaining Wall Backfill

**TRANSITION LOT DETAIL
CUT LOT – MATERIAL TYPE
TRANSITION**



* The soils engineer and/or engineering geologist may recommend deeper overexcavation in steep cut-fill transitions.

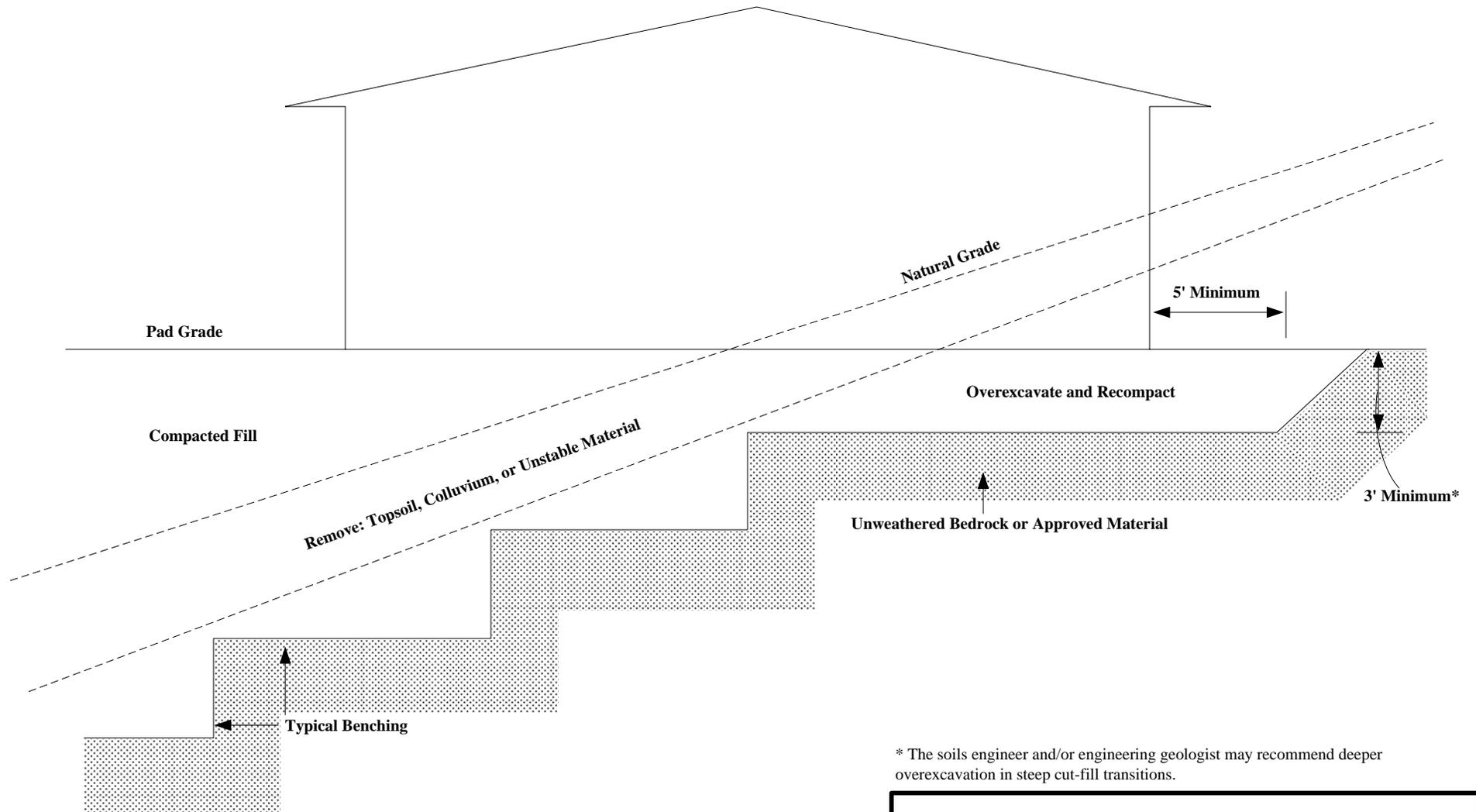
**EARTHWORK AND GRADING GUIDELINES
TRANSITION LOT DETAIL
CUT LOT – MATERIAL TYPE TRANSITION**



FIGURE A

Note: Figure not to scale

**TRANSITION LOT DETAIL
CUT – FILL – DAYLIGHT TRANSITION**



* The soils engineer and/or engineering geologist may recommend deeper overexcavation in steep cut-fill transitions.

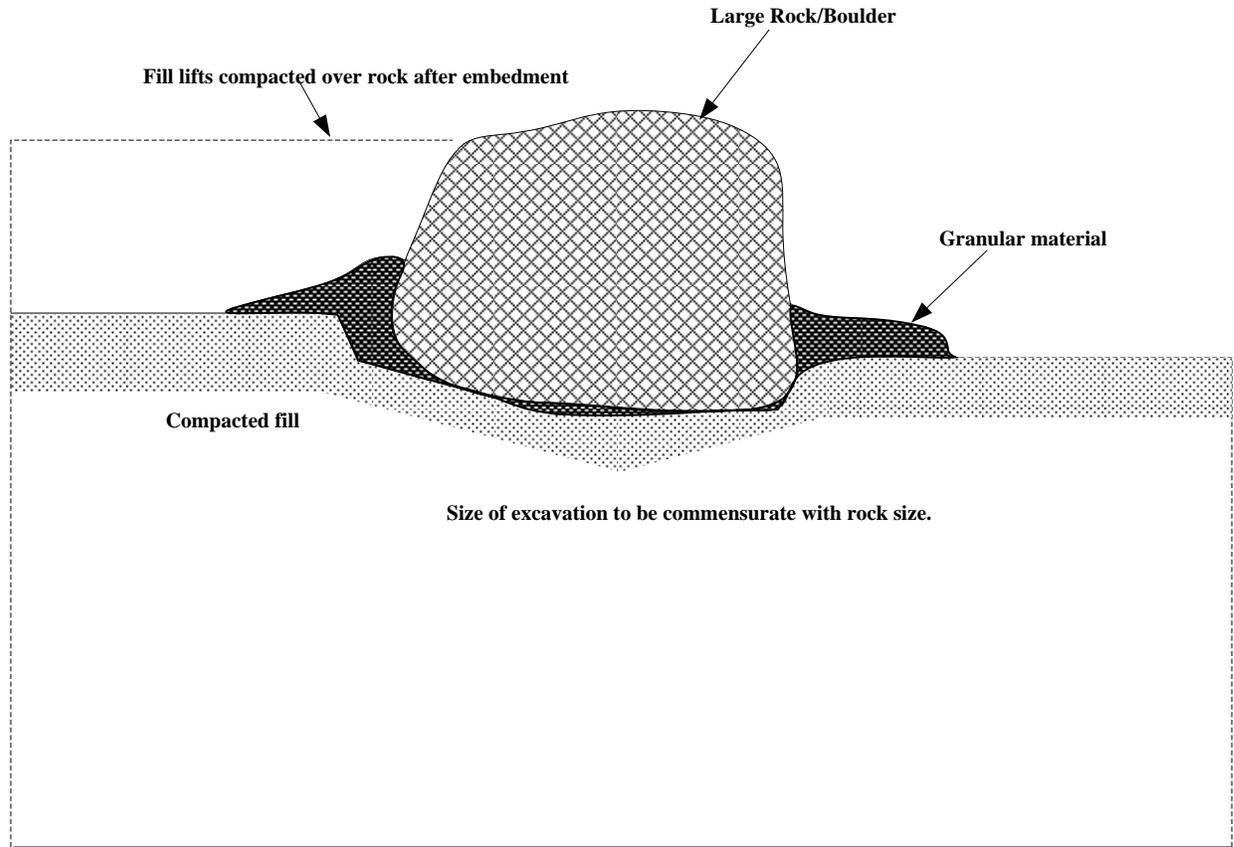
**EARTHWORK AND GRADING GUIDELINES
TRANSITION LOT DETAIL
CUT – FILL – DAYLIGHT TRANSITION**



FIGURE B

Note: Figure not to scale

ROCK DISPOSAL PITS



- Note:
- (1) Large rock is defined as having a diameter larger than 3 feet in maximum size.
 - (2) Pit shall be excavated into compacted fill to a depth equal to half of the rock size.
 - (3) Granular soil shall be pushed into the pit and then flooded around the rock using a sheepsfoot to help with compaction.
 - (4) A minimum of 3 feet of compacted fill should be laid over each pit.
 - (5) Pits shall have at least 15 feet of separation between one another, horizontally.
 - (6) Pits shall be placed at least 20 feet from any fill slope.
 - (7) Pits shall be used only in deep fill areas.

EARTHWORK AND GRADING GUIDELINES ROCK DISPOSAL PITS



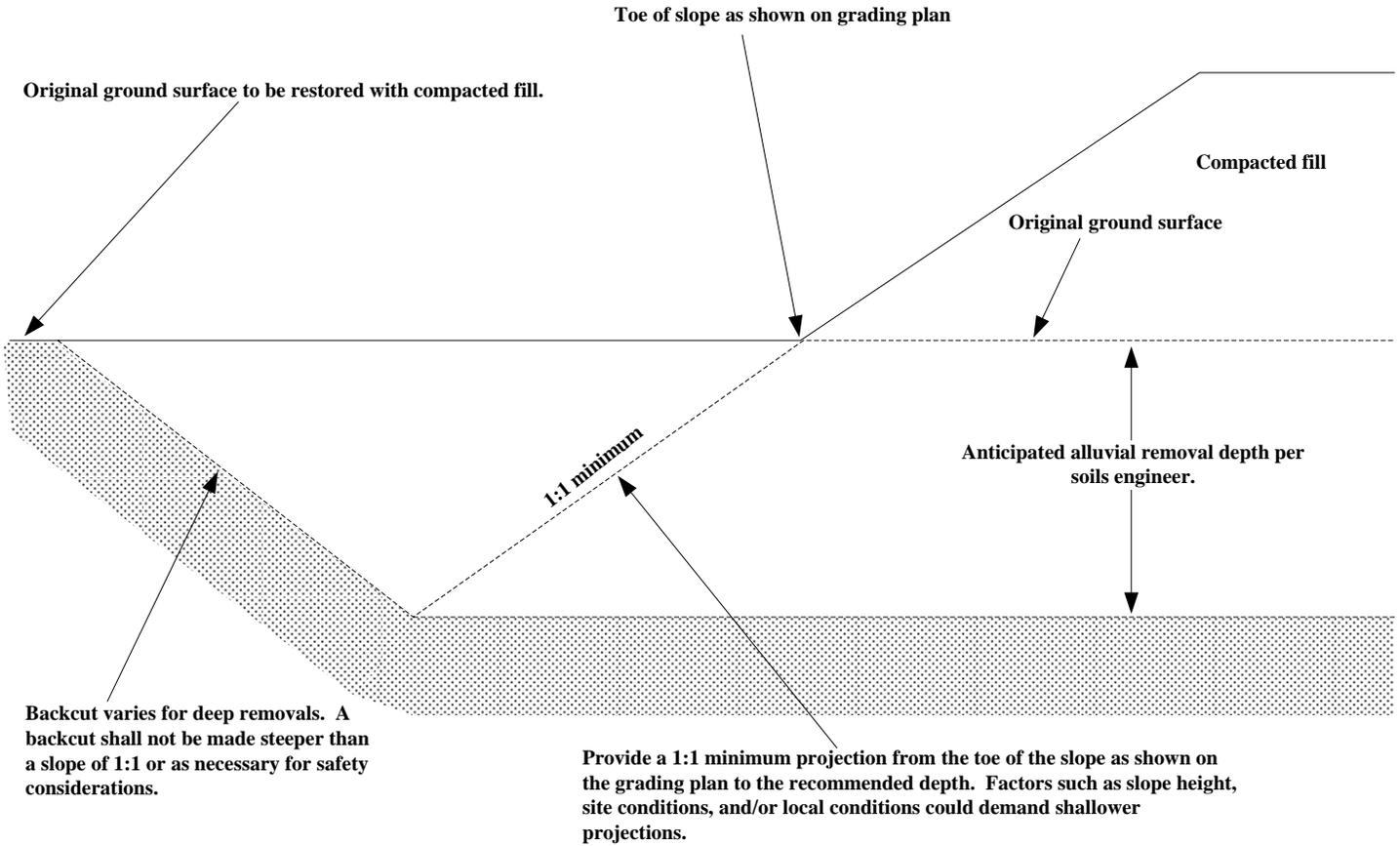
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FIGURE C

Note: Figure not to scale

**DETAIL FOR FILL SLOPE TOEING OUT ON
FLAT ALLUVIATED CANYON**



**EARTHWORK AND GRADING GUIDELINES
DETAIL FOR FILL SLOPE TOEING OUT ON A FLAT
ALLUVIATED CANYON**



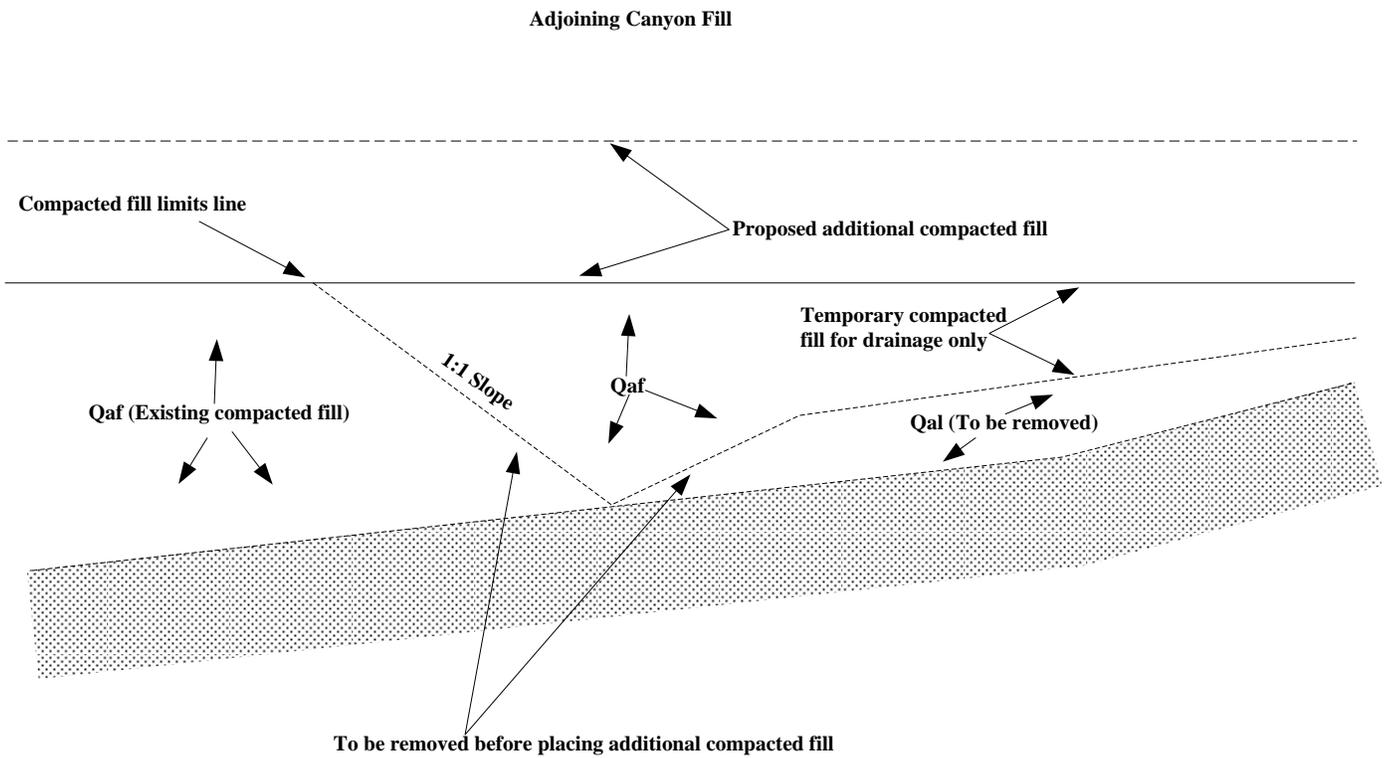
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FIGURE D

Note: Figure not to scale

REMOVAL ADJACENT TO EXISTING FILL



Legend

Qaf - Artificial Fill

Qal - Alluvium

EARTHWORK AND GRADING GUIDELINES REMOVAL ADJACENT TO EXISTING FILL



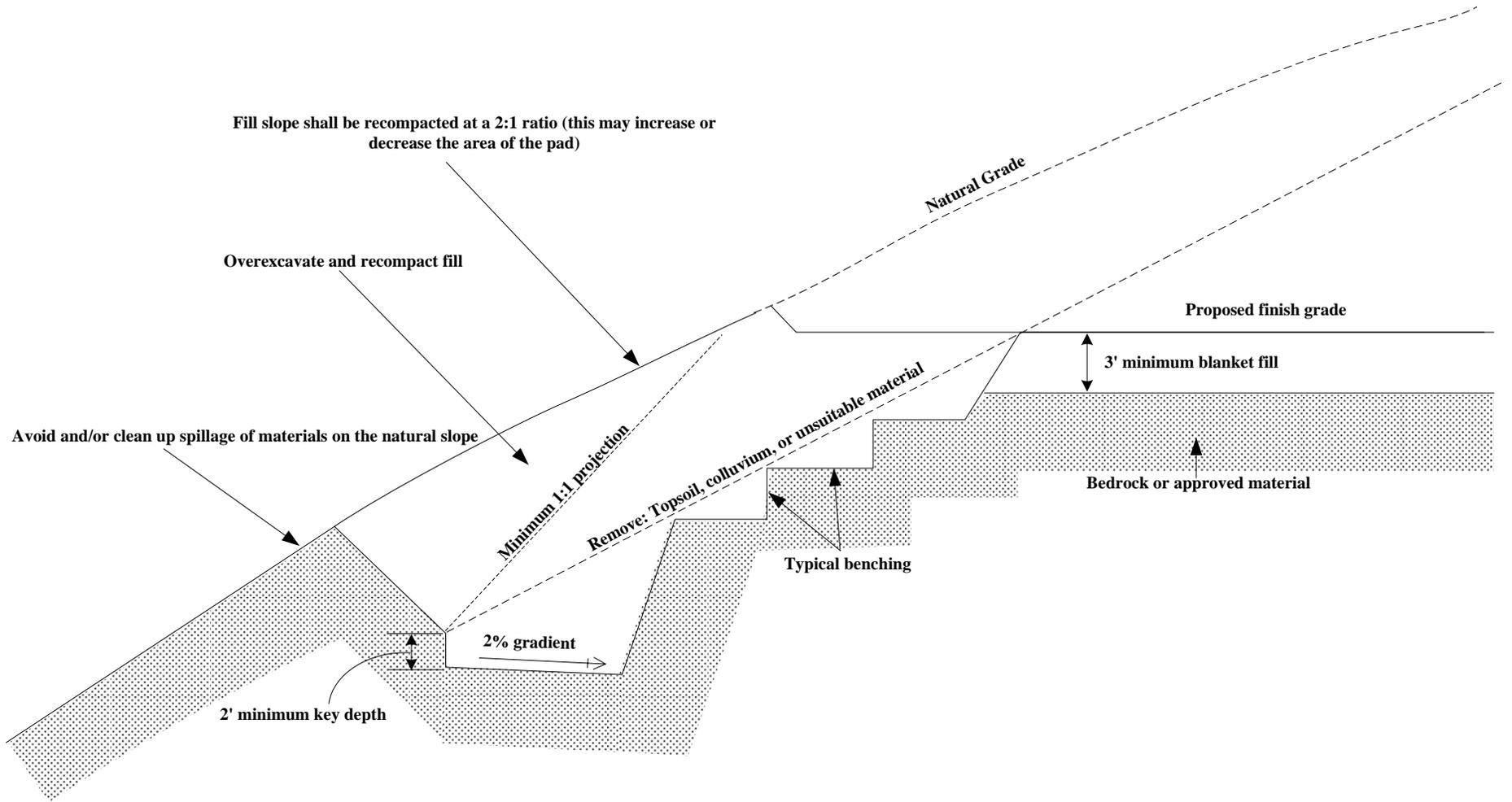
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FIGURE E

Note: Figure not to scale

DAYLIGHT CUT LOT DETAIL



- Note:
- (1) Subdrain and key width requirements shall be determined based on exposed subsurface conditions and the thickness of overburden.
 - (2) Pad overexcavation and recompaction shall be completed if determined as necessary by the soils engineer and/or engineering geologist.

EARTHWORK AND GRADING GUIDELINES DAYLIGHT CUT LOT DETAIL



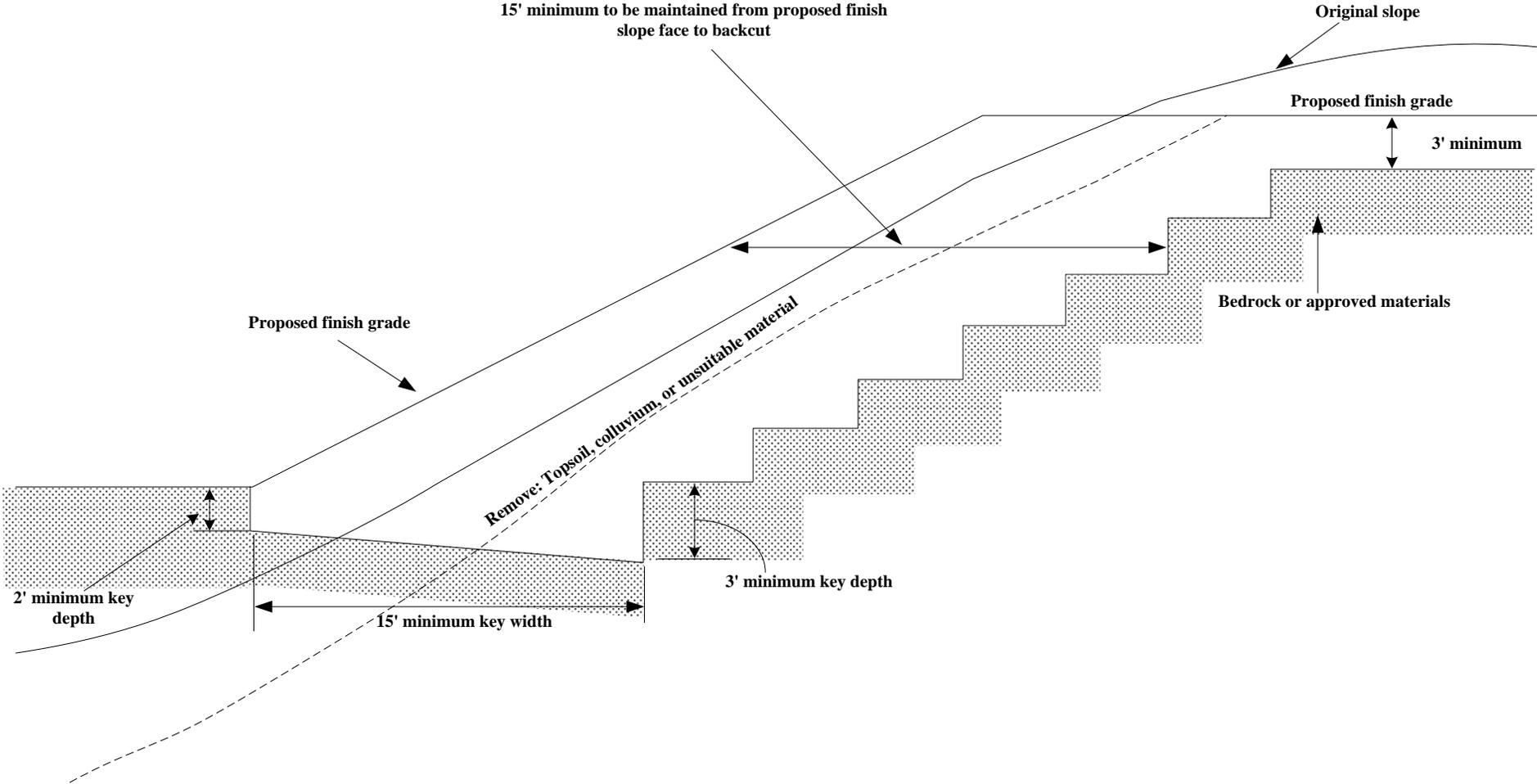
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FIGURE F

Note: Figure not to scale

SKIN FILL OF NATURAL GROUND



- Note:
- (1) The need and disposition of drains will be determined by the soils engineer and/or engineering geologist based on site conditions.
 - (2) Pad overexcavation and recompaction shall be completed if determined as necessary by the soils engineer and/or engineering geologist.

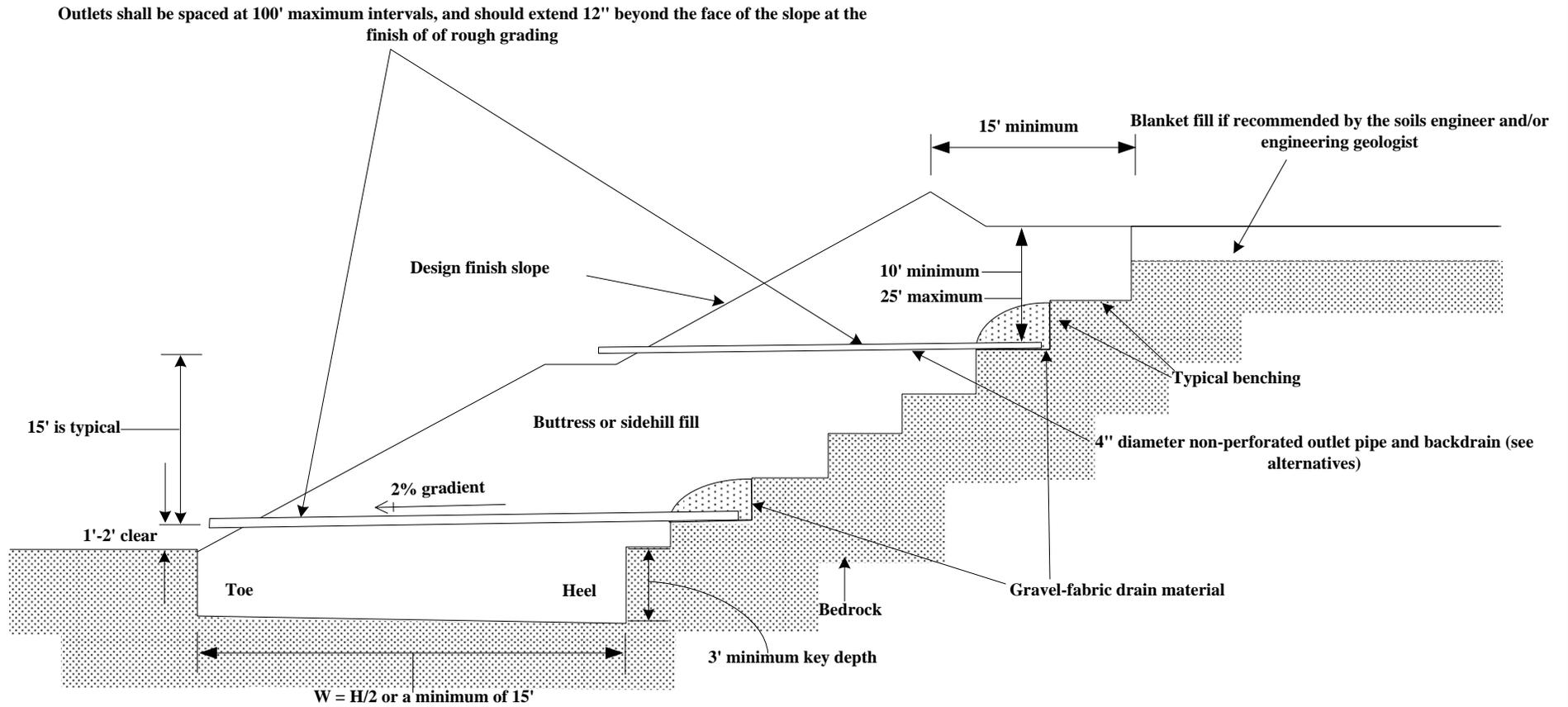
EARTHWORK AND GRADING GUIDELINES SKIN FILL OF NATURAL GROUND



FIGURE G

Note: Figure not to scale

TYPICAL STABILIZATION BUTTRESS FILL DESIGN



EARTHWORK AND GRADING GUIDELINES TYPICAL STABILIZATION BUTTRESS FILL DESIGN



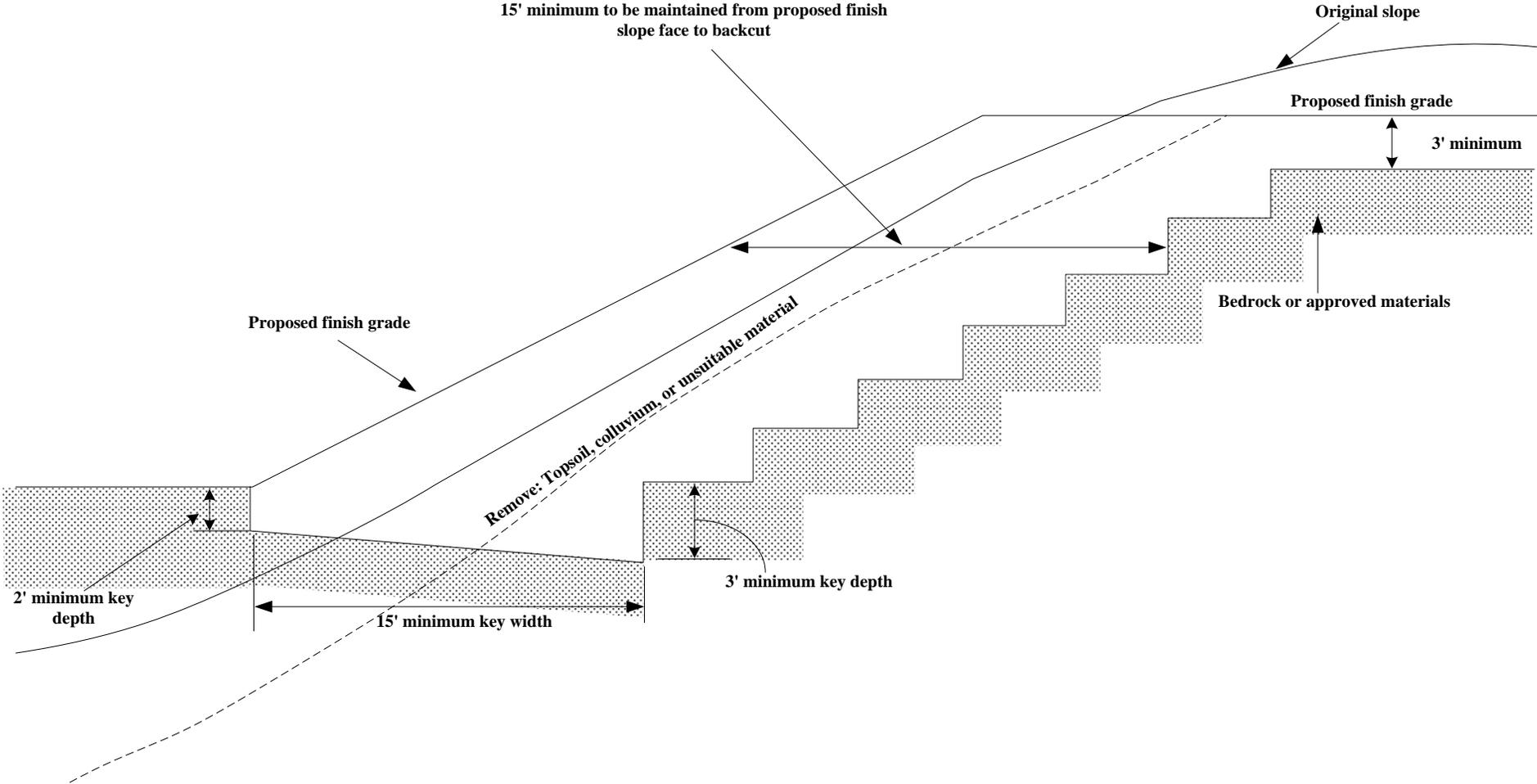
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FIGURE H

Note: Figure not to scale

SKIN FILL OF NATURAL GROUND



- Note:
- (1) The need and disposition of drains will be determined by the soils engineer and/or engineering geologist based on site conditions.
 - (2) Pad overexcavation and recompaction shall be completed if determined as necessary by the soils engineer and/or engineering geologist.

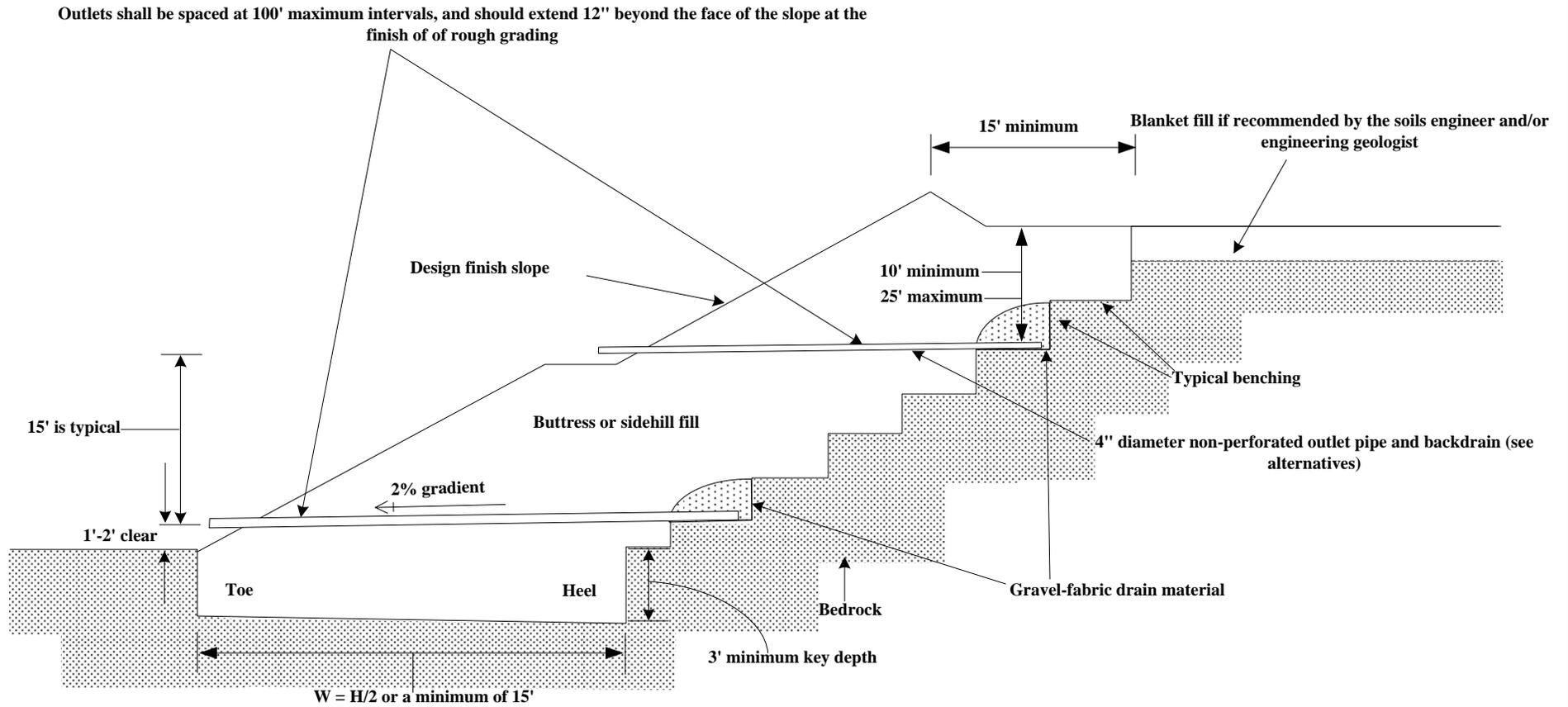
EARTHWORK AND GRADING GUIDELINES
SKIN FILL OF NATURAL GROUND



FIGURE G

Note: Figure not to scale

TYPICAL STABILIZATION BUTTRESS FILL DESIGN



EARTHWORK AND GRADING GUIDELINES TYPICAL STABILIZATION BUTTRESS FILL DESIGN

Note: Figure not to scale

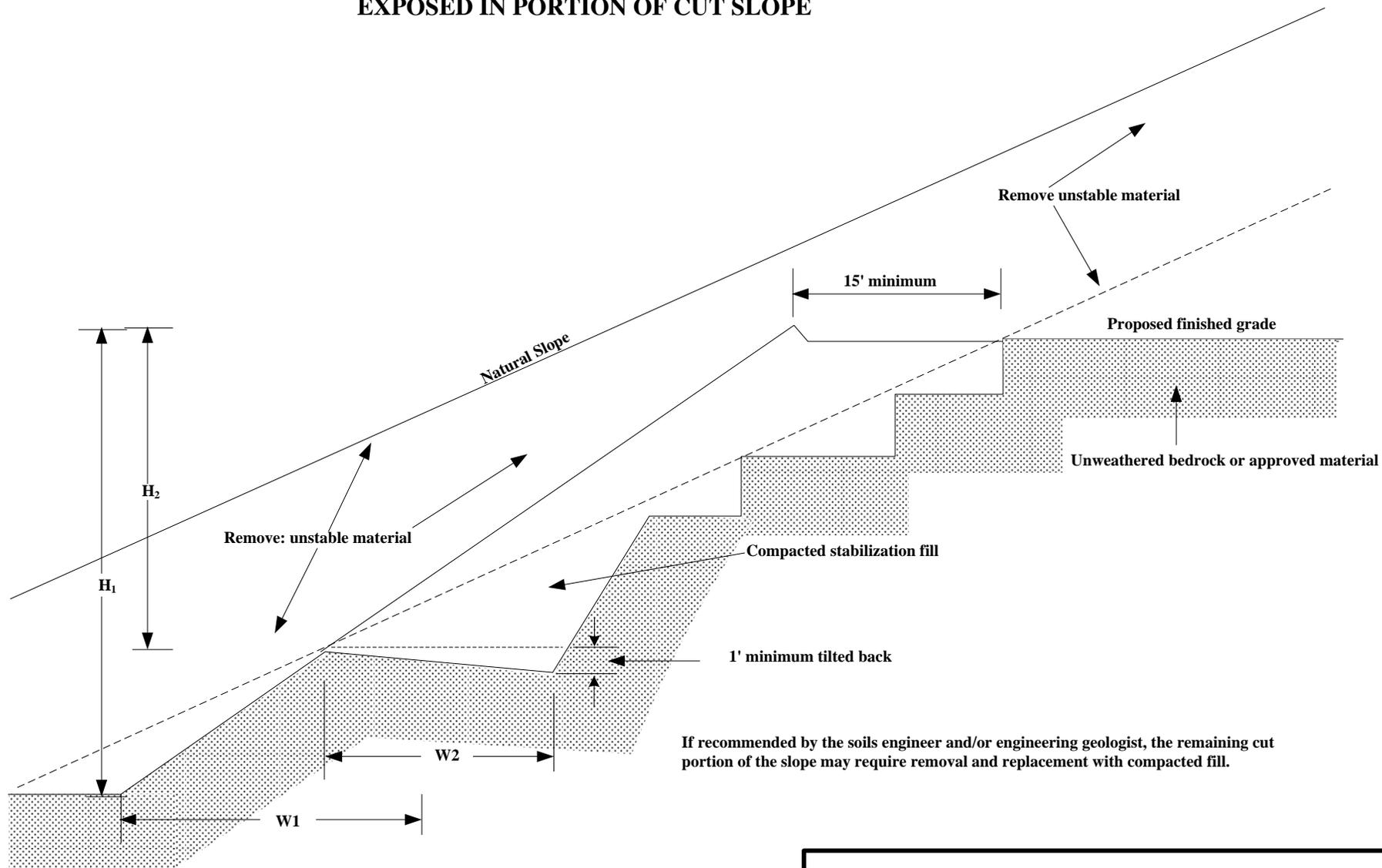


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FIGURE H

**STABILIZATION FILL FOR UNSTABLE MATERIAL
EXPOSED IN PORTION OF CUT SLOPE**



- Note:
- (1) Subdrains are required only if specified by the soils engineer and/or engineering geologist.
 - (2) "W" shall be the equipment width (15') for slope heights less than 25 feet. For slopes greater than 25 feet "W" shall be determined by the project soils engineer and/or the engineering geologist. "W" shall never be less than H/2.

If recommended by the soils engineer and/or engineering geologist, the remaining cut portion of the slope may require removal and replacement with compacted fill.

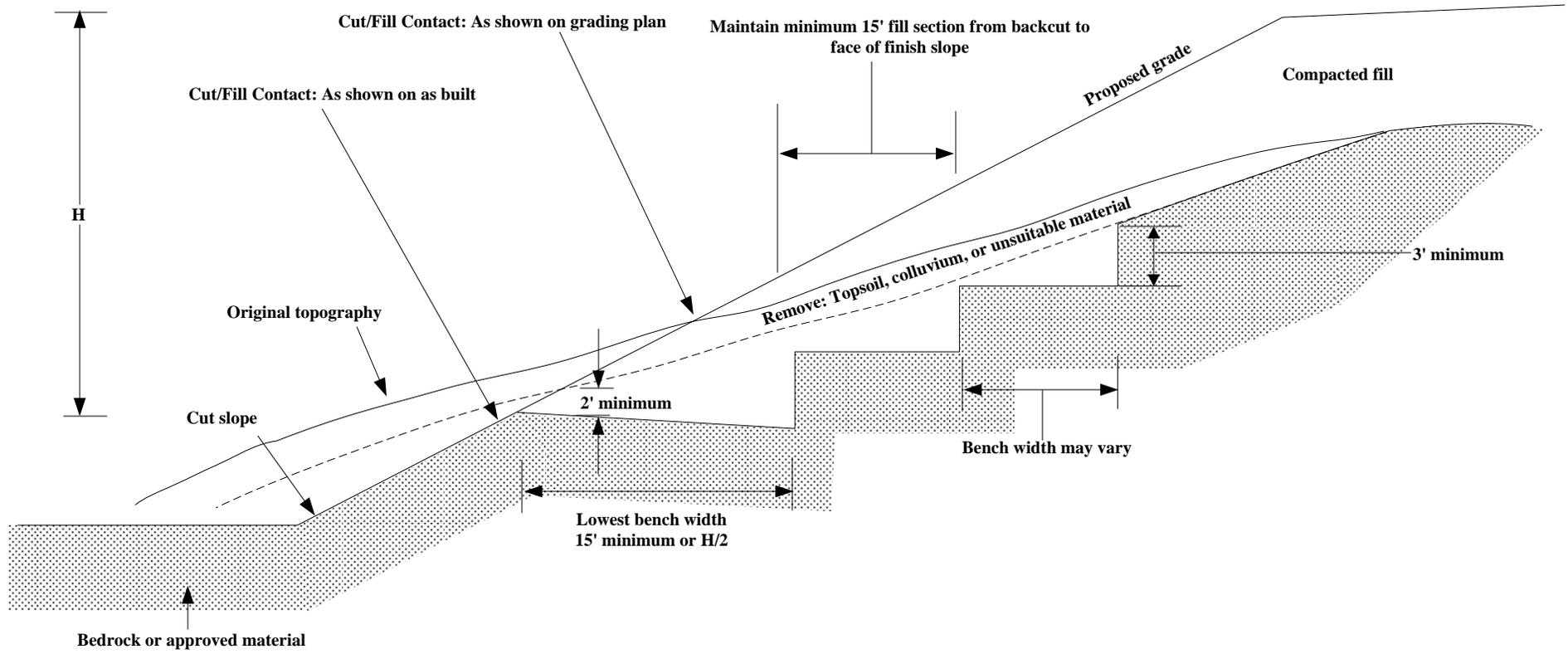
**EARTHWORK AND GRADING GUIDELINES
STABILIZATION FILL FOR UNSTABLE MATERIAL
EXPOSED IN PORTION OF CUT SLOPE**



FIGURE I

Note: Figure not to scale

FILL OVER CUT DETAIL



Note: The cut section shall be excavated and evaluated by the soils engineer/engineering geologist prior to constructing the fill portion.

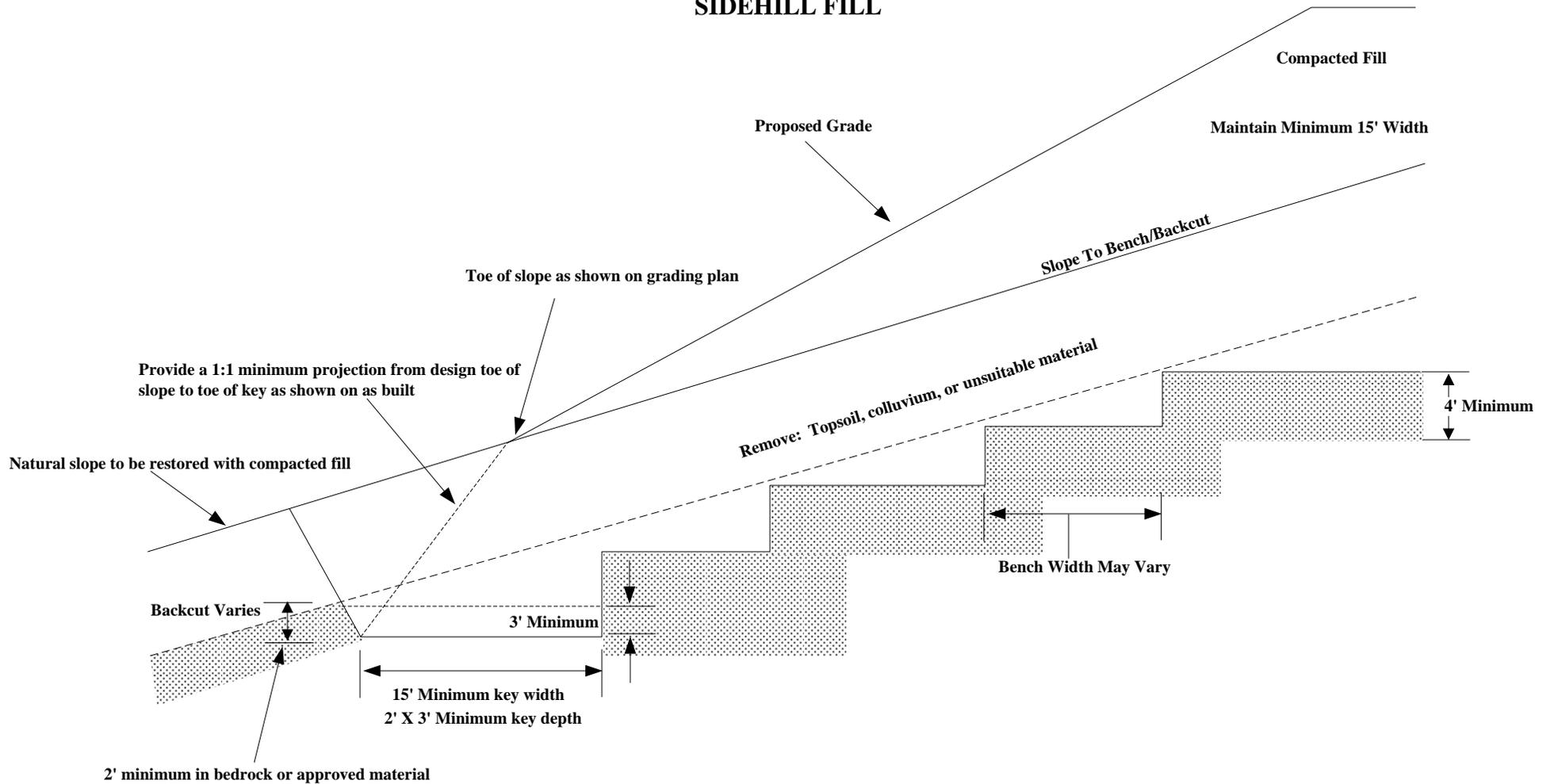
EARTHWORK AND GRADING GUIDELINES FILL OVER CUT DETAIL



FIGURE J

Note: Figure not to scale

FILL OVER NATURAL DETAIL SIDEHILL FILL



- Note:
- (1) Special recommendations shall be provided by the soils engineer/engineering geologist where the natural slope approaches or exceeds the design slope ratio.
 - (2) The need for and disposition of drains would be determined by the soils engineer/engineering geologist based upon exposed conditions.

Note: Figures not to scale

EARTHWORK AND GRADING GUIDELINES FILL OVER NATURAL DETAIL SIDEHILL FILL

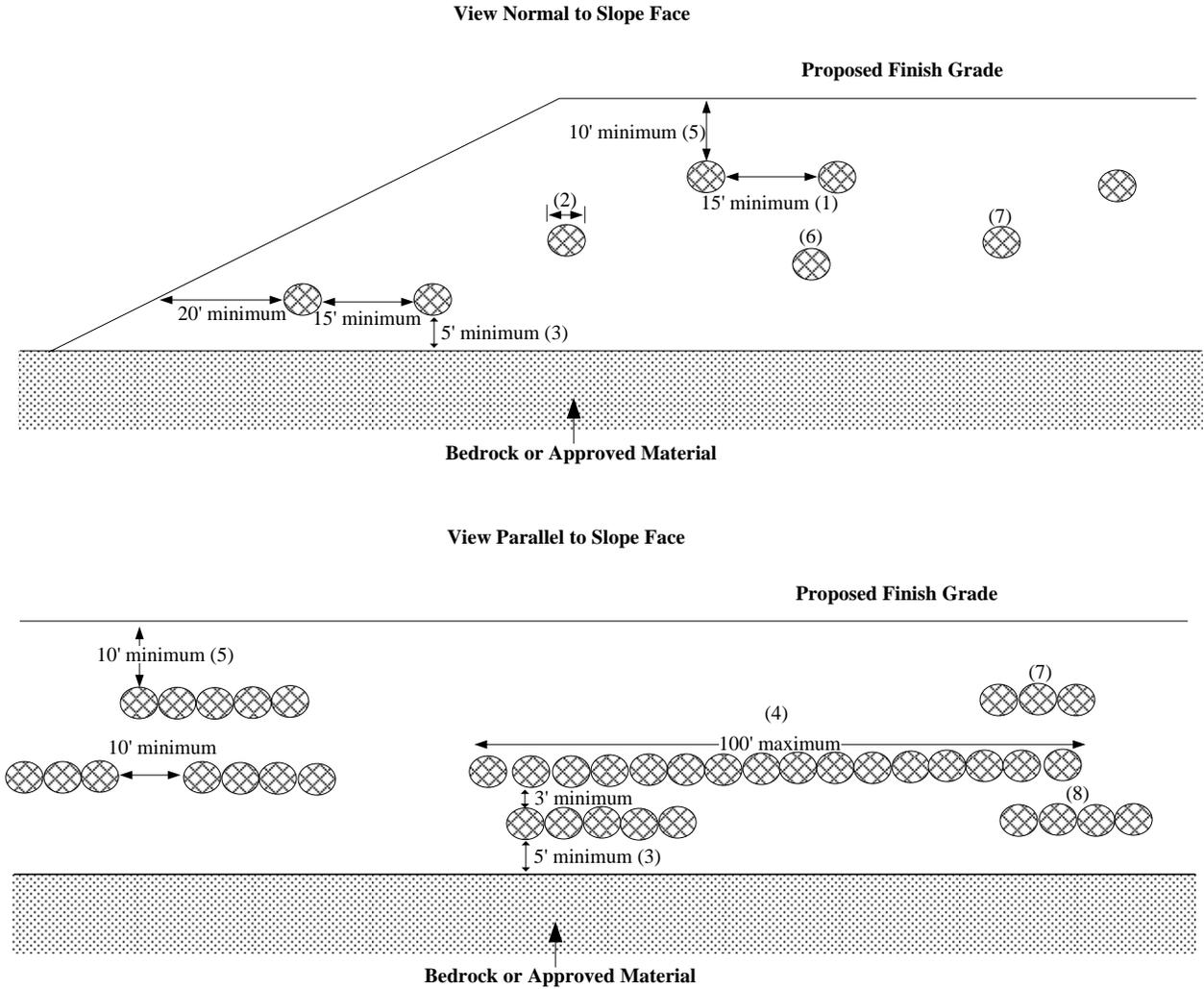


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FIGURE K

OVERSIZE ROCK DISPOSAL



- Note:
- (1) One Equipment width or a minimum of 15 feet.
 - (2) Height and width may vary depending on rock size and type of equipment used. Length of windrow shall be no greater than 100 feet maximum.
 - (3) If approved by the soils engineer and/or engineering geologist.
 - (4) Orientation of windrows may vary but shall be as recommended by the soils engineer and/or engineering geologist. Unless recommended staggering of windrows is not necessary.
 - (5) Areas shall be cleared for utility trenches, foundations, and swimming pools.
 - (6) Voids in windrows shall be filled by flooding granular soil into place. Granular soil shall be any soil which has a unified soil classification system (Universal Building Code (UBC) 29-1). Designation of SM, SP, SW, GP, or GW.
 - (7) After fill between windrows is placed and compacted with the lift of fill covering windrow, windrow shall be proof rolled with a D-9 dozer or equivalent.
 - (8) Oversized rock is defined as larger than 12", and less than 4 feet in size.

Approximate Scale: 1" = 30'



Note: All distances are approximate

EARTHWORK AND GRADING GUIDELINES OVERSIZE ROCK DISPOSAL



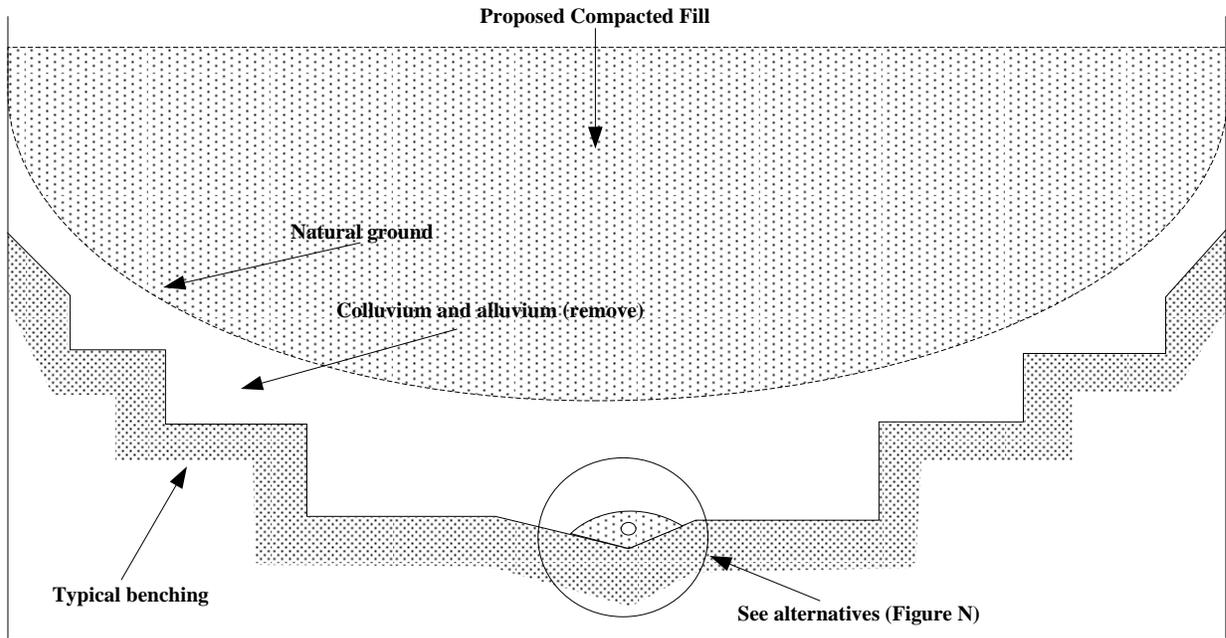
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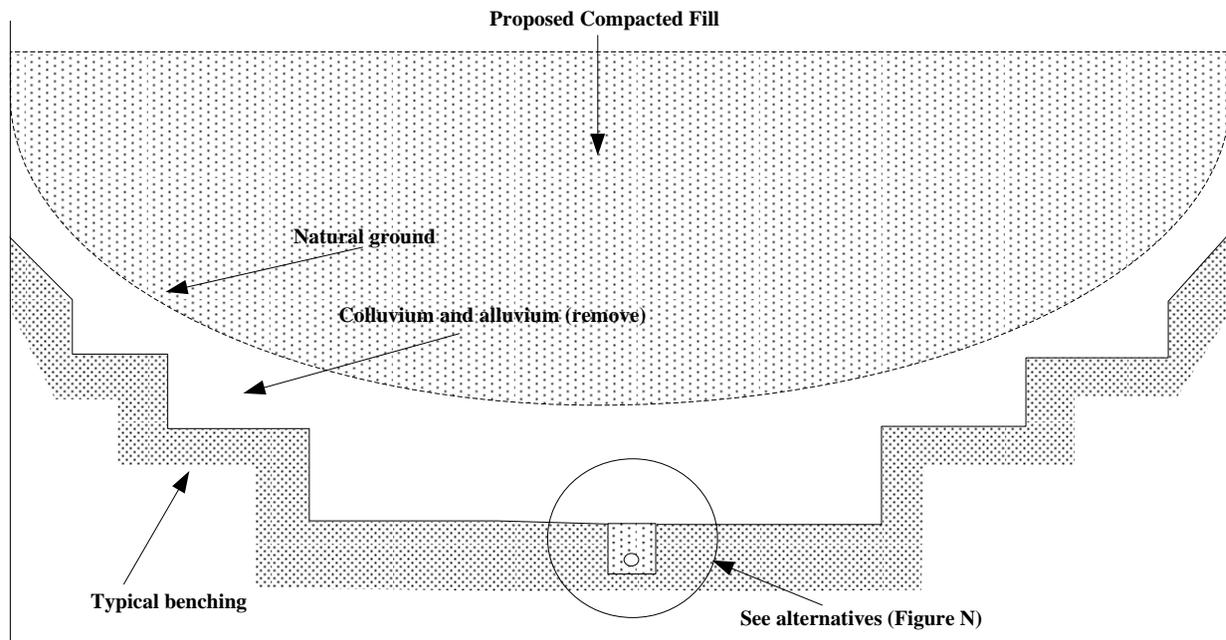
FIGURE L

CANYON SUBDRAIN DETAIL

Type A



Type B



Note: Alternatives, locations, and extent of subdrains should be determined by the soils engineer and/or engineering geologist during actual grading.

EARTHWORK AND GRADING GUIDELINES CANYON SUBDRAIN DETAIL



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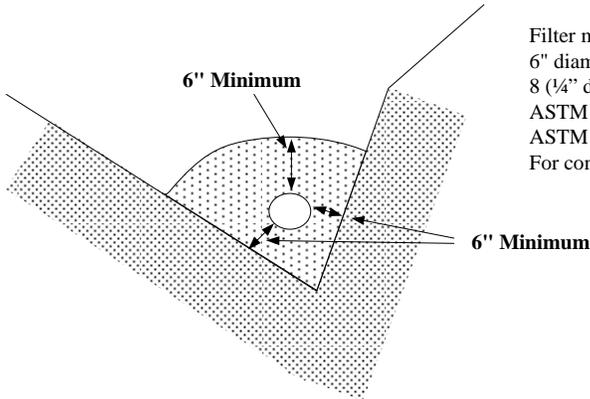
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FIGURE M

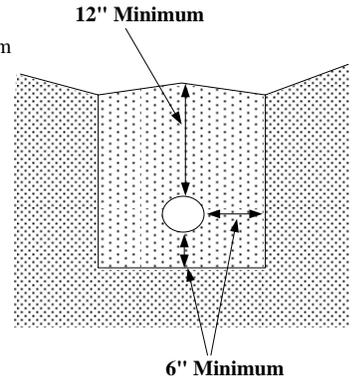
Note: Figures not to scale

CANYON SUBDRAIN ALTERNATE DETAILS

Alternate 1: Perforated Pipe and Filter Material



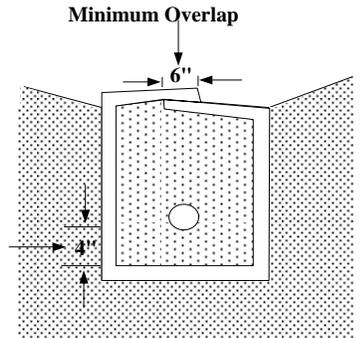
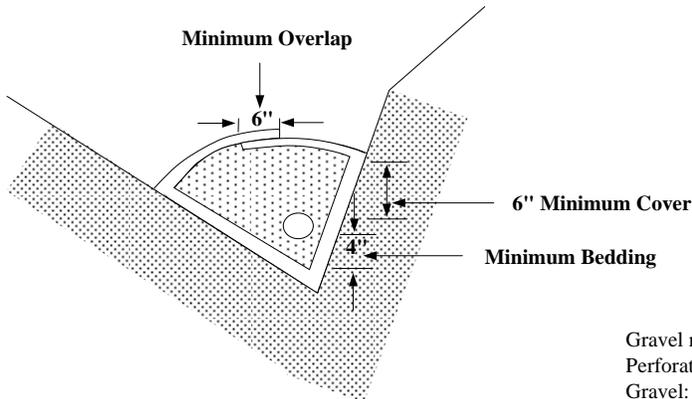
Filter material: Minimum volume of 9 feet³/linear foot.
 6" diameter ABS or PVC pipe or approved substitute with minimum 8 (1/4" diameter) perforations per linear foot in bottom half of pipe.
 ASTM D 2751, SDR 35 or ASTM D 1527, Schedule 40.
 ASTM D 3034, SDR 35 or ASTM D 1785, Schedule 40.
 For continuous run in excess of 500 feet use 8" diameter pipe.



Filter Material

Sieve Size	Percent Passing
1"	100
3/4"	90-100
3/8"	40-100
No. 4	25-40
No. 8	18-33
No. 30	5-15
No. 50	0-7
No. 200	0-3

Alternate 2: Perforated Pipe, Gravel and Filter Fabric



Gravel material 9 feet³/linear foot.
 Perforated pipe: see alternate 1.
 Gravel: Clean 3/4" rock or approved substitute.
 Filter Fabric: Mirafi 140 or approved substitute.

EARTHWORK AND GRADING GUIDELINES CANYON SUBDRAIN ALTERNATE DETAILS



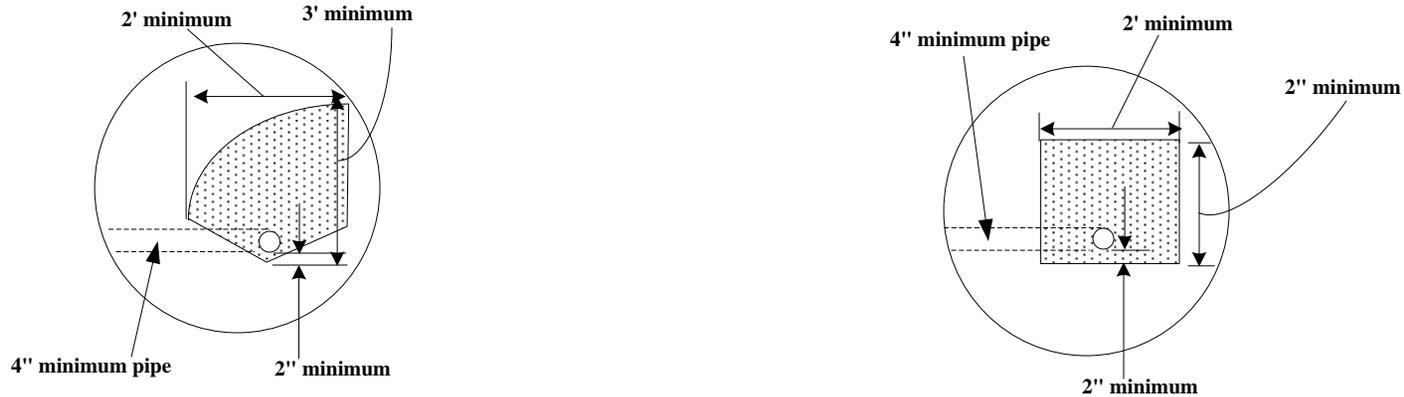
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FIGURE N

Note: Figures not to scale

TYPICAL STABILIZATION BUTTRESS SUBDRAIN DETAIL



Filter Material: Minimum of 5 ft³/linear foot of pipe or 4 ft³/linear foot 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" on all joints.

Minimum 4" 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 installed with perforations at bottom of pipe. Provide cap at upstream end of pipe. Slope at 2% to outlet pipe. Outlet pipe shall be connected to the subdrain pipe with tee or elbow.

- Note:
- (1) Trench for outlet pipes shall be backfilled with onsite soil.
 - (2) Backdrains and lateral drains shall be located at the elevation of every bench drain. First drain shall be located at the elevation just above the lower lot grade. Additional drains may be required at the discretion of the soils engineer and/or engineering geologist.

Filter Material – Shall be of the following specification or an approved equivalent:

Filter Material

Sieve Size	Percent Passing
1"	100
¾"	90-100
3/8"	40-100
No. 4	25-40
No. 8	18-33
No. 30	5-15
No. 50	0-7
No. 200	0-3

Gravel - Shall be of the following specification or an approved equivalent:

Filter Material

Sieve Size	Percent Passing
1½"	100
No. 4	50
No. 200	8

Sand equivalent: Minimum of 50

Note: Figures not to scale

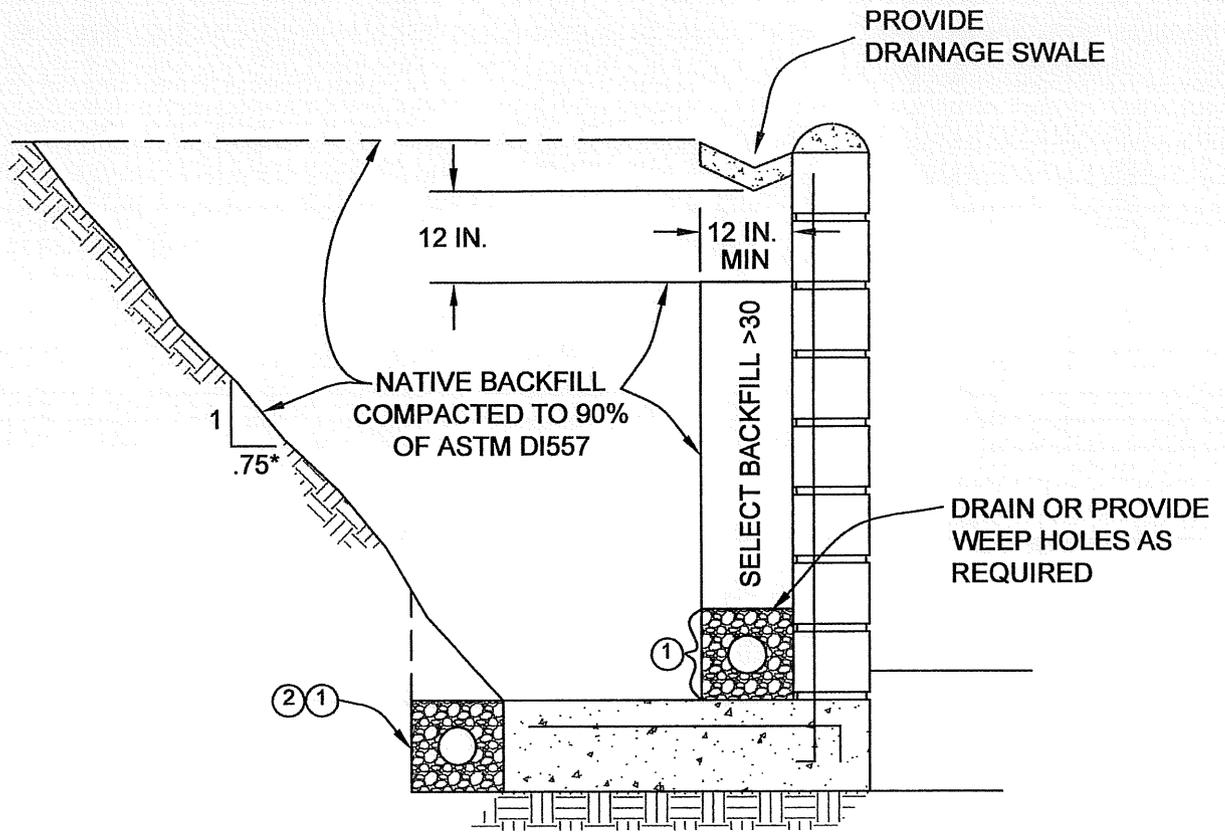
EARTHWORK AND GRADING GUIDELINES TYPICAL STABILIZATION BUTTRESS SUBDRAIN DETAIL



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FIGURE O



* OR AS REQUIRED FOR SAFETY

NOTES

- ① 4-INCH PERFORATED PVC SCHEDULE 40 OR APPROVED ALTERNATE. PLACE PERFORATION DOWN AND SURROUND WITH A MINIMUM OF 1 CUBIC FOOT PER LINEAL FOOT (1 FT. /FT.) OF 3/4 INCH ROCK OR APPROVED ALTERNATE AND WRAPPED IN FILTER FABRIC.
- ② PLACE DRAIN AS SHOWN WHERE MOISTURE MIGRATION THROUGH THE WALL IS UNDESIRABLE.

NOTE: FIGURE NOT TO SCALE

EARTHWORK & GRADING GUIDELINES

TYPICAL RETAINING WALL BACKFILL



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FIGURE P