PLANNING COMMISSION

CITY OF INDUSTRY

REGULAR MEETING AGENDA
FEBRUARY 6, 2018 11:30 A.M.

CHAIRMAN MICHAEL GREUBEL
VICE CHAIRMAN JIM DIVERS
COMMISSIONER HILDA RODRIGUEZ
COMMISSIONER BECKY SIMON
COMMISSIONER ANDRIA WELCH

Location: City Council Chamber, 15651 East Stafford Street, City of Industry, California

Addressing the Planning Commission:

- ***Agenda Items:*** *Members of the public may address the Planning Commission on any matter listed on the Agenda. In order to conduct a timely meeting, there will be a three-minute time limit per person for any item listed on the Agenda. Anyone wishing to speak to the Planning Commission is asked to complete a Speaker's Card which can be found at the back of the room and at the podium. The completed card should be submitted to the Secretary prior to the Agenda item being called by the Secretary prior to the individual being heard by the Planning Commission.*

- ***Public Comments (Non-Agenda Items):*** *Anyone wishing to address the Planning Commission on an item not on the Agenda may do so during the "Public Comments" period. In order to conduct a timely meeting, there will be a three-minute time limit per person for the Public Comments portion of the Agenda. State law prohibits the Planning Commission from taking action on a specific item unless it appears on the posted Agenda. Anyone wishing to speak to the Planning Commission is asked to complete a Speaker's Card which can be found at the back of the room and at the podium. The completed card should be submitted to the Secretary prior to the Agenda item being called by the Secretary and prior to the individual being heard by the Planning Commission.*

Americans with Disabilities Act:

- *In compliance with the ADA, if you need special assistance to participate in any City meeting (including assisted listening devices), please contact the City Clerk's Office (626) 333-2211. Notification of at least 48 hours prior to the meeting will assist staff in assuring that reasonable arrangements can be made to provide accessibility to the meeting.*

Agendas and other writings:

- *In compliance with SB 343, staff reports and other public records permissible for disclosure related to open session agenda items are available at City Hall, 15625 East Stafford Street, Suite 100, City of Industry, California, at the office of the City Clerk during regular business hours, Monday through Friday 9:00 a.m. to 5:00 p.m. Any person with a question concerning any agenda item may call the City Clerk's Office at (626) 333-2211.*

1. Call to Order

2. Flag Salute

3. Roll Call

4. Public Comments

5. **PUBLIC HEARINGS**

5.1 Public Hearing to consider General Plan Amendment 17-1 to amend the General Plan Land Use Element and to change the General Plan designation of the properties located at 20137 and 20249 E. Walnut Drive South, ("Property") from Employment to Residential. Zone Change 17-1 to create a Residential Zone in the City's Zoning Code and to change the zoning of the Property from Industrial to Residential. Lot Line Adjustment 83 to shift the existing lot line west and Development Plan 17-13 to develop 25 new detached residential dwelling units at the property located at 20249 E. Walnut Drive South, and a Mitigated Negative Declaration regarding same.

a. Consideration of Resolution No. PC 2018-01 – A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF INDUSTRY, CALIFORNIA, RECOMMENDING CITY COUNCIL ADOPTION OF THE MITIGATED NEGATIVE DECLARATION AND MITIGATION MONITORING AND REPORTING PROGRAM PREPARED FOR GENERAL PLAN AMENDMENT (GPA 17-1), AN AMENDMENT TO THE CITY'S MUNICIPAL CODE AND ZONING MAP TO ESTABLISH A RESIDENTIAL ZONE (ZC 17-1), LOT LINE ADJUSTMENT (LLA 83) AND DEVELOPMENT PLAN (DP 17-13) FOR THE PROPERTIES LOCATED AT 20137 AND 20249 E. WALNUT DRIVE SOUTH

RECOMMENDED ACTION: Adopt Resolution No. PC 2018-01

b. Consideration of Resolution No. PC 2018-02 – A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF INDUSTRY, CALIFORNIA, RECOMMENDING CITY COUNCIL APPROVAL OF GENERAL PLAN AMENDMENT (GPA 17-1), AMENDING THE GENERAL PLAN TO ESTABLISH A RESIDENTIAL LAND USE DESIGNATION IN THE LAND USE ELEMENT; AMEND RELATED TEXT AND EXHIBITS OF THE CITY'S GENERAL PLAN; AND CHANGE THE LAND USE DESIGNATION OF 20137 E. WALNUT DRIVE SOUTH AND 20249 E. WALNUT DRIVE SOUTH FROM EMPLOYMENT TO RESIDENTIAL (CONTINUED FROM THE MEETING OF JANUARY 9, 2018)

RECOMMENDED ACTION: Adopt Resolution No. PC 2018-02

c. Consideration of Resolution No. PC 2018-03 – A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF INDUSTRY,

CALIFORNIA, RECOMMENDING THAT THE CITY COUNCIL ADOPT AN ORDINANCE AMENDING TITLE 17 (ZONING) OF THE CITY'S MUNICIPAL CODE TO ADD CHAPTER 17.30 (RESIDENTIAL ZONE), AND AMENDING CHAPTER 17.28.060 (MAP-ADOPTED) TO AMEND THE CITY'S ZONING MAP TO CHANGE THE ZONING DESIGNATION OF THE PROPERTIES LOCATED AT 20137 AND 20249 E. WALNUT DRIVE SOUTH FROM INDUSTRIAL TO RESIDENTIAL (CONTINUED FROM THE MEETING OF JANUARY 9, 2018)

RECOMMENDED ACTION: Adopt Resolution No. PC 2018-03

d. Consideration of Resolution No. PC 2018-04 – A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF INDUSTRY, CALIFORNIA, RECOMMENDING CITY COUNCIL APPROVAL OF LOT LINE ADJUSTMENT 83, FOR THE PROPERTIES LOCATED AT 20137 AND 20249 E. WALNUT DRIVE SOUTH IN THE CITY OF INDUSTRY, CALIFORNIA, AND MAKING FINDINGS IN SUPPORT THEREOF

RECOMMENDED ACTION: Adopt Resolution No. PC 2018-04

e. Consideration of Resolution No. PC 2018-05 – A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF INDUSTRY, CALIFORNIA, RECOMMENDING CITY COUNCIL APPROVAL OF DEVELOPMENT PLAN 17-13 TO CONSTRUCT TWENTY-FIVE DETACHED DWELLING UNITS INCLUDING TWO VERY-LOW, AND TWO LOW INCOME UNITS, AND 4,300 SQUARE FEET OF COMMUNITY RECREATIONAL AREA, ON A 3.86-ACRE PROPERTY, LOCATED AT 20249 E. WALNUT DRIVE SOUTH

RECOMMENDED ACTION: Adopt Resolution No. PC 2018-05

6. **ORAL COMMENTS FROM THE PLANNING COMMISSION**

7. **ORAL COMMENTS FROM STAFF**

8. Adjournment. Next regular meeting will be on Tuesday, March 6, 2018 at 11:30 a.m.

CITY OF INDUSTRY

P.O. Box 3366 • 15625 E. Stafford St. • City of Industry, CA 91744-0366 • (626) 333-2211 • FAX (626) 961-6795

MEMORANDUM

To: Planning Commission

From: Paul J. Philips, City Manager

Staff: Troy Helling, Planning and Safety Manager
Tim D'Zmura, Consultant

Date: February 6, 2018

Subject: Mitigated Negative Declaration, General Plan Amendment 17-1, Zone Change 17-1, Lot Line Adjustment 83, Development Plan 17-13 – Industry Workforce Housing Community, 20137 and 20249 E. Walnut Drive South

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Overview

The City has initiated a General Plan Amendment ("GPA 17-1") to amend the Land Use Element of the General Plan to establish a Residential Land Use Designation for properties suitable for residential development within the City. This GPA will address Program 7 of the Housing Element, which proposes establishment of a Housing Overlay Zone for select properties in the City to provide opportunities for housing development in general, and affordable housing development, in particular.

On December 1, 2017, National Community Renaissance ("National CORE" or "Applicant") filed applications for approval of a Zone Change ("ZC 17-1"), a Lot Line Adjustment ("LLA 83") and a Development Plan ("DP"17-13), collectively (the "Application") to develop twenty-five (25) detached residential units on a site located at 20137 and 20249 E. Walnut Drive South (the "Project").

This Agenda Item includes the City-initiated General Plan Amendment, the Application submitted by National CORE, and approval of an Initial Study and Mitigated Negative Declaration ("IS/MND") prepared for the Project, as follows:

- Consideration of an IS/MND prepared for the Project pursuant to the California Environmental Quality Act (CEQA).
- Consideration of GPA 17-1 to establish a Residential Land Use Designation in the City of Industry General Plan.
- Consideration of ZC 17-1 to establish a Residential Zone (R) in the City of Industry Zoning Code.
- Consideration of LLA 83 to modify two (2) lots to create a 3.86-acre lot for the development of a residential Project, and a separate lot that is not a part of the Project
- Consideration of DP 17-13, to develop 25 detached residential units including four (4) affordable

units on a 3.86-acre site.

Section 17.04.120 of the City's Municipal Code ("Code") requires that when separate applications for the same project involve final decisions by the Planning Commission and City Council, all applications must first be submitted to the Planning Commission for review and recommendation, and then to the City Council for a final decision.

Location and Surroundings

As shown on the location map (Exhibit A), the project site is located north of Walnut Drive from approximately 200 feet west of Moscada Avenue, to approximately 600 feet east of Calbourne Drive, at 20137 and 20249 E. Walnut Drive South (the "Property"). The site consists of the Los Angeles County Assessor Parcel Numbers ("APNs") 8762-002-901 and 8762-002-902 totaling approximately 5.34 acres, of which 3.86 acres will be the Project site. The Property is bounded by Pomona Freeway (SR-60) to the north and residential neighborhoods in Rowland Heights and Diamond Bar to the east and south. To the west is a commercial development with a mix of uses with the parking lot of the Sri Guru Sabha, Walnut Temple immediately abutting the Project site. A single-family residence and associated improvements and structures are located in the central portion of the Property. Two (2) steel-structure billboards facing the freeway are located along the northern boundary of the Property.

Project Description

The Property is owned by Industry Property and Housing Management Authority ("IPHMA") and Civic-Recreational-Industrial Authority ("CRIA") which will continue to retain ownership of the Property. The Applicant, National CORE, will be the developer of the proposed Project, and will be responsible for the construction of the Project, satisfaction of all mitigation measures and conditions of approval, and all pre and post-construction permits. The IPHMA and CRIA will retain ownership and be responsible for operation and maintenance once construction is complete and accepted. The IPHMA will also be responsible for ensuring that two of the units are maintained as very-low income units and two of the units are maintained as low income units. A deed restriction will be recorded on the Project site, so stipulating this affordability requirement.

General Plan Amendment 17-1

The most recent update to the City's General Plan was adopted in June 2014. The General Plan includes seven (7) Elements including a Housing Element and a Land Use Element. The 2013-2021 Housing Element of the General Plan adopted in February 2014, establishes the City's goals, policies and implementation programs in accordance with state law. The Housing Element also addresses the City's Regional Housing Needs Assessment (RHNA) which is mandated by State Housing Law as part of the periodic process of updating local housing elements of the General Plan. The RHNA quantifies the need for housing within each jurisdiction during specified planning periods.

In 2013, the California Department of Housing and Community Development assigned the City a RHNA of two residential units, which includes an allocation of one very-low income and one low income residential unit. The City is not required to build new housing to accommodate the RHNA. However, in accordance with state law, the City must identify adequate sites where residential uses could be built. An adequate residential site is a parcel or group of parcels that have appropriate zoning, development standards, infrastructure, and services needed to accommodate housing. In response to this RHNA assignment, the City's 2013-2021 Housing Element proposed an implementation program (Program 7 of the Housing Element) whereby three (3) suitable sites were identified within City boundaries for the establishment of a Housing Overlay Zone. Exhibit B shows the three sites totaling 12.8 acres which were identified as suitable for housing development.

The Application by National CORE is a *specific development plan* for one of the three sites identified in

the Housing Element. Therefore, the amendment to the General Plan is to change the land use designation of these parcels from Employment to Residential instead of a housing overlay. As such, this GPA will not only meet but also exceed the implementation program (Program 7) of the Housing Element in that it will secure one site for residential construction, including four (4) affordable units consisting of two (2) very-low and two (2) low income housing units as assigned in the City's RHNA.

General Plan Text and Map Amendments

The following changes to the General Plan Land Use Element are proposed:

Land Use Element:

Table 1- Land Use Designations
Add: Residential land use designation and allowable uses

Table 2 – Land Use Buildout
Add: Residential land use designation, acreage, units, jobs and daily population

Section 1.5 – Goals and Policies
Add the following Goal and Policy:

1.5.6 – Create opportunities for housing development

Goal

LU6 Create opportunities for development of a range of housing types, products and affordability levels including single-family rental, multifamily rental, factory-built housing, mobile homes, housing for agricultural employees, supportive housing, and transitional housing in select areas of the City.

Policy

LU6-1 Develop a Residential Zone that would enable housing in select areas of the City compatible with the surrounding primary land use.

Land Use Map:
Amend the General Plan Land Use Map (Figure 4 of the General Plan) to add "Residential" to the legend and to designate the Property as Residential.

Exhibit C depicts the proposed amendments to Tables 1 and 2, amendments to Section 1.5 of the Land Use Element and the proposed General Plan Land Use Map.

Zone Change 17-1
As a predominantly commercial/industrial City, Industry's Zoning Ordinance does not include a Residential Zone. As described above, in response to the City's RHNA assignment, Program 7 of the Housing Element proposed the establishment of a Housing Overlay Zone along with a number of objectives that would facilitate the implementation of the newly established zone. The proposed Zone Change addresses the following Housing Element Program 7 Objective:

> *Amend the Zoning Code to provide residential development standards and approval procedures to facilitate the development of housing, including affordable housing, in the Housing Overlay Zone.*

As stated earlier in the staff report, since the Applicant is proposing a *specific develop project* on one of

the three sites identified in the Housing Element, the Zone Change establishes a "Residential Zone" instead of a "Housing Overlay Zone". This Zone Change meets and exceeds the implementation of Program 7.

Zoning Text and Map Amendment

The following amendments to the Zoning Code are proposed:

Create a new Chapter 17.30 – Residential Zone (R)

- Establish Permitted Uses in the Residential Zone
- Establish Approval Process and Authority
- Establish Applicability Criteria
- Establish Residential Development Standards

Exhibit D is the proposed Zone Change Text Amendment.

In order to ensure consistency within the Zoning Code, the Industry Zoning Map will also be amended to designate the Property as "Residential". Exhibit E is the proposed amendment to the Industry Zoning Map.

Lot Line Adjustment

The National CORE is requesting approval of LLA No. 83, to modify the Property in order to construct a residential development. The Property comprises two lots, Los Angeles County Assessor Parcel Number (APN) 8762-002-901 which currently is approximately 1.53 acres, and APN 8762-002-902 which currently is 3.81 acres, with a combined acreage of approximately 5.34 acres. The proposed LLA would modify the configuration of the lots by adjusting the existing lot line currently separating the two lots to the west, thereby creating a 3.86-acre lot for a residential development, and a 1.48-acre lot that is not a part of the proposed development.

Development Plan 17-13

National CORE submitted DP 17-13 to construct twenty-five (25) detached residential dwelling units and 4,300 square feet of community recreational area/tot lot on the subject 3.86 acre property as shown on (Exhibit F).

Description of the Site

The area surrounding the Property consists of residential neighborhoods in the Diamond Bar and Rowland Heights communities to the east and south. Further to the southwest, is the Royal Vista Golf course. To the west, is a commercial development which comprises a mix of uses including storage, light manufacturing, retail and hotel uses, and a worship center. The Sri Guru Sabha, Walnut temple and its parking lot are located at the western edge of the commercial property.

In addition to a network of arterial and local streets, major local and regional access is provided via Fairway Drive/Brea Canyon Cut Off Road located approximately .5-mile west of the Project site, with ramp access to the Pomona Freeway (SR 60) and Orange Freeway (SR 57).

Existing Site Conditions

The Project site is relatively flat with very little topographic variation with elevations ranging from 509 feet to 529 feet above mean sea level. The Property is currently occupied by one single-family residence, built in 1964, located in the central portion of the site. Approximately, 14,441 square feet of the site is improved with this single-story ranch-style house which measures about 1,058 square feet surrounded by 8,995 square feet of landscaping. A two-car garage is located immediately northeast of the residence and connected to the house by a covered breezeway.

A large stockpile of soil, estimated to be approximately 12,000 cubic yards in size, exists in the northern portion of the Property. The remainder of the site is vacant, unimproved and flat with grass and dirt cover.

The existing 12-foot high freeway sound wall is located along the northern boundary of the Property. A grouping of mature trees line the westernmost and southwesterly boundaries of the Property with the commercial development, beyond which is the temple's asphalt parking lot. A small drainage channel runs along the south-westerly boundary of the Property outside of the proposed development area.

Proposed Development

As shown on the site plan (Exhibit F), the development consists of twenty-five detached dwelling units, including fifteen (15) 3-bedroom units and ten (10) 4-bedroom units. The overall Project density is 6.5 dwelling units per acre ("du/acre"). According to the proposed Chapter 17.30 of the Municipal Code, the development is classified as "Low Density Residential" which is defined as a density of 2 to 8 du/acre. The residences are two-story, ranging from 1,602 square feet for the 3-bedroom units to 1,949 square feet for the 4-bedroom units, arranged in groupings of 2, 3, 4 and 6 units. Three architectural styles, Spanish, Traditional and Cottage designs are proposed to provide visual variety and a sense of a more diverse design typical of organically developed established neighborhoods. Building elevations and floor plans are shown on the Architectural Sheets in Exhibit F. Each unit has a private outdoor area with attached two-car garages. The maximum building height from grade to top of the roofline is 27 feet.

The proposed development includes a 4,300 square-foot community recreational/playground area, including an age-separated tot lot, a shade structure with seating, and a small community garden. Adjacent to the community recreational/play area is a 6,959 square-foot bio-retention basin covered with seed mix of purple needle grass, Molate fescue, California barley and meadow barley, that will act as part of the Project's stormwater pollution control and biofiltration BMP, as well as providing an open space amenity area for the development.

Access and Circulation

Walnut Drive South is an east-west local collector with one lane in each direction. The south side of the street is widened and improved. The City is in the final design stage of improvements to the northern side of the street approximately along the frontage of the Property which will conform to street standards for Los Angeles County. The proposed improvements would improve the segment with sidewalk, curb and gutter, and street lighting. The development will be accessed from E. Walnut Drive South via a new 24-foot wide private street. Access to each of the units would be via stub alleys off the private street.

Walls and Structures

An existing 12-foot freeway soundwall extends along the northern boundary of the Property. A 6-foot tall block wall is located along the eastern site boundary between the site and the adjacent residential property. As a condition of approval, the Project will construct an 8-foot high wall along the western boundary of the site to reduce noise impacts to the playground area.

Two accessible trash enclosures are provided, one each in the eastern and western portions of the development. The enclosures are double-gated with materials and colors to match the finish palette within the development. Screening for the trash enclosures will be provided by shrub/tree planting.

Of the two existing billboard structures, one is to the west of the site and is outside of the development/improvement area of the proposed development. The billboard in the eastern portion of the site is owned by Clear Channel and the site location is leased with the property owner/lessor IPHMA. The lease is subject to an up-coming automatic 10 year extension on May 1, 2018, unless the lease is so terminated. The IPHMA has provided notice to Clear Channel of termination of the leases for both billboards.

Landscaping

Permeable areas will consist of the common areas, front yards and the bio-retention basin totaling about 58,722 square feet, approximately 35% of the site. Private rear yards will be an additional 22,256 square feet. The Conceptual Landscape Plan is included in Exhibit F, Sheet L1. Site landscaping will include 24" and 36" box trees along Walnut Drive, the proposed new private street and along the north boundary of the site, in the freeway buffer zone, as well as common areas. Flowering Pink Trumpet trees will line the east/west private drive accesses from Walnut Drive. Smaller accent trees will line the internal private drives and the open space common areas within the Project. A variety of groundcovers are also proposed for common area planters, parkways and building frontages.

Development Standards

Zone Change (ZC 17-1) creating Chapter 17.30 of the Municipal Code, establishes development standards for residential developments. The proposed development meets the Development Standards set forth in Zone Change 17-1 including setbacks, building height, parking, landscaping and site coverage. Based on these standards, two (2) parking spaces shall be provided for units with two or more bedrooms, and one guest parking for every seven (7) units. The proposed Project includes two attached garages for each of the units. Additionally, eleven (11) guest parking spaces are provided along the northern boundary of the Project site. Therefore, the Project meets the parking requirements. Total site coverage is approximately 30,585 square feet or 18% of the site, and open spaces comprising common areas and front yards constitute approximately 35% of the Project site.

The following table summarizes the Residential Development Standards (based on ZC 17-1) and the proposed Development Plan.

DEVELOPMENT STANDARDS SUMMARY

Site Area and Density Total Site Area: + 3.86 Acres (169,142 S.F.) Total Units: 25 Homes Density: 6.4 Homes per Acre Lot **Site Coverage:** Required: Max. 60% Provided: 18% of site (30,585 SF) Coverage (footprint areas): Plan 1: 1,145 x 15 = 17,175 Plan 2: 1,341 x 10 = 13,410	**Parking:** Required: 2 spaces/unit + 1 visitor space for every 7 units Provided: ▪ Garage: 50 Spaces ▪ (15) 3 Bedroomx2.0 Spaces = 30 Spaces ▪ (10) 4 Bedroom x 2.0 Spaces = 20 Spaces ▪ ADA Driveway: 1 Space (17' x 19') ▪ Parallel: 11 Spaces (8' x 22') Total Provided: 61 Spaces (2.44 spaces per home)
Open Space: Required: 5% (8,494 S.F.) Provided: 35% Landscape (58,722 S.F.) ▪ Common Area + Front Yard + Bio-Retention: 58,722 SF ▪ Private Rear Yards: 22,256 SF	**Architecture:** Setbacks: *Required* Front: 5' min-20'max Side: 5' min Rear: 10' min *Provided* Building Setbacks: Front Yard (Walnut): 20' Front Yard (Channel): 15' Min. Side Yard: 5' Min. Rear Yard: 12' Min. to Garage Door: 10' Min. to Porch: 4' At East end of project, where PL and Walnut Drive S. diverge: Side from PL: 10' Rear: 10' Building Separation: 10' minimum Building Height: Required: 35'/2 stories max Provided: 27' /2 Stories

Environmental Analysis

An Initial Study has been prepared in accordance with the California Environmental Quality Act ("CEQA") to determine if GPA 17-1, ZC 17-1, LLA 83 and DP 17-3 could collectively have a significant impact on the environment. The IS determined that the aforementioned actions would not have a significant effect on the environment with the implementation of mitigation measures addressing air quality, cultural resources, geology, noise and tribal cultural resources. The mitigation measures are contained in a

Mitigated Monitoring and Reporting Program, which has been prepared in conformance with Section 21081.6 of the Public Resources Code and which provides a vehicle to monitor compliance with the mitigation measure (Exhibit G).

The Notice of Intent to Adopt a Mitigated Negative Declaration (Exhibit G) was posted on the Property, fire stations, City Hall and Council Chambers, and published in the San Gabriel Valley Tribune on December 14, 2017.

AB 52 Tribal Consultation
AB 52 requires that the City provide notice to Native American Tribes that are traditionally and culturally affiliated with the geographic area of a proposed project if they have requested to be notified. If the tribes do not respond within 30 days of being notified, then the AB 52 consultation process is concluded. In this case, the City notified the Gabrieleño Band of Mission Indians – Kizh Nation and Soboba Band of Luiseño Indians on October 27, 2017, and received a request for consultation from the Gabrieleño Band of Mission Indians – Kizh Nation. As part of the consultation, the tribe recommended mitigation measures which are included in the Mitigated Negative Declaration for the Project (TCR-1, TCR-2 and TCR-3 of the IS/MND).

Staff Analysis

General Plan Amendment 17-1

Staff recommends that the Planning Commission recommend that the City Council approve GPA 17-1 based on the following findings:

A. GPA 17-1 is consistent with other elements of the City's General Plan pursuant to Government Code Section 65300.5. The proposed amendment does not modify or alter the intent of any of the General Plan elements.

B. GPA 17-1 creates opportunities for housing development and will facilitate provision of affordable housing on a suitable site in the City.

C. GPA 17-1 facilitates the City's compliance with its current and projected future RHNA assignment.

D. GPA 17-1 ensures consistency between the Housing and Land Use Elements of the General Plan, and provide opportunities for compliance with the implementation programs, and specifically Program 7 of the Housing Element.

E. The Residential Land Use designation for the Property facilitates development of residential uses which are compatible with the surrounding uses because the proposed residential development on the Property will be consistent in land use, architectural design and scale of the units, density, building heights and setbacks with the surrounding residential uses, will provide adequate parking, landscaping and on-site amenities, and will have adequate water and sewer service, drainage, police and fire protection, emergency response and school availability.

F. The design or improvements will not be detrimental to the public health, safety and welfare. As documented in the IS/MND, the Project complies with development standards, complies with access and circulation requirements, does not alter emergency response, is not located in flood zones, near active earthquake faults, will not be used to store or produce hazardous materials, and will comply with applicable building and fire codes, and therefore, will not be detrimental to public health, safety and welfare.

Zone Change 17-1

Staff recommends that the Planning Commission recommend that the City Council approve ZC 17-1 based on the following findings:

A. ZC 17-1creates opportunities for housing development and will facilitate the provision of affordable housing on a suitable site in the City of Industry.

B. ZC 17-1ensures consistency between the Housing and Land Use Elements of the General Plan, and provide opportunities for compliance with the implementation programs, and specifically Program 7 of the Housing Element.

C. In accordance with Government Code Section 65855, the Zone Change brings the City's Zoning Code into consistency with the General Plan, and there is no applicable Specific Plan.

D. The Property has had Industrial zoning similar to the majority of properties in the City since incorporation. The Zone Change is warranted because it facilitates the development of the Property for residential uses consistent with Program 7 of the Housing Element and in response to the City's RHNA assignment, thereby helping to address the region's increased need for housing and specifically affordable housing.

E. There are no existing business, commercial or industrial uses on the Property.

F. The owner of the Property cannot develop the Property for residential uses consistent with Program 7 of the City's Housing Element, if the Zone Change is not granted, and therefore is deprived of a property right established under the General Plan land use designation.

G. The Zone Change does not adversely affect the adjoining property as to value, precedent, and is not detrimental to the area. The Property is located in a predominantly residential area. The proposed residential development improves the existing conditions of the Property, is compatible in land use, residential product type, architectural design and scale with the surrounding uses, meets density, setback, height and parking standards and provides adequate landscaping and on-site amenities, which will ensure that the Zone Change does not adversely affect property values or be detrimental to the area.

H. The Zone Change is in the interest of furtherance of public health, safety and general welfare because the Project complies with development standards, complies with access and circulation requirements, does not alter emergency response, is not located in flood zones, near active earthquake faults, will not be used to store or produce hazardous materials, and will comply with applicable building and fire codes, and assists in meeting the housing needs of the region; And

I. According to the Southern California Association of Governments there is a housing crisis in California due to a combination of both a housing shortage and a lack of affordability. The Zone Change is in the public interest because it will facilitate the development of housing and affordable housing in the City of Industry pursuant to Government Code Sections 65583(a)(3), 65583(c)(1) and 65583.2, and will help to address the housing crisis in California by contributing to housing supply and providing affordable housing in the region.

Lot Line Adjustment

Staff has reviewed LLA 83 and has determined that the LLA is in conformance with the State

Subdivision Map Act in that:

- The proposal is eligible for processing as a lot line adjustment pursuant to section 66412(d) of the California Subdivision Map Act.
- Only two (2) or fewer existing, adjoining parcels are involved and are therefore eligible for an LLA. No greater number of parcels will result from LLA 83.
- The design or improvement will not conflict with easements.
- All easements are identified on the LLA 83 and the lot line adjustment will not conflict with, be located on, or alter the easements.

Staff recommends approval of the Lot Line Adjustment based on the following findings:

A. The Land Use Element of the General Plan designates the Property as Residential, and it is zoned Residential. The parcels resulting from the lot line adjustment are consistent with the General Plan as they will facilitate the construction of a residential development, and do not conflict with the established goals and objectives of the Land Use Element. Further, the lot line adjustment will facilitate a development that is consistent with the goals, policies and performance standards of General Plan Circulation, Resource Management, Safety and Housing Elements; and

B. The Project's design and improvements for the parcels and LLA conform with the "R" Residential Zoning and development guidelines with minimum size, frontage, access, and drainage requirements addressed in Section 16.10 of the City's Code and the development standards in Section 17.30 and 17.36 of the City's Code; and

C. The Property is suitable for the proposed development in accordance with the Development Plan and Lot Line Adjustment because it complies with minimum lot size and frontage requirements, is flat and free of hazards as noted in the accompanying IS/MND;

Development Plan Application 17-13

With the adoption of the proposed General Plan Amendment (GP 17-1) and Zone Change (ZC 17-1), the proposed development project is consistent with the Zoning ("R" – Residential) and General Plan (Residential) designations of the site and complies with the following development and design standards in Section 17.36, *Design Review*, and Section 17.30 *Residential Zone* of the Industry Municipal Code. Specifically:

- With General Plan Amendment (GPA 17-1), the proposed Development Plan will be consistent with the General Plan. The proposed Development Plan will be located in an area designated as Residential in the General Plan, which allows for single-family residential developments. Goal LU6 and Policy LU6-1 of the proposed General Plan Amendment state that the City should create opportunities for the development of residential uses on suitable sites to address housing and affordable housing needs within the City. The proposed Development Plan would facilitate the construction of housing on a suitable parcel for residential development and will address Program 7 of the Housing Element addressing the City's RHNA assignment.

- With Zone Change (ZC 17-1), the Development Plan will be consistent with the City of Industry Zoning Code. The proposed Development Plan will be located in an area zoned Residential which allows for detached residential units. The proposed Development Plan complies with the minimum lot size, frontage, access, and drainage requirements addressed in Section 16.10 of the Municipal Code and the development standards in Section 17.30 of the Municipal Code.

- The Project meets development standards. Chapter 17.36 includes standards regarding building

height, lot coverage, and trash/recycling enclosures to which the proposed project complies.

- The Project meets building setback standards. Section 17.30.050 of the Municipal Code requires that all Low Density Residential buildings have a front setback of a minimum of 5 and a maximum of 20 feet from the curb.
- The Project meets design guidelines. Sections 17.36.060 A-J of the Municipal Code call for well-designed and coordinated buildings, walls, lighting, and landscaping. The architectural treatment of the units are varied providing a well-designed, aesthetically pleasing appearance. The Walnut Drive frontage has sufficient landscaping, which will provide a green separation between the street and the development.
- The Project meets vehicular parking requirements. Section 17.30.050.B.3 of the Municipal Code requires that residential units with two or more bedrooms provide 2 parking spaces per unit, plus if multiple units are part of a planned development 1 visitor parking be provided for every seven units. The Project provides 2-car attached garages for each unit, and a total of eleven visitor parking spaces which exceed the parking requirements.
- The Project complies with drainage and water quality requirements. The applicant has submitted a preliminary Low Impact Development (LID) Plan to the City Engineer per Chapter 13.16 of the Municipal Code and the project can meet drainage and water quality requirements. The LID improvements will be implemented prior to issuance of the grading plan and/or final approval of the building.

Staff recommends that the Planning Commission recommend that the City Council approve Development Plan 17-13 based on the following findings:

A. The Property is suitable for development in accordance with the Development Plan because the Property complies with minimum lot area and frontage requirements, is flat and free from hazards as noted in the accompanying Initial Study/MND, and is designated as Residential through the General Plan Amendment 17-1 and zoned Residential through Zone Change 17-1, which are consistent with the proposed residential development.

B. The total development is arranged so as to avoid traffic congestion, ensure the public health, safety and general welfare or prevent adverse effects upon neighboring properties because, as noted in the accompanying IS/MND, the Project would add approximately 236 daily vehicle trips, with19 AM peak hour trips and 25 PM peak hour trips, which would not significantly impact road capacity. In addition, the proposed Project provides the necessary setback areas, provides adequate landscaping, screens the walls and trash enclosures, presents a variation of architectural and landscape design and provides on-site open space amenities, which ensures the general welfare and prevents adverse effects on neighboring properties. In addition, the attached conditions of approval set construction and operational standards that ensure that the development will operate in a manner consistent with the General Plan's policies related to noise, safety and property maintenance, thereby ensuring the public health, safety and general welfare.

C. The development is in general accord with all elements of the Industry Zoning Ordinance as amended by Zone Change 17-1 because, with the approval of the Development Plan, the Project complies with development standards in regards to building setbacks, height, parking, access, screening, and design.

D. With the approval of General Plan Amendment (GPA 17-1), the development is consistent with the provisions of the City's General Plan because the Property is designated as Residential, which allows the development of residential uses.

Recommendation

Because the project complies with the development standards of the Municipal Code, does not pose a significant impact on the environment, and satisfies the above-mentioned findings, Staff recommends that the Planning Commission:

1) Adopt Resolution No. PC 2018-01 (Attachment G) recommending City Council adoption of the Initial Study and Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program for GPA 17-1, ZC 17-1, LLA 83 and DP 17-13, for the properties located at 20137 and 20249 E. Walnut Drive South

2) Adopt Resolution No. PC 2018-02 (Attachment H) recommending City Council approval of GPA 17-1, amending the General Plan to establish a Residential Land Use Designation in the Land Use Element; amend related text and exhibits of the City's General Plan; and change the Land Use Designation of 20137 E. Walnut Drive South and 20249 E. Walnut Drive South from Employment to Residential.

3) Adopt a Resolution No. PC 2018-03 (Attachment I) recommending City Council adoption of an ordinance amending Title 17 (Zoning) of the City's Municipal Code to add chapter 17.30 (Residential Zone), and amending Chapter 17.28.060 (Map Adopted) to amend the City's Zoning Map to change the Zoning Designation of the properties located at 20137 and 20249 E. Walnut Drive South from Industrial to Residential

4) Adopt Resolution No. PC 2018-04 (Attachment J) recommending City Council approval of LLA 83, for the properties located at 20137 and 20249 E. Walnut Drive South in the City of Industry, California, and making findings in support thereof.

5) Adopt a Resolution No PC 2018-05 (Attachment K) recommending City Council approval of DP 17-13 to construct twenty-five detached dwelling units including two very-low and two low income units and 4,300 square feet of community recreational area on a 3.86-acre property located at 20249 E. Walnut Drive South.

Attachments

- Exhibit A: Location Map
- Exhibit B: Housing Element Potential Sites for HOZ
- Exhibit C: General Plan Text and Land Use Map Amendment
- Exhibit D: Zoning Text Amendment
- Exhibit E: Zoning Map Amendment
- Exhibit F: Proposed Development Package
- Exhibit G: Resolution No. PC 2018-01 including the Notice of Intent to Adopt a Mitigated Negative Declaration; Initial Study/Mitigated Negative Declaration for Industry Workforce Housing Community Project, December 2017; and Mitigation Monitoring and Reporting Program
- Exhibit H: Resolution No. PC 2018-02 - General Plan Amendment 17-1
- Exhibit I: Resolution No. PC 2018-03 – Zone Change 17-1
- Exhibit J: Resolution No. PC 2018-04 - Lot Line Adjustment 83
- Exhibit K: Resolution No. PC 2018-05 – Development Plan 17-13
- Exhibit L: Public Comments

Exhibit A
Location Map

LOCATION MAP

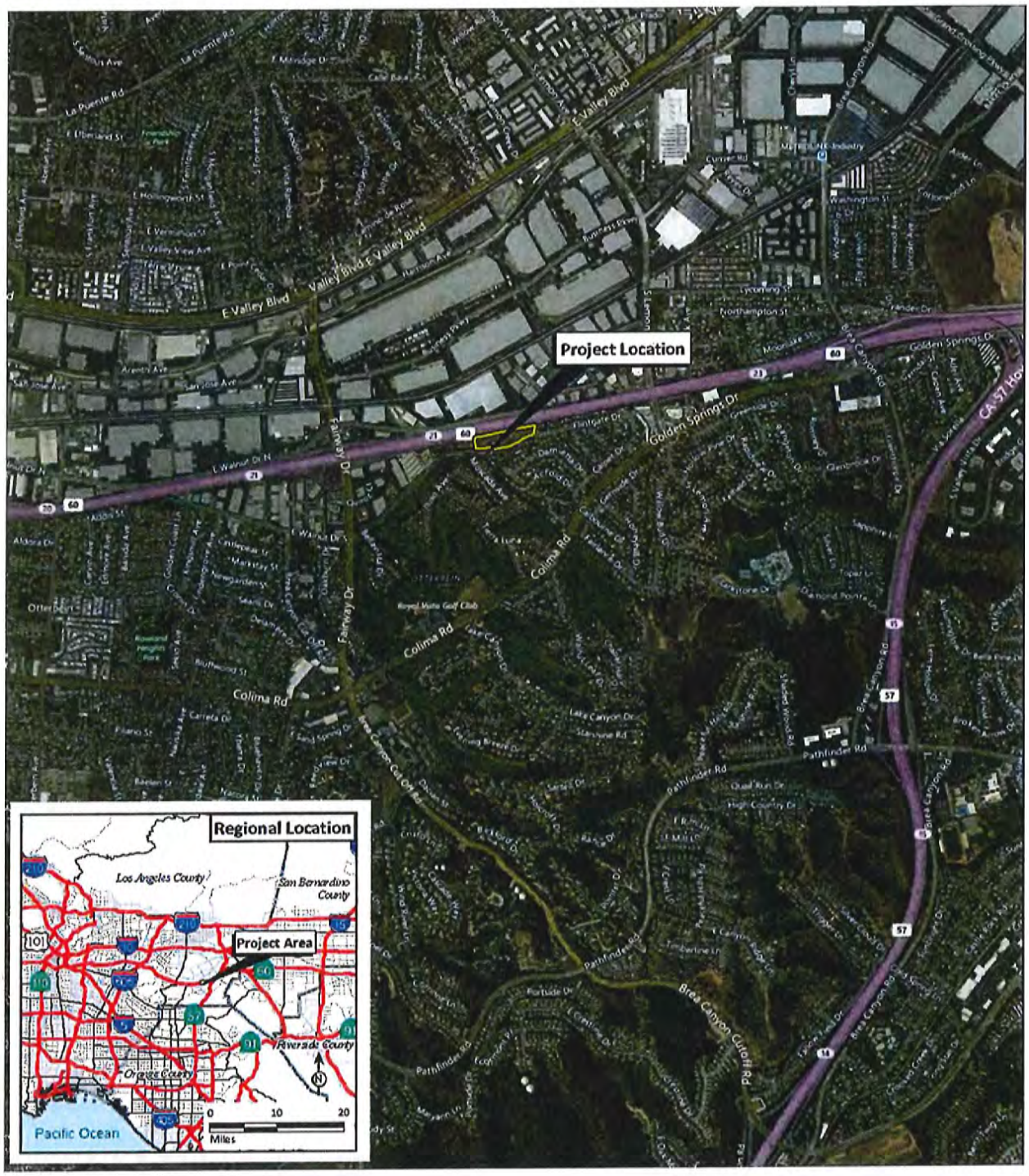


EXHIBIT A

Exhibit B

Housing Element Potential Sites for Housing Overlay Zone (HOZ)

Housing Element - Potential Sites for Housing Overlay Zone

City of Industry
Sphere of Influence Boundary
Potential Housing Overlay Zone

10.31.2013 0 500 1,000 Feet

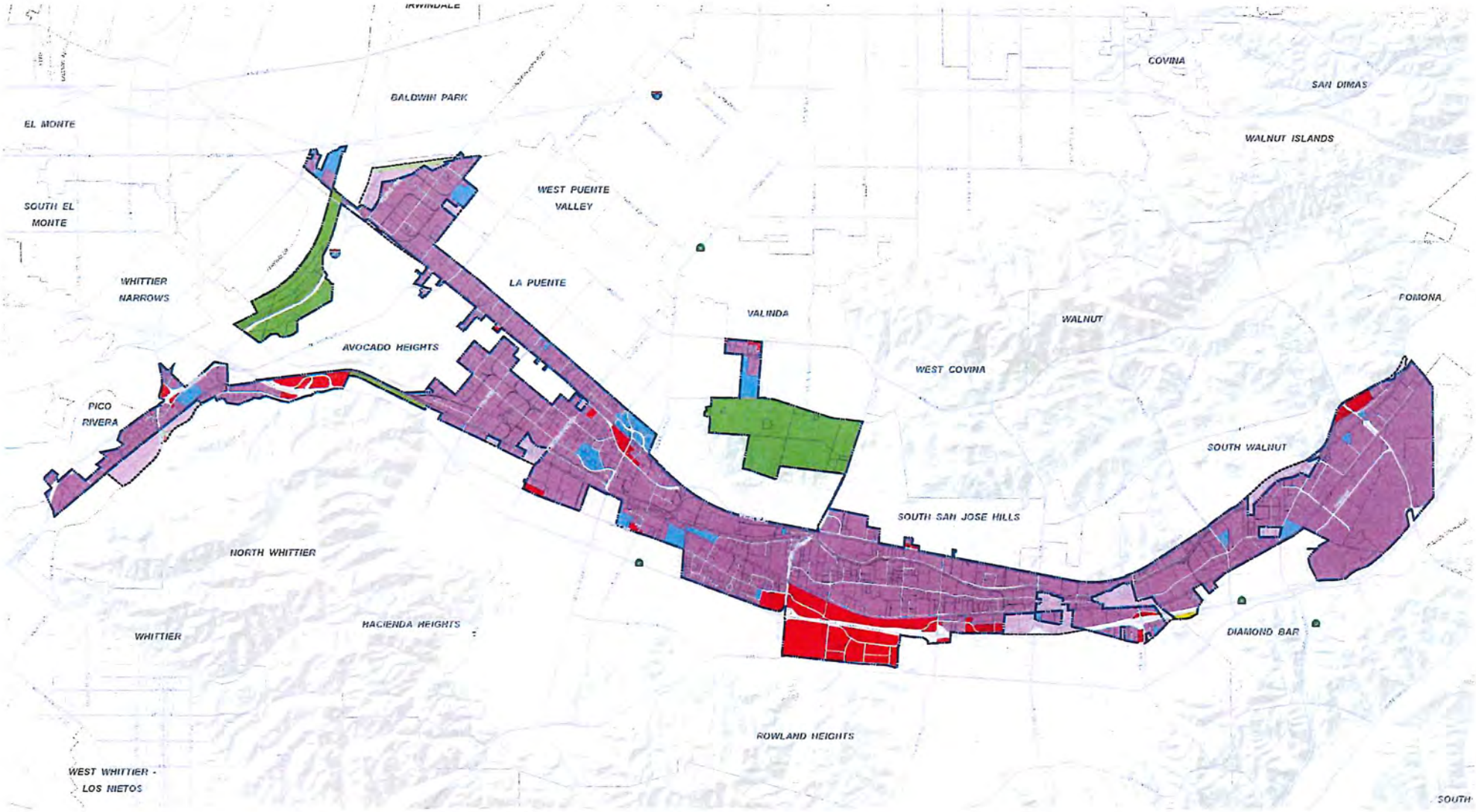
THE PLANNING CENTER DC&E

CITY OF INDUSTRY

EXHIBIT B

Exhibit C

General Plan Text and Land Use Map Amendments



THE PLANNING CENTER DC&E

0 2,500 5,000 10,000 Feet

0 0.5 1 2 Miles

Date: 6/12/14

General Plan
- Employment
- Commercial
- Institutional
- Recreation & Open Space
- Residential

General Plan Sphere
- Employment
- Commercial
- Recreation & Open Space

- City of Industry
- Sphere of Influence Boundary

GENERAL PLAN LAND USE

CITY OF INDUSTRY

2014 GENERAL PLAN

Section 1.5 – Goals and Policies

Add the following Goal and Policy:

1.5.6 – Create opportunities for housing development

Goal

LU6 Create opportunities for development of a range of housing types, products and affordability levels including single-family rental, multifamily rental, factory-built housing, mobile homes, housing for agricultural employees, supportive housing, and transitional housing in select areas of the City.

Policy

LU6-1 Develop a Residential Zone that would enable housing in select areas of the City compatible with the surrounding primary land use.

Table 1
Land Use Designations

Land Use Designation	*Allowable Uses* [1]	*Max FAR* [2]
Employment	- A variety of business and employment uses including industrial manufacturing, assembly, printing, machining, milling, welding, research and development, distribution, warehousing, storage, and supporting office uses - The uses permitted in the Commercial land use designation when zoned appropriately	0.5 FAR
Commercial	- A mixture of commercial (retail, service, tourist-serving), medical, professional office, entertainment, fitness, and dining uses - The uses permitted in the Employment land use designation when zoned appropriately	0.5 FAR (commercial) 1.0 FAR (office)
Recreation/Open Space	- Commercial recreation such as golf courses, resorts, equestrian facilities, exposition centers - Open space such as parks, trails, bikeways, indoor and outdoor recreational facilities, and interpretive centers - Commercial nurseries	N/A
Institutional	- Public schools and school offices and maintenance facilities - Publicly owned and maintained facilities including civic centers, governmental institutions and facilities, post offices, museums, transportation facilities, and libraries. - Quasi-Public Uses such as public utility facilities, power generation facilities, and electrical substations - Hospitals, nursing homes, comprehensive subacute and skilled nursing care, and long term residential care	N/A

[1] Uses such as railways, roadways, waterways, utilities, and flood control channels are accommodated within each land use designation.

[2] When more than one parcel shares common parking, landscape, access, and maintenance, the maximum FAR is determined based on the perimeter of an entire project. This means that individual parcels within the project may exceed the maximum FAR as long as the FAR for the entire project complies with the maximum FAR.

Add to Table 1 – Land Use Designations

Land Use Designation	*Allowable Uses*	*Max FAR*
Residential	A range of housing types, products and affordability levels including single-family rental, multifamily rental, factory-built housing, mobile homes, housing for agricultural employees, supportive housing, and transitional housing	N/A

Table 2
Land Use Buildout

Land Use Designation	*Acres*	*Building Square Feet*	*Jobs*	*Daily Population*
City Boundaries				
Commercial	523.7	11,851,027	21,665	21,665
Employment	5,350.2	91,086,436	79,211.6	79,307
Recreation and Open Space	794.1	521,000	450	535
Institutional	238.9	NA	605	887
Street R.O.W.	799.7	NA	NA	NA
Subtotal City Boundaries	**7,706.6**	**103,458,464**	**101,932**	**102,395**
Sphere of Influence				
Commercial	1.2	26,136	58	58
Employment	405.9	7,042,067	6,018	6,018
Recreation and Open Space	46.5	0	0	0
Institutional	0.0	0	0	0
Street R.O.W.	75.5	NA	NA	NA
Subtotal SOI	**529.1**	**7,068,203**	**6,076**	**6,076**
Total Planning Area				
Commercial	524.9	11,877,163	21,723	21,723
Employment	5,756	98,128,504	85,230	85,326
Recreation and Open Space	840.6	521,000	450	535
Institutional	238.9	0	605	887
Street R.O.W.	875.2	NA	NA	NA
Total Planning Area	**8,235.8**	**110,526,667**	**108,008**	**108,471**

Notes:
R.O.W. = right-of-way
The assumptions used in these projections are detailed in the Appendix Buildout Methodology.
Population density is expressed in terms of daily population to capture both employment and residential population as it is most applicable to the City of Industry.
Projections were modified to account for existing railroad right-of-ways, utilities, flood control channels, existing residences, and the Metrolink station.
The 2004 Industry Business Center Master Plan was assumed for the buildout of the currently undeveloped 592-acre property at the eastern end of the City.

Add to Table 2 – Land Use Buildout

Land Use Designation	*Acres*	*Building Square Feet*	*Jobs*	*Daily Population*
City Boundaries				
Residential	5.39	25 dwelling units	N/A	See note

Exhibit D
Zoning Text Amendment

Chapter 17.30
RESIDENTIAL ZONE (R)

Sections

17.30.010 Purpose..... 1

17.30.020 Change of Zone..... 1

17.30.030 Permitted Uses..... 1

17.30.040 Applicability..... 2

17.30.050 Residential Development Standards..... 2

17.30.010 Purpose.

It is the intent and purpose of the Residential Zone to:

A. Implement the Housing Element of the General Plan and allow for a variety of housing types, including multifamily rental, factory-built, mobile homes, supportive housing, and transitional housing on select sites.

B. Create opportunities for residential development on select sites by amending the Zoning Code to provide residential development standards and approval procedures to facilitate the development of housing, including affordable housing, in the Residential Zone.

C. To implement state laws that require cities to demonstrate available land capacity and zoning tools to accommodate the City's projected need for housing.

D. Facilitate well-designed new residential development projects to promote a better balance of jobs and housing.

E. Stimulate economic development and reinvestment through regulations based upon recognized urban design principles that allow property owners to respond with flexibility to market forces.

F. Allow development standard modifications, and expedited processing for projects that address the Regional Housing Needs Allocation (RHNA).

17.30.020 Change of Zone.

A. Any change of an existing industrial or commercial zone to include, a residential zone, shall be made in accordance with the provisions of Chapter 17.28.

17.30.030 Permitted Uses.

A. The following residential uses shall be permitted pursuant to a development plan approved by the city council pursuant to Chapter 17.36:

1. Single family residential (attached or detached).
2. Multiple family residential (townhomes, condominiums, or rental apartments)
3. Mobile homes
4. Manufactured housing
5. Supportive housing (17.08.152)
6. Transitional housing (17.08.157)
7. Accessory uses or structures incidental to the principally permitted use.

17.30.040 Applicability.

The regulations set forth in this chapter may be applied to sites meeting the following criteria:

A. The development site is a minimum of one (1) acre.
B. The site is vacant or underutilized and could readily accommodate residential development.
C. Adequate infrastructure and services exist or may be readily extended to support residential uses on the site.
D. The site is near other residential development or residentially zoned lands.
E. The site is not located adjacent to industrial or commercial uses that would raise environmental or operational concerns, or would result in foreseeable conflicts between uses.

17.30.050 Property Development Standards

The following development standards shall apply to housing developments in the Residential Zone. The City may waive, or modify, any, or all, of these requirements during Design Review if it finds that one or more of the requirements is infeasible due to physical or other constraints on the property or would otherwise facilitate the construction of affordable housing to meet the City's RHNA requirements.

A. General Compatibility Standards.
   1. General Design Standards. The housing units shall be designed and developed in a manner compatible with and complementary to existing and potential development in the immediate vicinity of the project site.
   2. Adjacent Uses. Site planning on the perimeter shall provide for protection of the property from adverse surrounding influences and shall protect surrounding areas from potentially adverse influences of residents on the property.

3. Privacy. To the greatest extent possible, the design of the development shall promote privacy for residents and neighbors, security, and use of passive solar heating and cooling through proper placement of walls, windows, and landscaping.
4. Compatible Materials. Building design and materials shall blend with the neighborhood or existing structures on the site.

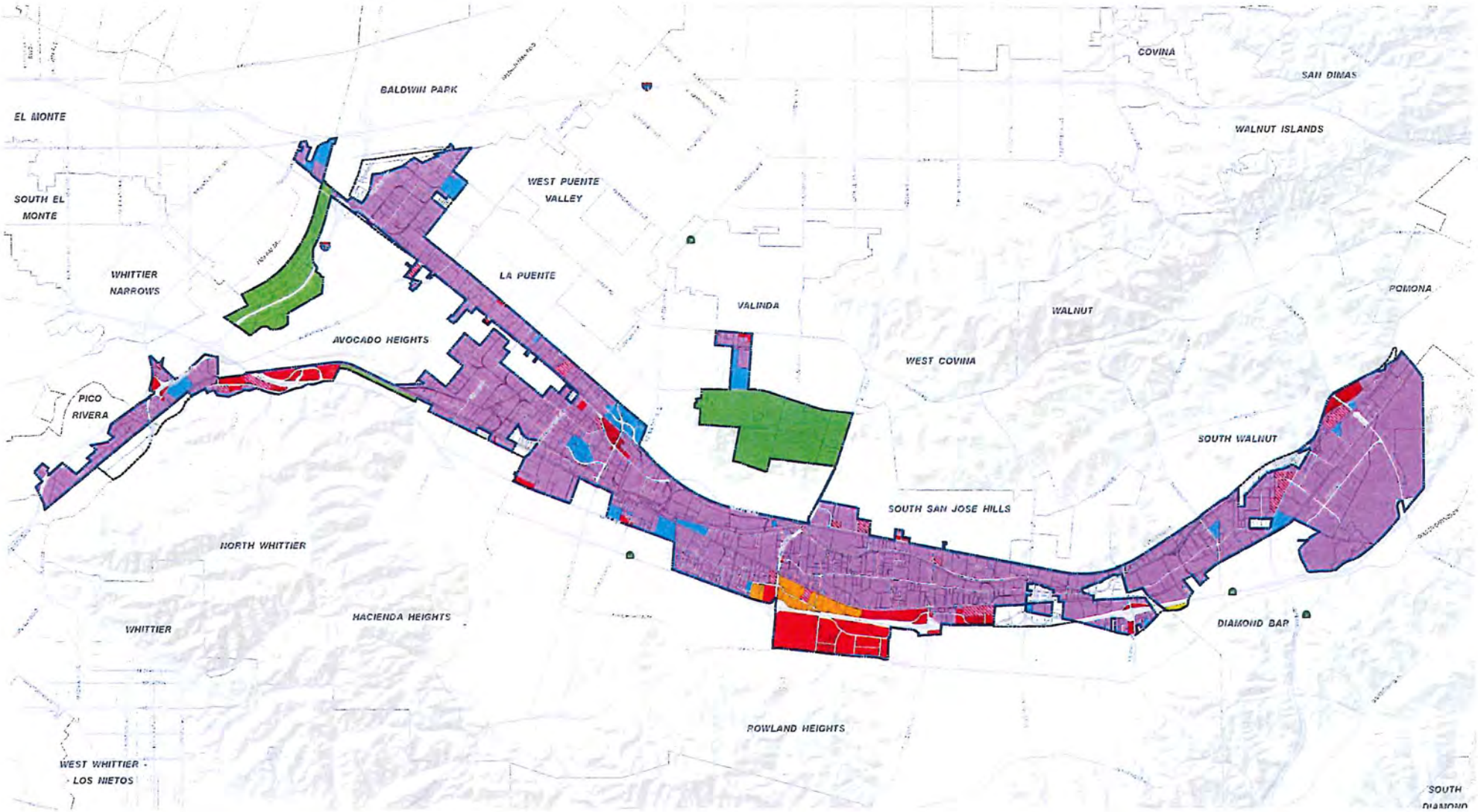
B. Property Development Standards.

1. Streets. All public streets within or abutting the residential use shall be dedicated and improved to city specifications for the particular classification of street consistent with Title 12 Streets and Sidewalks. All private streets shall meet fire code and access standards.
2. Sidewalks. Sidewalks shall be installed along all public street frontages.
3. Parking. Parking shall be provided as follows:
   a. One (1) space for studios, one-bedroom units and accessory apartments
   b. Two (2) spaces per two- or more-bedroom dwelling units.
   c. Where part of a planned development, a minimum of one (1) visitor parking space for every seven (7) dwelling units shall be provided. On-street parking, where permitted, may be used to satisfy visitor parking.
4. Common Open Space. Common open space shall comprise the greater of: (a) five percent of the total area of the site; or (b) seventy-five square feet for each dwelling unit. Land occupied by buildings, streets, driveways, parking, utility units, and trash enclosures shall not be counted in satisfying the open space requirement; land in landscaping and passive and active recreation/open space with a minimum depth/width of five feet shall be counted, and land occupied by recreational buildings and structures shall be counted. Common open space shall be suitable for and improved with amenities to promote physical activity and social interaction amongst residents of the development.

C. Development Standards by Type. The following table provides standards for a range of housing and density types.

Residential Development Standards				
DEVELOPMENT TYPE & DENSITY				
Development Type	**LOW DENSITY**	**MEDIUM DENSITY**	**MED-HIGH DENSITY**	**HIGH DENSITY**
Density Range (dwelling units/acre)	2 – 8	8 – 15	15 – 25	25 – 35
BUILDING TYPES				
Single House	X	X		
Duplex - Quadplex		X	X	
Bungalow Court	X	X	X	
Townhouse		X	X	X
Live/Work			X	X
Multifamily Apartments			X	X
Stacked Flats			X	X
Accessory Unit	X	X	X	X
LOT DIMENSIONS				
Minimum Lot Area	n.a.	n.a.	n.a.	n.a.
Maximum Lot Coverage	60%	70%	80%	90%
PRINCIPAL BUILDING SETBACKS				
Front	5 ' min – 20 ' max	5 ' min – 20 ' max	2 ' min - 15 ' max	0 ' min – 10 ' max
Side	5 ' min	5 ' min	0 ' min – 24 ' max	0 ' min – 24 ' max
Rear	10 ' min	5 ' min	3 ' min	3 ' min
ACCESSORY BUILDING SETBACKS				
Front	24 ' min	40 ' max from rear	40 ' max from rear	40 ' max from rear
Side	5 ' min	0 ' or 3 ' at rear	0 ' or 3 ' at corner	0 ' or 3 ' at corner
Rear	10 ' min	3 ' min	3 ' min	3 ' min
MAXIMUM BUILDING HEIGHT (Floors/Feet)				
Principal Building	2 / 35 '	2 / 35 '	3 / 50 '	4 / 60 '
Accessory	2 / 25 '	2 / 25 '	2 / 25 '	2 / 25 '

Exhibit E
Zoning Map Amendment



PLACEWORKS

0 2,500 5,000 10,000 Feet

0 0.5 1 2 Miles

City of Industry

Sphere of Influence Boundary

Zoning

Industrial (I)

Industrial - Commercial Overlay (IC Overlay)

Commercial (C)

Commercial - Adult Business Overlay (AB)

Institutional (INST)

Automobile Zone (AZ)

Recreation and Open Space Zone (ROS)

Residential (R)

ZONING

CITY OF INDUSTRY

Exhibit F
Proposed Development Package

Note: Artist's conception; colors, materials and application may vary.

Table of Contents:

Site Plan:
ASP-1 Conceptual Architectural Site Plan

Civil:
Preliminary LID Layout Plan

Landscape:
L1 Conceptual Landscape Plan
L2 Typical Residential Enlargement

Architecture:
SS Perspective
1.1.0 Plan 1A Floor Plan
1.1.1 Plan 1B Floor Plan
1.1.2 Plan 1C Floor Plan
1.2 Plan 1 Roof Plans
1.3 Plan 1 Colored Front Elevations
1.3 Plan 1 Labeled Front Elevations
1.4 Plan 1A Elevation Wrap
1.5 Plan 1B Elevation Wrap
1.6 Plan 1C Elevation Wrap
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2.1.2 Plan 2C Floor Plan
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2.3 Plan 2 Labeled Front Elevations
2.4 Plan 2A Elevation Wrap
2.5 Plan 2B Elevation Wrap
2.6 Plan 2C Elevation Wrap
2.7 Plan 2BX Floor Plan
2.8 Plan 2BX Elevation Wrap

3.0 Trash Enclosure
Exterior Color & Materials

INDUSTRY WORKFORCE HOUSING COMMUNITY

CITY OF INDUSTRY, CA

0 2 4 8

DESIGN REVIEW

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ARCHITECTS . PLANNERS . DESIGNERS
WHA.
ORANGE COUNTY . LOS ANGELES . BAY AREA

FIRE REQUIREMENTS for LANDSCAPE

- FIRE ACCESS WALKWAYS SHALL BE A LEVEL SOLID SURFACE, UNOBSTRUCTED BY TREES OR SHRUBS AND SHALL CONSIST OF A SURFACE THAT LENDS ITSELF TO SAFE USE DURING BUILDING EVACUATION, FIREFIGHTING AND RESCUE EFFORTS.
- KEY BOXES AND KEY SWITCHES (KNOX DEVICES) SHALL BE PROVIDED WHERE NECESSARY TO ENSURE THAT IMMEDIATE ACCESS FOR FIREFIGHTING, RESCUE AND OTHER EMERGENCY PURPOSES IS POSSIBLE.
- TREES THAT ARE PLANTED ALONG THE FIRE ACCESS ROADWAY SHALL NOT IMPEDE THE REQUIRED VERTICAL CLEARANCE OF 13'-6". THE TREES SHOULD BE A TYPE THAT THE NATURAL GROWTH PATTERN WOULD ALLOW THE REQUIRED VERTICAL CLEARANCE WITHOUT RELIANCE ON REGULAR MAINTENANCE OF THE TREE CANOPIES.

TREE SURVEY NOTE:

NO TREES PROPOSED TO BE PROTECTED-IN-PLACE OR RELOCATED DUE TO SITE GRADING FOR PROPOSED STREETS AND RESIDENTIAL LOTS.

STREET TREE PLANTING NOTE:

1. ALL STREET TREES WITHIN 8' OF ANY HARDSCAPE WILL BE INSTALLED WITH DEEP ROOT BARRIERS.
2. LANDSCAPE PLAN TO BE REVIEWED BY THE STREET TREE COORDINATOR.

WATER EFFICIENT LANDSCAPING NOTE:

1. THE IRRIGATION SYSTEM SHALL MEET THE REQUIREMENTS OF THE CITY OF ORANGE GUIDELINES FOR WATER EFFICIENT LANDSCAPES.
2. THE ESTIMATED APPLIED WATER USE ALLOWED FOR THE LANDSCAPE AREA SHALL NOT EXCEED THE MAWA CALCULATION.

IRRIGATION CONCEPT STATEMENT:

IRRIGATION ZONES: IRRIGATION HYDRO-ZONES SHALL HAVE PLANTS GROUPED with SIMILAR WATERING REQUIREMENTS.
DEPTH OF IRRIGATION LINES: ALL ON-GRADE LATERAL LINES SHALL BE BURIED TO A DEPTH OF 18" MIN. ALL ON-GRADE MAINLINES SHALL BE BURIED TO A DEPTH OF 24" MIN.
BACKFLOW PREVENTOR: BACKFLOW PREVENTOR SHALL BE A REDUCED PRESSURE PRINCIPAL BACKFLOW PREVENTOR (FEBCO 825Y OR EQUAL) TYPE AS APPROVED BY WATER SURVEYOR and SCREENED with LANDSCAPING from PUBLIC VIEW.
IRRIGATION EMITTERS: ALL SHRUB AREAS SHALL BE IRRIGATED USING DRIP IRRIGATION SYSTEM. ALL TREES SHALL BE IRRIGATED USING BUBBLER AND/OR DRIP IRRIGATION SYSTEM. ALL GROUNDCOVER AREAS SHALL BE IRRIGATED USING DRIP IRRIGATION SYSTEM.
IRRIGATION CONTROLLER: CONTROLLER SHALL BE AUTOMATIC with MULTIPLE PROGRAMMING CAPABILITY. CONTROLLER TO BE REPROGRAMMED SEASONALLY TO MINIMIZE RUNOFF and OVER WATERING. "SMART" CONTROLLER WEATHER TRACKING DEVICES SHALL BE UTILIZED TO CONTROL IRRIGATION CYCLES ACCORDING TO SPECIFIC IRRIGATION REQUIREMENTS.
CLASS OF IRRIGATION PIPE: ALL MAINLINE SHALL BE CLASS 315 PVC. ALL LATERAL LINES SHALL BE CLASS 200 PVC.
THE IRRIGATION DESIGN SHALL COMPLY with THE CRITERIA OF CITY OF ORANGE WATER CONSERVATION POLICIES and REQUIREMENTS.

HYDROZONE 3 - WATER CONSERVING SHRUB PALETTE

LARGE SHRUBS:				
	ARBUTUS UNEDO	STRAWBERRY TREE MULTI	5 GAL	Low
	FEIJOA SELLOWIANA	PINEAPPLE GUAVA	5 GAL	Low
	HETEROMELES ARBUTIFOLIA	TOYON	5 GAL	Low
	PRUNUS CAROLINIANA	CAROLINA CHERRY	5 GAL	Medium
	RHAMNUS CALIFORNICA	COFFEEBERRY	5 GAL	Low
MEDIUM SHRUBS:				
	AGAVE SPP	AGAVE	5 GAL	Low
	BACCHARIS TRIM PEANT	COYOTE BUSH	5 GAL	Low
	CEANOTHUS SPP	CEANOTHUS	5 GAL	Low
	EMPETRUM LANIRA	REDMAT POKER	5 GAL	Low
	LEUCOPHYLLUM SPP	TEXAS RANGER	5 GAL	Low
	NOTOTRICHE FRUTICOSA	COAST ROSEGARTH	5 GAL	Low
SMALL SHRUBS:				
	ALOE SPP.	ALOE	1 GAL	Low
	MAHONIA REPENS	DEER GRASS	1 GAL	Low
	SALVIA SPP	SAGE	1 GAL	Low
BIO-RETENTION BASIN:				
	EROSION CONTROL / BIO-RETENTION BASIN SEED MIX • Purple needlegrass - Stipa pulchra (California State Grass) • Mariola fescue - Festuca mariola • California barley - Hordeum californicum • Meadow barley - Hordeum brachyantherum brachyantherum available from S&S SEEDS, INC 858-484-0022			

PROPOSED SHRUB LIST

HYDROZONE 1 - ENHANCED SHRUB PALETTE - SUN EXPOSURE

LARGE SHRUBS:				
	COTONEASTER LUCIDUS	PARNEY COTONEASTER	5 GAL	Medium
	DIETES VEGETA	FORTNIGHT LILY	5 GAL	Medium
	PITTOSPORUM SPP	PITTOSPORUM	5 GAL	Medium
	PHOTINIA FRASERI	RED-TIPPED PHOTINIA	5 GAL	Medium
	TECOMARIA CAPENSIS	CAPE HONEYSUCKLE	5 GAL	Medium
MEDIUM SHRUBS:				
	ROSMARINUS SPP	ROSMARINUS	5 GAL	Low
	CALLISTEMON 'LITTLE JOHN'	DWARF CALLISTEMON	5 GAL	Low
	LEUCISTRUM J. 'TEXANUM'	NAVA LEAF PRIVET	5 GAL	Medium
	RHAPHIOLEPIS INDICA 'CLARA'	INDIA HAWTHORN	5 GAL	Medium
	ROSA SPP	ROSE	5 GAL	Medium
SUN EXPOSURE SMALL SHRUBS:				
	EUCALYPTUS NEWPORT DWARF	DWARF EUCALYPTUS	1 GAL	Medium
	FESTUCA OVINA GLAUCA	BLUE FESCUE	1 GAL	Medium
	HEMEROCALLIS HYBRIDS	DAYLILY	1 GAL	Medium
	MAHONIA REPENS	CREEPING MAHONIA	1 GAL	Low
	PITTOSPORUM RED ELF	DWARF PITTOSPORUM	1 GAL	Medium
	ROSMARINUS PROSTRATUS (I)	DWARF ROSEMARY	1 GAL	Low
	TRACHELOSPERMUM JASMINOIDES	STAR JASMINE	1 GAL	Medium
GROUNDCOVER:				
	LANTANA x 'NEW GOLD' (I)	YELLOW LANTANA	1 GAL @7 o.c.	Medium
	HYPERICUM PATULUM (I)	LOW HYPERICUM	1 GAL @7 o.c.	Medium

HYDROZONE 1 - ENHANCED SHRUB PALETTE - SHADE EXPOSURE

LARGE SHRUBS:				
	ALCEA ROSEA HANCOCK	BLUE HIBISCUS	5 GAL	Low
	CALLIANDRA HAEMATOCEPHALA	PINK POWDER PUFF	5 GAL	Medium
	LIGUSTRUM J. 'TEXANUM'	NAVA LEAF PRIVET	5 GAL	Medium
	PHORMIUM 'YELLOW WAVE'	FLAX	5 GAL	Medium
	PITTOSPORUM T. VARIEGATA	VARIEGATED TOBIRA	5 GAL	Medium
MEDIUM SHRUBS:				
	ARBUTUS UNEDO 'COMPACTA	DWF STRAWBERRY TREE	5 GAL	Low
	ASPARAGUS SPRENGERI	ASPARAGUS FERN	5 GAL	Medium
	DIETES GRANDIS DROP	NORTHNIGHT LILY	5 GAL	Medium
	DALECHAMPIA CALIFORNICA	CALIFORNIA PAECHA	5 GAL	Low
SHADE EXPOSURE SMALL SHRUBS:				
	MALVAVIS ARBOREUS	CORAL BELLS	1 GAL	Medium
	MAHONIA REPENS	CREEPING MAHONIA	1 GAL	Low
	MYRTUS COMMUNIS COMPACTA	DWARF MYRTLE	5 GAL	Medium
	PITTOSPORUM WHEELERI	WHEELERS TOBIRA	5 GAL	Medium

PROPOSED PLANT LIST

THIS PRELIMINARY PLANT PALETTE IS INTENDED TO REPRESENT A TYPICAL LIST OF THE PROPOSED TREES AND SHRUBS BUT MAY VARY SLIGHTING DURING THE DETAILED PLANTING PLAN PREPARATION.

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	WUCOLS
TREES:				
E. WALNUT DRIVE SOUTH (public r.o.w. - under overhead power lines)				
	LAGERSTROEMIA X HYBRID 'TUSCARORA'	CRAPE TREE	24" BOX	MEDIUM
PROJECT ENTRY DRIVE - EAST & WEST (private)				
	TABEBUIA IPE	PINK TRUMPET TREE	36" BOX	MEDIUM
COLLECTOR DRIVE (private)				
	CINNAMOMUM CAMPHORA	CAMPHOR	36" BOX	MEDIUM
MOTORCOURTS				
	ARBUTUS X MARINA	STRAWBERRY TREE	24" BOX	LOW
	ERIOBOTRYA DEFLEXA	BRONZE LOQUAT	15 GAL	LOW
	TRISTANIA CONFERTA	BRISBANE BOX	24" BOX	MEDIUM
WALNUT DRIVE LANDSCAPE SETBACK:				
	PINUS ELDARICA	AFGHAN PINE	24" BOX	LOW
	PLATANUS X A. 'BLOODGOOD	PLANE TREE	24" BOX	MEDIUM
	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	24" BOX	MEDIUM
FREEWAY BUFFER:				
	PLATANUS X A. 'BLOODGOOD	PLANE TREE	24" BOX	MEDIUM
	QUERCUS VIRGINIANA	SOUTHERN LIVE OAK	24" BOX	MEDIUM
	RHUS LANCEA	AFRICAN SUMAC	24" BOX	LOW
	SCHINUS MOLLE	CALIFORNIA PEPPER	24" BOX	MEDIUM
PERIMETER SCREEN:				
	PINUS ELDARICA	AFGHAN PINE	24" BOX	LOW
	TRISTANIA CONFERTA	BRISBANE BOX	24" BOX	MEDIUM
TRASH ENCLOSURE SCREEN:				
	PRUNUS 'BRIGHT & TIGHT'	COMPACT CAROLINA CHERRY	15 GAL.	MEDIUM
COMMON AREA				
Medium - Large:				
	JACARANDA ACUTIFOLIA	JACARANDA	36" BOX	MEDIUM
	MELALEUCA QUINQUENERVIA	CAJEPUT TREE	24" BOX	MEDIUM
	PISTACIA CHINENSIS	CHINESE PISTACHE	36" BOX	MEDIUM
	PLATANUS X A. 'BLOODGOOD	PLANE TREE	36" BOX	MEDIUM
	PYRUS C. 'CHANTICLEER'	FLOWERING PEAR	24" BOX	MEDIUM
	TRISTANIA CONFERTA	BRISBANE BOX	24" BOX	MEDIUM
	ULMUS PARVIFOLIA 'ALLEE'	CHINESE ELM	36" BOX	MEDIUM
Small / Accent:				
	BRAHEA ARMATA	MEXICAN BLUE PALM	24" BOX	LOW
	CERCIS CANADENSIS 'FOREST PANSY'	EASTERN REDBUD	15 gal.	MEDIUM
	CUPRESSUS SEMPERVIRENS	ITALIAN CYPRESS	24" BOX	LOW
	MAGNOLIA G. 'LITTLE GEM'	SOUTHERN MAGNOLIA	24" BOX	MEDIUM
	PODOCARPUS 'ICEE BLUE'	'ICEE BLUE' YELLOW-WOOD	15 gal.	MEDIUM
	RHUS LANCEA	AFRICAN SUMAC	24" BOX	LOW

CONCEPTUAL LANDSCAPE PLAN and PLANT PALETTE - L1

NATIONAL COMMUNITY RENAISSANCE CORE

CITY OF INDUSTRY, CA

0 15' 30' 60'

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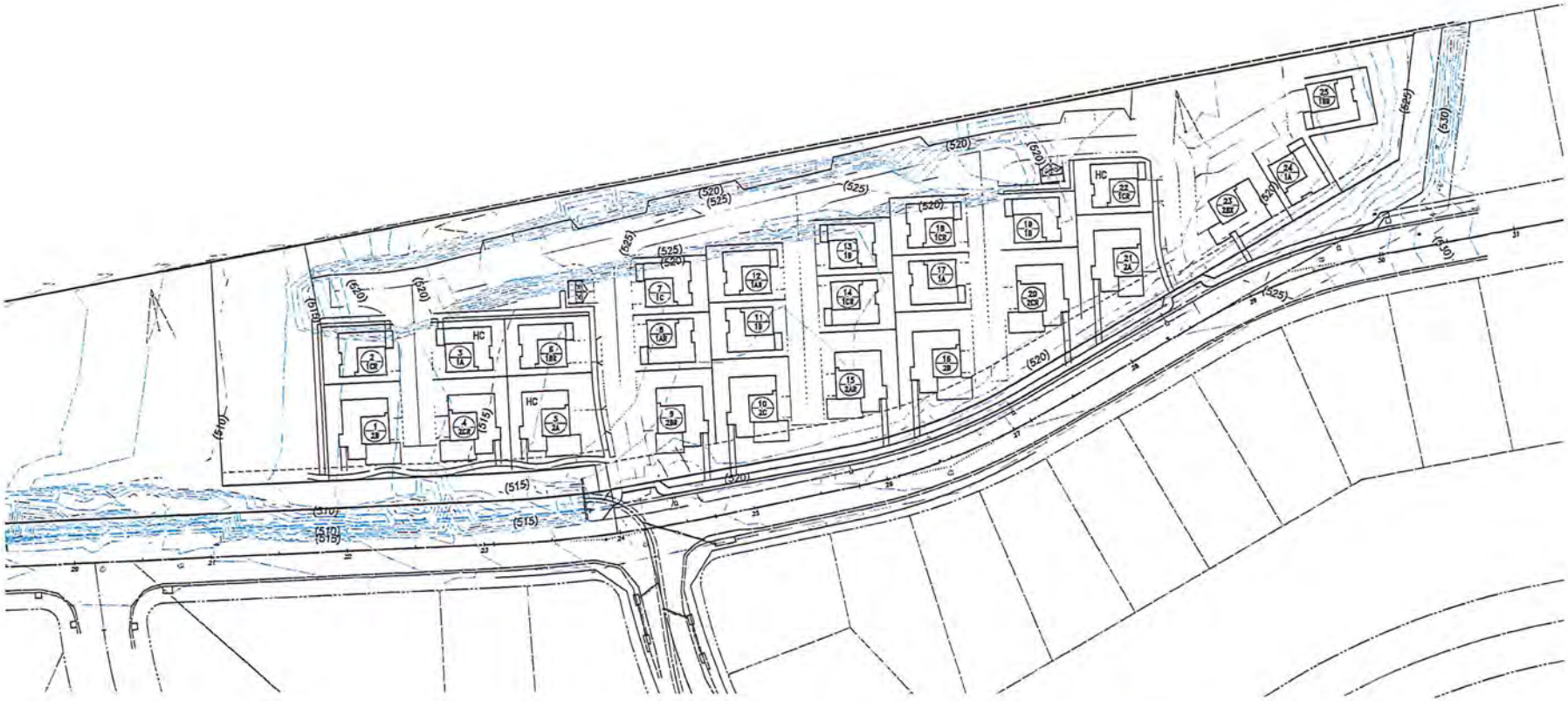
MJS LANDSCAPE ARCHITECTURE



Architectural Site Plan Summary

Building:

Description	Br/Ba	Area (s.f.)	Units (DU)
Plan 1	3Br, 2.5 Bath	1,602 s.f.	15
Plan 2	4Br, 3 Bath	1,949 s.f.	10
Total			25

Parking:

Residential Provided:	
25 x 2.0 Spaces/DU =	50 Spaces
Guest Spaces Provided:	11 Spaces

CONCEPTUAL ARCHITECTURAL SITE PLAN

INDUSTRY WORKFORCE HOUSING COMMUNITY

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ASP-1

0 15 30 60

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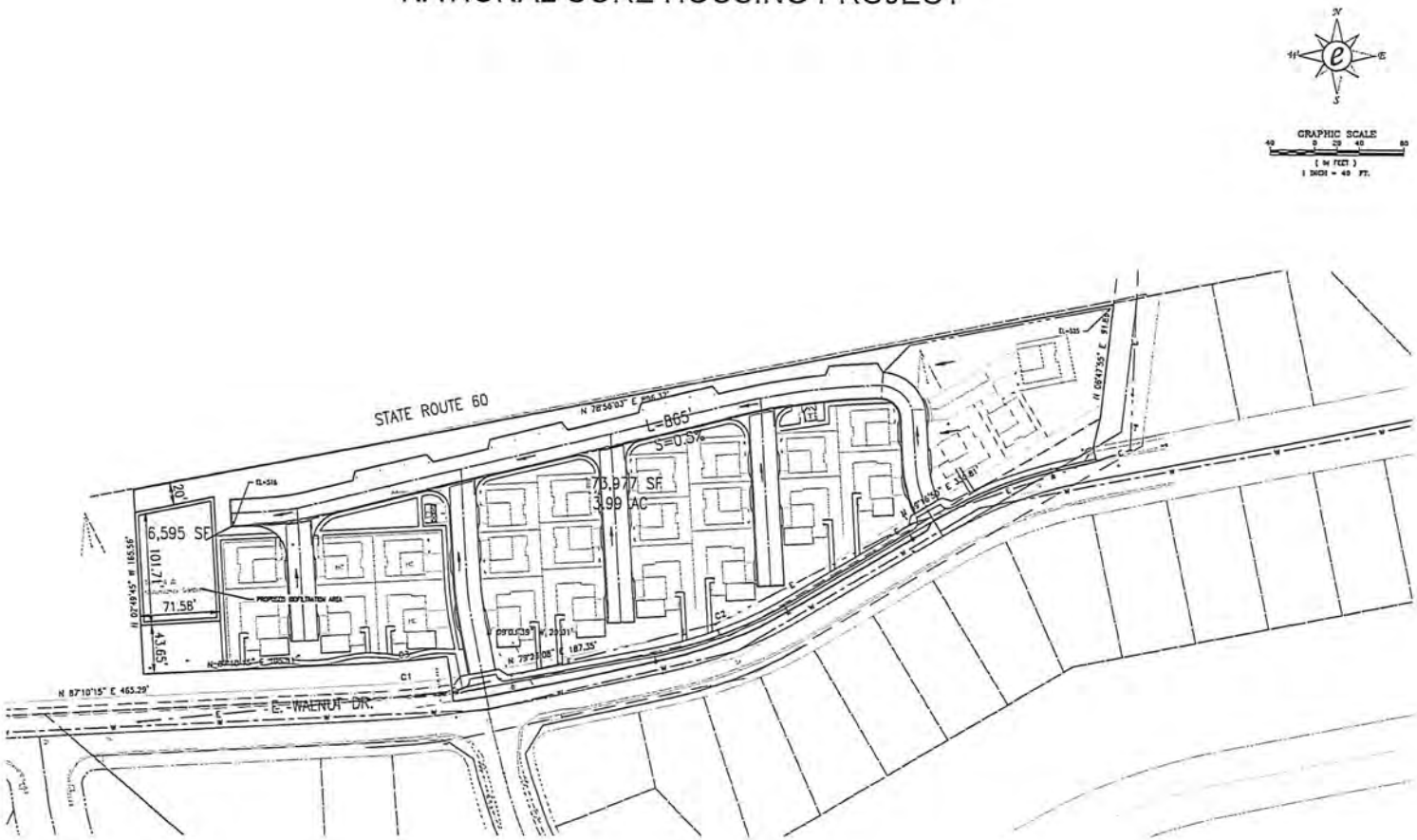
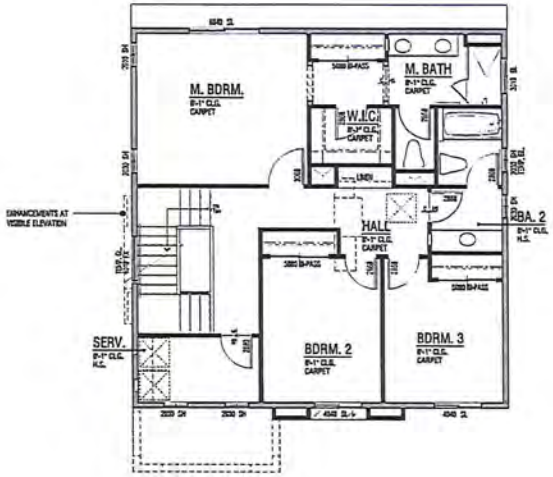
PRELIMINARY LID LAYOUT PLAN
NATIONAL CORE HOUSING PROJECT



DRAINAGE AREAS:	1
AREA:	3.99 AC
% IMPERVIOUS:	65%
SWDQv:	8936 CF
BMP:	BIOFILTRATION
BMP SIZE:	1.5' (D)x71'x102'

(Infiltration not deemed feasible by Geotechnical Engineer)

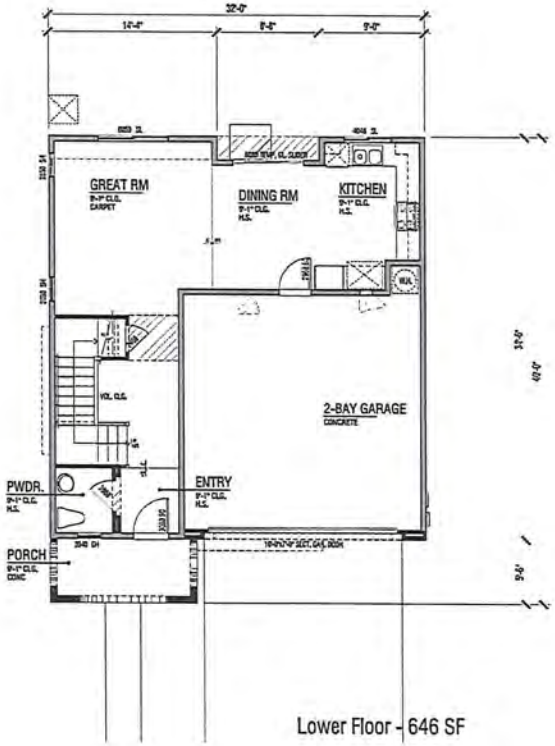
ENCOMPASS ASSOCIATES, INC.



Upper Floor - 956 SF

PLAN 1A

1,602 SF
3 Bdrm | 2.5 Bath
2- Bay Garage
8' | 9' Plates



Lower Floor - 646 SF

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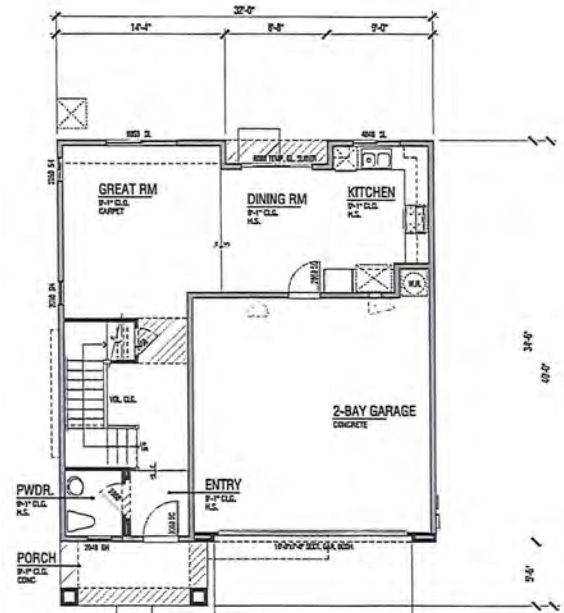
WHA.

Upper Floor - 956 SF



Lower Floor - 646 SF

PLAN 1B

1,602 SF
3 Bdrm | 2.5 Bath
2- Bay Garage
8' | 9' Plates

INDUSTRY WORKFORCE HOUSING COMMUNITY

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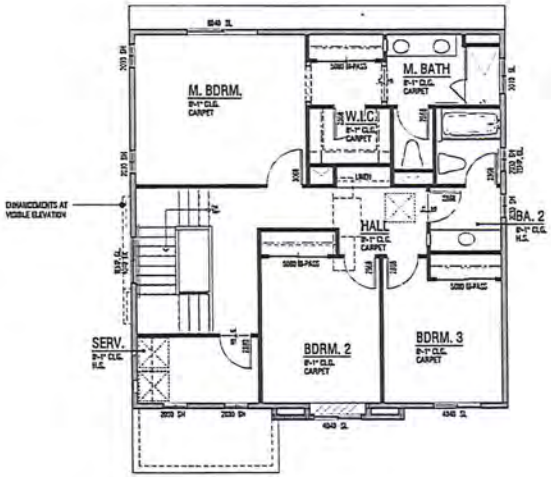
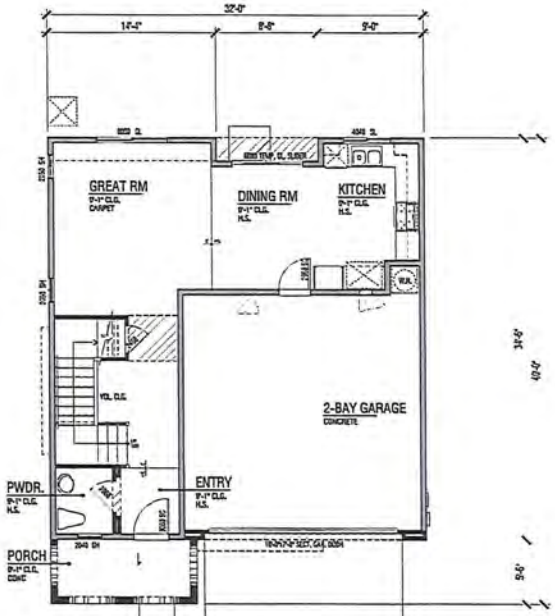


Upper Floor - 956 SF



Lower Floor - 646 SF

PLAN 1C

1,602 SF
3 Bdrm | 2.5 Bath
2- Bay Garage
8' | 9' Plates

INDUSTRY WORKFORCE HOUSING COMMUNITY

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1.1.2

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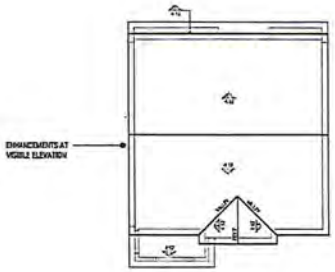
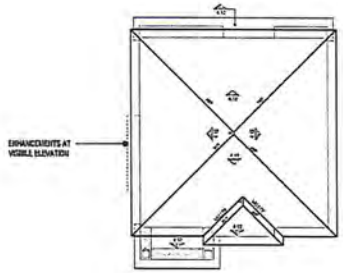


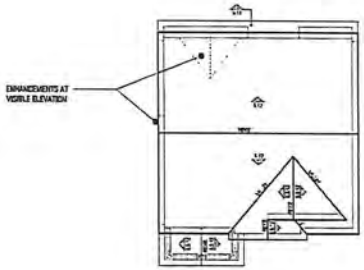
1A | Spanish

Eave 12" / Rake 12"
Concrete Low Profile "S" Tile



1B | Traditional

Eave 18" / Rake 12"
Concrete Flat Tile



1C | Cottage

Eave 12" / Rake 12"
Concrete Flat Tile

PLAN 1
Roof Plans

1A | Spanish

Note: Artist's conception; colors, materials and application may vary.

1C | Cottage

1B | Traditional

PLAN 1
Front Elevations

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1.3

0 2 4 8

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1A | Spanish

1C | Cottage

1B | Traditional

PLAN 1
Front Elevations

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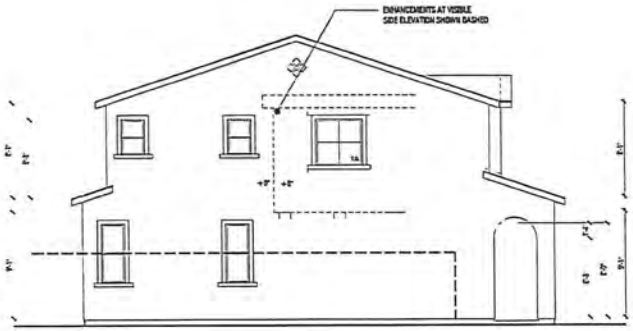

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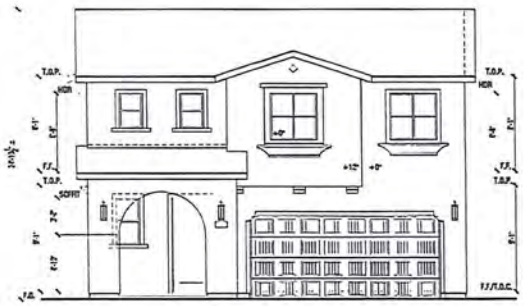

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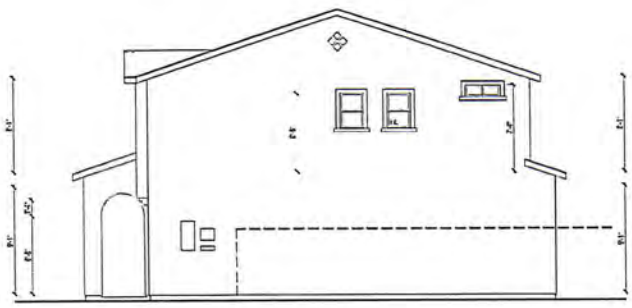

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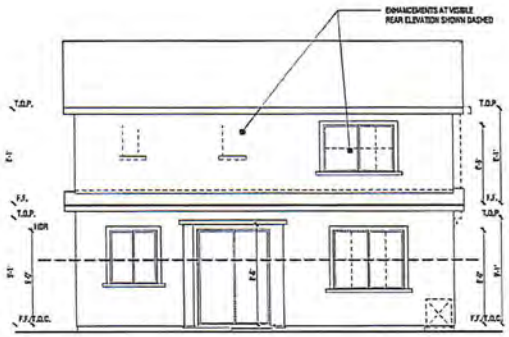

Rear

PLAN 1A | SPANISH

Building Elevations

INDUSTRY WORKFORCE HOUSING COMMUNITY

CITY OF INDUSTRY, CA

1.4

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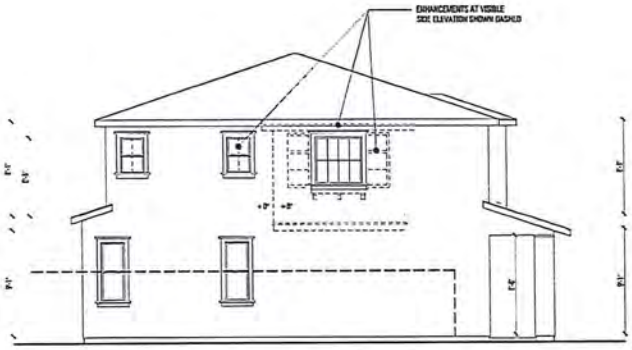
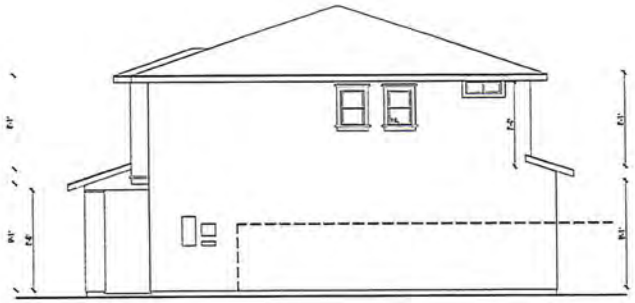


Left

Front



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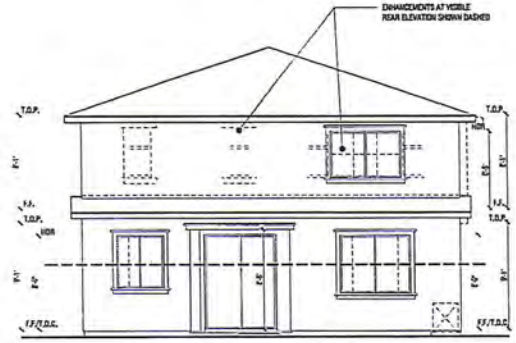

Rear

PLAN 1B | TRADITIONAL

Building Elevations

INDUSTRY WORKFORCE HOUSING COMMUNITY

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0 2 4 8

1.5

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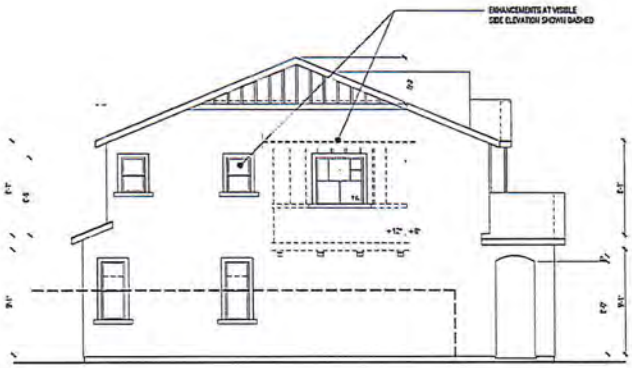
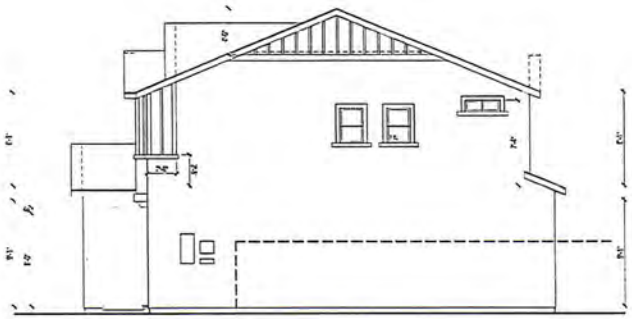


Left

Front



Right

Rear

PLAN 1C | COTTAGE

Building Elevations

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1.6

0 2 4 8

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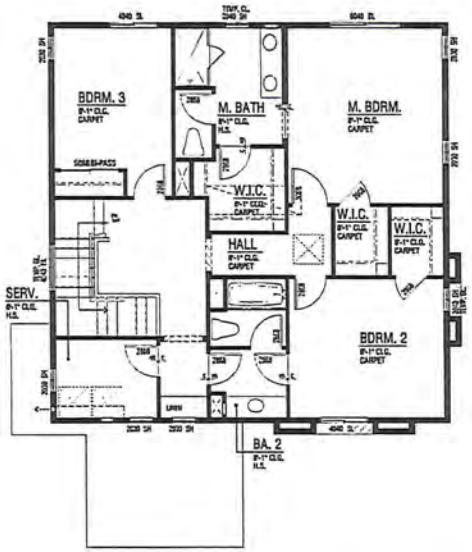
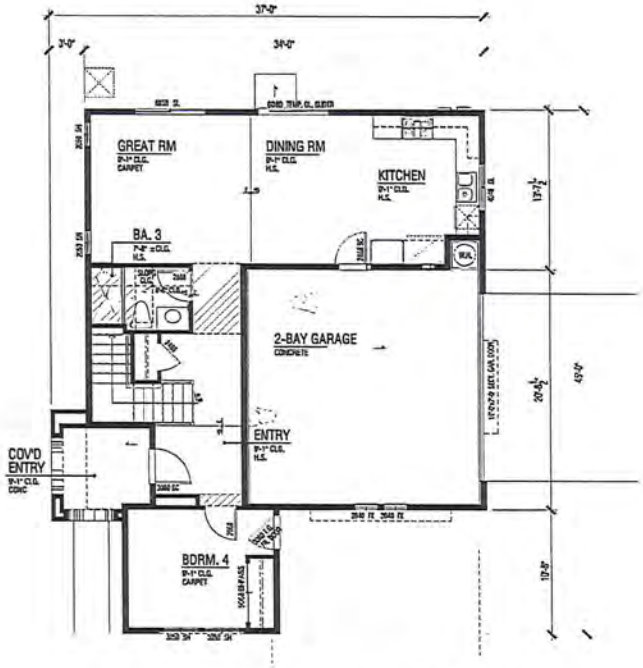


Upper Floor - 1102 SF

PLAN 2A

1,949 SF
4 Bdrm | 3 Bath
2- Bay Garage
8' | 9' Plates



Lower Floor - 847 SF

INDUSTRY WORKFORCE HOUSING COMMUNITY

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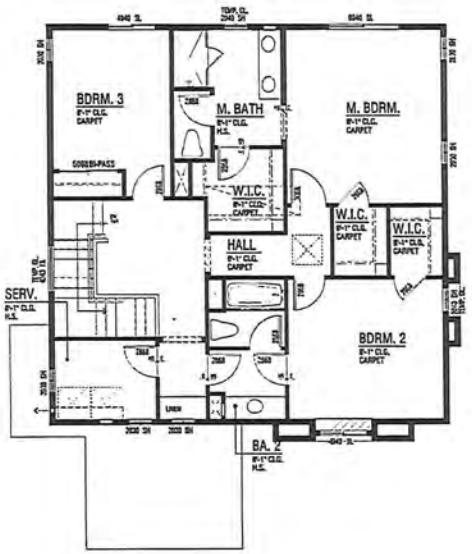
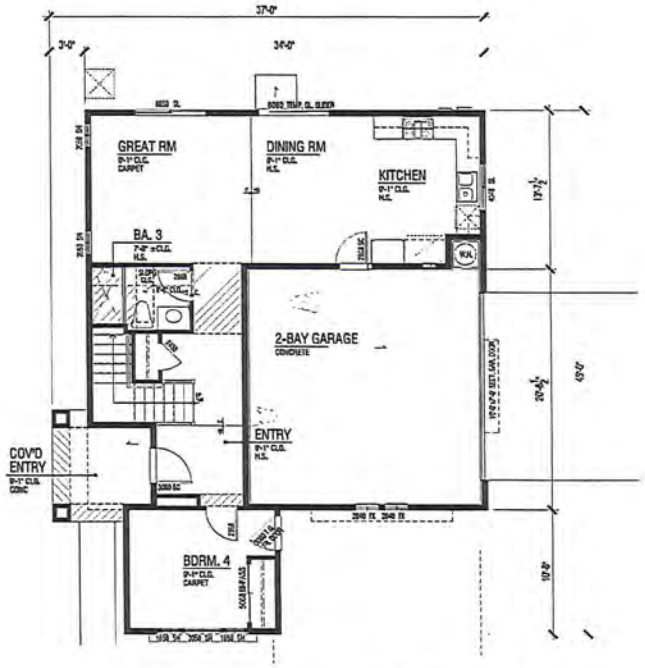


Upper Floor - 1102 SF

PLAN 2B

1,949 SF
4 Bdrm | 3 Bath
2- Bay Garage
8' | 9' Plates



Lower Floor - 847 SF

INDUSTRY WORKFORCE HOUSING COMMUNITY

CITY OF INDUSTRY, CA

2.1.1

0 2 4 8

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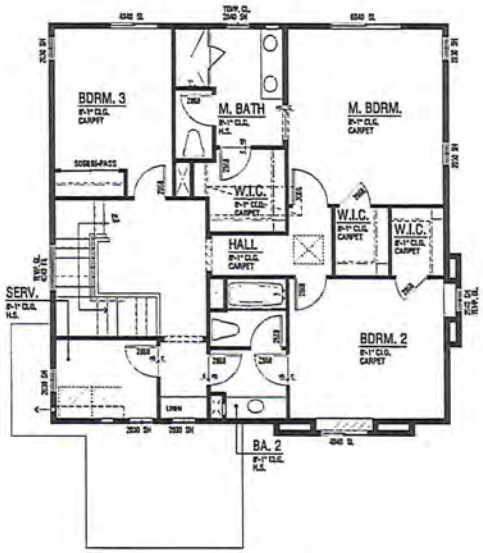
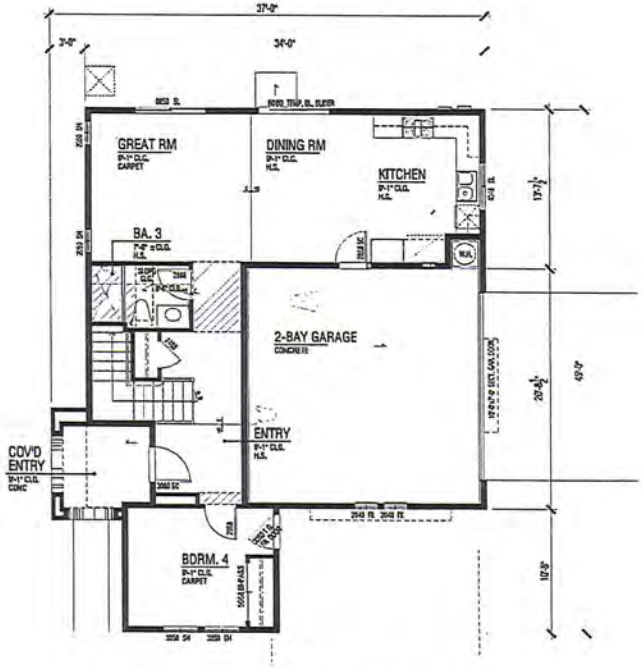


Upper Floor - 1102 SF



Lower Floor - 847 SF

PLAN 2C

1,949 SF
4 Bdrm | 3 Bath
2- Bay Garage
8' | 9' Plates

INDUSTRY WORKFORCE HOUSING COMMUNITY

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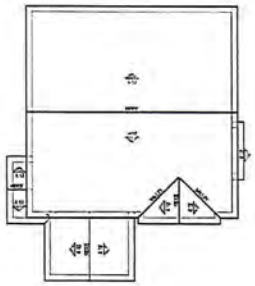
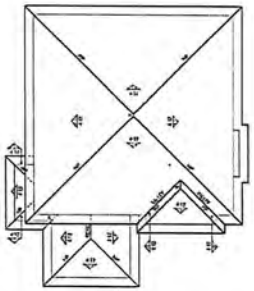


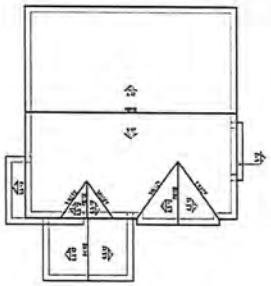
2A | Spanish

Eave 12" / Rake 12"
Concrete Low Profile "S" Tile



2B | Traditional

Eave 18" / Rake 12"
Concrete Flat Tile



2C | Cottage

Eave 12" / Rake 12"
Concrete Flat Tile

PLAN 2
Roof Plans

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2.2

0 4 8 16

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2A | Spanish

Note: Artist's conception; colors, materials and application may vary.

2C | Cottage

2B | Traditional

PLAN 2
Front Elevations

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CITY OF INDUSTRY, CA

2.3

0 2 4 8

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2A | Spanish

2C | Cottage

2B | Traditional

PLAN 2
Front Elevations

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0 2 4 8

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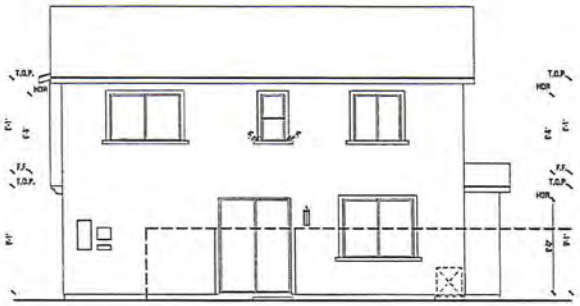
WHA.

ORANGE COUNTY . LOS ANGELES . BAY AREA

Left

Front

Right



Rear

PLAN 2A | SPANISH

Building Elevations

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CITY OF INDUSTRY, CA

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Left

Front

Right

Rear

PLAN 2B | TRADITIONAL

Building Elevations

INDUSTRY WORKFORCE HOUSING COMMUNITY

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2.5

0 2 4 8

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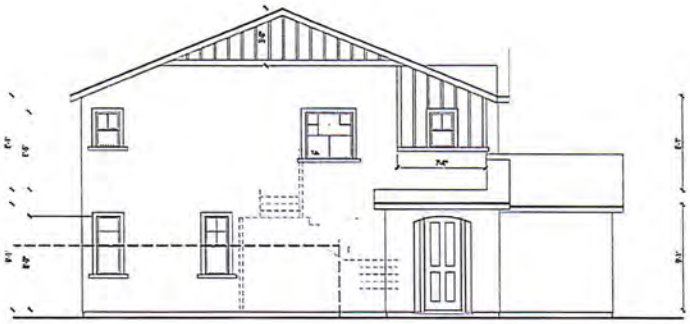
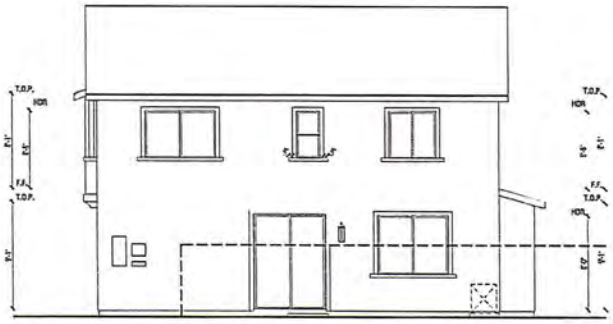


Left

Front

Right



Rear

PLAN 2C | COTTAGE

Building Elevations

INDUSTRY WORKFORCE HOUSING COMMUNITY

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2.6

0 2 4 8

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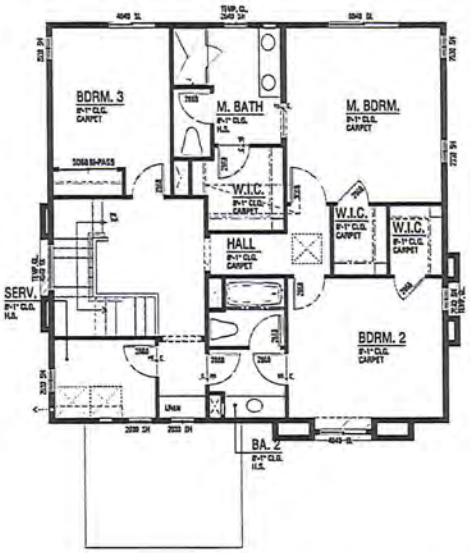
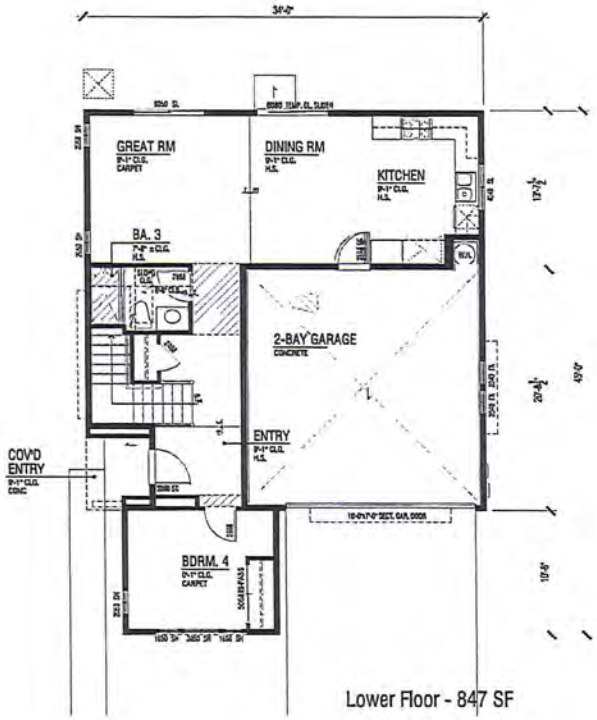


Upper Floor - 1102 SF

PLAN 2BX

Unit 23
1,949 SF
4 Bdrm | 3 Bath
2- Bay Garage
8' | 9' Plates



Lower Floor - 847 SF

INDUSTRY WORKFORCE HOUSING COMMUNITY

CITY OF INDUSTRY, CA

2.7

DESIGN REVIEW

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ARCHITECTS . PLANNERS . DESIGNERS
WHA.
ORANGE COUNTY . LOS ANGELES . BAY AREA

Left

Front

Right

Rear

PLAN 2BX | TRADITIONAL

Building Elevations

INDUSTRY WORKFORCE HOUSING COMMUNITY

CITY OF INDUSTRY, CA

2.8

0 2 4 8

DESIGN REVIEW

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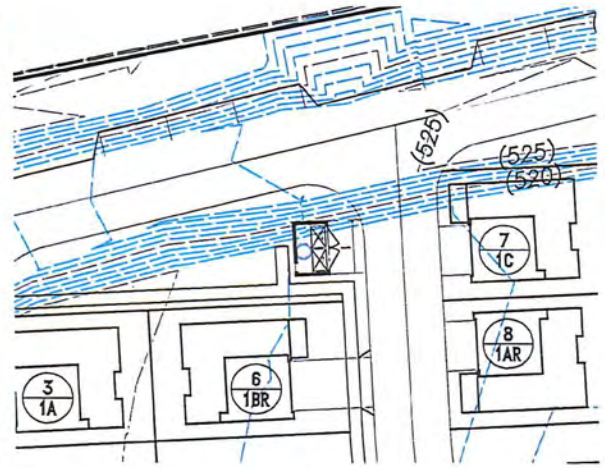
WHA.

ARCHITECTS . PLANNERS . DESIGNERS

ORANGE COUNTY . LOS ANGELES . BAY AREA



TRASH ENCLOSURE

INDUSTRY WORKFORCE HOUSING COMMUNITY

CITY OF INDUSTRY, CA

3.0

0 2 4 8

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ORANGE COUNTY . LOS ANGELES . BAY AREA

CITY OF INDUSTRY RENTAL SFH

City of Industry, California
NATIONAL COMMUNITY RENAISSANCE
December 1, 2017 | 2017387

For exact color refer to manufacturer actual samples.
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SCHEME 1

'A' Elevations Only
Spanish

WHA.

WHA.

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Exterior Color & Materials

SCHEME 1 OF 6

'A' ELEVATIONS ONLY, SPANISH

Material	Color	Manufacturer
Roofing: Concrete Low Profile Tile	2605 San Benito Blend Title 24 Compliant Product Emi: .92 A.SRI: 21	Eagle
Metal Bird Stop @ Low Profile Tile *(factory finish)*	Terra Cotta	Eagle
Vinyl Windows *(factory finish)*	White	Milgard
Gutters & Downspouts	Match Adjacent Color	TBD
Stucco *(16/20 sand finish)*	18	Omega
Trim Color #1 *(applied to):* Corbels Stucco Trim Window Recesses	DE 6215 Wooden Peg	Dunn Edwards
Trim Color #2 *(applied to):* Barge Boards Eaves Fascia Garage Door	DEC 755 Cocoa	Dunn Edwards
Accent Color *(applied to):* Front Door	DE 6272 Dried Chive	Dunn Edwards
6" X 6" CERAMIC ACCENT TILE	Chrome Monrovia Collection	Arto
6" X 6" CERAMIC FIELD TILE	Spanish Brown Monrovia Collection	Arto

NOTE: Notify WHA if any variation occurs between these schemes and the construction documents prior to purchase. Contact: Donna Aldrich (949) 250-0807.

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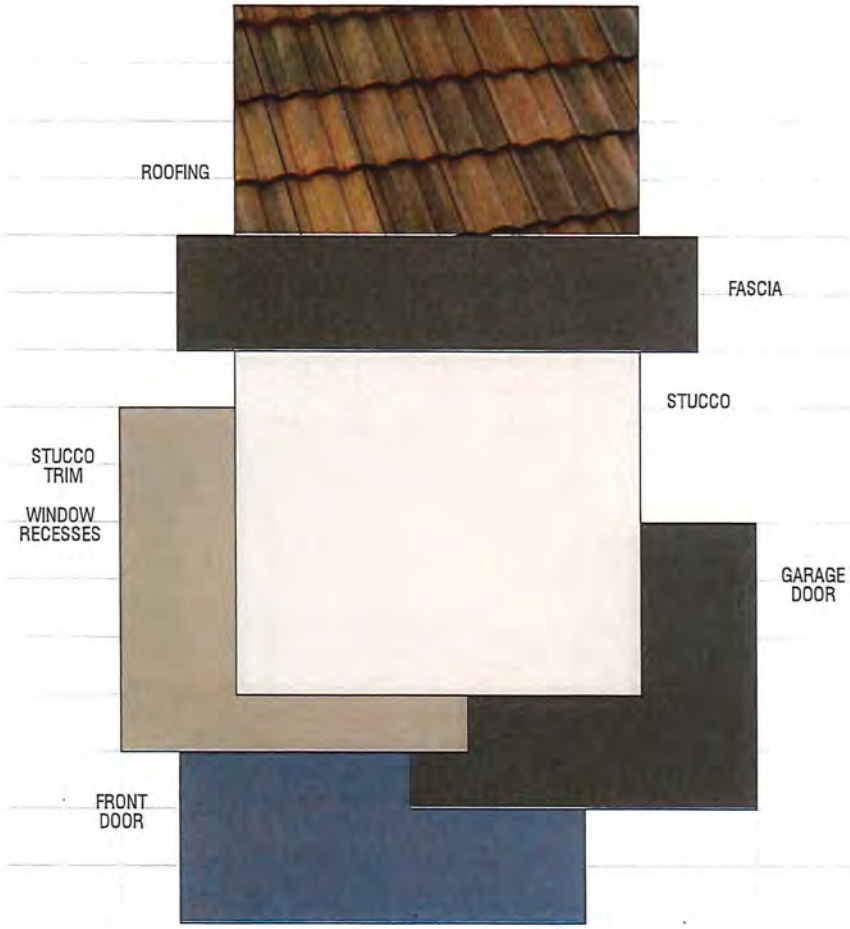

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SCHEME 2

'A' Elevations Only
Spanish

WHA.

WHA.

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Exterior Color & Materials

SCHEME 2 OF 6

'A' ELEVATIONS ONLY, SPANISH

Material	Color	Manufacturer
Roofing: Concrete Low Profile Tile	2645 Sunrise Blend Title 24 Compliant Product Emi: .93 A.SRI: 22	Eagle
Metal Bird Stop @ Low Profile Tile *(factory finish)*	Terra Cotta	Eagle
Vinyl Windows *(factory finish)*	White	Milgard
Gutters & Downspouts	Match Adjacent Color	TBD
Stucco *(16/20 sand finish)*	12	Omega
Trim Color #1 *(applied to):* Corbels, Stucco Trim, Window Recesses	DET 638 Sepia Tone	Dunn Edwards
Trim Color #2 *(applied to):* Barge Boards, Eaves, Fascia, Garage Door	DE 6217 Ancient Earth	Dunn Edwards
Accent Color *(applied to):* Front Door	DET 595 Rhythm & Blues	Dunn Edwards
6" X 6" CERAMIC ACCENT TILE	Black & Blue Monrovia Collection	Arto
6" X 6" CERAMIC FIELD TILE	Spanish Brown Monrovia Collection	Arto

NOTE: Notify WHA if any variation occurs between these schemes and the construction documents prior to purchase. Contact: Donna Aldrich (949) 250-0607.

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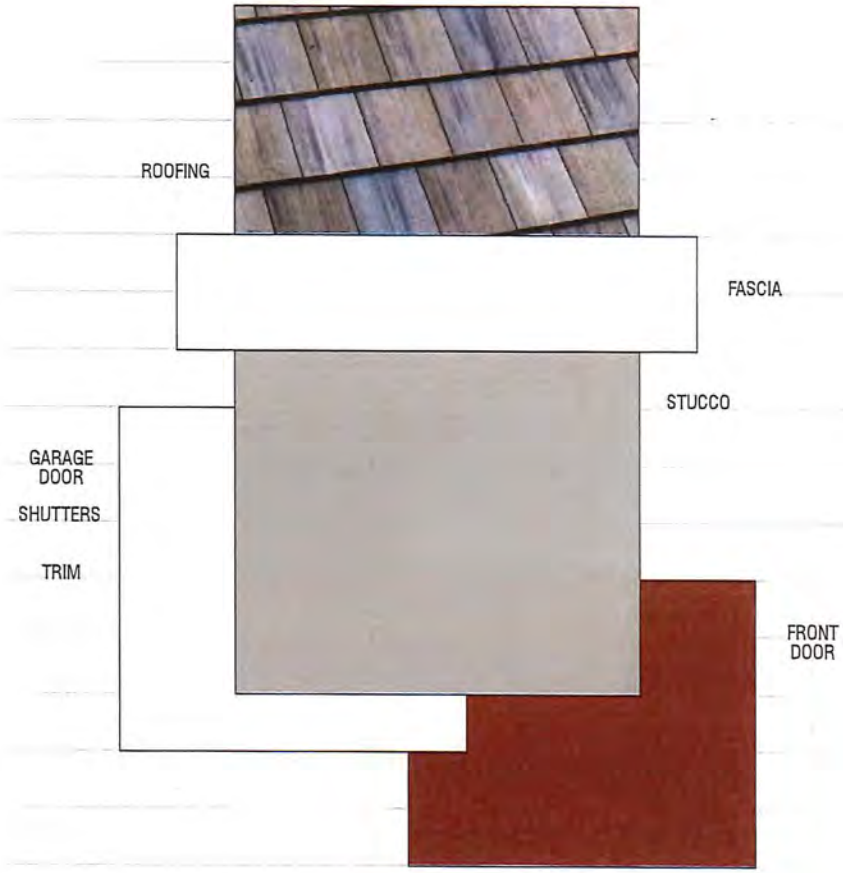

CITY OF INDUSTRY RENTAL SFH

City of Industry, California
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December 1, 2017 | 2017387

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SCHEME 3

'B' Elevations Only
Traditional

WHA.

WHA.

CITY OF INDUSTRY RENTAL SFH

City of Industry, California
NATIONAL COMMUNITY RENAISSANCE
December 1, 2017 | 2017387

Exterior Color & Materials

SCHEME 3 OF 6

'B' ELEVATIONS ONLY, TRADITIONAL

Material	Color	Manufacturer
Roofing: Concrete Flat Slate Tile	4880 Shasta Blend Title 24 Compliant Product Emi: .94 A.SRI: 21	Eagle
Vinyl Windows *(factory finish)*	White	Milgard
Gutters & Downspouts	Match Adjacent Color	TBD
Stucco *(16/20 sand finish)*	Match Dunn Edwards DE 6234 Serene Thought	Omega
Trim Color *(applied to):* Eaves Fascia Garage Door Pot Shelves Shutters Trim	DEW 358 Milk Glass	Dunn Edwards
Accent Color *(applied to):* Front Door	DE 5181 Georgia Clay	Dunn Edwards

NOTE: Notify WHA if any variation occurs between these schemes and the construction documents prior to purchase. Contact: Donna Aldrich (949) 250-0807.

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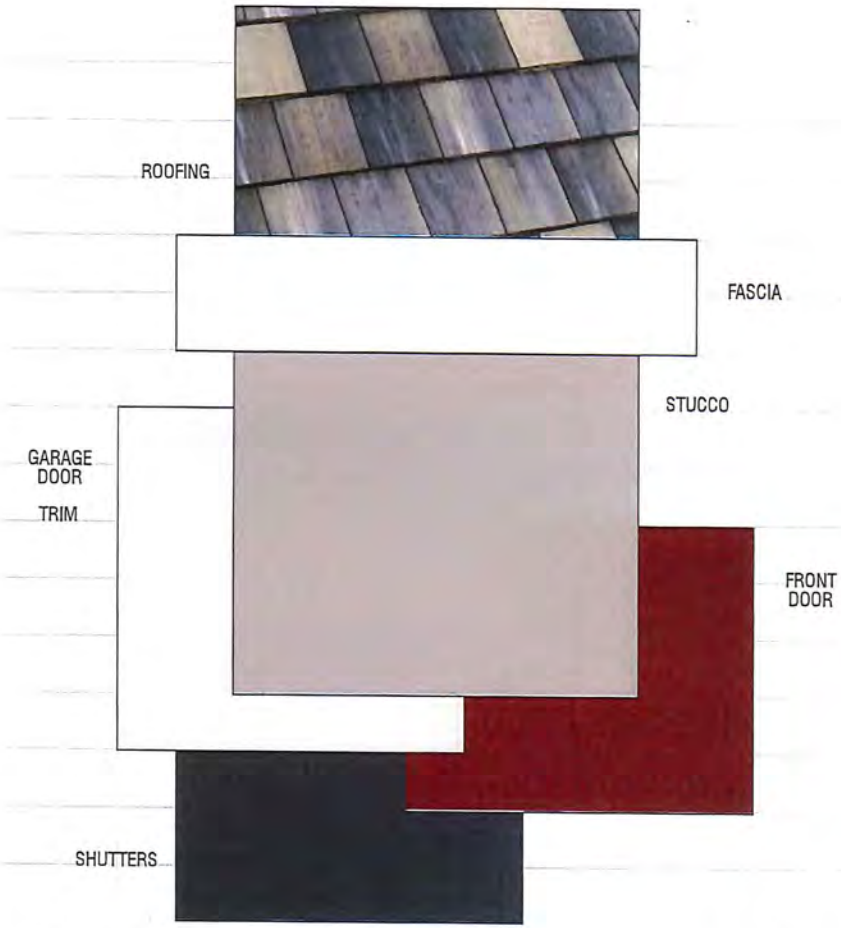

CITY OF INDUSTRY RENTAL SFH

City of Industry, California
NATIONAL COMMUNITY RENAISSANCE
December 1, 2017 | 2017387

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SCHEME 4

'B' Elevations Only
Traditional

WHA.

WHA.

CITY OF INDUSTRY RENTAL SFH

City of Industry, California
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Exterior Color & Materials

SCHEME 4 OF 6

'B' ELEVATIONS ONLY, TRADITIONAL

Material	Color	Manufacturer
Roofing: Concrete Flat Slate Tile	SCB 8827 Tacoma Blend Title 24 Compliant Product Emi: .92 A.SRI: 17	Eagle
Vinyl Windows *(factory finish)*	White	Milgard
Gutters & Downspouts	Match Adjacent Color	TBD
Stucco *(16/20 sand finish)*	69	Ornega
Trim Color *(applied to):* Eaves Fascia Garage Door Pot Shelves Trim	DEW 381 Droplets	Dunn Edwards
Accent Color #1 *(applied to):* Front Door	DEA 150 Scarlet Past	Dunn Edwards
Accent Color #2 *(applied to):* Shutters	DE 6364 Cavernous	Dunn Edwards

NOTE: Notify WHA if any variation occurs between these schemes and the construction documents prior to purchase. Contact: Donna Aldrich (949) 250-0807.

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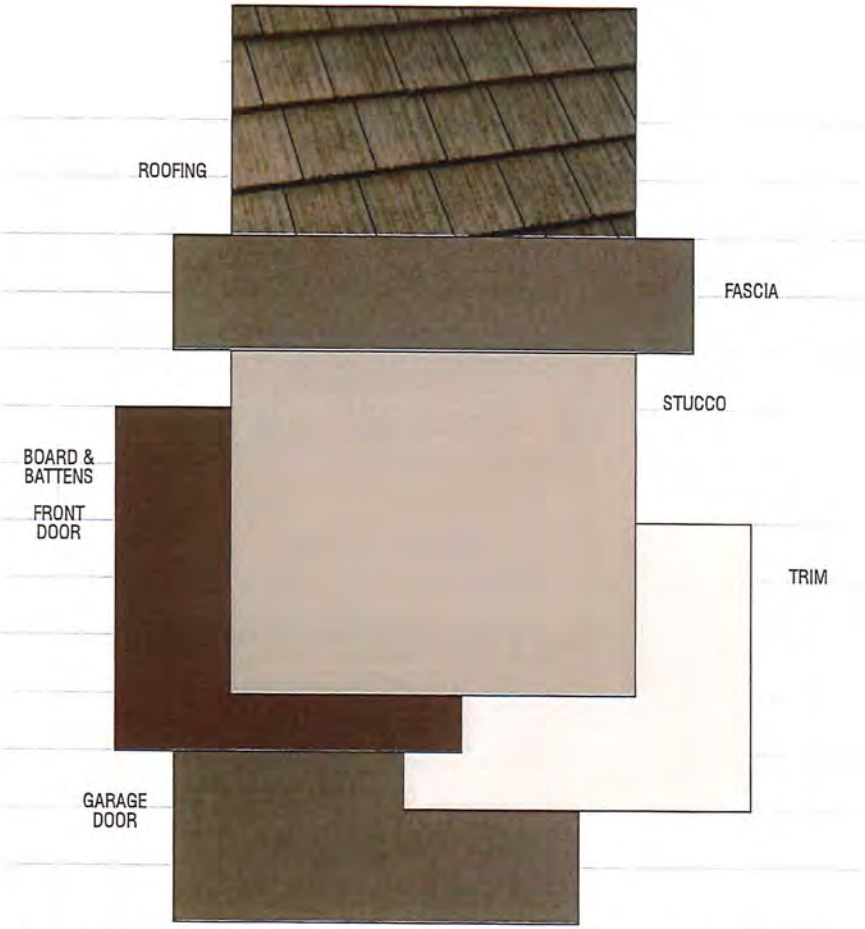

CITY OF INDUSTRY RENTAL SFH

City of Industry, California
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December 1, 2017 | 2017387

For exact color refer to manufacturer actual samples.
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SCHEME 5

'C' Elevations Only
Cottage

WHA

WHA

CITY OF INDUSTRY RENTAL SFH

City of Industry, California
NATIONAL COMMUNITY RENAISSANCE
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Exterior Color & Materials

SCHEME 5 OF 6

'C' ELEVATIONS ONLY, COTTAGE

Material	Color	Manufacturer
Roofing: Concrete Flat Shake Tile	5530 Weathered Adobe Title 24 Compliant Product Emi: .92 A.SRI: 27	Eagle
Vinyl Windows *(factory finish)*	White	Milgard
Gutters & Downspouts	Match Adjacent Color	TBD
Stucco *(16/20 sand finish)*	433	Omega
Siding Color *(applied to):* Corner Boards Board & Battens Front Door	DE 6112 Cedar Chest	Dunn Edwards
Trim Color #1 *(applied to):* Corbels Trim	DE 6197 Modern Ivory	Dunn Edwards
Trim Color #2 *(applied to):* Barge Boards Eaves Fascia Garage Door	DE 6131 Teddy Bear	Dunn Edwards

NOTE: Notify WHA if any variation occurs between these schemes and the construction documents prior to purchase.
Contact: Donna Aldrich (949) 250-0907.

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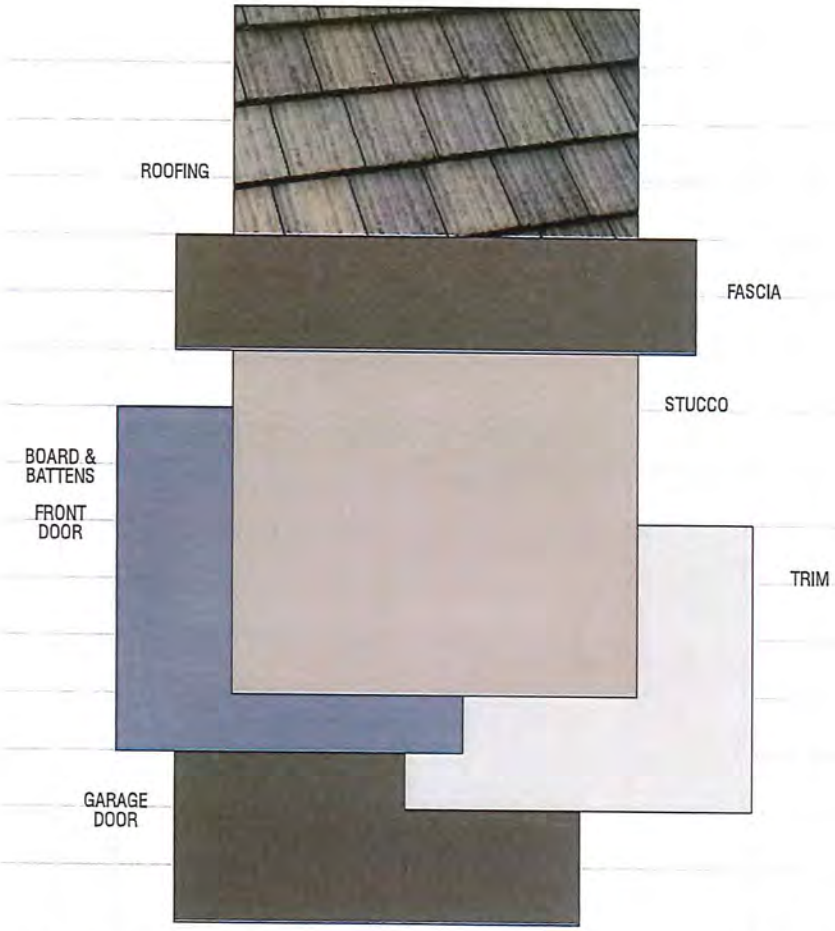

CITY OF INDUSTRY RENTAL SFH

City of Industry, California
NATIONAL COMMUNITY RENAISSANCE
December 1, 2017 | 2017387

For exact color refer to manufacturer actual samples.
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SCHEME 6

'C' Elevations Only
Cottage

WHA.

WHA.

CITY OF INDUSTRY RENTAL SFH

City of Industry, California
NATIONAL COMMUNITY RENAISSANCE
December 1, 2017 | 2017387

Exterior Color & Materials

SCHEME 6 OF 6

'C' ELEVATIONS ONLY, COTTAGE

Material	Color	Manufacturer
Roofing: Concrete Flat Shake Tile	5690 Pewter Bronze Blend Title 24 Compliant Product Emi: .91 A.SRI: 16	Eagle
Vinyl Windows *(factory finish)*	White	Milgard
Gutters & Downspouts	Match Adjacent Color	TBD
Stucco *(16/20 sand finish)*	437	Omega
Siding Color *(applied to):* Corner Boards Board & Battens Front Door	DE 6368 Walrus	Dunn Edwards
Trim Color #1 *(applied to):* Corbels Trim	DE 6212 Crisp Muslin	Dunn Edwards
Trim Color #2 *(applied to):* Barge Boards Eaves Fascia Garage Door	DE 6216 Barrel Stove	Dunn Edwards

NOTE: Notify WHA if any variation occurs between these schemes and the construction documents prior to purchase. Contact: Donna Aldrich (949) 250-0607.

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Exhibit G

Resolution No. PC 2018-01

Including:

- **Notice of Intent to Adopt a Mitigated Negative Declaration**
- **Initial Study/ Mitigated Negative Declaration**
- **Mitigation Monitoring and Reporting Program**

RESOLUTION NO. PC 2018- 01

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF INDUSTRY, CALIFORNIA, RECOMMENDING CITY COUNCIL ADOPTION OF THE INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION AND MITIGATION MONITORING AND REPORTING PROGRAM PREPARED FOR A GENERAL PLAN AMENDMENT (GPA 17-1), AN AMENDMENT TO THE CITY'S MUNICIPAL CODE AND ZONING MAP TO ESTABLISH A RESIDENTIAL ZONE (ZC 17-1), LOT LINE ADJUSTMENT (LLA 83) AND DEVELOPMENT PLAN (DP 17-13), FOR THE PROPERTIES LOCATED AT 20137 AND 20249 E. WALNUT DRIVE SOUTH

RECITALS

WHEREAS, Environmental Review is a request to consider the environmental analysis (Initial Study/Mitigated Negative Declaration) prepared for a project consisting of a City-initiated General Plan Amendment ("GPA 17-1"), and applications submitted by National Community Renaissance ("National CORE") requesting amendments to the City's Municipal Code ("Code") and Zoning Map to establish a residential zone in the City (collectively "Zone Change 17-1"), a Lot Line Adjustment ("LLA 83") and a Development Plan ("DP 17-13") (the "Project") in the City; and

WHEREAS, GPA 17-1 establishes a residential Land Use Designation in the General Plan Land Use Element, amends related text and exhibits of the City's General Plan, and changes the land use designation of the properties at 20137 and 20249 E. Walnut Drive South, Los Angeles County Assessor Parcel Numbers ("APNs") 8762-002-901 and 8762-002-902 (collectively the "Property") from Employment to Residential; and

WHEREAS, Zone Change 17-1 amends Title 17 (Zoning) of the City's Code to add Chapter 17.30 (Residential Zone), and amends Chapter 17.28.060 (Map-Adopted) of the Code revising the Zoning Map to change the Zoning Designation of the properties located at 20137 and 20249 E. Walnut Drive South from Industrial to Residential; and

WHEREAS, LLA 83 modifies the properties located at 20137 and 20249 E. Walnut Drive South which comprise APN 8762-002-901 which currently is approximately 1.53 acres, and APN 8762-002-902 which currently is 3.81 acres, with a combined acreage of approximately 5.34 acres, into a 3.86-acre lot for a residential development, and a 1.48-acre lot that is not a part of the proposed development, by adjusting the existing lot line currently separating the two lots to the west; and

WHEREAS, DP 17-13 permits the construction of twenty-five detached dwelling units, including two very low and two low income units, and 4,300 square feet of community recreational area on the Property; and

WHEREAS, in accordance with the requirements of the California Environmental Quality Act, California Public Resources Code section 21000 *et seq.*, the State CEQA Guidelines, California Code of Regulations, Title 14, Chapter 3, sections 15000 *et seq.*, (collectively, "CEQA") and the Environmental Impact Report Guidelines of the City of Industry, the City performed an Initial Study, the result of which was the preparation and circulation of a mitigated negative declaration ("IS/MND") analyzing the proposed Project, and concluding that approval of the Project could not have a significant effect on the environment because the impacts of the Project could all be mitigated to levels below established CEQA thresholds of significance, with the adoption of mitigation measures and enforcement of such measures through a Mitigation Monitoring and Reporting Program ("MMRP"); and

WHEREAS, the IS/MND was circulated for public and agency review and comment on December 14, 2017 through, and including, January 2, 2018. Copies of the IS/MND were made available to the public at the Planning Department on December 14, 2017. On December 14, 2017, a Notice of Intent to Adopt a Mitigated Negative Declaration, including the time and place of the Planning Commission meeting to review the Application and IS/MND, was published in the San Gabriel Valley Tribune, and posted at the Project site and at three public places; and

WHEREAS, the IS/MND concluded that implementation of the Project could result in a significant effect on the environment and identified mitigation measures for Air Quality, Cultural Resources, Geology and Soils, Hazards and Hazardous Materials, Noise, and Tribal Cultural Resources, that would reduce the significant effects to a less-than-significant level; and

WHEREAS, on January 9, 2018, the Planning Commission of the City of Industry continued its duly noticed public meeting to consider the IS/MND and MMRP, to February 6, 2018; and

WHEREAS, notice of the Planning Commission's February 6, 2018 public hearing on the Application including the IS/MND and MMRP was published in The San Gabriel Valley Tribune on January 25, 2018 in compliance with the City's Code and Government Code Section 65091, and was posted at the Property and at three public places on January 25, 2018; and

WHEREAS, on February 6, 2018, the Planning Commission of the City of Industry conducted a duly noticed public hearing to consider the IS/MND and MMRP, and considered all testimony written and oral; and

WHEREAS, the Planning Commission has reviewed and carefully considered the information in the IS/MND and the MMRP, including all comment letters submitted, and makes the findings contained in this Resolution, and recommends that the City Council adopt the IS/MND and the MMRP for the Project, as an objective and accurate

document that reflects the independent judgment and analysis of the City in the discussion of the Project's environmental impacts; and

WHEREAS, all legal prerequisites have occurred prior to the adoption of this Resolution.

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF INDUSTRY DOES HEREBY RESOLVE, DETERMINE, FIND, AND ORDER AS FOLLOWS:

SECTION 1: That based on the entirety of the record before it, which includes without limitation, the California Environmental Quality Act, Public Resources Code §§ 21000, *et seq.* ("CEQA") and the CEQA Guidelines, 14 California Code of Regulations § 15000, *et seq.*; the Environmental Impact Report Guidelines of the City of Industry; the Initial Study/Mitigated Negative Declaration and MMRP prepared for the Project, including all written comments received; all reports, minutes, and public testimony submitted as part of the Planning Commission's duly noticed public meeting of January 9, 2018 and public hearing of February 6, 2018; and any other evidence (within the meaning of Public Resources Code §21080(e) and §21082.2), the Planning Commission of the City of Industry hereby finds as follows:

A. The foregoing recitals are true and correct and made a part of this Resolution.

B. The IS/MND and MMRP for the Project including any comment letters received, are attached hereto and are incorporated by reference as part of this Resolution, as if each were set forth fully herein.

C. The documents and other material constituting the record for these proceedings are located at the Office of the City Clerk, City of Industry, 15625 E. Stafford, Suite 100, City of Industry, CA 91744.

D. The Project is consistent with the City's General Plan, as proposed for amendment, to permit residential uses, because the land use, development standards, densities and intensities, buildings and structures proposed are compatible with the goals, policies, and land use designations established in the General Plan (see Cal. Gov't Code, § 65860), and none of the land uses, development standards, densities and intensities, buildings and structures will operate to conflict with or impede achievement of any of the goals, policies, or land use designations established in the General Plan.

E. In accordance with CEQA, the Planning Commission has considered the IS/MND and MMRP for the Project, including all comments received on the Initial Study and Mitigated Negative Declaration, and based on the entirety of the record, as described above, the Planning Commission, exercising its

independent judgment and analysis, makes the following findings regarding the environmental analysis of the Project:

1. Design features of the Project, as well as the mitigation measures proposed in the IS/MND and included in the MMRP, will operate to ensure the impacts of the Project will not exceed established CEQA thresholds of significance. Therefore, and as further documented in the IS/MND for the Project, additional mitigation measures beyond those established in the MMRP are not required for the Project.

2. For the reasons stated in this Resolution, the Planning Commission finds that there is no substantial evidence in the record supporting a fair argument that approval of the Project will result in a significant environmental effect.

SECTION 2: The Planning Commission hereby recommends that the City Council approve the IS/MND and adopt the related MMRP prepared for the Project.

SECTION 3: The provisions of this Resolution are severable and if any provision, clause, sentence, word or part thereof is held illegal, invalid, unconstitutional, or inapplicable to any person or circumstances, such illegality, invalidity, unconstitutionality, or inapplicability shall not affect or impair any of the remaining provisions, clauses, sentences, sections, words or parts thereof of the Resolution or their applicability to other persons or circumstances.

SECTION 4: The Secretary of the Planning Commission shall certify the adoption of this Resolution, and shall forward this Resolution to the City Council.

PASSED, APPROVED AND ADOPTED by the Planning Commission of the City of Industry at a meeting held on February 6, 2018, by the following vote:

AYES: COMMISSIONERS:

NOES: COMMISSIONERS:

ABSTAIN: COMMISSIONERS:

ABSENT: COMMISSIONERS:

_____
Michael Greubel, Chairman

ATTEST:

_____

Diane M. Schlichting, Secretary

CITY OF INDUSTRY

P.O. Box 3366 • 15625 E. Stafford St. • City of Industry, CA 91744-0366 • (626) 333-2211 • FAX (626) 961-6795

NOTICE OF AVAILABILITY AND INTENT TO ADOPT A MITIGATED NEGATIVE DECLARATION AND NOTICE OF PUBLIC HEARING FOR GENERAL PLAN AMENDMENT 17-1 ZONE CHANGE 17-1 LOT LINE ADJUSTMENT 83 DEVELOPMENT PLAN 17-13 20137 AND 20249 WALNUT DRIVE SOUTH, CITY OF INDUSTRY

Purpose: City of Industry is the Lead Agency under the California Environmental Quality Act ("CEQA") for the Project described herein. In accordance with the State of California Public Resources Code Section 21092, Sections 15063 and 15072 of Title 14 of the California Code of Regulations pertaining to the CEQA, and the Industry Municipal Code, this is to advise you that the City of Industry has prepared an Initial Study and Mitigated Negative Declaration on the following project and is recommending the environmental determination described below.

Project Description: Zone Change 17-1 is to create a residential zone in the City's Zoning Code and to change the zoning of the property described herein, from Industrial to residential. General Plan Amendment 17-1 is to amend the General Plan Land Use Element and to change the General Plan designation of the property described herein, from Employment to Residential. Lot Line Adjustment 83 is to shift the existing lot line west, and Development Plan 17-13 is to develop 25 new detached single-family two-story residential units with garages ranging from 1,602 SF to 1,949 SF on 3.86 acres.
The project involves the following discretionary approvals from the City of Industry:

- General Plan Amendment 17-1
- Zone Change 17-1
- Lot Line Adjustment 83
- Development Plan Application 17-13

Location: The project site is located at 20137 and 20249 Walnut Drive South, City of Industry in Los Angeles County, CA 91789.

Environmental Determination: The City of Industry has prepared an Initial Study ("IS") to determine the environmental effects associated with the above actions and finds the issuance of a Mitigated Negative Declaration ("MND") is the appropriate level of environmental review.

The project site is not included on any lists of hazardous waste sites enumerated pursuant to Section 65962.5 of the California Government Code (Cortese List).

The IS/MND concludes that no significant unavoidable environmental effects would occur because of the proposed project. Potentially significant impacts would be mitigated to a less than significant level.

Public Review and Comment Period: Copies of the proposed MND and IS are available in the Planning Department at the address listed below and on the City's Web Page Cityofindustry.org under Planning and then Initial Studies. **A 20-day public review period for the Mitigated Negative Declaration begins December 14, 2017, and ends January 2, 2018**. Written comments on the adequacy of the document

must be received by the City prior to 5:00 PM on January 2, 2018. If you would like to comment, please send written comments to:

Troy Helling, Planning and Safety Manager
15625 E. Stafford Street
City of Industry, CA 91744
thelling@cityofindustry.org
(626) 333-2211

Public Hearing: The City of Industry Planning Commission will hold a Public Hearing for the project on January 9, 2018 at 11:30 AM at the City of Industry Council Chambers, 15651 E. Stafford Street, City of Industry, CA 91744. To confirm the date and time of the meeting, please check the City's website: www.cityofindustry.org.

INITIAL STUDY/MITIGATED NEGATIVE DECLARATION

Industry Workforce Housing Community

20137 and 20249 E. Walnut Drive South
City of Industry, California

Prepared by:
City of Industry
15625 Stafford Street
Industry, California 91744

Contact: Troy Helling
Planning and Safety Manager

Public Review Draft – December 14, 2017

Public Review Period:
December 14, 2017 through January 2, 2018

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VI. Mitigation Monitoring and Reporting Program

REFERENCES

APPENDICES

A. Proposed Residential Zone Text

B. Air Quality Impact Analysis
Urban Crossroads, Inc. *Industry Workforce Housing Community Air Quality Impact Analysis, City of Industry*. December 12, 2017.

C. Biological Resources Assessment Survey
LSA Associates, Inc. *Biological Resources Assessment Survey Letter Report – Industry Workforce Housing Community*. December 4, 2017.

D. Cultural Resources Assessment
LSA Associates, Inc. *Cultural Resources Assessment – Industry Workforce Housing Community – Assessor Parcel Number 8762-002-901, City of Industry, Los Angeles County, California*. December 2017.

E. Geotechnical Exploration Report
Leighton and Associates, Inc. *Geotechnical Exploration Report - Proposed Residential Development, Industry Workforce Housing Community – 20249 E. Walnut Drive South, City of Industry, CA*. December 1, 2017.

F. Greenhouse Gas Analysis
Urban Crossroads, Inc. *Industry Workforce Housing Community Greenhouse Gas Analysis,*

City of Industry. December 12, 2017.

G. Noise Impact Analysis
Urban Crossroads, Inc. *Industry Workforce Housing Community Noise Impact Analysis – City of Industry*. December 12, 2017.

H. Phase I Environmental Site Assessment
LSA Associates, Inc. *Phase I Environmental Site Assessment – 3.86-Acre NCO Site (APN 8762-002-902) – 20249 E. Walnut Drive South in the City of Industry, Los Angeles County, California*. November 22, 2017.

I. Phase II Site Assessment
LSA Associates, Inc. *Project Memorandum Phase II Site Assessment*. December 6, 2017.

J. Phase II Site Assessment
IWS Environmental, Inc. *Phase II Subsurface Soil Investigation for Chemical Compounds Relating to Previous Agricultural Use*. December 4, 2017.

K. Preliminary LID Layout Plan
Encompass Associates, Inc. *Preliminary LID Layout Plan*. December 2017.

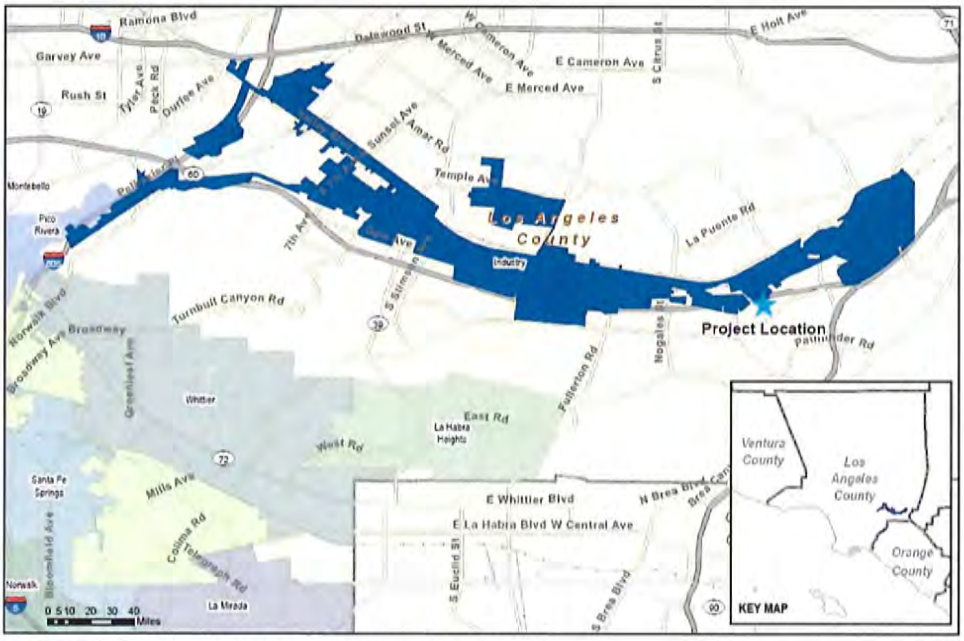
L. Trip Generation Evaluation
Urban Crossroads, Inc. *Industry Workforce Housing Community Trip Generation Evaluation*. December 12, 2017.

I. ENVIRONMENTAL CHECKLIST FORM

1. Project title:	Industry Workforce Housing Community Project
2. Lead agency name and address:	City of Industry 15625 Stafford Street Industry, CA 91744
3. Contact person and phone number:	Troy Helling, Planning and Safety Manager (626) 333-2211
4. Project location:	The site is located at 20137 and 20249 E. Walnut Drive South, south of Pomona Freeway (SR-60) and north of Walnut Drive South, from approximately 200 feet west of Moscada Avenue to approximately 600 feet east of Calbourne Drive in the City of Industry. Figure PD-1 shows the regional location. Figure PD-2 shows the location of the project site and the immediate vicinity. The Assessor's Parcel Numbers (APNs) for the project site are 8762-002-901and 8762-002-902.
5. Project sponsor's name and address:	National Community Renaissance of California 9241 Haven Avenue Rancho Cucamonga, CA 91730
6. General Plan designation:	Employment
7. Zoning:	Industrial (I)
8. Description of Project:	The proposed Project consists of 1) a General Plan Amendment (GPA) and a Zone Change (ZC) to establish Residential Land Use Designation and Zoning within the City of Industry; 2) changing the General Plan Land Use Designation from Employment to Residential and Zoning from Industrial to Residential of a 3.86 acre property located on E. Walnut Drive South; and 3) a Lot Line Adjustment and Development Plan to develop 25 single-family homes and 4,300 square feet of community recreation area.
9. Surrounding Land Uses and Setting:	The site is bounded by Pomona Freeway (SR-60) to the north, and Residential neighborhoods in Rowland Heights and Diamond Bar to the east and south. To the west is a commercial development with the Sri Guru Singh Sabha Walnut Temple immediately abutting the western boundary of the site.

10. Other Agencies whose approval is required:

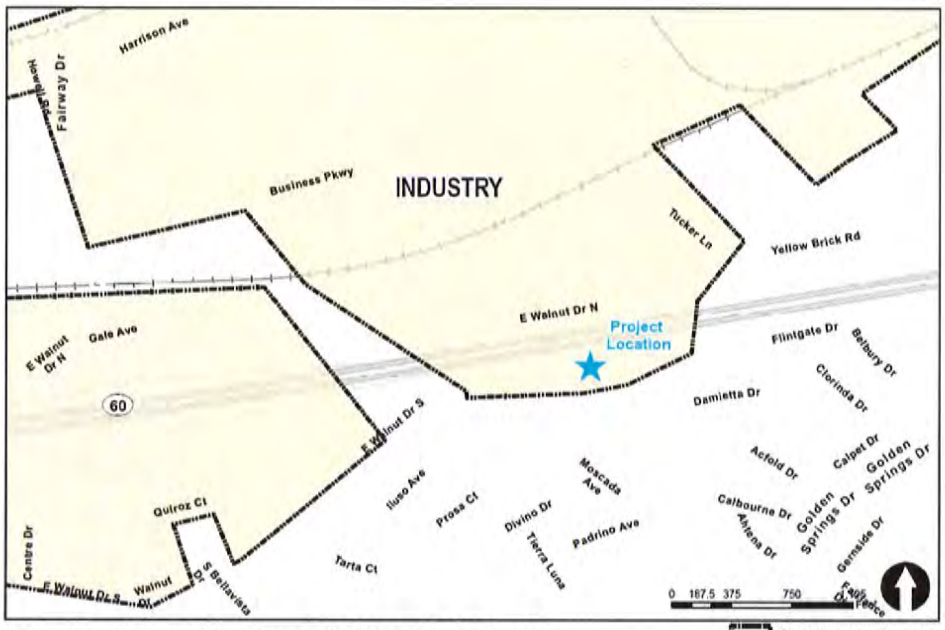
This document covers all approvals by government agencies that may be needed to construct, implement, or operate the Project. At this time, no discretionary approvals are known to be required for the Project by any public agencies other than the City of Industry (lead agency).



City of Industry - 20137 and 20249 E. Walnut Drive

Regional Location Map

FIGURE PD-1



City of Industry - 20137 and 20249 E. Walnut Drive

Local Vicinity Map

FIGURE PD-2

II. PROJECT DESCRIPTION

A. PROJECT SUMMARY

The proposed Project consists of 1) a General Plan Amendment (GPA) and Zone Change (ZC) to establish Residential Land Use Designation and Zoning within the City of Industry; 2) changing the General Plan Land Use Designation from Employment to Residential and Zoning Designation from Industrial to Residential for a 3.86 acre property located at 20137 and 20249 E. Walnut Drive South; and 3) a Lot Line Adjustment to combine two (2) lots, Assessor's Parcel Numbers (APNs) 8762-002-901and 8762-002-902 into one, and a Development Plan to develop 25 single-family homes and 4,300 square feet of community recreation area/tot lot.

The 3.86-acre site is located immediately south of Pomona Freeway (SR-60) and north of Walnut Drive, from approximately 200 feet west of Moscada Avenue to approximately 600 feet east of Calbourne Drive as shown on the *Yorba Linda, California* 7.5-minute U.S. Geologic Survey (USGS) topographic map dated 2015 within Township 2 South, Range 9 West, unsectioned . The proposed residential development would be located on the site along E. Walnut Drive South across from the residential neighborhoods in Diamond Bar and Rowland Heights communities. Abutting the site on the west is the parking lot of the Sri Guru Singh Sabha Walnut temple. Adjacent uses/features include:

- North – Pomona Freeway (SR-60)
- East – Single-family residential
- South – Single-family residential
- West – worship/church with its parking lot directly adjacent to the site, followed by warehouse/commercial/hotel uses further west

Adjacent property zoning:

- North – North of Pomona Freeway – Industrial
- East – Residential – City of Diamond Bar
- South – Residential – Rowland Heights and City of Diamond Bar
- West – Light Manufacturing – Rowland Heights

Figure PD-3 is the aerial view of the site and the surrounding regional context.

FIGURE PD-3: Aerial View of the Site and the Regional Context

EXHIBIT PD-1: Existing Site Photographs

View Facing west from east end of Project site

View facing east along norther boundary of Project Site and soil stockpile

EXHIBIT PD-1: Existing Site Photographs

View facing west along southern boundary of Project site

View facing southwest at single-family residence in center of site

B. EXISTING SITE CONDITIONS AND CHARACTERISTICS

Site Access

Primary roadway access to the Project site is provided via E. Walnut Drive South, located along the southern Project boundary. Walnut Drive South is an east-west collector street with one lane in each direction. The south side of the street is widened and improved. The City of Industry is in the final design stage of improvements to the northern side of the street approximately along the Project frontage which will conform to street standards for Los Angeles County. The proposed roadway improvements would improve the segment with sidewalk, curb and gutter, and lighting. In addition to a network of arterial and local streets, major local and regional access is provided via Fairway Drive/Brea Canyon Cut Off Road located approximately .5-mile west of the Project site, with ramp access to the Pomona Freeway (SR 60) and Orange Freeway (SR 57).

Existing Site Conditions

The site is relatively flat with very little topographic variation with elevations ranging from 509 feet to 529 feet above mean sea level (amsl). The property is currently occupied by one centrally located single-family residence that is generally surrounded by vacant land. In addition, a large stockpile of soil currently exists in the northern portion of the site that has been estimated to be approximately 12,000 cubic yards in size. Approximately 14,441 square feet of the site is improved with the single-family structure measuring approximately 1,058 square feet built in 1964 and 8,995 square feet of landscaping. The existing residential unit is a one-story ranch style single-family dwelling unit. It has an irregular plan and is oriented to the south. The house is surmounted by a low-pitched, gable-on-hip roof sheathed in composition shingles and has wide eaves. The exterior walls are clad in modern stucco and modern stone skirting. The south facing, asymmetrical façade includes: two pairs of modern vinyl-framed sliding windows; a large, vinyl-framed fixed window flanked by sliding end vents; a recessed porch sheltered beneath the eave; and an east-facing, modern, wood and glass door. A two-car garage with a modern door is located immediately northeast of the residence, connected to the latter by a covered breezeway. Appendix D, Cultural Resources Assessment presents the details of the existing residence and the associated improvements. The remainder of the site is vacant, unimproved and flat with grass and dirt covering most of the site, there are trees along the western boundary and in part of the southern boundary. There are two steel structures holding billboards that face onto the 60 freeway close to the northern boundary of the site. Exhibit PD-1 are photographs of the existing site conditions.

Surrounding Land Uses

The Project area is predominantly residential. To the south and east are the established single-family residential neighborhoods of Diamond Bar and Rowland Heights communities. Further, to the southwest is the Royal Vista Golf Course (Figure PD-3). To the site's western boundary is an institutional/commercial/warehousing development. Mature trees and a small drainage channel are located along the western boundary of the site, beyond which is the Sri Guru Singh Sabha Walnut temple's asphalt parking lot.

Land Use Context

The Project site is owned by Industry Property and Housing Management Authority (IPHMA) and currently zoned Industrial (I). The Rowland Heights Community Plan designates the area within unincorporated Los Angeles County in the vicinity of the site, as Urban 1 (U1), with density of 1.1 to 3.2 du/acre and corresponding zoning of RPD 5000 15U. The City of Diamond Bar designates the residential areas within the Project vicinity as Low Density Residential (RL) and Low Medium Density

Residential (RLM). The commercial development to the west is within the unincorporated Los Angeles County and is zoned light manufacturing (M-1).

Similar to the majority of the land in the City of Industry, the Project site has a General Plan land use designation of Employment and is zoned Industrial. However, as part of the City's 2014 General Plan Housing Element, a number of properties were identified as candidates for potential Residential Overlay Zone, primarily to address the City's Regional Housing Needs Assessment (RHNA) compliance. The proposed Project site encompasses two of the three candidate sites identified in the Housing Element, and therefore has already been screened as a potentially suitable site for residential development. Since at this time there is a specific Development Plan application for residential development on the subject site which will eliminate its future use for industrial purposes, the Project proposes to establish Residential Zoning for the site. Upon establishment of Residential Land Use Designation and Zoning, and approval of a Development Plan, the applicant will construct the proposed single-family residential project on the proposed site. The Industry Property and Housing Management Authority would retain ownership of the land. Four (4) units will be set aside for extremely-low and very low income families which would bring the City into compliance with its current (2 units) and future (2 units) RHNA requirements.

C. PROPOSED USE

The Project would require a General Plan Amendment (GPA 17-1), which would amend the General Plan Land Use Element to allow residential uses on the subject site. The project would also require a Zone Change (ZC 17-1), which would create a Residential Zone (R) and implement Program 7 of the General Plan Housing Element. The future residential units would be developed consistent with the Residential Zone. Figure PD-4 presents a conceptual site plan for the proposed residential development.

Upon adoption of a Residential Zone (R) for the Project site, the applicant proposes to remove the existing residence and associated improvements and to construct the proposed residential development on the Project site with access via a new private street off Walnut Drive.

The proposed Project will include construction of 25 detached two-story single-family homes, and approximately 4,300 square feet of community recreational space/tot lot on 3.86 acres of land owned by Industry Property and Housing Management Authority (IPHMA). A lot line adjustment is required to consolidate 2.33 acres of APN: 8762-002-902 with APN: 8762-002-901 to create a 3.86 acre parcel.

Access to the homes would be provided by a new private street from Walnut Drive which will have a sidewalk/parkway on one side. Each of the units would have a two-car attached garage. Access to the garages would be provided via stub alleys. Eleven open parking spaces would be provided along the north property line with State Route-60.

D. PHYSICAL CHARACTERISTICS OF THE PROJECT

Site Plan

The proposed Conceptual Site Plan is depicted on Figure PD-4. The Site Plan identifies the overall layout of the proposed development including the existing and proposed property lines, the location and orientation of the residential dwelling units, drive aisles and stub alleys, and trash enclosures. As depicted, the 25 homes are planned in groupings of 2, 3, 4 and 6 units. A 6,595 square-foot biofiltration area is included on the western boundary of the property. A 4,300 square-

foot community recreational and tot lot/play area along the western site boundary will serve the proposed development.

Access to each of the homes created by the proposed project would be via the stub alleys off the proposed private street. Full street improvements are proposed and vehicular access would be provided to Walnut Drive from the project site.

Site landscaping will include 24" and 36" box trees along Walnut Drive, the proposed new access road and along the north boundary of the site, in the freeway buffer zone, as well as common areas. Smaller accent trees will line the internal private drives and the open space common areas within the Project. A variety of groundcovers are also proposed for common area planters, parkways and building frontages. Figure PD-5 depicts the Conceptual Landscape Plan and Plant Palette.

Table PD-1: Project Statistical Summary

Site Area and Density Total Site Area: + 3.6 Acres (169,880 S.F.) Total Units: 25 Homes Density: 6.4 Homes per Acre Lot Coverage: 30,585 S.F. (18% of site) Coverage (footprint areas): Plan 1: 1,145 x 15 = 17,175 Plan 2: 1,341 x 10 = 13,410	**Parking:** Provided: 61 Spaces (2.44 spaces per home) ▪ Garage: 50 Spaces ▪ (15) 3 Bedroomx2.0 Spaces = 30 Spaces ▪ (10) 4 Bedroom x 2.0 Spaces = 20 Spaces ▪ ADA Driveway: 1 Space (17' x 19') ▪ Parallel: 11 Spaces (8' x 22')
Open Space: Required: 8,494 S.F. (5% of Total) Provided: Landscape (Permeable Area) ▪ Common Area + Front Yard + Bio-Retention: 58,722 SF ▪ Private Rear Yards: 22,256 SF	**Architecture:** Building Setbacks: Front Yard (Walnut): 20' Front Yard (Channel): 15' Min. Side Yard: 5' Min. Rear Yard: 12' Min. to Garage Door: 10' Min. to Porch: 4' At East end of project, where PL and Walnut Drive S. diverge: Side from PL: 10' Rear: 10' Building Separation: 10' minimum Max. Building Height: 27' and 2 Stories

Table PD-1 above presents a statistical summary of the proposed Project.

Water, Wastewater, Stormwater

The proposed Project would receive potable water service from the Walnut Valley Water District and would receive wastewater service from District 21 of the Sanitation Districts of Los Angeles County. Both water and sewage service front the Project site on Walnut Drive. Stormwater drainage would be conveyed to a new 24" reinforced concrete pipe along the north boundary

of the vacant City-owned parcel. As shown on Figure PD-6, a 6,959 square-foot biofiltration area is proposed on the western boundary of the site. The project would comply with stormwater quality requirements and may include additional features necessary to comply with stormwater permits.

Other Utilities and Services

Electric, cable, and telecommunications services would be extended onto the site from existing lines along Walnut Drive. All lines would be underground as appropriate and contained in easements and right-of-way.

Architecture and Design

The two-story homes would range in size from 1,608 SF to 1,949 square feet in floor area. Three different plans are proposed consisting of three and four bedroom units with Traditional, Spanish, and English Cottage-style architecture as shown on Figure PD-7A and PD-7B. Figures PD-8A and PD-8B depict the proposed building elevations for each of the product types. As shown, the maximum height of the units will be 27 feet from grade, and a variety of façade and roof details will be provided.

E. PROJECT CONSTRUCTION

Construction of the proposed residential development would involve demolition, grading, housing construction, paving, and architectural coatings (e.g., painting). Given the effectively flat topography of the site, grading is expected to be limited to site preparation, creation of building pads, and trenching for utility installation. A Precise Grading Plan will be submitted to the City for review and approval based on all applicable standards, specifications and regulations. Site grading will entail clearing, overexcavation, excavation, recompaction and import. Gross earthwork quantities are estimated to be 20,000 cubic yards of cut, 30,000 cubic yards of fill (both including 15,000 cubic yards of overexcavation and recompaction) with an estimated 12,500 cubic yards of import.

Electric, cable, and telecommunications services would be extended onto the site from existing lines. Construction is expected to commence in February 2018 and last through March 2019 with the following schedule (Table PD-2):

TABLE PD-2: Anticipated Construction Schedule

Phase Name	Start Date	End Date	Days
Demolition	02/01/18	02/28/18	20
Site Preparation	03/01/18	03/07/18	5
Grading	03/08/18	04/05/18	21
Building Construction	04/06/18	01/17/19	205
Paving	01/18/19	02/12/19	18
Architectural Coating	02/13/19	03/08/19	18

FIGURE PD-4. Conceptual Site Plan

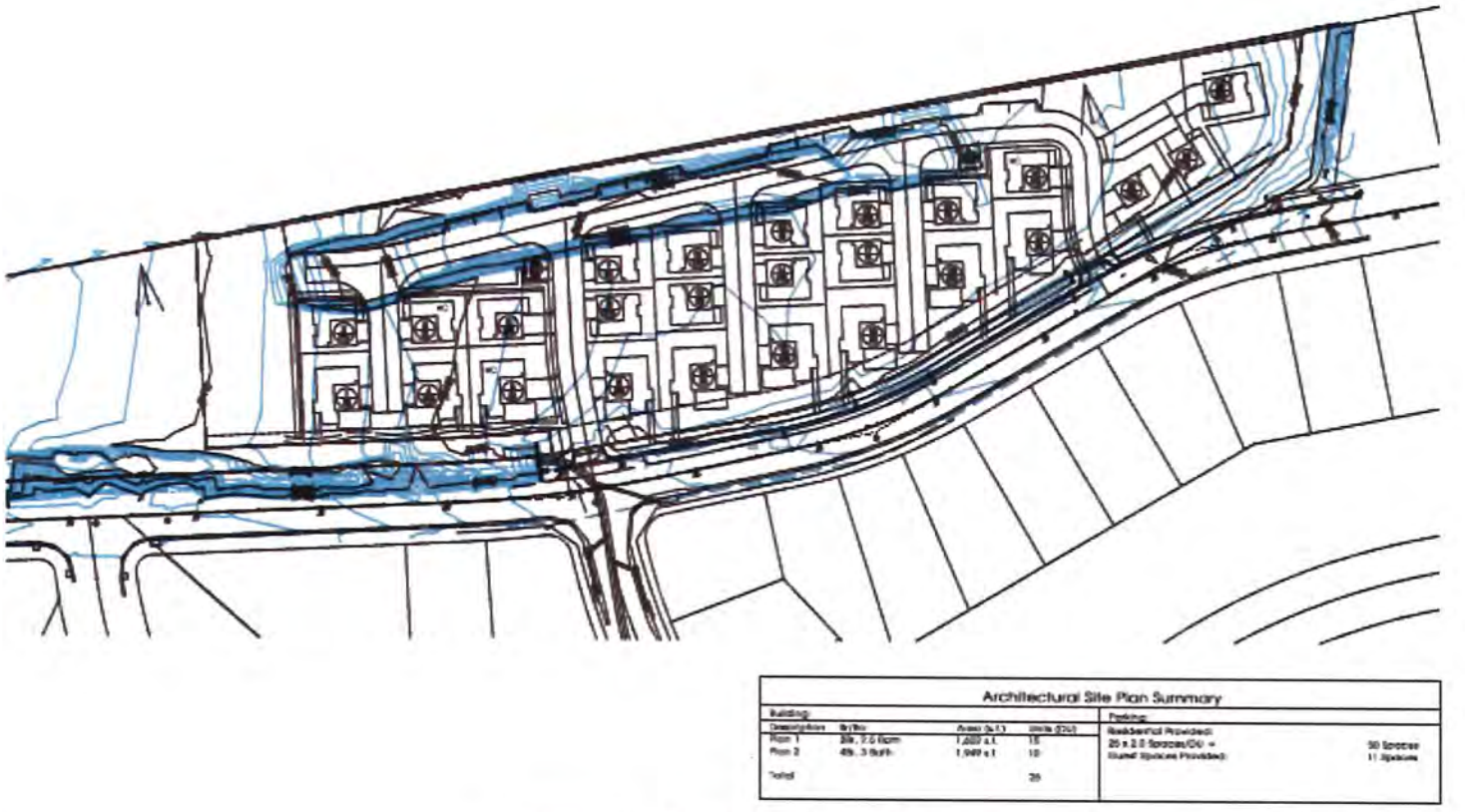


FIGURE PD-5. Conceptual Landscape Plan

FIRE REQUIREMENTS for LANDSCAPE

TREE SURVEY NOTE:

STREET TREE PLANTING NOTE:

WATER EFFICIENT LANDSCAPING NOTE:

IRRIGATION CONCEPT STATEMENT:

PROPOSED PLANT LIST

TREES

E. WALNUT DRIVE SOUTH (public r.o.w. - under overhead power lines)

PROJECT ENTRY DRIVE - EAST & WEST (private)

COLLECTOR DRIVE (private)

MOTOR COURTS

WALNUT DRIVE LANDSCAPE SETBACK

FREEWAY BUFFER

PERIMETER SCREEN

TRASH ENCLOSURE SCREEN

COMMON AREA

Medium - Large

Small - Accent

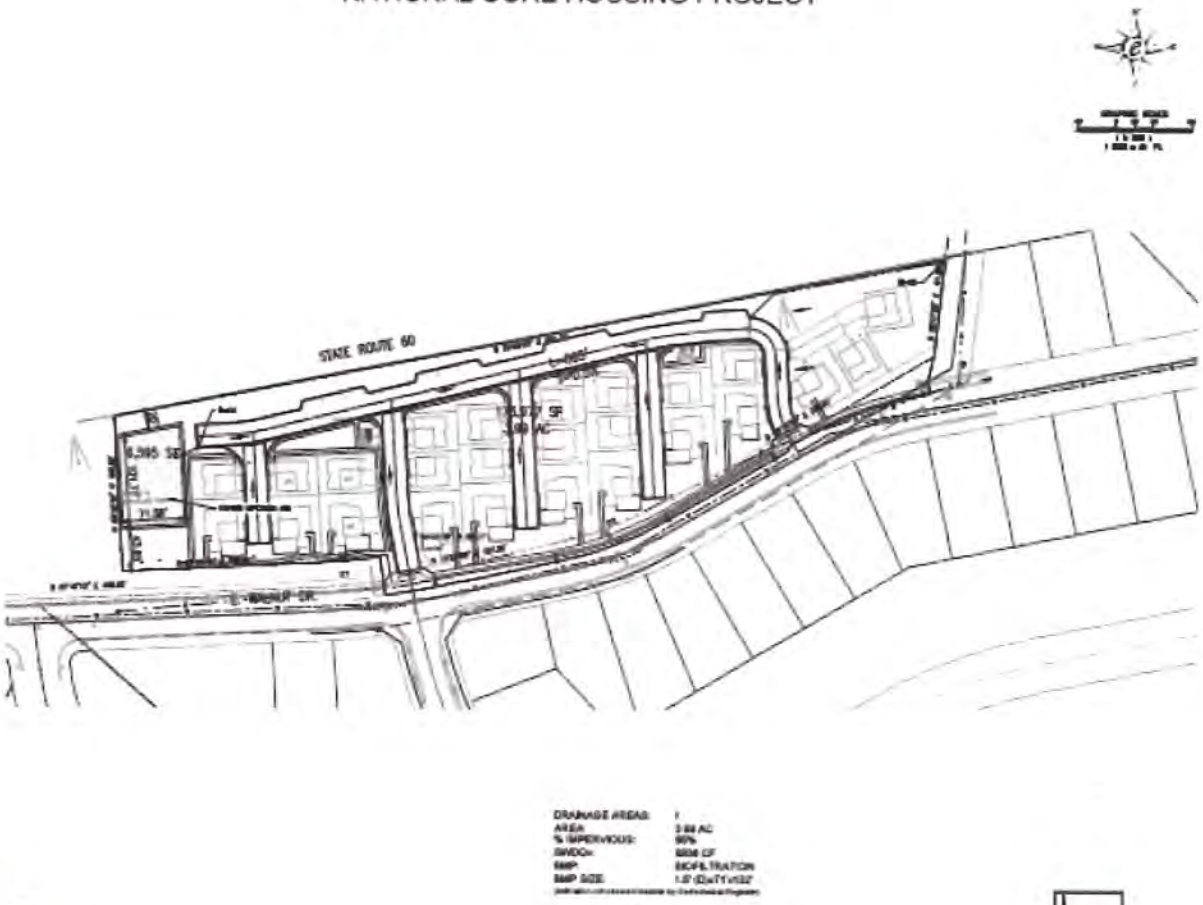
PROPOSED SHRUB LIST

CONCEPTUAL LANDSCAPE PLAN and PLANT PALETTE - L1

CITY OF INDUSTRY, CA

MJS LANDSCAPE ARCHITECTURE

FIGURE PD-6. Preliminary LID Layout Plan



ENCOMPASS ASSOCIATES, INC.

FIGURE PD-7A. Architectural Styles

1A | Spanish

1C | Cottage

1B | Traditional

PLAN 1
Front Elevations

INDUSTRY WORKFORCE HOUSING COMMUNITY
CITY OF INDUSTRY, CA

1.3
DESIGN REVIEW

WHA.

FIGURE PD-7B: Architectural Styles

2A | Spanish

2C | Cottage

2B | Traditional

PLAN 2
Front Elevations

INDUSTRY WORKFORCE HOUSING COMMUNITY
CITY OF INDUSTRY, CA

2.3
DESIGN REVIEW
2017397 | 12-21-17

WHA.

FIBURE PD-8A: Front Elevations

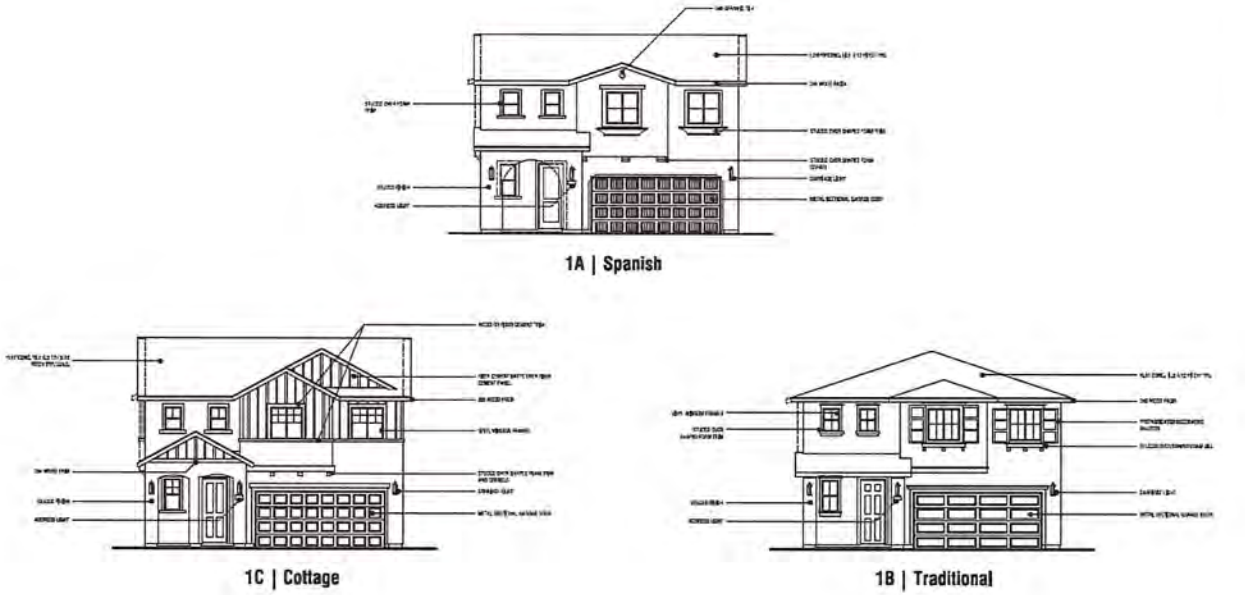
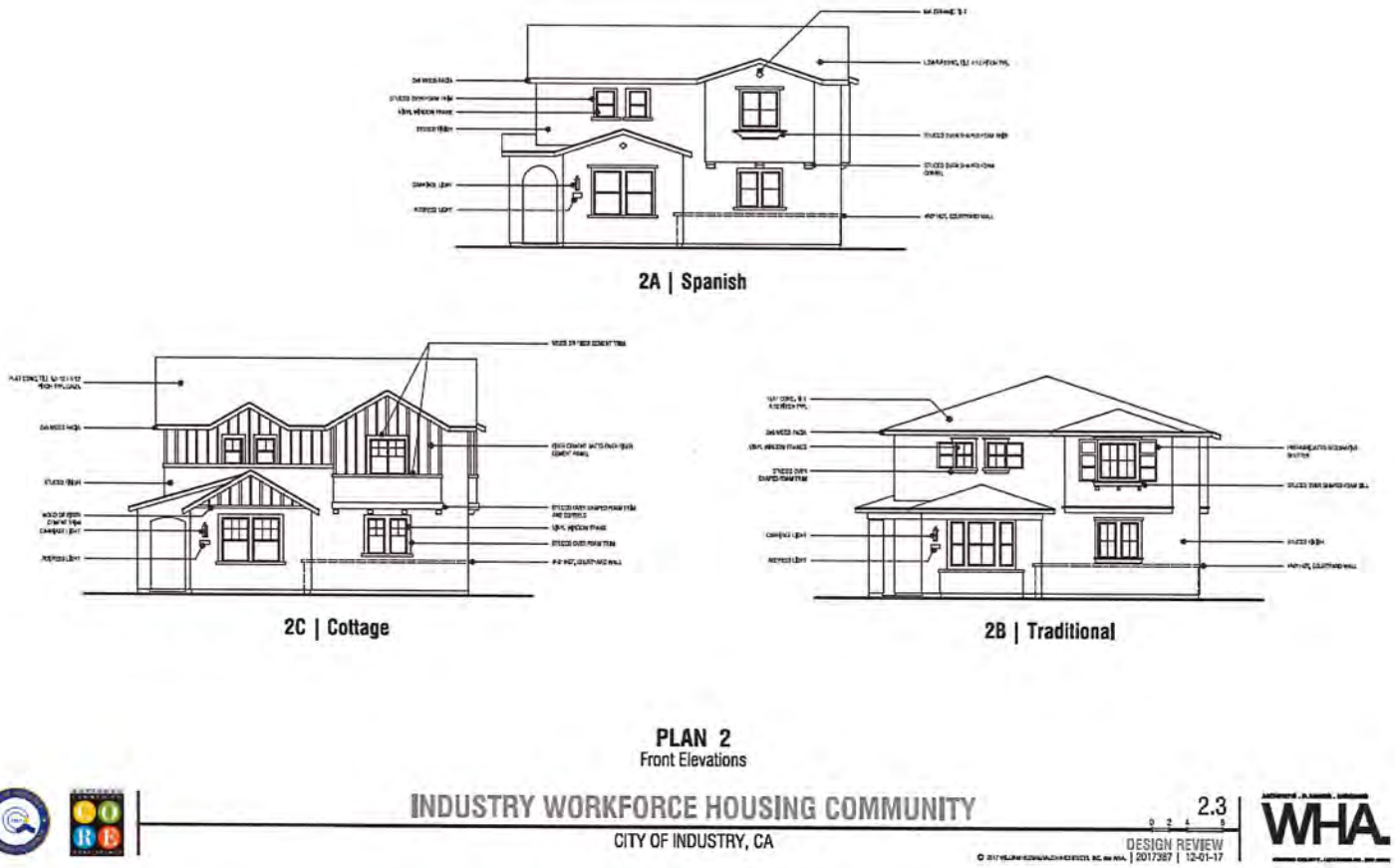


FIGURE PD-8B: Front Elevations



F. PERMITS AND APPROVALS

General Plan Amendment – GPA 17-1

The proposed Project includes a General Plan Amendment (GPA 17-1), amending the General Plan Land Use Element by adding a new goal (Goal LU6), to create a residential land use designation. The proposed amendment would also add a new policy (Policy LU6-1) which would enable housing development in selected areas of the City and ensure the proposed housing is compatible with the surrounding primary land uses. The General Plan Land Use Map would also be amended to designate the subject site for residential uses. The proposed Goal and Policy (shown in ***bold italic text***) are consistent with Program 7 in the City's 2013-2021 Housing Element.

Goal

LU6 Create opportunities for development of a range of housing types, products and affordability levels including multifamily rental, factory-built housing, mobile homes, housing for agricultural employees, supportive housing, and transitional housing in select areas of the City.

Policy

LU6-1 Develop a Residential Zone that would enable housing in select areas of the City compatible with the surrounding primary land use.

Zone Change – ZC 17-1

The proposed Project includes a Zone Change (ZC 17-1) to create a Residential Zone (R), which would enable development of residential and other compatible uses on select properties within the City. The proposed Project also includes a Zone Map Amendment to apply the (R) designation to the Project site, allowing the proposed Industry Workforce Housing Community Project, subject to the approval of a Development Plan. The text of the Residential Zone is included as Appendix A to this Initial Study.

The City of Industry is the approval authority for the following actions which constitute the Project:

- General Plan Amendment (GPA 17-1)
- Zone Change (ZC 17- 1)
- Lot Line Adjustment (LLA 83)
- Development Plan (DP 17-13)

III. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

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

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

IV. DETERMINATION (to be completed by the lead agency)

On the basis of this initial evaluation:

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

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

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

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

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

Signature _____ Date: December 14, 2017

Troy Helling
Printed Name

Planning and Safety Manager
Title

V. EVALUATION OF ENVIRONMENTAL IMPACTS

1) A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g., the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g., the project will not expose sensitive receptors to pollutants, based on a project-specific screening analysis).

2) All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3) Once the lead agency has determined that a particular physical impact may occur, then the checklist answers must indicate whether the impact is potentially significant, less than significant with mitigation, or less than significant. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect may be significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4) "Negative Declaration: Less Than Significant With Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less Than Significant Impact." The lead agency must describe the mitigation measures, and briefly explain how they reduce the effect to a less than significant level (mitigation measures "Earlier Analyses," as described in (5) below, may be cross-referenced).

5) Earlier analyses may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c)(3)(D). In this case, a brief discussion should identify the following:

   a) Earlier Analysis Used. Identify and state where they are available for review.

   b) Impacts Adequately Addressed. Identify which effects from the above checklist were within the scope of and adequately analyzed in an earlier document pursuant to applicable legal standards, and state whether such effects were addressed by mitigation measures based on the earlier analysis.

   c) Mitigation Measures. For effects that are "Less Than Significant With Mitigation Measures Incorporated," describe the mitigation measures which were incorporated or refined from the earlier document and the extent to which they address site-specific conditions for the project.

6) Lead agencies are encouraged to incorporate into the checklist references to information sources for potential impacts (e.g., general plans, zoning ordinances). Reference to a previously prepared or outside document should, where appropriate, include a reference to the page or pages where the statement is substantiated.

7) Supporting Information Sources: A source list should be attached, and other sources used or individuals contacted should be cited in the discussion.

8) This is only a suggested form, and lead agencies are free to use different formats; however, lead agencies should normally address the questions from this checklist that are relevant to a project's environmental effects in whatever format is selected.

9) The explanation of each issue should identify:

   a) The significance criteria or threshold, if any, used to evaluate each question; and

   b) The mitigation measure identified, if any, to reduce the impact to less than significance.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
1. AESTHETICS. Would the project:				
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☒	☐
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) Substantially degrade the existing visual character or quality of the site and its surroundings?	☐	☐	☒	☐
d) Create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

DISCUSSION OF IMPACTS

a) *Less Than Significant Impact*. The Project site is situated in a developed portion of the City of Industry. The only potential scenic vistas in the area are vantage points of the San Gabriel Mountains to the north. The Project site is owned by Industry Property and Housing Management Authority (IPHMA), is partially developed with a residence, and is otherwise covered with concrete, asphalt, and grass. A dirt stockpile exists along the northern boundary of the site. The site is located in a primarily residential areas of Diamond Bar and Rowland Heights communities. The western boundary of the site is adjacent to a commercial development in the City of Industry with a mix of worship center, warehouse and hotel uses. The northern boundary of the site is adjacent to the Pomona Freeway. With the surrounding development and topography, north-facing views of the San Gabriel Mountains are limited and disturbed.

The Project site's condition is disturbed due to the frequent weed abatements and a large soil stockpile. The site does not contain any native vegetation. Currently, there is an existing residential unit in the central portion of the Project site with corresponding driveway leading onto Walnut Drive. The existing residential unit is proposed to be demolished and replaced with 25 single-family residential units. As shown in Figure PD-5, the proposed single-family homes on the Project site are detached and arranged in groupings of 2,3 4 and 6 units. The individual units range from approximately 1,608 to 1,952 square feet. Each of the dwelling units is proposed to be approximately 27 feet in height. The size, bulk and building styles (Figures PD-7A and PD-7B) are comparable to the surrounding residential developments and substantially smaller than the commercial buildings in the vicinity of the Project site. Given the proposed size of building masses and the limited nature of any distant views, the Project would not cause a substantial adverse effect on a scenic vista. Impacts are less than significant.

b) *No Impact*. The Project site consists of a single residential unit on a flat, disturbed property in a fully urbanized area of the city and does not contain any scenic resources. The site is bounded by Pomona Freeway to the north and Walnut Drive to the south, with institutional/commercial/light industrial buildings on the west. A chain link fence exists along the Walnut Drive frontage of the site. The public right of way abutting the north side of Walnut Drive is currently unimproved and frequently covered with weeds. Further to the south, along the opposing side of Walnut Drive are fully developed and established residential neighborhoods of Rowland Heights and Diamond Bar. The Project site does not contain sensitive tree species, or rock outcrops. The existing house is a ranch-style single-family residence dating back to the 1960's. Based on a historic resources assessment conducted by LSA Associates (Appendix D), the residence does not meet the criteria established by CEQA as a "historic resource". Additionally, the Project site is not adjacent to or near a state scenic highway. The nearest officially designated state scenic highway is State Route 210, which is alongside the San Gabriel Mountains over 7 miles to the north (Caltrans 2016). Therefore, no impact would occur.

c) *Less Than Significant Impact*. The Project would not degrade the existing visual character or quality of the Project site and its surroundings. As stated earlier, the Project site is highly disturbed and currently consists of an existing residential unit with surrounding compositions comprising concrete, non-native grass, and asphalt. The proposed height, mass, and design of the 25 residential buildings would be smaller than the commercial buildings to the west and similar to the residential neighborhoods to the east and south. Building materials and colors would be selected so that the buildings would not conflict or be incompatible with the existing character of the site surroundings. Site landscaping would be required in accordance with city requirements. Therefore, the impact to the visual character or quality of the site and its surroundings would be less than significant.

d) *Less Than Significant Impact*. The proposed Project would introduce new sources of light at the proposed Project site, including home security and street lighting. Light fixtures from the properties near the east and southern property lines would be at limited height and/or shielded so that no direct light shines beyond the property lines. Nighttime lighting would be installed to accommodate safety and security while minimizing impacts on surrounding areas. However, the new sources of lighting have the potential to increase nighttime light and glare in the Project area.

The City of Industry Municipal Code Section 17.36.060 Standard of Review and Development Guidelines, calls for well-designed and coordinated building features including illumination to ensure that new developments are compatible with the character and quality of the surrounding development. In addition, the City ensures that the lighting of new developments is installed according to all applicable lighting requirements and guidelines through its Development Plan review process. A condition of approval requiring that all lighting be designed, arranged, directed, or shielded to prevent excess illumination and light spillover onto adjoining land uses will be added to the Project. In addition, the building exteriors would not contain significant amounts of glass or reflective construction materials that could impose distracting glare on nearby properties, motorists, or pedestrians. Therefore, Project impacts associated with light and glare are expected to be less than significant.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
2. AGRICULTURE AND FORESTRY RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forestland, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. Would the project:				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to nonagricultural use?	☐	☐	☐	☒
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forestland (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forestland or conversion of forestland to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to nonagricultural use or conversion of forestland to non-forest use?	☐	☐	☐	☒

DISCUSSION OF IMPACTS

a) *No Impact*. There are currently no agricultural operations being conducted on the Project site, and the City of Industry's General Plan does not identify any important farmlands or any lands for farmland use. In addition, the site has a General Plan land use designation of Employment and is zoned Industrial (I) and is not in an area of Prime Farmland, Farmland of Statewide Importance, Unique Farmland, Grazing Land, or Farmland of Local Importance as identified by the California Department of Conservation (DOC 2016). In

addition, there are no agricultural uses in the vicinity of the site. Therefore, the proposed Project would not convert farmland to nonagricultural uses, and no impact would occur.

b) *No Impact*. The City of Industry does not have any agricultural zoning, nor does the City's General Plan identify any agricultural land use designations. Further, the Williamson Act applies to parcels consisting of at least 20 acres of Prime Farmland or at least 40 acres of farmland not designated as Prime Farmland. There is no Williamson Act contract land in the city. Therefore, the proposed Project would not conflict with zoning for agricultural use or Williamson Act contracts and would not have related impacts.

c) *No Impact*. The Project site is in a fully urbanized area of the city and does not lie within or adjacent to forestland or timberland. The City of Industry does not have any zoning for forestland or timber production, nor does the City's General Plan identify any such land use designations. The site is currently zoned for industrial use, and Project development would include establishment of a Residential Zone (Appendix A) to accommodate future residential units. Project implementation would not result in the loss of forestland or the conversion of forestland to non-forest use. Therefore, the Project would not conflict with zoning for or cause rezoning of forestland, timberland, or timberland zoned Timberland Production and would have no related impacts.

d) *No Impact*. As stated above, the Project site is currently zoned for industrial use, with a proposed Residential Zone to accommodate future residential development. There is no forestland on or near the Project site, and no forestland would be converted to non-forest use. Therefore, the Project would not have an impact that could result in the loss of forestland or conversion of forestland to non-forest use.

e) *No Impact*. The proposed Project site has no agricultural or forest resources and is not designated as Farmland, as mapped on the Important Farmland Finder maintained by the California Department of Conservation.[1] The proposed Project would not convert Farmland to nonagricultural uses or forestland to non-forest use. Therefore, no impact would occur.

[1] California Department of Conservation. Farmland Mapping & Monitoring Program. ftp://ftp.consrv.ca.gov/pub/dlrp/FMMP/pdf/2016

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
3. AIR QUALITY. Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☒	☐	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☒	☐	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐

DISCUSSION OF IMPACTS

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

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

In March 2017, the AQMD released the Final 2016 AQMP. The 2016 AQMP continues to evaluate current integrated strategies and control measures to meet the National Ambient Air Quality Standards (NAAQS), as well as, explore new and innovative methods

to reach its goals. Some of these approaches include utilizing incentive programs, recognizing existing co-benefit programs from other sectors, and developing a strategy with fair-share reductions at the federal, state, and local levels. Similar to the 2012 AQMP, the 2016 AQMP incorporates scientific and technological information and planning assumptions, including the 2016 RTP/SCS and updated emission inventory methodologies for various source categories. The Project's consistency with the AQMP is determined using the 2016 AQMP.

Criteria for determining consistency with the AQMP are defined in Chapter 12, Section 12.2 and Section 12.3 of the SCAQMD's CEQA Air Quality Handbook (1993). The Project's consistency with these criteria are discussed below:

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

The violations to which Consistency Criterion No. 1 refers are the California ambient air quality standards (CAAQS) and the national ambient air quality standards (NAAQS). As evaluated in Response b) below, the Project would not exceed the SCAQMD short-term construction thresholds or long-term operational thresholds. The Project would not result in an increase in the frequency or severity of existing air quality violations, nor would it cause or contribute to new violations or delay the timely attainment of air quality standards. Therefore, the Project would be consistent with the first criterion.

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

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

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

Operational Impacts - A project would conflict with the AQMP if it will exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

The City of Industry's General Plan Land Use and Zoning designation for the Project site is Employment/Industrial. The Project is proposed to consist of 25 single-family residential dwelling units and a community recreation area on 3.6 acres. In accordance with the Regional Housing Needs Assessment (RHNA), the City of Industry 2013-2021 Housing Element identified three sites within the City as suitable for housing development. The Project site consists of two of the three sites selected by the City for housing development and therefore, residential use on the Project site would be permitted/conditionally

permitted under the City's General Plan. Additionally, the proposed residential use will be less intense than a project conforming to the Industrial land use designation.

On the basis of the preceding discussion, the Project is determined to be consistent with the second criterion.

Thus, no significant impact would occur, as the Project is consistent with both criteria.

b) *Less Than Significant Impact With Mitigation Incorporated.* As discussed previously, the Project site is located in the South Coast Air Basin. State and federal air quality standards are occasionally exceeded in many parts of the basin. An air Quality Impact Analysis for the proposed Project was prepared by Urban Crossroads.[2] The Project's potential short-term construction-period and long-term operational-period air quality impacts are discussed below.

Federal Regulations

The U.S. EPA is responsible for setting and enforcing the NAAQS for O3, CO, NOx, SO2, PM10, PM2.5, and lead. The U.S. EPA has jurisdiction over emissions sources that are under the authority of the federal government including aircraft, locomotives, and emissions sources outside state waters (Outer Continental Shelf). The U.S. EPA also establishes emission standards for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission requirements of the California Air Resources Board (CARB).

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

The 1990 amendments to the CAA that identify specific emission reduction goals for areas not meeting the NAAQS require a demonstration of reasonable further progress toward attainment and incorporate additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA most directly applicable to the development of the Project site include Title I (Non-Attainment Provisions) and Title II (Mobile Source Provisions). Title I provisions were established with the goal of attaining the NAAQS for the following criteria pollutants: O3, NO2, SO2, PM10, CO, PM2.5, and lead. The NAAQS were amended in July 1997 to include an additional standard for O3 and to adopt a NAAQS for PM2.5. Table AQ-1 provides the NAAQS within the basin.

Mobile source emissions are regulated in accordance with Title II provisions. These provisions require the use of cleaner burning gasoline and other cleaner burning fuels such as methanol and natural gas. Automobile manufacturers are also required to reduce tailpipe emissions of hydrocarbons and nitrogen oxides (NOx). NOx is a collective term

[2] Urban Crossroads, Inc. *Industry Workforce Housing Community Air Quality Impact Analysis, City of Industry.* December 12, 2017.

that includes all forms of nitrogen oxides (NO, NO2, NO3) which are emitted as byproducts of the combustion process.

California Regulations

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

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

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

- Application of Best Available Retrofit Control Technology to existing sources;
- Developing control programs for area sources (e.g., architectural coatings and solvents) and indirect sources (e.g. motor vehicle use generated by residential and commercial development);
- A District permitting system designed to allow no net increase in emissions from any new or modified permitted sources of emissions;
- Implementing reasonably available transportation control measures and assuring a substantial reduction in growth rate of vehicle trips and miles traveled;
- Significant use of low emissions vehicles by fleet operators;
- Sufficient control strategies to achieve a five percent or more annual reduction in emissions or 15 percent or more in a period of three years for ROGs, NOx, CO and PM10. However, air basins may use alternative emission reduction strategy that achieves a reduction of less than five percent per year under certain circumstances.

Air Quality Management Planning

Currently, the NAAQS and CAAQS are exceeded in most parts of the SCAB. In regards to the NAAQS, the Project region within the SCAB is in nonattainment for ozone (8-hour) and PM2.5. For the CAAQS, the Project region within the SCAB is in nonattainment for ozone (1-hour and 8-hour), PM10, and PM2.5. In response, the SCAQMD has adopted a series of Air Quality Management Plans (AQMPs) to meet the state and federal ambient air quality standards. AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy.

The Project site is located in the South Coast Air Basin (SCAB) within the jurisdiction of SCAQMD. The SCAQMD was created by the 1977 Lewis-Presley Air Quality Management

Act, which merged four county air pollution control bodies into one regional district. Under the Act, the SCAQMD is responsible for bringing air quality in areas under its jurisdiction into conformity with federal and state air quality standards. As discussed above, the Project site is located within the South Coast Air Basin, a 6,745-square mile sub-region of the SCAQMD, which includes portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County. The larger South Coast district boundary includes 10,743 square miles.

TABLE AQ-1: CALIFORNIA AND FEDERAL AMBIENT AIR QUALITY STANDARDS

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

See footnotes on next page ...

For more information please call ARB-PIO at (916) 322-2990 California Air Resources Board (10/1/15)

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.

5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.

6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.

8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.

9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.

11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

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

12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.

13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.

14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

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Regional Air Quality

The SCAQMD monitors levels of various criteria pollutants at 30 monitoring stations throughout the air district. In 2014, the federal and state ambient air quality standards (NAAQS and CAAQS) were exceeded on one or more days for ozone, PM10, and PM2.5 at most monitoring location. No areas of the SCAB exceeded federal or state standards for NO2, SO2, CO, sulfates or lead. Table AQ-2 presents the attainment status of criteria pollutant in the South Coast Basin.

TABLE AQ-2: ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE SOUTH COAST AIR BASIN (SCAB)

Criteria Pollutant	State Designation	Federal Designation
Ozone - 1hour standard	Nonattainment	No Standard
Ozone - 8 hour standard	Nonattainment	Nonattainment (Extreme)
PM_{10}	Nonattainment	Attainment (Maintenance*)
$PM_{2.5}$	Nonattainment	Nonattainment (Serious)
Carbon Monoxide	Attainment	Attainment (Maintenance*)
Nitrogen Dioxide	Attainment	Attainment (Maintenance*)
Sulfur Dioxide	Attainment	Attainment
Lead[3]	Attainment	Nonattainment (Partial)

Source: State/Federal designations were taken from http://www.arb.ca.gov/desig/adm/adm.htm

Standards of Significance

The SCAQMD has developed regional and localized significance thresholds for regulated pollutants, as summarized in Table AQ-3. The SCAQMD's CEQA Air Quality Significance Thresholds (March 2015) indicate that any projects in the SCAB with daily emissions that exceed any of the indicated thresholds should be considered as having an individually and cumulatively significant air quality impact.

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

TABLE AQ-3: MAXIMUM DAILY EMISSIONS THRESHOLDS (1 of 2)

Pollutant	Construction	Operations
Regional Thresholds		
NOx	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
PM2.5	55 lbs/day	55 lbs/day
Sox	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day

TABLE AQ-3: MAXIMUM DAILY EMISSIONS THRESHOLDS (2 OF 2)

Pollutant	Construction	Operations
Localized Thresholds		
NOx	103 lbs/day (demolition)	N/A
	193 lbs/day (site preparation)	N/A
	164 lbs/day (grading)	N/A
CO	612 lbs/day (demolition)	N/A
	1,226 lbs/day (site preparation)	N/A
	999 lbs/day (grading)	N/A
PM10	4 lbs/day (demolition)	N/A
	9 lbs/day (site preparation)	N/A
	5 lbs/day (grading)	N/A
PM2.5	3 lbs/day (demolition)	N/A
	6 lbs/day (site preparation)	N/A
	5 lbs/day (grading)	N/A

Note: lbs/day = pounds per day.

PROJECT-RELATED SOURCES OF POTENTIAL IMPACT

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

On October 17, 2017, the SCAQMD in conjunction with the California Air Pollution Control Officers Association (CAPCOA) and other California air districts, released the latest version of the California Emissions Estimator Model™ (CalEEMod™) v2016.3.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (NOx,

VOC, PM10, PM2.5, SOx, and CO) and greenhouse gas (GHG) emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures. Accordingly, the latest version of CalEEMod™ has been used for this Project to determine construction and operational air quality emissions.

Construction Emissions

Construction activities associated with the Project will result in emissions of CO, VOCs, NOx, SOx, PM10, and PM2.5. Construction related emissions are expected from the following construction activities:

- Demolition
- Site Preparation
- Grading
- Building Construction
- Paving
- Architectural Coating
- Construction Workers Commuting

Construction is expected to commence in February 2018 and will last through March 2019. The construction schedule utilized in the analysis represents a "worst-case" analysis scenario. The duration of construction activity and associated equipment represent a reasonable approximation of the expected construction fleet as required per CEQA guidelines. Site specific construction fleet may vary due to specific project needs at the time of construction.

Dust is typically a major concern during rough grading activities. Because such emissions are not amenable to collection and discharge through a controlled source, they are called "fugitive emissions". Fugitive dust emissions rates vary as a function of many parameters (soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation, etc.). The CalEEMod model was utilized to calculate fugitive dust emissions resulting from this phase of activity.

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

Off-Site Utility and Infrastructure Improvements

Construction emissions associated with off-site utility and infrastructure improvements may occur, however at this time, a specific schedule of off-site utility and infrastructure improvements is unknown. However, impacts associated with these expected activities are not expected to exceed the emissions identified for project-related construction activities. As such, no impacts beyond what has already been identified in the Project Air Quality Impact Analysis are expected to occur.

SCAQMD Rules that are currently applicable during construction activity for this Project include but are not limited to: Rule 1403 (Asbestos); Rule 1113 (Architectural Coatings); Rule 431.2 (Low Sulfur Fuel); Rule 403 (Fugitive Dust); and Rule 1186 / 1186.1 (Street Sweepers). It should be noted that Best Available Control Measures (BACMs) are not mitigation as they are standard regulatory requirements. As such, credit for Rule 403 and Rule 1113 have been taken.

Impacts without Mitigation

The Project's estimated maximum daily construction emissions without mitigation are summarized on Table AQ-4.

TABLE AQ-4: EMISSIONS SUMMARY OF CONSTRUCTION (WITHOUT MITIGATION)

Year	Emissions (pounds per day)					
	VOC	NOx	CO	SOx	PM10	PM2.5
2018	6.17	71.77	24.58	0.10	23.51	13.08
2019	16.01	40.05	19.60	0.04	1.94	1.73
Maximum Daily Emissions	**16.01**	**71.77**	**24.58**	**0.10**	**23.51**	**13.08**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

As shown above, emissions resulting from project construction would not exceed any criteria pollutant thresholds established by the SCAQMD. All emission types are predicted to be generated below SCAQMD significance thresholds. Therefore, a less than significant impact would occur.

Operational Emissions

Operational activities associated with the proposed Project would result in emissions of ROG, NO_X, CO, sulfur oxide (SO_X), PM_{10}, and $PM_{2.5}$. Operational emissions would be expected from area source emissions, energy source emissions, and mobile source emissions. Long-term operational emissions associated with proposed operations, as calculated using CalEEMod software, are compared to the SCAQMD's regional thresholds in Table AQ-5.

TABLE AQ-5
SUMMARY OF PEAK OPERATIONAL EMISSIONS (POUNDS PER DAY)

Emissions Source	VOC	NOx	CO	SOx	PM_{10}	$PM_{2.5}$
Summer Scenario						
Area Source Emissions	7.58	0.54	14.79	0.03	1.92	1.92
Energy Source Emissions	0.02	0.17	0.07	1.11E-03	0.01	0.01
Mobile Source Emissions	0.55	2.74	7.38	0.02	1.83	0.51
Total	**8.15**	**3.45**	**22.24**	**0.06**	**3.76**	**2.44**
SCAQMD Threshold	55.00	55.00	550.00	150.00	150.00	55.00
Significant?	**No**	**No**	**No**	**No**	**No**	**No**
Winter Scenario						
Area Source Emissions	7.58	0.54	14.79	0.03	1.92	1.92
Energy Source Emissions	0.02	0.17	0.07	1.11E-03	0.01	0.01
Mobile Source Emissions	0.52	2.81	6.92	0.02	1.83	0.51
Total	**8.13**	**3.52**	**21.78**	**0.06**	**3.76**	**2.44**
SCAQMD Threshold	55.00	55.00	550.00	150.00	150.00	55.00
Significant?	**No**	**No**	**No**	**No**	**No**	**No**

Source: CalEEMod version 2016.3.2.

As shown, Project operational-source emissions would not exceed applicable SCAQMD regional thresholds of significance. Therefore, the impact would be less than significant.

Localized Construction Significance Analysis

As part of the SCAQMD's environmental justice program, attention has been focused on localized effects of air quality from construction activities. SCAQMD staff has developed localized significance threshold (LST) methodology that can be used by public agencies to determine whether a project may generate significant adverse localized air quality impacts at the nearest residence or sensitive receptor during construction. LSTs are developed based on the ambient concentrations of that pollutant for each source receptor area (SRA). The Project site is located in South San Gabriel Valley Monitoring Station SRA 11.

The significance of localized emissions impacts depends on whether ambient levels in the vicinity of the Project are above or below state standards. In the case of carbon monoxide (CO) and nitrogen dioxide (NO_2), if ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. In the case of PM_{10} and $PM_{2.5}$, project emissions are considered significant if they increase ambient concentrations by a measurable amount.

According to the LST methodology, only on-site emissions need to be analyzed. Emissions associated with hauling, vendor trips, and worker trips are mobile source emissions that occur off-site and need not be considered according to the LST methodology, since they do not contribute to isolated local concentrations of air pollution. The SCAQMD has prepared localized significance threshold lookup tables (i.e., screening thresholds) and sample construction scenarios to allow users to readily determine whether the daily emissions for proposed construction activities could result in significant localized air quality impacts. The LST screening thresholds are estimated for each source receptor area using the maximum daily disturbed area (in acres) and the distance of the project to the nearest sensitive receptors (in meters). The nearest air pollutant sensitive receptors in the Project vicinity include residents in a residential home located approximately 82 feet (25 meters) east of the Project site. Using SCAQMD screening look-up tables and the recommended linear regression consistent with SCAQMD guidance, a 25-meter receptor distance was utilized to determine the LST's for emissions of CO, NO2, PM10, and PM2.5.

Impacts Without Mitigation

Without implementation of mitigation measures, emissions during construction activity will exceed SCAQMD's localized significance thresholds for PM10 and PM2.5 during site preparation and grading. Table AQ-6 identifies the localized impacts at the nearest receptor location in the vicinity of the Project. Without mitigation PM10 and PM 2.5 emissions will exceed the established thresholds.

TABLE AQ-6: LOCALIZED SIGNIFICANCE SUMMARY CONSTRUCTION (WITHOUT MITIGATION)

On-Site Demolition Emissions	**Emissions (pounds per day)**			
	NO_x	**CO**	**PM_{10}**	**$PM_{2.5}$**
Maximum Daily Emissions	**38.32**	**22.30**	**2.06**	**1.82**
SCAQMD Localized Threshold	103	612	4	3
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**
On-Site Site Preparation Emissions	**Emissions (pounds per day)**			
	NO_x	**CO**	**PM_{10}**	**$PM_{2.5}$**
Maximum Daily Emissions	**71.70**	**23.76**	**23.31**	**13.03**
SCAQMD Localized Threshold	193	1,226	9	6
Threshold Exceeded?	**NO**	**NO**	**YES**	**YES**
On-Site Grading Emissions	**Emissions (pounds per day)**			
	NO_x	**CO**	**PM_{10}**	**$PM_{2.5}$**
Maximum Daily Emissions	**48.30**	**17.54**	**10.17**	**5.35**
SCAQMD Localized Threshold	164	999	7	5
Threshold Exceeded?	**NO**	**NO**	**YES**	**YES**

Impacts With Mitigation

With implementation of Mitigation Measure AQ-1, emissions during construction activity will not exceed SCAQMD's localized significance thresholds. Table AQ-7 identifies the localized impacts at the nearest receptor location in the vicinity of the Project.

TABLE AQ-7: LOCALIZED SIGNIFICANCE SUMMARY CONSTRUCTION (WITH MITIGATION)

On-Site Demolition Emissions	Emissions (pounds per day)			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**38.32**	**22.30**	**1.97**	**1.81**
SCAQMD Localized Threshold	103	612	4	3
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**
On-Site Site Preparation Emissions	**Emissions (pounds per day)**			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**71.70**	**23.76**	**8.37**	**5.51**
SCAQMD Localized Threshold	193	1,226	9	6
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**
On-Site Grading Emissions	**Emissions (pounds per day)**			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**48.30**	**17.54**	**4.09**	**2.72**
SCAQMD Localized Threshold	164	999	7	5
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**

As shown in Table AQ-7, with implementation of mitigation measure MM AQ-1, emissions resulting from Project construction will not exceed any applicable LSTs, and impacts will be reduced to less than significant.

Operations Localized Significance Analysis

According to the SCAQMD localized significance threshold methodology, LSTs apply to the operational phase of a proposed project if the project includes stationary sources or attracts mobile sources that may spend long periods queuing and idling at the site (e.g., warehouse or transfer facilities). The proposed Project does not include such uses. Therefore, in the case of the proposed Project, the operational phase LST protocol does not need to be applied.

Impacts associated with construction and operational air quality are less than significant, as SCAQMD significance thresholds for criteria emissions would not be surpassed (see Tables AQ-1, AQ-2, AQ-3, and AQ-4).

c) *Less Than Significant Impact.* Projects could contribute to an existing or projected air quality exceedance because the SCAB is currently in nonattainment for O_3, PM_{10}, and $PM_{2.5}$. With regard to determining the significance of the cumulative contribution from the proposed Project, the SCAQMD recommends that any given project's potential contribution to cumulative impacts be assessed using the same significance criteria as for project-specific impacts. Therefore, individual projects that do not generate operational or construction emissions that exceed the SCAQMD's daily thresholds for project-specific impacts would also not cause a cumulatively considerable increase in emissions for those pollutants for which the air basin is in nonattainment and therefore, would not be considered to have a significant adverse air quality impact. Alternatively, individual project-related construction and operational emissions that do exceed SCAQMD thresholds for project-specific impacts would be considered cumulatively considerable. As previously noted, the Project would not exceed the applicable SCAQMD regional thresholds for construction and operational-source emissions. As such, the Project would

not result in a cumulatively considerable net increase of any criteria pollutant for which the SCAB is in nonattainment. Impacts are less than significant.

d) *Less Than Significant Impact With Mitigation Incorporated*. Sensitive receptors are defined as facilities or 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 of these sensitive receptors are residences, schools, hospitals, and daycare centers. CARB has identified the following groups of individuals as the most likely to be affected by air pollution: the elderly over 65, children under 14, athletes, and persons with cardiovascular and chronic respiratory diseases such as asthma, emphysema, and bronchitis.

The nearest sensitive receptor is an existing residential home located approximately 25 meters/82 feet east of the Project site. In order to identify impacts to sensitive receptors, the SCAQMD recommends addressing localized significance thresholds for construction and operations impacts (stationary sources only). As evaluated in Response b) above, with the implementation of mitigation measure MM AQ-1, the Project would not exceed the localized significance thresholds. Thus, with the implementation of the mitigation measure, the Project's impacts on sensitive receptors would be less than significant.

e) *Less Than Significant Impact*. The potential for the Project to generate objectionable odors has been considered. Land uses generally associated with odor complaints include agricultural uses (livestock and farming), wastewater treatment plants, food processing plants, chemical plants, composting operations, refineries, landfills, dairies, and fiberglass molding facilities.

The Project does not contain land uses typically associated with emissions of objectionable odors. Potential odor sources associated with the proposed Project may result from construction equipment exhaust and the application of asphalt and architectural coatings during construction activities. Standard construction requirements would minimize odor impacts resulting from construction activity. It should be noted that any construction odor emissions generated would be temporary, short term, and intermittent in nature, would cease on completion of the respective phase of construction activity, and would not affect a substantial number of people. Therefore, the Project's potential odor emissions are thus considered less than significant. It is expected that project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with the City's solid waste regulations. The proposed Project would also be required to comply with SCAQMD Rule 402 to prevent occurrences of public nuisances. Therefore, odor impacts associated with the proposed Project's construction and operations would be less than significant.

Mitigation Measure

MM AQ-1 During site preparation and grading activity all actively graded areas within the Project site shall be watered at 2.1-hour watering intervals (e.g., 4 times per day) or a movable sprinkler system shall be in place to ensure minimum soil moisture of 12% is maintained for actively graded areas. Moisture content can be verified with use of a moisture probe by the grading contractor.

Timing/Implementation:	*During site preparation and grading construction activities*
Enforcement/Monitoring:	*City of Industry Planning Department*

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
4. BIOLOGICAL RESOURCES. Would the project:				
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	☐	☒	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or US Fish and Wildlife Service?	☐	☐	☐	☒
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 wetlands, etc.), through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☐	☒
f) Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

DISCUSSION OF IMPACTS

a) *Less Than Significant Impact.* The Project would change the existing disturbed site from lawn, grass, concrete, and pavement to 25 residential units. The majority of the Project site is highly disturbed due to recent weed abatement activities. A "Biological Resources

Assessment Survey" was conducted by LSA Associates, Inc.[4] for the proposed Project. The site is sparsely vegetated with ruderal species, and is partially developed with a single-family residence. To accommodate the proposed development, all existing buildings and structures will be removed. The remainder of the Project site is undeveloped and highly disturbed due to current and past land use practices. No drainage features, ponded areas, wetlands, or riparian habitat subject to jurisdiction of the California Department of Fish and Wildlife (CDFW), US Fish and Wildlife Service (USFWS), and/or Regional Water Quality Control Board (RWQCB) were found within the Project site. A drainage feature occurs adjacent to the southwesterly portion of the Project site, but will not be affected by the proposed Project. Therefore, the Project will have no effects to jurisdictional waters regulated by the CDFW, USFWS and RWQCB.

The site is not known or expected to contain any species identified as candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or the US Fish and Wildlife Service.

Therefore, there would be less than significant impacts on candidate, sensitive, or special-status species, either directly or via modification of an existing habitat.

b) *No Impact*. The proposed Project site consists of developed areas and nonnative grassland vegetation. No drainage features, ponded areas, wetlands, or riparian habitat subject to jurisdiction of the California Department of Fish and Wildlife, USACE, and/or RWQCB were found within the Project site. A drainage feature occurs adjacent to the southwesterly portion of the Project site, but will not be affected by the proposed Project. The site contains no riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by the California Department of Fish and Wildlife or the US Fish or Wildlife Service. Sensitive natural *communities* provide habitat for sensitive animal or plant species, and riparian habitats are those occurring along the banks of rivers or streams. No such communities exist on or in the vicinity of the Project site, and no vegetation on the Project site is native to the City of Industry. Therefore, no impact is anticipated.

c) *No Impact*. No wetlands or other waters of the United States are located on the site. Wetlands are defined by Section 404 of the federal Clean Water Act as land that is flooded or saturated by surface water or groundwater at a frequency and duration sufficient to support, and that normally does support, a prevalence of vegetation adapted to life in saturated soils. Wetlands include area such as swamps, marshes, and bogs. There are no wetlands on or adjacent to the Project site. Therefore, the proposed Project would not have adverse effects on proposed wetlands. No impact would occur.

d) *Less Than Significant Impact*. There are no waters or streams present on the site. Nesting bird species are protected by California Fish and Game Code Sections 3503 and 3503.5, and by the Migratory Bird Treaty Act, which make it unlawful to take, possess, or needlessly destroy the nest or eggs of any migratory bird or bird of prey. The Mexican elderberry tree and ornamental trees and shrubs on the Project site may provide nesting habitat for birds observed using the site as well as other birds known from the region. It is recommended that vegetation-clearing activities be scheduled outside of the avian nesting season (February 1 through August 31). If construction activities are planned during the avian

[4] LSA Associates, Inc. *Biological Resources Assessment Survey Letter Report – Industry Workforce Housing Community.* December 4, 2017.

nesting season, a pre-construction nesting bird Survey should be conducted within three days prior to commencement to avoid impacts to birds protected under the California Fish and Game Code and MBTA. A habitat suitability assessment for burrowing owl was conducted during the site visit. The Project site does not contain suitable habitat for the burrowing owl due to the absence of potential nesting sites as described above. No burrowing owls or burrowing owl sign (e.g., whitewash, pellets, scat, tracks, and/or feathers) were observed during the habitat assessment survey. Focused burrowing owl surveys were not conducted for the proposed Project due to the absence of suitable habitat for the burrowing owl on the proposed Project site at this time. If on-site conditions change, a pre-construction survey is recommended within three days prior to beginning site grading to avoid and minimize potential adverse effects to burrowing owls by construction activities. If burrowing owls are found to be present, project-specific mitigation would be developed and authorized through consultation with the City of Industry and the CDFW. A Project Condition of Approval will be included to ensure that if on-site conditions change prior to grading, the applicant will be required to perform a pre-construction survey addressing effects to nesting birds and burrowing owls.

Wildlife corridors are typically made up of undeveloped wildlife areas and open space between larger patches of wildlife habitat. The Project site is highly disturbed and surrounded predominantly by developed urban land uses. It does not contain or support wildlife habitat or nursery use and is not used for overland wildlife movement. Less than significant Impact would occur.

e) *No Impact*. The Project site and surrounding area do not contain biological resources that are protected by any local policies or ordinances, such as a tree preservation policy or ordinance. The City of Industry Municipal Code does not contain ordinances protecting trees or other biological resources on private property. Therefore, the Project would have no impact related to conflicts with local policies protecting biological resources.

f) *No Impact*. The Project site is located in a developed, disturbed, urban environment and is surrounded primarily by contiguous development. It is not within an adopted habitat conservation plan area designated by the US Fish and Wildlife Service or within a natural community conservation plan area designated by the California Department of Fish and Wildlife (2016). Nor is the Project site within an existing or proposed Significant Ecological Area (SEA) designated by the Los Angeles County Department of Regional Planning (2015). The nearest designated SEA is the East San Gabriel Valley, which is located approximately 3 miles southeast of the projected site. Therefore, no impact would occur.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
5. CULTURAL RESOURCES. Would the project:				
a) Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5?	☐	☒	☐	☐
c) Disturb any human remains, including those interred outside of formal cemeteries?	☐	☒	☐	☐

DISCUSSION OF IMPACTS

a) *Less Than Significant Impact*. The Project area is located on the north side of East Walnut Drive South and immediately south of State Route 60 (SR-60). The Sri Guru Singh Sabha, Walnut temple is located west of the Project site. Single-family residences are located east and south of the Project site, across East Walnut Drive South. The site is currently occupied by one existing historic-period residence (20137 East Walnut Drive South) and vacant land. The proposed Project would demolish and remove the existing residence and associated improvements from the property.

LSA Associates has conducted a "Cultural Resources Assessment"[5] to evaluate the historical significance of the historic-period residence. The architectural field survey documented one historic-period resource consisting of a single-family residence (20137 East Walnut Drive South) within the Project area. The single-family residence at 20137 East Walnut Drive South is a one-story Ranch-style house built in 1964. It has an irregular plan and is oriented to the south. The house is surmounted by a low-pitched, gable-on-hip roof sheathed in composition shingles and has wide eaves. The exterior walls are clad in modern stucco and modern stone skirting. The south facing, asymmetrical façade includes: two pairs of modern vinyl-framed sliding windows; a large, vinyl-framed fixed window flanked by sliding end vents; a recessed porch sheltered beneath the eave; and an east-facing, modern, wood and glass door. A two-car garage with a modern door is located immediately northeast of the residence, connected to the latter by a covered breezeway. The associated yard features mature landscaping including trees, concrete edged planters, and manicured hedges, and is cordoned off from the rest of the parcel by chain link fencing. The driveway is spanned by a modern, wrought iron gate set between tall, stone veneer-clad pilasters. The residence is in good condition; but is a common property type and style and has sustained alterations to its fenestration and siding, compromising its architectural integrity. Over the years, the residence has sustained minor exterior alterations to its fenestration and siding, which has compromised its integrity of design, materials, and workmanship, albeit slightly. In addition, the setting, which once

[5] LSA Associates, Inc. *Cultural Resources Assessment – Industry Workforce Housing Community – Assessor Parcel Number 8762-002-901, City of Industry, Los Angeles County, California.* December 2017.

consisted of agricultural and vacant land, has been significantly compromised by the removal of the property's original groves and associated structures.

Historical resources are buildings, structures, objects, sites, and districts of significance in history, archaeology, architecture, and culture. CEQA (PRC Chapter 2.6, Section 21083.2 and CCR Title 145, Chapter 3, Article 5, Section 15064.5) calls for the evaluation of resources to determine whether they qualify as historical resources as defined by CEQA. Once a resource has been identified as a "historic resource", it must be determined whether there would be impacts to the resource. The criteria for determining the historical significance of resources are based on Section 15064.5 of the CEQA Guidelines and Guidelines for the Nomination of Properties to the California Register. For a property to be eligible for inclusion in the California Register, one or more of the following criteria must be met:

1. It is associated with the events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
2. It is associated with the lives of persons important to local, California, or national history;
3. It embodies the distinctive characteristics of a type, period, region, or method or construction, or represents the work of a master, or possesses high artistic values; and/or
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

In addition to meeting one or more of the above criteria, the California Register requires that sufficient time has passed since a resource's period of significance to "obtain a scholarly perspective on the events or individuals associated with the resource." Fifty years is used as a general estimate of time needed to develop the perspective to understand the resource's significance (CCR 4852 [d][2]). The California Register also requires that a resource possess integrity, which is defined as "the authenticity of an historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance" (California Office of Historic Preservation 1999:2). To retain integrity, a resource should have its original location, design, setting, materials, workmanship, feeling, and association. Which of these factors is most important depends on the particular criterion under which the resource is considered eligible for listing (California Office of Historic Preservation 1999).

LSA has evaluated the property for significance under the California Register criteria. The City of Industry does not have criteria for local designation. The detailed evaluation is included in the "Cultural Resource Assessment" report. Based on this evaluation, the property does not meet any of the criteria for listing in the California Register and there are no local criteria. Therefore, it is not a historical resource as defined by CEQA. Less than significant impact will occur.

b) *Less Than Significant Impact With Mitigation Incorporated*. CEQA Guidelines Section 15064.5(a)(3)(D) generally defines archaeological resources as any resource that "has yielded, or may be likely to yield, information important in prehistory or history." There are no known prehistoric or historic archaeological sites on the Project site. In addition, the Project site does not contain undisturbed surficial soils. The site was formerly disturbed and currently contains a residential dwelling unit with non-native, synthetic materials on the surfaces. However, the Project involves grading, including excavation/trenching at subterranean levels for utility installation, which could reach into previously undisturbed soils. Thus, construction of the Project has the potential to encounter previously undiscovered archaeological resources. In the unlikely event that archaeological

resources are encountered during grading or construction of the Project, mitigation measures MM CUL-1, MM TCR-1 (see Tribal Cultural Resources), and MM TCR-2 (see Tribal Cultural Resources) would ensure that implementation of the proposed Project does not cause a substantial adverse change in the significance of an archaeological resource. Therefore, with mitigation incorporated, potentially significant impacts would be reduced to a less than significant level.

c) *Less Than Significant Impact With Mitigation Incorporated*. No human remains are known to exist on the Project site. Given the past ground disturbance and current condition of the site, it is very unlikely that any human remains would be uncovered during Project construction. However, California Health and Safety Code Section 7050.5 requires that in the event human remains are discovered within a Project site, disturbance of the site must be halted until the county coroner has conducted an investigation into the circumstances, manner, and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation or to his or her authorized representative. If the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes or has reason to believe the human remains to be those of a Native American, he or she is required to contact, by telephone within 24 hours, the Native American Heritage Commission. The proposed Project would be required to adhere to existing laws regarding the discovery of human remains. In addition, mitigation Measure MM TCR-3 (see Tribal Cultural Resources) has been incorporated in the Project following tribal consultation. Therefore, with the implementation of the mitigation measure impacts would be reduced to less than significant.

Mitigation Measures

MM CUL-1 If archaeological resources are encountered during Project construction, all construction activities in the vicinity of the find must halt until an archaeologist certified by the Society of Professional Archaeologists examines the site, identifies the archaeological significance of the find, and recommends a course of action. Construction cannot resume until the site archaeologist states in writing that the proposed construction activities will not damage significant archaeological resources.

Timing/Implementation: Throughout ground-disturbing construction activities

Enforcement/Monitoring: City of Industry Planning Department

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
6. GEOLOGY AND SOILS. 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.	☐	☐	☒	☐
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	☐	☐	☒	☐
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geological feature?	☐	☒	☐	☐

DISCUSSION OF IMPACTS

a.

i. *Less Than Significant Impact.* Fault rupture impacts can occur when a structure is situated on top of an active fault that produces surface displacement during an earthquake event. The Project site is not located within an Alquist-Priolo Earthquake Fault Zone as delineated by the California Geological Survey, nor is it situated on or near any known active fault. The location of the closest active faults to the site was evaluated using the United States Geological Survey (USGS) Earthquake Hazards Program National Seismic Hazard Maps (USGS, 2008c). The closest active faults to the site are the San Jose fault, Elsinore Fault Zone (Whittier fault), Puente Hills fault and Chino fault, located approximately 3.0 miles, 4.1 miles, 6.8 miles and 7.1 miles from the site, respectively. The Puente Hills fault is a blind thrust fault that is concealed at depth, without the potential for surface fault rupture. The San Andreas fault, which is the largest active fault in California, is approximately 27 miles northeast of the site. Additionally, according to the City of Industry General Plan Safety Element, no faults are known to occur within the Project site. Because no known active or potentially active faults cross the site, Project development would not expose people or structures to substantial hazards arising from surface rupture of a known active fault. Therefore, the likelihood of a surface fault rupture occurring on the Project site is considered low. Compliance with the latest version of the California Building Code (see following response) would minimize impacts related to seismic activity to an acceptable level. Impacts would be less than significant.

ii. *Less Than Significant Impact.* Similar to the rest of Southern California, the Project site is subject to ground shaking and potential damage in the event of seismic activity. The expected ground-motion characteristics of future earthquakes in the region depend on the distance to the epicenter and magnitude of the earthquake, as well as the soil profile of the site. Based on the available data, the impacts associated with ground shaking at the Project site would not be greater than at other sites in seismically active Southern California.

The City of Industry's Building Regulations are found in Title 15 (Buildings and Construction) of the City's Municipal Code. Chapter 15.04 (Building Code) adopts the most recent version of the Los Angeles County Building Code by reference. The proposed Project would be required to adhere to the provisions of the Los Angeles County Building Code, which are imposed on Project developments during the City's building plan check and Development Plan review process. Compliance with the requirements of the Los Angeles County Building Code for structural safety during a seismic event would reduce hazards from strong seismic ground shaking. Therefore, impacts would be less than significant.

iii. *Less Than Significant Impact.* Soil liquefaction is a phenomenon whereby a saturated or partially saturated soil substantially loses strength and stiffness by undergoing from a solid state to liquefied condition in response to an applied stress, usually earthquake shaking or other sudden change in stress condition. During liquefaction affected soils lose all strength and foundation failure can occur. Both sandy and clayey soils are susceptible to loss of strength and stiffness.

The California Geological Survey, a branch of the California Department of Conservation, has a mandate to identify and map the state's most prominent earthquake hazards pursuant to the Seismic Hazards Mapping Act of 1990. These hazards include areas where earthquakes are likely to cause shaking, liquefaction, or ground failure. In 1999, the California Geological Survey updated existing seismic hazard maps for portions of Southern California, including the area that encompasses

the City of Industry. The updated map that covers the Project site (San Dimas 7.5-minute quadrangle) indicates that the site is in a state-mapped liquefaction zone, which the Department of Conservation (1999) defines as:

> Areas where historic occurrence of liquefaction or local geological, geotechnical, or groundwater conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

A city, county, or another local permitting authority must regulate certain development "projects" within these seismic hazard zones. If a project site is in one of these zones, development permits must be withheld until the project site's geological and soil conditions are investigated and appropriate mitigation measures, if necessary, are incorporated into development plans.

Leighton and Associates performed a Geotechnical Exploration for the proposed Project site.[6] Shallow groundwater level was encountered as part of the analysis for liquefaction potential at the Project site. Based on the results of this analysis, an isolated, non-continuous soil layer at a depth of approximately 25 feet is potentially susceptible to liquefaction. However, since this layer is relatively thin compared to the thick overlying layer of non-liquefiable soil, the potential for surface manifestations resulting in building damage is low.

Future workers or site visitors potentially could be subjected to impacts due to seismically induced liquefaction. However, the new structures proposed for the site would be constructed in accordance with grading and engineering standards outlined in the Los Angeles County Building Code and the California Building Code, which would help safeguard the structures from liquefaction that might occur during future seismic events. Additionally, as a standard City of Industry procedure, grading and soil compaction requires the preparation of site-specific grading plans, soils and geotechnical reports (which must address liquefaction, subsidence, and other potential soil stability hazards), and hydrology studies, which are required to be submitted to the City for review and approval prior to the commencement of any grading activities. Based on the available information, impacts due to seismic-related ground failure and construction of the proposed Project are anticipated to be less than significant.

iv. *No Impact*. As discussed above, the California Department of Conservation is mandated by the Seismic Hazards Act of 1990 to identify and map the state's most prominent earthquake hazards, including hazard areas that are at risk for earthquake-induced landslides. If a project site is located in one of the landslide hazard areas, the City of Industry is required to prepare a geotechnical report defining and delineating landslide hazards in the project area. Based on the Seismic Hazards Zones map for the San Dimas 7.5- minute quadrangle (DOC 1999), the proposed Project site is not in a mapped landslide hazard area and is not subject to landslide hazards. Moreover, the Project site and surrounding land are virtually flat. Therefore, no impact related to landslide hazards would occur.

b) *Less Than Significant Impact*. Erosion is the movement of rock fragments and soil from one place to another. Precipitation, running water, waves, and wind are all agents of erosion.

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[6] Leighton and Associates, Inc. *Geotechnical Exploration Report – Proposed Residential Development, Industry Workforce Housing Community – 20249 E. Walnut Drive South, City of Industry, CA.* December 1, 2017.

Significant erosion typically occurs on steep slopes where stormwater and high winds can carry topsoil down hillsides. Erosion can be accelerated dramatically by ground-disturbing activities if effective erosion control measures are not used. The Project site is in a highly urbanized area that is virtually flat and contains minimal rises or changes in elevation. No major slopes or bluffs exist on the site. Project construction would entail grading activities that would temporarily disturb surface soils on-site and potentially result in the erosion of exposed areas of soil. Since the Project site is greater than 1 acre, it would be subject to National Pollutant Discharge Elimination System (NPDES) requirements. Under the NPDES, a stormwater pollution prevention plan (SWPPP) would be required, along with best management practices (BMPs) designed to prevent erosion and siltation during the Project's construction phase.

The Project developer would also be required to adhere to the applicable provisions outlined in City of Industry Municipal Code Chapter 13.16 (Stormwater and Urban Runoff Pollution Control), which include requirements to preserve water quality and prevent erosion during construction. In particular, Section 13.16.070(C) requires that stormwater runoff control measures during construction be adequate to accomplish the following:

- Retain on-site sediments generated on or brought to the project site using treatment control or BMPs.
- Retain construction-related materials and wastes, spills, and residues at the project site and prevent discharges to the streets, municipal storm drain, receiving water, or adjacent properties.
- Contain non-stormwater runoff from equipment and vehicle washing at the project site.
- Control erosion from slopes and channels through the use of effective BMPs, such as limitation of grading during the wet season, inspection of graded areas during rain events, planting and maintenance of vegetation on slopes, and covering any slopes susceptible to erosion.

After project completion, the Project site would be developed with houses, paving, and landscape improvements and would contain minimal exposed soil. Properly designed drainage systems, irrigation controls, and landscaping would minimize the opportunity for soil erosion and the loss of topsoil. Adherence to the NPDES requirements, the SWPPP and related best management practices, and the City's stormwater and urban runoff pollution regulations would result in a less than significant impact.

c) *Less Than Significant Impact*. Hazards related to liquefaction and landslides are addressed in Responses a)iii and a)iv, respectively. Lateral spreading is the downslope movement of surface sediment due to liquefaction in a subsurface layer. The risk of lateral spreading at the Project site is negligible because of the relatively flat terrain. In accordance with the Los Angeles County Building Code, the developer is required to prepare a geotechnical investigation prior to the issuance of grading permits. Compliance with recommendations in the geotechnical investigation for minimizing liquefaction hazards would also reduce hazards from lateral spreading.

The major cause of ground subsidence is withdrawal of groundwater. Groundwater levels in the Main San Gabriel Groundwater Basin, which underlies the Project site, are managed by the Main San Gabriel Basin Watermaster to avoid groundwater withdrawals exceeding

recharges. The Project would not require direct groundwater withdrawal, nor would it involve or allow significant groundwater recharge.

Collapsible soils shrink upon being wetted, subjected to a load, or both. The Project geotechnical investigation includes recommendations for grading and preparation of soil so that it is suitable for construction, including soil classification, compaction density, and moisture content. Compliance with such recommendations would reduce hazards from collapsible soils. Based on the foregoing, impacts related to lateral spreading, subsidence, and collapsible soils would be less than significant.

d) *Less Than Significant Impact*. Expansive soils, with respect to engineering properties, are soils that upon wetting and drying will alternately expand and contract, causing problems for foundations of buildings and other structures. The proposed Project would be subject to established engineering standards regarding soil compaction and would include testing of soil samples for expansion potential as part of the required geotechnical evaluation. Any actions to minimize hazards from expansive soils would be implemented during construction in accordance with California Building Code requirements. Impacts would be less than significant.

e) *No Impact*. Development of the proposed Project would not require the installation of a septic tank or alternative wastewater disposal system. The new buildings would be connected to the existing sewer system. Therefore, no impact would occur.

f) *Less Than Significant Impact With Mitigation Incorporated*. The topography of the Project site, as existing, is largely flat with short non-native grass, concrete, and asphalt on the surface. Site grading will entail clearing, overexcavation, excavation, recompaction and import. Gross earthwork quantities are estimated to be 20,000 cubic yards cut, 30,000 cubic yards fill (both including 15,000 cubic yards overexcavation and recompaction) with an estimated 12,500 cubic yards of import. The proposed grading is to prepare the site for development and does not involve changing any natural landform features. The site's minimum relief is man-made, and no natural topographic features exist on the site. The site does not contain any ridgelines or other natural topographic features. Therefore, although the Project requires 50,000 cubic yards of earthwork, the proposed topographic change and earth movement would not result in the destruction, covering, or modification of any unique geologic or physical feature, and the Project would have no related impact.

With regard to paleontological resources, while the Project site has already been subject to extensive disruption from the previous development activities, construction activities associated with the proposed Project have the potential to unearth undocumented resources and result in a significant impact. It is not anticipated that the proposed Project would encounter any paleontological resources. However, in the unexpected event that paleontological resources are discovered during grading, mitigation measure MM GEO-1 would ensure that implementation of the proposed Project does not cause a substantial adverse change in the significance of a potentially significant paleontological resource. Therefore, with mitigation incorporated, potentially significant impacts would be reduced to a less than significant level.

Mitigation Measures

MM GEO-1 If paleontological resources are encountered during Project construction, all construction activities in the vicinity of the find must halt until a professional paleontologist examines the site, identifies the paleontological significance of

the find, and recommends a course of action. Construction cannot resume until the site paleontologist states in writing that the proposed construction activities will not damage significant paleontological resources.

Timing/Implementation:	*Throughout ground-disturbing construction activities*
Enforcement/Monitoring:	*City of Industry Planning Department*

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
7. GREENHOUSE GAS EMISSIONS. Would the project:				
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☐	☒	☐
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☐	☐	☒

DISCUSSION OF IMPACTS

Global Climate Change (GCC) refers to the change in average meteorological conditions on the earth with respect to temperature, wind patterns, precipitation and storms. Global temperatures are regulated by naturally occurring atmospheric gases such as water vapor, CO2 (Carbon Dioxide), N2O (Nitrous Oxide), CH4 (Methane), hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. These particular gases are important due to their residence time (duration they stay) in the atmosphere, which ranges from 10 years to more than 100 years. These gases allow solar radiation into the Earth's atmosphere, but prevent radioactive heat from escaping, thus warming the Earth's atmosphere. GCC can occur naturally as it has in the past with the previous ice ages. According to the California Air Resources Board (CARB), the climate change since the industrial revolution differs from previous climate changes in both rate and magnitude.

Gases that trap heat in the atmosphere are often referred to as greenhouse gases. Greenhouse gases are released into the atmosphere by both natural and anthropogenic (human) activity. Without the natural greenhouse gas effect, the Earth's average temperature would be approximately 61° Fahrenheit (F) cooler than it is currently. The cumulative accumulation of these gases in the earth's atmosphere is considered to be the cause for the observed increase in the earth's temperature.

Although California's rate of growth of greenhouse gas emissions is slowing, the state is still a substantial contributor to the U.S. emissions inventory total. In 2004, California is estimated to have produced 492 million gross metric tons of carbon dioxide equivalent (CO2e) greenhouse gas emissions. Despite a population increase of 16 percent between 1990 and 2004, California has significantly slowed the rate of growth of greenhouse gas emissions due to the implementation of energy efficiency programs as well as adoption of strict emission controls.

Section 15064.4(b) of the CEQA Guidelines provides direction for lead agencies for assessing the significance of impacts of greenhouse gas emissions:

1. The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;

2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; or

3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The CEQA Guidelines do not identify a threshold of significance for greenhouse gas emissions, nor do they prescribe assessment methodologies or specific mitigation measures. Instead, they call for a "good-faith effort, based on available information, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project." The Guidelines encourage lead agencies to consider many factors in performing a CEQA analysis and preserve lead agencies' discretion to make their own determinations based upon substantial evidence.

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RECOMMENDATIONS FOR SIGNIFICANCE THRESHOLDS:

In April 2008, in order to provide guidance to local lead agencies on determining the significance of GHG emissions identified in CEQA documents, the South Coast Air Quality Management District (SCAQMD), convened a "GHG CEQA Significance Threshold Working Group." The goal of the working group is to develop and reach consensus on an acceptable CEQA significance threshold for GHG emissions that would be utilized on an interim basis until CARB (or some other state agency) develops statewide guidance on assessing the significance of GHG emissions under CEQA.

Initially, SCAQMD staff presented the working group with a significance threshold that could be applied to various types of projects—residential; non-residential; industrial; etc. However, the threshold is still under development. In December 2008, staff presented the SCAQMD Governing Board with a significance threshold for stationary source projects where it is the lead agency. This threshold uses a tiered approach to determine a project's significance, with 10,000 metric tons of carbon dioxide equivalent (MTCO2e) as a screening numerical threshold for stationary sources. More importantly it should be noted that when setting the 10,000 MTCO2e threshold, the SCAQMD did not consider mobile sources (vehicular travel), rather the threshold is based mainly on stationary source generators such as boilers, refineries, power plants, etc. Therefore it would be misleading to apply a threshold that was developed without consideration for mobile sources to a Project where the majority of emissions are related to mobile sources. Thus there is no SCAQMD threshold that can be applied to this Project.

In September 2010, the Working Group released additional revisions that consist of the following recommended tiered approach:

- Tier 1 consists of evaluating whether or not the Project qualifies for applicable CEQA exemptions.
- Tier 2 consists of determining whether or not a Project is consistent with a greenhouse gas reduction plan. If a Project is consistent with a greenhouse gas reduction plan, it would not have a significant impact.
- Tier 3 consists of screening values at the discretion of the lead agency; however they should be consistent for all projects within its jurisdiction. Project-related construction emissions should be amortized over 30 years and should be added back the Project's operational emissions. The following thresholds are proposed for consideration:

- 3,000 MTCO2e per year for all land use types

  or

- 3,500 MTCO2e per year for residential; 1,400 MTCO2e per year for commercial; or 3,000 MTCO2e per year for mixed-use projects

- Tier 4 has the following options:
  - Option 1: Reduce emissions from business as usual by a certain percentage (currently undefined)
  - Option 2: Early implementation of applicable AB 32 Scoping Plan measures
  - Option 3: A project-level efficiency target of 4.8 MTCO2e per service population as a 2020 target and 3.0 MTCO2e per service population as a 2035 target. The recommended plan-level target for 2020 is 6.6 MTCO2e and the plan level target for 2035 is 4.1 MTCO2e
- Tier 5 involves mitigation offsets to achieve target significance thresholds

The SCAQMD has also adopted Rules 2700, 2701, and 2702 that address GHG reductions. However, these rules address boilers and process heater, forestry, and manure management projects, none of which are required by the Project.

The City of Industry has not adopted its own numeric threshold of significance for determining impacts with respect to greenhouse gas (GHG) emissions.

However, as an interim threshold based on guidance provided in the California Air Pollution Control Officers Association (CAPCOA) CEQA and Climate Change handbook, the City has opted to use a non-zero threshold approach based on Approach 2 of the handbook. Threshold 2.5 (Unit-Based Thresholds Based on Market Capture) establishes a numerical threshold based on capture of approximately 90 percent of emissions from future development. The latest threshold developed by SCAQMD using this method is 3,000 metric tons carbon dioxide equivalent (MTCO2E) per year for residential projects. This approach has been adopted by the South Coast Air Quality Management (SCAQMD) for residential projects where it is the lead agency. This approach is also widely used by the City of Industry and various other cities in the South Coast Air Basin (SCAB) where the SCAQMD is the lead agency. As such, this threshold will be utilized herein to determine if emissions of greenhouse gases from this Project will be significant. Urban Crossroads has performed a Greenhouse Gas Analysis for the proposed Project.[7] The findings of this analysis are provided below.

a) *Less Than Significant Impact*. The Project site is generally level and currently includes one residential dwelling unit. Thus, the site is currently not generating a quantifiable amount of GHG emissions.

PROJECT-RELATED GREENHOUSE GAS EMISSIONS

Construction Emissions

Construction activities associated with the Project would result in emissions of CO2 and CH4 from construction activities. The report Air Quality Impact Analysis Report, Urban Crossroads, Inc. (2017) contains detailed information regarding construction activity.

[7] Urban Crossroads, Inc. *Industry Workforce Housing Community Greenhouse Gas Analysis, City of Industry*. December 12, 2017.

For construction phase Project emissions, GHGs are quantified and amortized over the life of the Project. To amortize the emissions over the life of the Project, the SCAQMD recommends calculating the total greenhouse gas emissions for the construction activities, dividing it by a 30 year project life then adding that number to the annual operational phase GHG emissions. As such, construction emissions were amortized over a 30 year period and added to the annual operational phase GHG emissions.

Operational Emissions

Operational activities associated with the proposed Project will result in emissions of CO2, CH4, and N2O from the following primary sources:

Building Energy Use (combustion emissions associated with natural gas and electricity)

Water Supply, Treatment and Distribution

Solid Waste

Mobile Source Emissions

1. Building Energy Use

GHGs are emitted from buildings as a result of activities for which electricity and natural gas are typically used as energy sources. Combustion of any type of fuel emits CO2 and other GHGs directly into the atmosphere; these emissions are considered direct emissions associated with a building. GHGs are also emitted during the generation of electricity from fossil fuels; these emissions are considered to be indirect emissions. Unless otherwise noted, CalEEMod default parameters were used.

2. Water Supply, Treatment and Distribution

Indirect GHG emissions result from the production of electricity used to convey, treat and distribute water and wastewater. The amount of electricity required to convey, treat and distribute water depends on the volume of water as well as the sources of the water. Unless otherwise noted, CalEEMod default parameters were used.

3. Solid Waste

Retail Commercial land uses would result in the generation and disposal of solid waste. A large percentage of this waste would be diverted from landfills by a variety of means, such as reducing the amount of waste generated, recycling, and/or composting. The remainder of the waste not diverted would be disposed of at a landfill. GHG emissions from landfills are associated with the anaerobic breakdown of material. GHG emissions associated with the disposal of solid waste associated with the Project were calculated using CalEEMod default parameters.

4. Mobile Source Emissions

GHG emissions will also result from mobile sources associated with the Project. These mobile source emissions will result from the typical daily operation of motor vehicles by visitors, employees, and customers.

Project-related operational air quality impacts derive primarily from vehicle trips generated by the Project. Trip characteristics based on CalEEMod defaults were used in the analysis.

Fugitive Dust Related to Vehicular Travel

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

As shown on Table GHG-1, the Project will result in approximately 524.04 metric tons of carbon dioxide equivalents (MTCO2e) per year; the proposed Project would not exceed the SCAQMD's interim threshold of 3,000 MTCO2e per year. Therefore, a less than significant impact will occur and no further analysis is required. This finding does not conflict with the significant and unavoidable impact finding with respect to GHG emissions that was made in the City of Industry General Plan Update EIR. The overall GHG impacts of the proposed Project would be less than what was disclosed in the General Plan Update EIR.

TABLE GHG-1: TOTAL PROJECT GREENHOUSE GAS EMISSIONS (ANNUAL)

Emission Source	Emissions (metric tons per year)			
	CO_2	CH_4	N_2O	Total CO_2E
Annual construction-related emissions amortized over 30 years	21.36	0.01	--	21.50
Area	8.18	8.83E-03	1.80E-04	8.44
Energy	102.04	3.40E-03	1.23E-03	102.49
Mobile Sources	363.64	0.02	--	364.13
Waste	5.99	0.35	--	14.85
Water Usage	10.91	0.05	1.34E-03	12.65
Total CO_2E (All Sources)	**524.04**			
SCAQMD Threshold	**3,000**			
Significant?	**NO**			

10) Source: CalEEMod™ model output.
11) Note: Totals obtained from CalEEMod™ and may not total 100% due to rounding.
12) Table results include scientific notation. *e* is used to represent *times ten raised to the power of* (which would be written as x 10^{b11}) and is followed by the value of the exponent
-- Negligible amount of emissions (CalEEMod does not report any emissions for these pollutants)

b) *No Impact.* Based on the foregoing, the Project does not interfere with the state's implementation of (i) Executive Order B-30-15's target of reducing statewide GHG emissions to 40% below 1990 levels by 2030 or (ii) Executive Order S-3-05's target of reducing statewide GHG emissions to 80% below 1990 levels by 2050 because it does not interfere with the state's implementation of GHG reduction plans described in the CARB's Updated Scoping Plan, including the state providing for 12,000 MW of renewable distributed generation by 2020, the California Building Commission mandating net zero energy homes in the building code after 2020, or existing building retrofits under AB 758. Therefore, the Project's greenhouse gas emissions will not conflict with the state's implementation of emissions reductions in the 2030 and 2050 horizon years and no impact will occur.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
8. HAZARDS AND HAZARDOUS MATERIALS. Would the project:				
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☐	☒
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☐	☒
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☒	☐	☐
e) For a project located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or a public use airport, would the project result in a safety hazard for people residing or working in the project area?	☐	☐	☐	☒
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?	☐	☐	☐	☒
g) Impair implementation of, or physically interfere with, an 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?	☐	☐	☐	☒

DISCUSSION OF IMPACTS

a) *No Impact*. The proposed residential buildings are not anticipated to store, use, or generate substantial amounts of hazardous materials and are not anticipated to use any acutely hazardous materials. The only hazardous materials expected to be used on-site are typical cleansers, solvents, pesticides, and fertilizers for typical household maintenance and landscaping. These chemicals are used for expected maintenance and are not typically of sufficient quantity or concentration to pose hazards to the public. Therefore, the proposed Project would not create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials, and would have no associated impacts.

b) *No Impact*. LSA Associates has prepared a Phase I Environmental Site Assessment (ESA) for the 3.86-acre Project site.[8] IWS Environmental has performed a Phase II Soil Investigation for Chemical Compounds Relating to Previous Agricultural Use for the site.[9] The Phase I ESA provides evidence that recognized environmental conditions currently do not exist relative to the subject property. A review of historical aerial photographs and historical contamination characterization studies determined hazardous materials were not previously used, stored, and/or disposed of on the site. The site is not known or expected to contain any underground storage tanks, aboveground storage tanks, gas lines, or other hazardous material conduits or storage facilities. In addition, the Project site is not included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (DTSC 2016). No evidence exists on the Project site of willful industrial abuse, legal/illegal dumping, mining, or oil and gas exploration or production. Furthermore, the Project does not propose any industrial uses, waste treatment/storage facilities, power plants, or other land uses that are typically associated with hazardous material accidents. The Phase II Investigation found no Organochlorine Pesticides were detected in any of the samples analyzed. Trace levels of arsenic were detected which were well below regulatory action level and are considered naturally occurring background levels native to the area. Therefore, the proposed Project would not create a hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. The Project would have no related impacts.

c) *No Impact*. The Project site is not located within one-quarter mile of an existing or proposed school. The nearest schools are Ybarra Academy of Art and Technology on 1300 Brea Canyon Cutoff Road located approximately one-half mile southwest of the Project site, and South Pointe Middle School at 20671 Larkstone Drive located approximately three-quarters of a mile southeast of the site. As discussed in a) and b) above, the Project will adhere to Best Management Practices during construction and would not emit or handle hazardous or acutely hazardous materials, substances, or waste that could impact the schools in the vicinity of the site. Furthermore, the proposed residential use is not anticipated to store, use, or generate substantial amounts of hazardous materials and is not anticipated to use any acutely hazardous materials. Therefore, the Project would have no related impacts.

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[8] LSA Associates, Inc. *Phase I Environmental Site Assessment – 3.86 –Acre NCO Site (APN 8762-002-902) – 20249 E. Walnut Drive South in the City of Industry, Los Angeles County, California*. November 22, 2017.
[9] IWS Environmental, Inc. Phase II Subsurface Soil Investigation for Chemical Compounds Relating to Previous Agricultural Use. December 4, 2017.

d) *Less Than Significant Impact With Mitigation Incorporated*. The Project site currently contains a residential unit. EMLab P&K performed Lead Based Paint (LBP) and Asbestos testing on the existing unit. Trace (<1.0 %) asbestos was detected for three stucco samples with two layers each. The EPA regulations require additional point count analysis if trace amounts of Asbestos Containing Material (ACM) is detected in a sample. Mitigation Measure MM HAZ-1 has been added to prepare an asbestos work plan to ensure abatement methods and control measures for proper handling, removal and disposal. The site is not found on any list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 (DTSC 2016) and as a result, would not create a significant hazard to the public or the environment. With the implementation of the mitigation measure impacts would be less than significant.

e) *No Impact*. The Project site is not located in an area covered by an airport land use plan or within 2 miles of a public airport or public-use airport. The nearest public airports are Brackett Field Airport, located approximately 8 miles northeast of the site and San Gabriel Valley Airport approximately 11 miles to the northwest of the Project site. Therefore, Project development would not cause aviation-related hazards for people working in the Project area. No impact would occur.

f) *No Impact*. The Project site is not within an airport land use plan, and the nearest airport is approximately 8 miles away. Therefore, the Project would not result in a safety hazard for people residing or working in proximity to an airport or private airstrip, and the proposed Project would have no associated impacts.

g) *Less Than Significant Impact*. The existing emergency response plan in Los Angeles County is the Operational Area Emergency Response Plan (ERP) approved by the County Board of Supervisors in 1998. The ERP identifies county agencies and other entities that would be involved in emergency responses; threat summaries and assessments; and procedures for responding agencies as well as county agencies that would be involved in coordinating and managing responses.

Further assessments of potential hazards and county resources available for responding to hazards are in the County of Los Angeles All-Hazard Mitigation Plan (AHMP) adopted by the County Board of Supervisors in February 2014. The AHMP includes a vulnerability analysis for many types of hazards, including earthquakes, floods, fires, and man-made hazards such as terrorism and civil unrest; goals and objectives for strategies for mitigating hazards; proposed strategies and actions for reducing vulnerability to identified hazards; and lists of facilities and equipment available for responding to disasters.

The proposed Project would be required to provide the necessary on- and off-site access and circulation improvements for emergency vehicles and services during the construction and operational phases, subject to City of Industry and Los Angeles County Fire Department (LACFD) approval. The Project would be required to go through the City's Development Plan review and permitting process and would incorporate all applicable design and safety features in City of Industry and LACFD regulations necessary to accommodate local emergency services (adequate access roads, emergency exits, fire hydrants, etc.).

Furthermore, existing emergency access to surrounding properties would not be altered or disrupted under the proposed Project, and off-site roadway modifications would not be necessary. The proposed Project would not require full road closures or otherwise impact the functionality of surrounding roads that are used as public safety access routes.

Therefore, the Project would not impair implementation of or physically interfere with the ERP, and the impact would be less than significant.

h) *No Impact.* The Project site is in a highly urbanized and built-out area of the City of Industry. There are no wildlands in the vicinity of the Project site. Therefore, implementation of the proposed Project would not expose people or structures to a significant risk of loss, injury, or death from wildland fires. Therefore, no impacts would occur.

Mitigation Measures

MM HAZ-1 Prior to demolition permits, the contractor shall submit an asbestos work plan for the City's review and approval. The work plan shall indicate the proposed abatement methods and control measures for the removal of asbestos containing materials.

Timing/Implementation: *Prior to demolition permits*

Enforcement/Monitoring: *City of Industry Planning Department*

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
9. HYDROLOGY AND WATER QUALITY. Would the project:				
a) Violate any water quality standards or waste discharge requirements?	☐	☐	☒	☐
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)?	☐	☐	☒	☐
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?	☐	☐	☐	☒
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 that would result in flooding on- or off-site?	☐	☐	☒	☐
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?	☐	☐	☒	☐
f) Otherwise substantially degrade water quality?	☐	☐	☒	☐
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?	☐	☐	☐	☒
h) Place within a 100-year flood hazard area structures that would impede or redirect flood flows?	☐	☐	☐	☒

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of a failure of a levee or dam?	☐	☐	☐	☒
j) Inundation by seiche, tsunami, or mudflow?	☐	☐	☐	☒

DISCUSSION OF IMPACTS

a) *Less Than Significant Impact*. Section 303 of the federal Clean Water Act requires states to develop water quality standards to protect the beneficial uses of receiving waters. In accordance with California's Porter-Cologne Act, the Regional Water Quality Control Boards (RWQCBs) of the State Water Resources Control Board (SWRCB) are required to develop water quality objectives that ensure their region meets the requirements of Section 303 of the Clean Water Act. The City of Industry is in the jurisdiction of the Los Angeles RWQCB, which adopted water quality objectives in its Stormwater Quality Management Plan (SQMP). The SQMP is designed to ensure stormwater achieves compliance with receiving water limitations. Thus, stormwater generated by a development that complies with the SQMP does not exceed the limitations of receiving waters and thus does not exceed water quality standards.

Clean Water Act Section 402, which is known as the National Pollutant Discharge Elimination System (NPDES) program, regulates point source and non-point source discharges to surface waters. Under Section 402, municipalities are required to obtain permits for the water pollution generated by stormwater in their jurisdiction. These permits are known as Municipal Separate Storm Sewer Systems (MS4) permits. Stormwater and non-stormwater flows enter and are conveyed through the MS4 and discharged to surface water bodies in the Los Angeles region. These discharges are regulated under countywide waste discharge requirements in Order No. R4-2012-0175 (NPDES Permit No. CAS004001, Waste Discharge Requirements for Municipal Separate Storm Sewer System (MS4) Discharges Within the Coastal Watersheds of Los Angeles County, Except Discharges Originating from the City of Long Beach MS4), which was adopted November 8, 2012. Chapter 13.16 of the City's Municipal Code prescribes the requirements related to NPDES compliance for all grading plans.

The MS4 permit requires low impact development (LID) practices to be implemented and requires submittal of a comprehensive LID Plan and analysis to demonstrate compliance with the LID Standards Manual. Thus, the project developer is required to prepare an LID Plan for review and approval by the City that includes feasibility of infiltration including a percolation report, source control measures, calculation of the Stormwater Quality Design Volume, which must be retained on-site, discussion of the feasibility of stormwater runoff harvest and use, stormwater quality control measures, and a proposed operation and maintenance plan.

As an urban development, the proposed Project would add typical urban, nonpoint-source pollutants to stormwater runoff. As discussed, stormwater discharges containing urban pollutants are regulated by the countywide MS4 permit. Compliance with the MS4 permit requirements, including LID, would ensure that the proposed Project would not violate any water quality standards or waste discharge requirements. Impacts would be less than significant.

b) *Less Than Significant Impact*. The Project site is located above the Main San Gabriel Groundwater Basin. Groundwater levels in the Main San Gabariel Basin are managed by the Main San Gabriel Basin Watermaster to avoid groundwater withdrawals exceeding recharges. The Project would not install any groundwater wells and would not otherwise directly withdraw any groundwater. In addition, there are no known aquifer conditions at the Project site or in the surrounding area that could be affected by excavation or development of the Project. Therefore, the proposed Project would not physically interfere with any groundwater supplies. The Project site is not used for intentional groundwater recharge, and the construction and use of the residential buildings would have no measurable impact on local groundwater recharge. The Project's landscaped areas could provide opportunities for minor amounts of local groundwater recharge via percolation (as required by LID standards), and site pavement would impede percolation; however, such changes would not affect regional groundwater levels or supplies. Therefore, the proposed Project would not substantially deplete groundwater supplies or interfere substantially with groundwater recharge and would have no related significant impacts.

c) *No Impact*. At Project completion, the entire site would be developed with a new access drive from Walnut Drive, and 25 single-family residential units with respective pavement and landscaping. As such, there would be little opportunity for site drainage to result in substantial on-site or off-site erosion or siltation. During Project construction, implementation of BMPs in accordance with the project stormwater pollution prevention plan and compliance with City of Industry regulations for stormwater control would minimize the possibility for erosion from the site. There are no streams or rivers on the site; A small channel is located to the southwest of the site but is not a part of the proposed Project site. The Project would not result in the alteration of the channel or any watercourse. Therefore, no impact would occur.

d) *Less Than Significant Impact*. To ensure that the stormwater runoff anticipated from the site is properly controlled, the Project applicant would be required to adhere to applicable provisions outlined in City of Industry Municipal Code Chapter 13.16, which implements the Los Angeles Countywide Standard Urban Stormwater Mitigation Plan (SUSMP). As part of the permitting process, the Project would be required to comply with stormwater BMPs listed in the SUSMP or the "BMP Guidebook" prepared or recommended by the City Engineer. BMPs designed to protect against flooding would be incorporated in a project-specific SUSMP that is submitted to City of Industry staff for review and approval as part of the Development Plan review process. The project-specific SUSMP would contain supporting hydrologic calculations and infiltration studies to demonstrate that any increase in stormwater runoff from the site does not exceed the carrying capacity of the local storm drain system, consistent with Municipal Code Chapter 13.16. The approved BMPs would be incorporated in the project grading and site plans; detail drawings and notes would provide specifications regarding size, capacity, and materials of construction.

Compliance with City Municipal Code Chapter 13.16 and BMPs approved by the City Engineer during the Development Plan review process would ensure that impacts related to stormwater runoff volumes and potential flooding are less than significant.

e) *Less Than Significant Impact*. Project impacts related to stormwater control and management are addressed in Response d) and would be less than significant. Project impacts related to the quality of stormwater runoff are addressed in Response a) and would be less than significant.

f) *Less Than Significant Impact*. Project impacts related to water quality are addressed in Response a) and would be less than significant.

g) *No Impact*. The proposed Project does not involve construction of any housing units within a 100-year flood hazard area. The flood hazard map prepared by the Federal Emergency Management Agency (FEMA 2016) indicates that the Project site is in Zone X, which does not include designated 100-year and 500-year flood zones. Therefore, no impact would occur.

h) *No Impact*. As stated above, the Project site is not within a 100-year or 500-year flood hazard area (FEMA 2016). Development of the proposed Project would not impede or redirect flood flows, since there is no potential for flood flows to travel through or near the Project site. Therefore, no impact would occur.

i) *No Impact*. Four dams have been identified in the San Gabriel River Watershed upstream from the City of Industry—Puddingstone Dam, Santa Fe Dam, Thompson Creek Dam, and Whittier Narrows Dam. The Project site is not located in the flood inundation areas associated with the failure of any of these dams. No impacts are associated with flooding as a result of the failure of a levee or dam.

j) *No Impact*. No bodies of water in the vicinity of the Project site are capable of producing a seiche or tsunami. Similarly, the Project site is not in an area prone to landslides, soil slips, or slumps. Therefore, the proposed Project would have no impact from seiche, tsunami, or mudflow.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
10. LAND USE AND PLANNING. Would the project:				
a) Physically divide an established community?	☐	☐	☒	☐
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?	☐	☐	☒	☐
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?	☐	☐	☐	☒

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a) *Less Than Significant Impact*. The proposed Project would not disrupt or physically divide an established community, including a low-income or minority community. In fact, the proposed Project would contribute 25 single family units of which 4 units will be set aside for extremely low and very-low income families thereby helping to alleviate the City of Industry's affordable housing needs as addressed in the City's 2013–2021 Housing Element. As previously discussed, the property currently has a General Plan land use designation of Employment, is zoned for industrial use, and is located in an area primarily comprising a mix of residential and various commercial buildings. The Project would construct a new access drive off Walnut Drive with 25 single-family residential units and 4,300 square feet of community recreational area on 3.86 acres of relatively flat disturbed land. Project implementation would involve a General Plan Amendment and Zone Change; however, it would not result in barriers or obstructions to the surrounding uses. The Project site is in an existing residential area near the communities of Rowland Heights and Diamond Bar and abuts a worship center and light industrial/commercial land uses in the City of Industry. Development of the proposed Project would not extend past the existing property boundaries and would therefore not divide the existing surrounding community. The Project would create a streetscape with a consistent design on a scale that would enhance the surrounding neighborhoods. Implementation of the Project would also provide a development with amenities that would allow it to blend in with the surrounding community through the use of architectural features and landscaping. Project development would not represent a physical barrier to uses surrounding the Project site. Therefore, the proposed Project would result in a less than significant impact.

b) *Less Than Significant Impact*. The Project site currently has a General Plan land use designation of Employment and is zoned Industrial (I). Approval of the proposed Project includes an amendment to the General Plan to allow housing in accordance with the City's Housing Element and a Zone Change to create a Residential Zone (R), which would enable selected properties to be developed for residential uses. The proposed Project also includes a Zone Map Amendment to apply the Residential Zone to the Project site. In summary, the requested changes to the City's land use planning documents and

regulations would provide for limited residential uses in Industry in accordance with the City's Housing Element and Regional Housing Needs Assessment (RHNA). At this time, the Residential Zone is proposed to be applied to a single site (i.e., the Project site) at the southern end of the city, in an area where established residential neighborhoods in the Rowland Heights and Diamond Bar communities already exist. In addition, the site's western boundary is occupied by a worship center and low intensity storage and commercial uses. Given the location of the site, and the predominantly residential nature of land uses in the area, and the type of adjacent institutional/commercial uses, the proposed residential use would not result in land use conflicts. The proposed Project site is not located within the coastal zone and is not subject to associated regulations. The Project is not anticipated to conflict with any applicable land use plan, policy, or regulation adopted for the purpose of avoiding and mitigating an environmental effect. Therefore, the proposed Project would result in a less than significant land use impact due to conflict with an applicable plan.

c) *No Impact*. No adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan is applicable to the Project site. Therefore, implementation of the proposed Project would not conflict with any adopted environmental conservation plans, and the Project would have no related impacts.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
11. MINERAL RESOURCES. Would the project:				
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

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a) *No Impact*. The Project site has a General Plan land use designation of Employment and is zoned Industrial (I). According to the California Geological Survey, no lands in the City of Industry are designated by the State Mining and Geology Board as being of regional or statewide significance. Therefore, the Project would have no impact on the availability of known mineral resources that would be of value to the region and the residents of the state.

b) *No Impact*. Implementation of the proposed Project would not 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. The Project site is not designated as a mining site in the City of Industry General Plan and the Project would not cause a loss of availability of a designated mining site. Thus, implementation of the Project would have no impact related to the availability of mineral resources.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
12. NOISE. Would the project result in:				
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance or of applicable standards of other agencies?	☐	☒	☐	☐
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	☐	☒	☐	☐
c) A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☐	☒	☐
d) A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	☐	☒	☐	☐
e) For a project located within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or a public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒
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?	☐	☐	☐	☒

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12.1 Fundamentals of Sound

Noise has been simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. Exhibit NOI-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

Exhibit NOI-A: Typical Noise Levels

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE
THRESHOLD OF PAIN		140	UNTOLERABLE OR DEAFENING	HEARING LOSS
NEAR JET ENGINE		130		
		120		
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110		
LOUD AUTO HORN		100	VERY NOISY	
GAS LAWN MOWER AT 1m (3 ft)		90		
DIESEL TRUCK AT 15m (50 ft), at 80 km/hr (50 mph)	FOOD BLENDER AT 1m (3 ft)	80		SPEECH INTERFERENCE
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		SLEEP DISTURBANCE
QUIET SUBURBAN NIGHTTIME	LIBRARY	30	FAINT	NO EFFECT
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20		
	BROADCAST/RECORDING STUDIO	10	VERY FAINT	
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0		

Source: Environmental Protection Agency Office of Noise Abatement and Control, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA/ONAC 550/9-74-004) March 1974.

12.1.1 Range of Noise

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA at approximately 100 feet, which can cause serious discomfort. Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

12.1.2 Noise Descriptors

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most commonly used figure is the equivalent level (Leq). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (Leq) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period and is commonly used to describe the "average" noise levels within the environment.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the

Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of 5 decibels to dBA Leq sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA Leq sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound appears louder. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Industry relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources.

12.2 Regulatory Framework

To limit population exposure to physically and/or psychologically damaging, as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies.

12.2.1 State of California Noise Requirements

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels.*

12.2.2 State of California Building Code

The State of California's noise insulation standards are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 2, and the California Building Code. These noise standards are applied to new construction in California for controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are developed near major transportation noise sources, and where such noise sources create an exterior noise level of 60 dBA CNEL or higher. Acoustical studies that accompany building plans for noise-sensitive land uses must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new residential buildings, schools, and hospitals, the acceptable interior noise limit for new construction is 45 dBA CNEL.

12.2.3 City of Industry General Plan

The City of Industry has adopted Section 4.2.6 *Noise and Land Use Compatibility* of the General Plan Safety Element. The Safety Element identifies the following goal and policies related to noise in the City of Industry:

Goal S6 *An environment where noise does not adversely affect sensitive land uses.*

Policy S6-1 Coordinate with Caltrans, San Gabriel Valley Council of Governments, Southern California Associate of Governments, neighboring jurisdictions, and other transportation providers in the preparation and maintenance of transportation and land use plans to minimize noise impacts and provide appropriate mitigation measures.

Policy S6-2 Address noise impacts through the effective enforcement of the noise ordinance, project and environmental review, and compliance with state and federal noise standards.

Policy S6-3 Consider the noise levels likely to be produced by any new businesses or substantially expanded business activities locating near existing noise-sensitive uses such as schools, community facilities, and residences, as well as adjacent to established businesses involving vibration-sensitive activities.

The noise criteria identified in the Safety Element are guidelines to evaluate the land use compatibility of transportation-related noise. The compatibility criteria, shown on Exhibit NOI-B, provides the City with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels.

The *Land Use Compatibility for Community Noise Exposure* (Table-4 of City of Industry Noise Element) in the General Plan provides guidelines to evaluate the acceptability of transportation-related noise levels. Single-family residential uses within the Project site are considered *normally acceptable* with exterior noise levels below 60 dBA CNEL, and *conditionally acceptable* with exterior noise levels below 70 dBA CNEL. Exterior noise levels between 70 dBA CNEL and 75 dBA CNEL at single-family residential uses are considered *normally unacceptable*, and *new construction or development should generally be discouraged. If new construction does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.* Playgrounds and neighborhood parks, such as those proposed within the Project site, are considered *normally acceptable* with exterior noise levels below 70 dBA CNEL, and *conditionally acceptable* with noise levels below 75 dBA CNEL.

12.3 Operational Noise Standards

To analyze noise impacts originating from a designated fixed location or private property such as the proposed Project, stationary-source (operational) noise is typically evaluated against standards established under the Municipal Code.

12.3.1 City of Industry Operational Noise Standards

Although the Project site is located within the City of Industry, several sensitive receivers are in the adjacent City of Diamond Bar. Further, the City of Industry General Plan and Municipal Code do not identify stationary-source noise level limits that are applicable to the Project site, or to nearby sensitive residential uses. Therefore, this analysis presents the City of Diamond Bar Municipal Code operational noise standards discussed below for nearby sensitive receiver locations.

12.3.2 City of Diamond Bar Operational Noise Standards

Section 22.28.080 of the City of Diamond Bar Municipal Code identifies the sound level limits by receiving land use as shown on Table NOI-1. For noise-sensitive residential properties (Noise Zone II), the Municipal Code identifies operational noise level limits for the daytime (7:00 a.m. to 10:00 p.m.) hours of 50 dBA L_{50} and 45 dBA L_{50} during the nighttime (10:00 p.m. to 7:00 a.m.) hours. These standards shall apply for a cumulative period of 30 minutes in any hour, as well as plus 5 dBA cannot be exceeded for a cumulative period of more than 15 minutes in any hour, or the standard

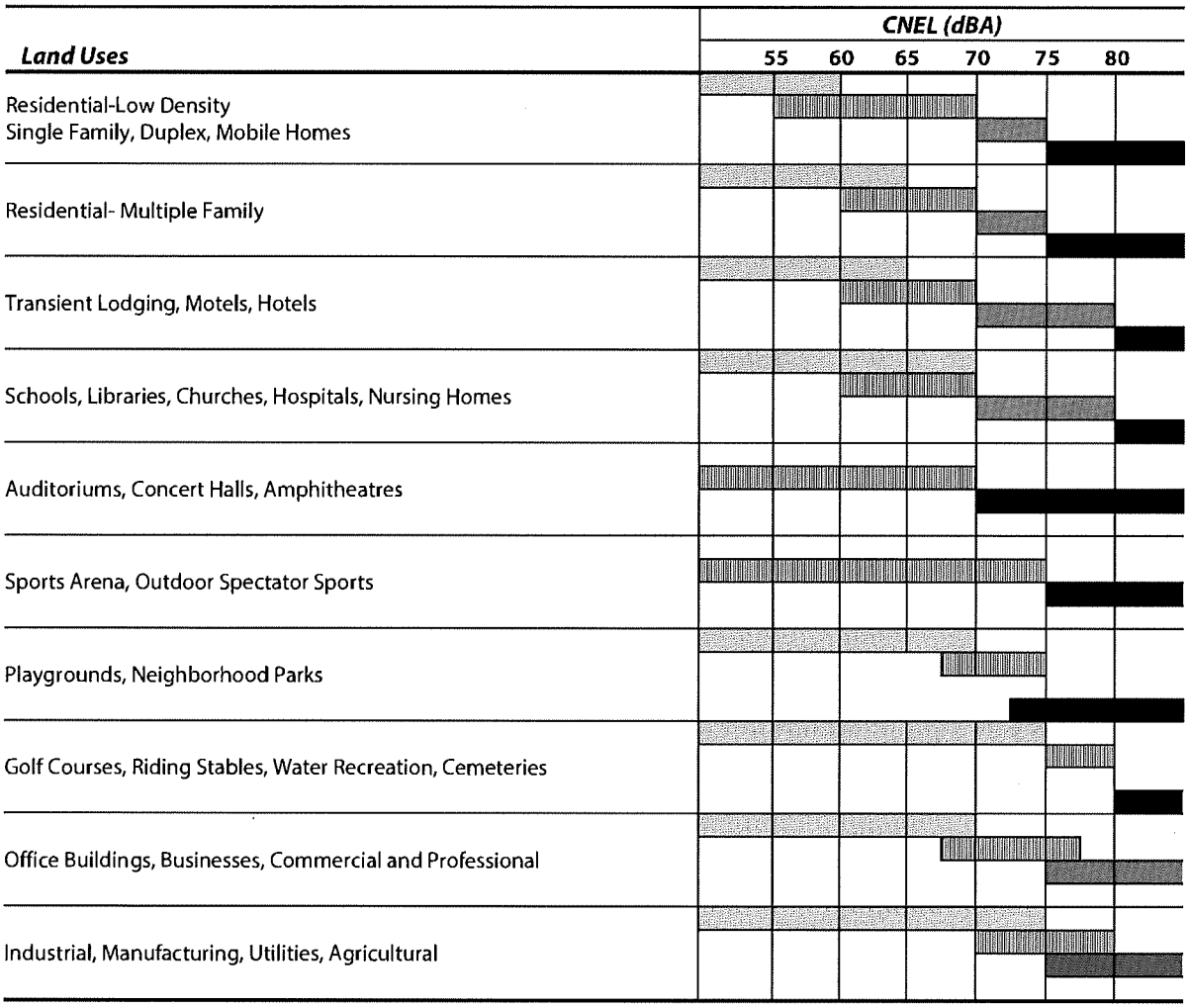
plus 10 dBA for a cumulative period of more than 5 minutes in any hour, or the standard plus 15 dBA for a cumulative period of more than 1 minute in any hour, or the standard plus 20 dBA for any period of time.

Table NOI-1: Operational Noise Standards

Jurisdiction	Land Use	Time Period	Exterior Noise Level Standards (dBA)[3]				
			L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	Lmax (Anytime)
City of Industry[1]	n/a	Daytime	-	-	-	-	-
		Nighttime	-	-	-	-	-
City of Diamond Bar[2]	Residential (Noise Zone II)	Daytime	50	55	60	65	70
		Nighttime	45	50	55	60	65

[1] The City of Industry does not identify operational noise standards related to Project operational noise.
[2] Source: City of Diamond Bar Municipal Code, Section 22.28.080 (Appendix 3.1).
[3] The percent noise level is the level exceeded "n" percent of the time during the measurement period. L25 is the noise level exceeded 25% of the time.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

EXHIBIT NOI-B: LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS



Source: OPR 2003. Adapted from the US EPA Office of Noise Abatement Control, Washington D.C. Community Noise. Prepared by Wyle Laboratories. December 1971.

12.4 Significance Criteria

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table NOI-2 shows the significance criteria summary matrix.

A. On-Site Traffic Noise

If the on-site exterior noise levels exceed:

- the 75 dBA CNEL *normally unacceptable* criteria for residential uses; or
- the 75 dBA CNEL *conditionally acceptable* criteria for playground and park uses (City of Industry General Plan Safety Element, Table 4).

B. Operational Noise

If Project-related operational (stationary source) noise levels exceed the exterior 50 dBA L_{50} daytime or 45 dBA L_{50} nighttime noise level standards at nearby sensitive residential land uses in the City of Diamond Bar. These standards shall not be exceeded for a cumulative period of 30 minutes (L_{50}) or cannot exceed 55 dBA (daytime) or 50 dBA (nighttime) for a cumulative period of more than 15 minutes (L_{25}) in any hour, or 60 dBA (daytime) or 55 dBA (nighttime) for a cumulative period of more than 5 minutes (L8) in any hour, or 65 dBA (daytime) or 60 dBA (nighttime) for a cumulative period of more than 1 minute (L2) in any hour, or 70 dBA (daytime) or 65 dBA (nighttime) at any time (L_{max}) (City of Diamond Bar Municipal Code, Section 22.28.080).

If the existing ambient noise levels at the nearby noise-sensitive receivers near the Project site:

- are less than 60 dBA L_{50} and the Project creates a readily perceptible 5 dBA L_{50} or greater Project-related noise level increase; or
- range from 60 to 65 dBA L_{50} and the Project creates a barely perceptible dBA L_{50} or greater Project-related noise level increase; or
- already exceed 65 dBA L_{50}, and the Project creates a community noise level impact of greater than 1.5 dBA L_{50} (FICON, 1992).

C. Construction Noise and Vibration

If Project-related construction activities:

- create noise levels which exceed the mobile 75 dBA L_{max} or stationary 60 dBA L_{max} equipment noise level limits at the nearby sensitive residential land uses (City of Diamond Bar Municipal Code, Section 22.28.120 (1)).
- Generate construction vibration levels could exceed the City of Diamond Bar maximum acceptable vibration standard of 0.01 in/sec (RMS) at sensitive receiver locations (City of Diamond Bar Municipal Code, Section 22.28.120 (m)).

Table NOI-2: Significance Criteria Summary

Analysis	Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
On-Site Traffic Noise[1]	Noise-Sensitive	Exterior Noise Level @ Residential Uses	70 dBA CNEL *Conditionally Acceptable*	
			75 dBA CNEL *Normally Unacceptable*	
		Exterior Noise Level @ Park Uses	70 dBA CNEL *Normally Acceptable*	
			75 dBA CNEL *Conditionally Acceptable*	
Operational Noise & Vibration	Noise-Sensitive	Exterior Noise Level Standards[2]	See Table 3-1	
		if ambient is < 60 dBA L_{50}[3]	≥ 5 dBA L_{50} Project increase	
		if ambient is 60 - 65 dBA L_{50}[3]	≥ 3 dBA L_{50} Project increase	
		if ambient is > 65 dBA L_{50}[3]	≥ 1.5 dBA L_{50} Project increase	
Construction Noise & Vibration	Noise-Sensitive	Mobile Equipment Noise Level Threshold[4]	75 dBA L_{max}	
		Stationary Equipment Noise Level Threshold[4]	60 dBA L_{max}	
		Vibration Level Threshold[5]	0.01 in/sec RMS	

[1] Source: City of Industry General Plan Safety Element, Table 4.
[2] Source: City of Diamond Bar Municipal Code, Section 22.28.080.
[3] Source: FICON, 1992.
[4] Source: City of Diamond Bar Municipal Code, 22.28.120 (1).
[5] Source: City of Diamond Bar Municipal Code, Section 22.28.120 (m).
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

12.5 Existing Noise Level Measurements

To assess the existing noise level environment, four 24-hour noise level measurements were taken at sensitive receiver locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with the arterial transportation network. This includes the auto and heavy truck activities on study area roadway segments near the noise level measurement locations. The 24-hour existing noise level measurement results are shown on Table NOI-3.

Table NOI-3: 24-Hour Ambient Noise Level Measurements

Location[1]	Distance to Project Boundary (Feet)	Description	Energy Average Hourly Noise Level (dBA L_{eq})[2]		Median Noise Level (dBA L_{50})[2]		CNEL
			Daytime	Nighttime	Daytime	Nighttime	
L1	215'	Located south of the Project site on Walnut Drive near existing residential homes.	58.8	60.2	57.5	58.9	66.7
L2	40'	Located on Walnut Drive between Moscada Avenue and Calbourne Drive near existing residential homes.	63.8	65.5	61.6	63.8	72.0
L3	30'	Located south of the Project site on Walnut Drive near existing residential homes east of Calbourne Drive.	63.5	64.1	62.3	62.8	70.6
L4	0'	Located at the eastern Project site boundary adjacent to an existing residential home.	63.3	63.8	62.4	62.8	70.4

[1] See Exhibit 5-A of the Project Noise Assessment for the noise level measurement locations.
[2] The long-term 24-hour measurement worksheets are included in Appendix 5.2.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

a) *Less Than Significant With Mitigation Incorporated.* The primary source of noise impacts to the Project site will be traffic noise from SR-60 and Walnut Drive. The Project will also experience some background traffic noise impacts from the Project's internal streets, however, due to the low traffic volume/speeds, traffic noise from these roads will not make a significant contribution to the noise environment beyond the right-of-way of the roadways. Table NOI-4 presents a summary of future exterior noise level impacts. The on-site traffic noise level impacts indicate that the unmitigated exterior noise levels will range from 79.8 to 82.1 dBA CNEL.

To satisfy the City of Industry 75 dBA CNEL exterior noise level criteria for normally unacceptable residential and conditionally acceptable playground/neighborhood park land uses, the construction of an 8-foot high noise barrier is required at the western Project site boundary to prevent flanking noise levels around the existing 12-foot high noise barrier

at the Project's community garden and playground uses. With the existing and recommended noise barriers, the mitigated future exterior noise levels will range from 70.4 to 72.2 dBA CNEL. This noise analysis shows that the recommended noise barriers will satisfy the City of Industry 75 dBA CNEL exterior noise level criteria for normally unacceptable residential and conditionally acceptable park land uses. As a requirement of normally unacceptable residential land use, with exterior noise levels between 70 to 75 dBA CNEL, an interior noise analysis was performed to demonstrate Project compliance with the interior noise level standards of the California Code of Regulations, Title 24, Building Standards Administrative Code for residential uses.

TABLE NOI-4: EXTERIOR NOISE LEVELS (CNEL)

Receiver Location	Roadway	Unmitigated Noise Level (dBA CNEL)		Mitigated Noise Level (dBA CNEL)		Barrier Height (Feet)	Barrier Type	Top of Barrier Elevation (Feet)
		Individual Roadways	Combined	Individual Roadways	Combined			
Park	SR-60	82.1	82.1	70.4	70.4	12.0'	Existing	512.0'
West Buildings	SR-60	79.7	79.8	70.7	71.5	12.0'	Existing	512.0'
	Walnut Dr.	63.8		63.8		–[1]	–[1]	–[1]
Center Buildings	SR-60	79.8	80.0	70.7	72.1	12.0'	Existing	512.0'
	Walnut Dr.	66.5		66.5		–[1]	–[1]	–[1]
East Buildings	SR-60	81.9	82.0	70.9	72.2	12.0'	Existing	512.0'
	Walnut Dr.	66.3		66.3		–[1]	–[1]	–[1]

[1] No exterior noise barrier required at the southern side of the Project buildings adjacent to Walnut Drive.

12.6 ON-SITE INTERIOR NOISE ANALYSIS

To ensure that the interior noise levels comply with the interior noise level standards, future noise levels were calculated at the first-floor and second-floor building façades.

12.6.1 NOISE REDUCTION METHODOLOGY

The interior noise level is the difference between the predicted exterior noise level at the building facade and the noise reduction of the structure. Typical building construction will provide a Noise Reduction (NR) of approximately 12 dBA with "windows open" and a minimum 25 dBA noise reduction with "windows closed." However, sound leaks, cracks and openings within the window assembly can greatly diminish its effectiveness in reducing noise. Several methods are used to improve interior noise reduction, including: (1) weather-stripped solid core exterior doors; (2) upgraded dual glazed windows; (3) mechanical ventilation/air conditioning; and (4) exterior wall/roof assembles free of cut outs or openings.

12.6.2 INTERIOR NOISE LEVEL ASSESSMENT

Tables NOI-5 and NOI-6 show that the single-family residential homes within the Project site will require a windows-closed condition and a means of mechanical ventilation (e.g. air conditioning). Table NOI-5 shows that the future exterior noise levels at the first-floor building façade are expected to range from 71.5 to 72.2 dBA CNEL. The first-floor interior noise level analysis shows that the City of Industry 45 dBA CNEL with windows closed interior noise standards can be satisfied using upgraded windows with a minimum STC rating of 36 for all lots. Table NOI-

6 shows the future unmitigated noise levels at the second-floor building façade are expected to range from 74.6 to 79.6 dBA CNEL. The second-floor interior noise level analysis shows that the City of Industry 45 dBA CNEL interior noise standards can be satisfied using upgraded windows with a minimum STC rating of 36 for all lots, except the northeastern-most lot, which requires further upgraded second-floor windows with minimum STC ratings of 38.

A final noise study shall be prepared prior to obtaining building permits for the Project. This report would finalize the interior noise mitigation measures described in the Project noise study using the precise grading plans and actual building design specifications, and may include additional mitigation, if necessary, to meet the California Code of Regulations, Title 24, Building Standards Administrative Code 45 dBA CNEL interior noise level standard. Further, while not required, the Project noise study recommends an interior noise level design goal of 40 dBA CNEL using upgraded second floor windows with STC ratings of 42 for all lots with windows facing SR-60. A condition of approval will be included in the Project requiring the preparation of a final noise study and incorporation, if necessary of the recommendation for second floor windows with STC ratings of 42 for all lots with windows facing SR-60. With the implementation of mitigation measure MM NOI-5 the impacts will be reduced to less than significant.

TABLE NOI-5: FIRST-FLOOR INTERIOR NOISE IMPACTS (CNEL)

Receiver Location	Noise Level at Façade[1]	Required Interior NR[2]	Estimated Interior NR[3]	Upgraded Windows[4]	Interior Noise Level[5]	Threshold	Threshold Exceeded?
Park	–[6]	–[6]	–[6]	–[6]	–[6]	–[6]	–[6]
West Buildings	71.5	26.5	34.0	No	37.5	45	No
Center Buildings	72.1	27.1	34.0	No	38.1	45	No
East Buildings	72.2	27.2	36.0	No	36.2	45	No

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).
[2] Noise reduction required to satisfy the State of California Building Code 45 dBA CNEL interior noise standard for residential use.
[3] A minimum of 25 dBA noise reduction is assumed with standard building construction.
[4] Does the required interior noise reduction trigger upgraded windows with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.
[6] Park uses do not include interior areas, and therefore, do not require interior noise reduction analysis.
"NR" = Noise Reduction

TABLE NOI-6: SECOND-FLOOR INTERIOR NOISE IMPACTS (CNEL)

Receiver Location	Noise Level at Façade[1]	Required Interior NR[2]	Estimated Interior NR[3]	Upgraded Windows[4]	Interior Noise Level[5]	Threshold	Threshold Exceeded?
Park	–[6]	–[6]	–[6]	–[6]	–[6]	–[6]	–[6]
West Buildings	74.6	29.6	34.0	No	40.6	45	No
Center Buildings	74.9	29.9	34.0	No	40.9	45	No
East Buildings	79.6	34.6	36.0	No	43.6	45	No

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).
[2] Noise reduction required to satisfy the State of California Building Code 45 dBA CNEL interior noise standard for residential use.
[3] A minimum of 25 dBA noise reduction is assumed with standard building construction.
[4] Does the required interior noise reduction trigger upgraded windows with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.
[6] Park uses do not include interior areas, and therefore, do not require interior noise reduction analysis.
"NR" = Noise Reduction

b) *Less Than Significant With Mitigation Incorporated.* Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. The proposed Project's construction activities most likely to cause vibration impacts are:

Heavy Construction Equipment: Although all heavy mobile construction equipment has the potential of causing at least some perceptible vibration while operating close to building, the vibration is usually short-term and is not of sufficient magnitude to cause building damage. It is not expected that heavy equipment such as large bulldozers would operate close enough to any residences to cause a vibration impact.

Trucks: Trucks hauling building materials to construction sites can be sources of vibration intrusion if the haul routes pass through residential neighborhoods on streets with bumps or potholes. Repairing the bumps and potholes generally eliminates the problem.

Ground-borne vibration levels resulting from construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration. Construction activities that would have the potential to generate low levels of ground-borne vibration within the Project site include grading. Table NOI-7 presents the expected Project-related unmitigated vibration levels at the nearby receiver locations. As shown, the construction vibration levels are expected to range from 0.001 0.031 in/sec RMS. As such, without mitigation, the Project-related vibration impacts will exceed the City of Diamond Bar 0.01 in/sec RMS threshold, and impacts are considered *potentially significant* during the construction activities at the Project site.

Therefore, a 100-foot buffer zone for large construction equipment (e.g. dozers, graders, scrapers, etc.), as described in mitigation measure MM NOI-2 is required to reduce construction vibration levels at nearby sensitive receiver locations R2 and R4. Table NOI-8 shows the mitigated vibration levels at nearby sensitive receiver locations will approach 0.008 in/sec RMS and will remain below

the City of Diamond Bar 0.01 in/sec RMS threshold, thereby resulting in *less than significant* vibration impacts with mitigation.

TABLE NOI-7: UNMITIGATED CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver Location[1]	Distance To Const. Activity (Feet)	Receiver PPV Levels (in/sec)[2]					RMS Velocity Levels (in/sec)[3]	Threshold Exceeded?[4]
		Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Highest Vibration Level		
R1	350'	0.000	0.001	0.001	0.002	0.002	0.001	No
R2	93'	0.000	0.005	0.011	0.012	0.012	0.009	No
R3	84'	0.000	0.006	0.012	0.014	0.014	0.010	Yes
R4	40'	0.001	0.017	0.038	0.044	0.044	0.031	Yes

[1] Receiver locations are shown on Exhibit 10-A.
[2] Based on the Vibration Source Levels of Construction Equipment included on Table 6-4.
[3] Vibration levels in PPV are converted to RMS velocity using a 0.71 conversion factor identified in the Caltrans Transportation and Construction Vibration Guidance Manual, September 2013.
[4] Does the highest vibration level exceed the maximum acceptable vibration threshold shown on Table 3-4?

TABLE NOI-8: MITIGATED CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver Location[1]	Distance To Const. Activity (Feet)	Receiver PPV Levels (in/sec)[2]					RMS Velocity Levels (in/sec)[3]	Threshold Exceeded?[4]
		Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Peak Vibration (PPV)		
R2	100'	0.000	0.004	0.010	0.011	0.011	0.008	No
R3	100'	0.000	0.004	0.010	0.011	0.011	0.008	No
R4	100'	0.000	0.004	0.010	0.011	0.011	0.008	No

[1] Receiver locations are shown on Exhibit NOI-A.
[2] Based on the Vibration Source Levels of Construction Equipment.
[3] Vibration levels in PPV are converted to RMS velocity using a 0.71 conversion factor identified in the Caltrans Transportation and Construction Vibration Guidance Manual, September 2013.
[4] Does the mitigated vibration level exceed the maximum acceptable vibration threshold?

In addition, the mitigated vibration levels due to Project construction do not represent vibration levels capable of causing building damage to nearby residential homes. The FTA identifies construction vibration levels capable of building damage ranging from 0.12 to 0.5 in/sec PPV. The peak Project-construction vibration levels shown on Table NOI-8, approaching 0.011 in/sec PPV, will remain below the FTA vibration levels for building damage at the residential homes near the Project site. Further, the levels at the site of the closest sensitive receivers are unlikely to be sustained during the entire construction period, but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter.

Soil Import Haul Trips

The Project site will require up to 12,500 cubic yards of soil import during the construction process. Truck vibration levels are dependent on vehicle characteristics, load, speed, and pavement conditions. Typical vibration levels for the Project heavy truck activity at normal traffic speeds will approach 0.004 in/sec PPV and 0.003 in/sec RMS at 25 feet based on the FTA Transit Noise Impact and Vibration Assessment. Truck deliveries transiting on site will be travelling at very low speeds so

it is expected that delivery truck vibration levels at nearby homes will remain below the 0.01 in/sec RMS City of Diamond Bar threshold.

CONSTRUCTION NOISE AND VIBRATION MITIGATION MEASURES

Though construction noise is temporary, intermittent and of short duration, and will not present any long-term impacts, mitigation measures are required to reduce noise and vibration levels produced by the construction equipment to the nearby sensitive residential land uses. With the implementation of mitigation measures MM NOI-1, MM NOI-2, MM NOI-3 and MM NOI-4 construction noise impacts would be reduced to less than significant levels.

c) *Less Than Significant Impact.* The Project Noise Assessment estimated the Project-related stationary-source noise levels at nearby sensitive receiver locations. The normal activities associated with the proposed Industry Workforce Housing Community are anticipated to include playground activities. The operational noise analysis shows that the Project-related stationary-source noise levels are expected to range from 11.0 to 29.1 dBA L_{50}. at the nearby sensitive receiver locations which will satisfy the adjacent City of Diamond Bar Municipal Code daytime 50 dBA L_{50} and nighttime 45 dBA L_{50} exterior noise level standards at all receiver locations. Further, this analysis demonstrates that the Project will contribute a less than significant operational noise level contribution to the existing ambient noise environment at all the nearby sensitive receiver locations. Therefore, the operational noise level impacts associated with the proposed Project activities, such as the playground activities will be less than significant.

d) *Less Than Significant With Mitigation Incorporated.* Potential temporary noise impacts could result from the short-term construction activities associated with the development of the Project. Noise generated by the Project construction equipment will include a combination of trucks, power tools, concrete mixers, and portable generators that when combined can reach high levels. The number and mix of construction equipment is expected to occur in the following stages:

Mobile Equipment:

- Demolition
- Site Preparation
- Grading
- Paving

Stationary Equipment:

- Building Construction
- Architectural Coating

Noise levels generated by heavy construction equipment can range from approximately 68 dBA to more than 80 dBA when measured at 50 feet. However, these noise levels diminish with distance from the construction site at a rate of 6 dBA per doubling of distance. Table NOI-9 provides a summary of the construction noise levels by stage at the nearby noise-sensitive receiver locations. Based on the stages of construction, the noise impacts associated with the proposed Project are expected to create temporarily high noise levels at the nearby receiver locations.

EXHIBIT NOI-A: Construction Noise Source Locations

TABLE NOI-9: UNMITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY (DBA L_{MAX})

Receiver Location[1]	Construction Stage Hourly Noise Level (dBA L_{max})						
	Mobile Equipment				Stationary Equipment		Highest Noise Levels[2]
	Demolition	Site Preparation	Grading	Paving	Building Construction	Architectural Coating	
R1	56.2	46.6	55.0	53.8	46.9	46.9	56.2
R2	76.2	66.6	75.0	73.8	66.9	66.9	76.2
R3	77.1	67.5	75.9	74.7	67.8	67.8	77.1
R4	78.6	69.0	77.4	76.2	69.3	69.3	78.6

[1] Noise receiver locations are shown on Exhibit NOI-A.
[2] Highest construction noise levels across all stages of Project construction.

Table NOI-10 shows the highest construction noise levels at the potentially impacted receiver locations are expected to approach 78.6 dBA L_{max} from mobile equipment, and 69.3 dBA L_{max} for stationary equipment and will exceed the City of Diamond Bar Municipal Code construction noise level standards of 75 dBA L_{max} for mobile equipment and 60 dBA L_{max} for stationary equipment during temporary Project construction activities. The noise impact due to unmitigated Project

construction noise levels is, therefore, considered a *potentially significant* impact at sensitive receiver locations R2 to R4.

TABLE NOI-10: UNMITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL COMPLIANCE (DBA L_{MAX})

Receiver Location[1]	Highest Construction Activity Noise Levels[2]		Noise Level Threshold[3]		Threshold Exceeded?[4]	
	Mobile Equipment	Stationary Equipment	Mobile Equipment	Stationary Equipment	Mobile Equipment	Stationary Equipment
R1	56.2	46.9	75	60	No	No
R2	76.2	66.9	75	60	Yes	Yes
R3	77.1	67.8	75	60	Yes	Yes
R4	78.6	69.3	75	60	Yes	Yes

[1] Noise receiver locations are shown on Exhibit NOI-A.
[2] Highest construction noise levels of mobile and stationary equipment.
[3] Construction noise standards as shown on Table 3-2 and 3-3 Noise Impact Analysis.
[4] Do the estimated Project construction noise levels exceed the construction noise level thresholds?

Therefore, temporary construction noise mitigation measures are required to reduce these impacts at receiver locations R2 to R4. This includes the use of temporary construction noise barriers and a 100-foot buffer zone for large construction equipment (e.g. dozers, graders, scrapers, etc.) from the impacted receiver locations where Project construction noise levels could potentially exceed the noise level thresholds, as shown on Exhibit NOI-A. The construction noise analysis presents a conservative approach with the highest noise-level-producing equipment for each stage of Project construction operating at the closest point from construction activity to the nearby sensitive receiver locations. This scenario is unlikely to occur during typical construction activities and likely overstates the construction noise levels which will be experienced at each receiver location. With the construction noise mitigation measures identified in this Project's noise study, shown on Exhibit NOI-A, the worst-case construction noise level increases at the nearby residential receivers would be reduced. Table NOI-11 shows the peak construction noise levels at the potentially impacted receiver locations will be reduced to range from 63.9 to 69.6 dBA Lmax for mobile equipment, and between 54.5 to 60.0 dBA Lmax for stationary equipment with the attenuation provided by the temporary construction noise barriers and the 100-foot buffer zone.

As shown on Table NOI-11, the temporary construction noise mitigation measures will reduce the construction noise levels at the impacted receiver locations to satisfy the 75 dBA Lmax mobile equipment and 60 dBA Lmax stationary equipment significance thresholds during temporary Project construction activities. Therefore, the noise impact due to Project construction is considered a less than significant with mitigation.

TABLE NOI-11: MITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL COMPLIANCE (DBA L_{MAX})

Receiver Location[1]	Highest Construction Activity Noise Levels (dBA L_{max})[2]		Attenuation from Mitigation Measures (dBA L_{max})		Mitigated Construction Activity Noise Levels (dBA L_{max})		Noise Level Threshold (dBA L_{max})[5]		Threshold Exceeded?[6]	
	Mobile Equipment	Stationary Equipment	100' Buffer For Equip.	9' Temp. Barrier	Mobile Equipment	Stationary Equipment	Mobile Equipment	Stationary Equipment	Mobile Equipment	Stationary Equipment
R2	76.2	66.9	-0.6	-6.0	69.6	60.0	75	60	No	No
R3	77.1	67.8	-1.5	-6.0	69.6	60.0	75	60	No	No
R4	78.6	69.3	-8.0	-6.8	63.9	54.5	75	60	No	No

[1] Noise receiver locations are shown on Exhibit NOI-A.
[2] Highest construction noise levels of mobile and stationary equipment, as shown on Table NOI-9.
[3] Construction noise standards as shown on Table 3-2 and 3-3 of Noise Impact Analysis.
[4] Do the estimated Project construction noise levels exceed the construction noise level thresholds?

e) *No Impact*. The Project site is not in an area covered by an airport land use plan or within 2 miles of a public airport or public-use airport. The Project is well beyond any airport's 60 dBA CNEL zone. Therefore, the proposed Project would not expose people to excessive aircraft noise levels, and no impacts are anticipated.

f) *No Impact*. The Project site is beyond any airport- or airfield-related 60 dBA CNEL noise contour. Further, helicopter take-offs and landings are infrequent and at sufficient distances from the Project site that they would not expose residents on the site to excessive noise levels. No impacts are anticipated.

Mitigation Measures

MM NOI-1 Prior to the start of any construction activities the contractor shall install minimum 9-foot high temporary construction noise barriers at the Project's site boundaries adjacent to sensitive receivers on Walnut Drive, as shown on Exhibit NOI-A, for the duration of Project construction. The noise control barriers must have a solid face from top to bottom. The noise control barriers must meet the minimum height and be constructed as follows:

- The temporary noise barriers shall provide a minimum transmission loss of 20 dBA (Federal Highway Administration, Noise Barrier Design Handbook). The noise barrier shall be constructed using an acoustical blanket (e.g. vinyl acoustic curtains or quilted blankets) attached to the construction site perimeter fence or equivalent temporary fence posts;

- The noise barrier must be maintained, and any damage promptly repaired. Gaps, holes, or weaknesses in the barrier or openings between the barrier and the ground shall be promptly repaired;

- The noise control barrier and associated elements shall be completely removed, and the site appropriately restored upon the conclusion of the construction activity.

Timing/Implementation: *Prior to construction permits and construction activities*

Enforcement/Monitoring: *City of Industry Planning Department*

MM NOI-2 During all construction activities the applicant shall ensure that use of large construction equipment (e.g., dozers, graders, scrapers) capable of generating noise levels in excess of 78 dBA L_{max} at 50 feet shall be prohibited within 100 feet of nearby occupied sensitive residential homes to reduce the noise and vibration levels for the entire duration of Project construction. If the contractor can demonstrate that specific pieces of large construction equipment can demonstrate compliance with the 78 dBA L_{max} at 50 feet criteria, then they shall be allowed to operate within the buffer zone shown on Exhibit NOI-A.

Timing/Implementation: *Throughout construction activities*

Enforcement/Monitoring: *City of Industry Planning Department*

MM NOI-3 During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site.

Timing/Implementation: *During construction activities*

Enforcement/Monitoring: *City of Industry Planning Department*

MM NOI-4 The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receivers nearest the Project site during all Project construction (i.e., to the northern center).

Timing/Implementation: *During construction activities*

Enforcement/Monitoring: *City of Industry Planning Department*

MM NOI-5 Prior to the issuance of building permits, the applicant shall provide evidence to the Community Development Department that the following features will be incorporated in building design:

Windows/Sliding Glass Doors:

- Northeastern lots, closest to SR-60, require minimum second-floor STC ratings of 38, and minimum first-floor STC ratings of 36;
- All other lots require minimum STC ratings of 36 for first and second-floors, and window/sliding glass door assemblies shall be well-fitted and well-weather-stripped.

Doors (Non-Glass): All exterior doors shall be well weather-stripped and have minimum STC ratings of 25. Well-sealed perimeter gaps around the doors are essential to achieve the optimal STC rating.

Walls: At any penetrations of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits shall be caulked or filled with mortar to form an airtight seal.

Roof: Roof sheathing of wood construction shall be per manufacturer's specification or caulked plywood of at least one-half inch thick. Ceilings shall be per manufacturer's specification or well-sealed gypsum board of at least one-half inch thick. Insulation with at least a rating of R-19 shall be used in the attic space.

Ventilation: Arrangements for any habitable room shall be such that any exterior door or window can be kept closed when the room is in use and still receive circulated air. A forced air circulation system (e.g. air conditioning) or active ventilation system (e.g. fresh air supply) shall be provided which satisfies the requirements of the Uniform Building Code.

Timing/Implementation:	*Prior to Building Permits*
Enforcement/Monitoring:	*City of Industry Planning Department*

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
13. POPULATION AND HOUSING. Would the project:				
a) Induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐

DISCUSSION OF IMPACTS

a) *Less Than Significant Impact*. The proposed Project is located in the City of Industry, which is, by its nature, an area that is not traditionally known for residential developments. According to the California Department of Finance (2017), the city's population totaled approximately 440 in May of 2017[10]. According to the Southern California Association of Governments (SCAG), the city's population is projected to be 500 by 2020, increasing by 60 residents.[11] The proposed Project would include the construction of 25 single-family residential units. Due to its residential nature, the proposed Project would result in a permanent increase in population in the area; however, because of the Project's small size, the population increase is not anticipated to be of concern.

Based on the average number of persons per household in the City of Industry, the proposed Project would generate approximately 77 additional residents, increasing the city's existing population from 440 to 517. This population increase scenario would be slightly higher than the projected increase to 500 residents by 2020. The proposed Project is scheduled to be completed in 2019. Implementation of the proposed Project would not result in substantial population growth and would slightly exceed SCAG's population projected for the City of Industry. It should be noted that 4 of the 25 proposed single-family residences would be set aside for extremely-low and very-low income families. These 4 units would address current (2 units) and future (2 units) RHNA allocations for the City. Further these affordable units will help to accommodate the City's housing needs, as

[10] California Department of Finance. 2017. *Report E-1 Population Estimates for Cities, Counties, and the State, January 1, 2016 and 2017.*

[11] Southern California Association of Governments (SCAG). Final 2016-2040 Regional Transportation Plan/Sustainable Communities Strategy (2016 RTP/SCS). April 7, 2017

envisioned in the Industry 2013–2020 Housing Element. Therefore, a less than significant impact will occur.

b, c) *Less Than Significant Impact*. The Project site currently contains one occupied single-family residential unit. The proposed Project would replace it with one of the 25 proposed single-family units. The proposed Project would provide additional housing opportunities on the Project site, including opportunities for any displaced residents. No replacement housing would need to be constructed elsewhere. Therefore, the impacts of potential displacement of housing and population are less than significant.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
14. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:				
a) Fire protection?	☐	☐	☒	☐
b) Police protection?	☐	☐	☒	☐
c) Schools?	☐	☐	☒	☐
d) Parks?	☐	☐	☒	☐
e) Other public facilities?	☐	☐	☒	☐

DISCUSSION OF IMPACTS

a) *Less Than Significant Impact*. The City of Industry contracts with the Los Angeles County Fire Department (LACFD) for fire protection services. The City is served by Division 8, Battalion 12 of the LACFD, which operates six fire stations (Fire Stations 26, 43, 87, 91, 118, and 145). Battalion 12 also provides fire protection services to Rowland Heights, La Puente, La Mirada, and Hacienda Heights. The nearest fire stations to the Project site are Los Angeles County Fire Department Station #119, located at 20840 Pathfinder Road in the City of Diamond Bar, approximately 1.35 miles south of the Project site, and Station # 145 at 1525 South Nogales Avenue in the community of Rowland Heights, about 1.35 to the southwest.

The proposed Project would construct additional housing in Industry; however, the increase of 25 single-family residential units would not substantially increase the area's population or the LACFD's service area boundaries. Development of the Project could result in a slight increase in calls for fire protection and emergency medical service. However, considering the existing firefighting resources available in and near the City of Industry, Project impacts on fire protection are not expected to occur, and the LACFD would continue to provide adequate service to the Project area. Such small increases in demand would also not require the LACFD to build new or expanded stations or to obtain additional staff or equipment.

The City involves the LACFD in the development review process in order to ensure that the necessary fire prevention and emergency response features are incorporated into development projects. Therefore, all site and building improvements proposed under the Project would be subject to review and approval by the LACFD prior to the issuance of building permits and certificates of occupancy. Furthermore, the City of Industry imposes standard conditions of approval during the Development Plan review process that require City Council review and approval. As a standard condition of approval, the following standard condition would be imposed on the Project: "The applicant shall construct

adequate fire protection facilities to the satisfaction of the LACFD." Based on the preceding analysis, impacts on fire protection services would be less than significant.

b) *Less Than Significant Impact*. The City of Industry contracts with the Los Angeles County Sheriff's Department (LASD) for law enforcement and crime prevention services. The LASD has a sheriff's station at 21695 Valley Boulevard in Walnut, approximately 2.7 mile east of the Project site. This station is primarily responsible for providing police services to the cities of Walnut, Diamond Bar, and Rowland Heights and unincorporated areas of Covina Hills and West Covina.

Development of the Project is not expected to cause a need for new or expanded police facilities or additional officers. The LASD would continue to provide adequate service to the Project area. Therefore, no significant increases in police protection services would occur.

c) *Less Than Significant Impact*. The Project site is located in the Walnut Valley Unified School District. Demand for public services such as schools is generally based on population. The proposed residential Project would not induce significant population growth. It is anticipated that any additional students generated by the proposed Project would be adequately accommodated by the school district's existing facilities and that no new or expanded school facilities would be needed to serve the Project. Therefore, the minor increase in demand on local schools caused by the Project would be a less than significant impact.

d) *Less Than Significant Impact*. The proposed Project will provide a 4,300 square-foot community recreational open space area/tot lot which will serve the residents of the Project. However, the direct increase in population as a result of the proposed Project would result in an increase in the general use of local and regional recreational facilities. This addition, however, is a nominal increase in population growth and thus would be a proportionally nominal increase in the demand on local and regional parks. The Quimby Act recommends that 5 acres of property for each 1,000 residents be devoted to local parks and recreational purposes. Considering the City of Industry has substantially fewer than 1,000 residents, there is no need for new or expanded parks to serve the proposed Project. There would be no change to the permitted uses or availability of recreational facilities in the city or the surrounding area as a result of Project implementation. Therefore, the proposed Project would have a less than significant impact on park services.

e) *Less Than Significant Impact*. The Project would not result in the need for new or expanded public facilities. The proposed Project would construct new residences; however, as stated above, the population increase is not expected to have any impact on service demand. The proposed Project would not lead to a recognizable increase in the use of the local library system. Therefore, a less than significant impact would occur to other public facilities.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
15. RECREATION.				
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☒	☐
b) Does the project include recreational facilities, or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	☐	☐	☐	☒

DISCUSSION OF IMPACTS

a) *Less Than Significant Impact.* As stated in Response a) in subsection 13, Population and Housing, the proposed Project is expected to generate an addition of approximately 77 residents, increasing the city's existing population to 517. Physical impacts on recreation facilities can be caused by substantial population growth. The city's anticipated total population with the addition of potential Project residents would be slightly higher than SCAG's population projection for the City of Industry of 500 residents by 2020. Additionally, the net increase of 77 residents is not proportionally recognized as a substantial increase, especially given the commercial and industrial uses throughout the city. Further, the Project will include a 4,300 square-foot open space/tot lot play area which will serve the residents of the proposed development. As such, the proposed Project would not generate population growth that would substantially increase the use of existing recreational facilities in the area. Therefore, implementation of the proposed Project would have a less than significant impact on recreational facilities in the city and the surrounding area and would not contribute to the physical deterioration of any existing recreational facilities.

b) *No Impact.* The proposed Project includes the construction of 25 single-family residential units and does not include public recreational facilities. Therefore, the Project would not have an adverse physical effect on the environment from the construction or expansion of recreational facilities.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
16. TRANSPORTATION/TRAFFIC. 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?	☐	☐	☒	☐
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?	☐	☐	☒	☐
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	☐	☐	☐	☒
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☒	☐
e) Result in inadequate emergency access?	☐	☐	☐	☒
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?	☐	☐	☒	☐

DISCUSSION OF IMPACTS

a) *Less Than Significant Impact.* The Project proposes the development of 25 single-family residences and 4,300 square feet of community recreational open space/tot lot. The City of Industry does not have specific traffic study guidelines, and accepts the Los Angeles County traffic study guidelines and outlined methodologies. Therefore, the Project traffic analysis has been prepared in accordance with the Los Angeles County Congestion Management Program (CMP) Traffic Study Guidelines outlined in Appendix D of the CMP Guidelines (most recently updated in 2010). The County's traffic study guidelines indicate that if a project generates fewer than 50 peak hour trips to a CMP intersection, a formal traffic study is typically

not required as off-site improvements are assumed to be nominal for low traffic generating uses. Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development. The trip generation rates used for this assessment are based upon information collected by the Institute of Transportation Engineers (ITE) as provided in their Trip Generation manual (10th Edition, 2017). The ITE Trip Generation manual is a nationally recognized source for estimating site-specific trip generation.

The ITE Single Family Detached Residential land use (ITE Land Use Code 210) has been utilized for the purposes of this trip generation evaluation. Trip generation rates and the daily and peak hour trip generation for proposed Project are shown in Table TR-1. The proposed Project is anticipated to generate a net total of approximately 236 trip-ends per day with 19 AM peak hour trips and 25 PM peak hour trips.

TABLE TR-1: PROPOSED PROJECT TRIP GENERATION SUMMARY

Land Use	Units[1]	ITE LU Code	AM Peak Hour			PM Peak Hour			Weekday Daily
			In	Out	Total	In	Out	Total	
Trip Generation Rates:[2]									
Single Family Detached Residential	DU	210	0.19	0.55	0.74	0.62	0.37	0.99	9.44
Land Use	**Units[1]**	**Quantity**	**AM Peak Hour**			**PM Peak Hour**			**Weekday Daily**
			In	**Out**	**Total**	**In**	**Out**	**Total**	
Trip Generation Summary:									
E. Walnut Street Residential	DU	25	5	14	19	16	9	25	236

[1] DU = Dwelling Units

[2] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017).

Trip Generation volumes for haul trips are based on peak construction related traffic activity derived from the planned construction schedule of 35 truckloads per day over 21 days. Peak traffic activity appears to occur during the grading phase of construction (i.e., import of soil), with a maximum of 4 truckloads per hour between 7:00 AM and 4:00 PM. This construction traffic would coincide with AM peak hour (7-9 AM) only as the construction activity would end prior to the PM peak hour (4-6 PM).

Passenger Car Equivalents (PCE) factors have been applied to the trip generation rates for heavy trucks (large 4+-axles). Consistent with standard traffic engineering practice in Southern California, PCE factors have been utilized due to the expected haul truck component of the proposed construction. PCE factors allow the typical "real-world" mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, for the purposes of level of service analyses. A PCE factor of 3.0 for 4+-axle trucks was applied to the haul truck trips anticipated to be generated by the proposed Project.

The construction related activities of the Project are anticipated to generate 70 daily truck trips (35 truck-loads with one inbound and one outbound trip), which equates to 105 daily PCEs. During any given hour between 7:00 AM and 4:00 PM, the construction related activities of the Project are expected to generate 8 trips (24 PCEs).

Employee related passenger car traffic is anticipated to occur outside the AM and PM peak hours. As such, construction related passenger car traffic during the peak hours are considered to be nominal.

Construction related Project trip generation summary is shown on Table TR-2.

TABLE TR-2: PROJECT (CONSTRUCTION TRAFFIC) TRIP GENERATION SUMMARY

Land Use	AM Peak Hour		
	In	Out	Total
Actual Vehicles			
Construction			
Employees:[2]	0	0	0
Trucks:	4	4	8
Total:	**4**	**4**	**8**
Passenger Car Equivalent (PCE) Vehicles			
Construction			
Employees:[2]	0	0	0
Trucks:[3]	12	12	24
Total:	**12**	**12**	**24**

[1] Trip generation summary provided for AM peak hour only as the construction activity would end at 4:00 PM (prior to the PM peak hour).

[2] Employees are anticipated to arrive prior to the AM peak hour (prior to 7 AM)

[3] Assumes a PCE factor of 3.0 for heavy trucks.

As discussed previously, the proposed Project is anticipated to generate approximately 19 AM peak hour trips and 25 PM peak hour trips. During any given hour between 7:00 AM and 4:00 PM, the construction related activities of the Project are expected to generate 8 trips (24 PCEs).

Based on County of Los Angeles Traffic Impact Analysis guidelines, a traffic impact analysis, beyond this trip generation evaluation, is not required as the Project is anticipated to generate less than 50 peak hour trips to any off-site study area intersection.

The level of trip generation for the proposed Project is below the threshold for analysis and would not have a noticeable effect on the performance of the roadway network or any intersections. Therefore, the proposed Project would not conflict with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system. A less than significant impact would occur.

b) *Less Than Significant Impact*. The Los Angeles County Congestion Management Program (CMP) was issued by the Los Angeles County Metropolitan Transportation Authority in December 2010. All freeways and selected arterial roadways are designated elements of the CMP highway system. According to the City's General Plan, the following are designated as arterial roadways: 7th Avenue–Sunset Avenue, Hacienda Boulevard–Vincent Avenue, Azusa Avenue, and Grand Avenue. The proposed Project would not add 50 or more peak-hour trips during either the morning or the evening and is therefore below the threshold for CMP analysis. Impacts on CMP facilities would be less than significant.

c) *No Impact*. The Project site is not in an airport land use plan or within 2 miles of a public airport or public use airport. The nearest public airport is Brackett Field Airport, located approximately 8 miles northeast of the site. Consequently, the proposed Project would not affect any airport facilities and would not cause a change in the directional patterns of aircraft. Therefore, the proposed Project would have no impact on air traffic patterns.

d) *Less Than Significant Impact.* Project site circulation would not cause any safety or operational problems. The Project site would comply with City design standards and would not create any significant impacts to pedestrians, bicyclists, or traffic operations. No internal site circulation or access issues were identified that would cause a traffic safety problem or any unusual traffic congestion or delay. Therefore, the proposed Project would not increase hazards due to a design feature or incompatible use and would have no associated impacts.

e) *No Impact.* The Project's ingress/egress and circulation are required to meet the Los Angeles County Fire Department's standards, which ensure new developments provide adequate access for emergency vehicles. The Project site and the surrounding roadway network do not pose any unique conditions that raise concerns for emergency access, such as narrow winding roads or dead-end streets. Thus, standard engineering practices are expected to achieve the Fire Department's standards. Furthermore, final project plans are subject to review and approval by the Fire Department to ensure the site's access complies with all LACFD codes and policies. The Project would not cause any impacts due to inadequate emergency access.

f) *Less Than Significant Impact.* It is anticipated that the existing transit service in the Project area will adequately accommodate the increase in project-generated transit trips. This analysis is based on the small number of anticipated future Project residents. The Project is not of a size that would substantially increase the ridership of the existing transit service. Therefore, the Project would not conflict with any alternative transportation plans, policies, or programs, and less than significant impact will occur.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
17. UTILITIES AND SERVICE SYSTEMS. Would the project:				
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	☐	☐	☐	☒
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?	☐	☐	☐	☒
c) Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	☐	☐	☒	☐
d) Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	☐	☐	☒	☐
e) Result in a determination by the wastewater treatment provider that 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?	☐	☐	☒	☐
f) Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	☐	☐	☒	☐
g) Comply with federal, state, and local statutes and regulations related to solid waste?	☐	☐	☐	☒

DISCUSSION OF IMPACTS

a) *No Impact.* The Project would not develop a land use that requires on-site wastewater treatment separate from the treatment provided by the Sanitation Districts of Los Angeles County (LACSD). Relatively small volumes of wastewater from bathrooms, kitchens, and cleaning activities would be sewered and directed to the nearest LACSD treatment plant for routine treatment prior to discharge. Wastewater treatment requirements for discharges to stormwater from Project construction are discussed in Response b) in subsection 6, Geology and Soils. The Project would prepare and implement a SWPPP in compliance with the General Construction Permit. Wastewater treatment requirements for discharges to stormwater from Project operations are discussed in Response a) in subsection 9, Hydrology and Water Quality. The Project would comply with City of Industry Municipal Code requirements governing wastewater discharges. No impact would occur.

b) *No Impact*. The proposed development would increase the demand for water and wastewater services. However, as discussed in Responses d) and e) below, the increase in water/wastewater service demand is minimal in comparison to the existing service areas of the water and wastewater service purveyors, and the facilities currently maintained by the service purveyors are adequate to serve the proposed increase in demand. The only water and wastewater improvements required for the Project are on-site pipelines and unit connections to the infrastructure systems, which are subject to connection fees. Therefore, the proposed Project would not require or result in the construction or expansion of new water or wastewater treatment facilities off-site, and the Project would have no associated impacts.

c) *Less Than Significant Impact*. The Project site is currently covered with pervious surfaces such as lawn and landscaped areas, and impervious surfaces, including asphalt, concrete, and structures. The proposed Project will increase the amount of impervious surface such that approximately 65% will be covered by asphalt, concrete and buildings and thus is expected to increase stormwater runoff. A 6,595 square-foot biofiltration area located on the western boundary of the site is proposed. The Project proposes to intercept site storm drainage flows in the vicinity of the Project's northwest boundary and convey them approximately 325 feet to the west via a 24" reinforced concrete pipe along the north boundary of the vacant City-owned parcel west of the Project site and join the existing unimproved channel's east bank outside of State Route 60 right of way. The construction of on-site storm drain improvements is part of the proposed Project analyzed in this Initial Study. Such storm drain improvements would not cause significant environmental effects. Therefore, the proposed Project would not cause significant environmental effects from the construction of new or expanded stormwater drainage facilities.

d) *Less Than Significant Impact*. The Project site is consistent with the General Plan growth projections for the City of Industry and therefore, is consistent with the water demand projections set forth in the Walnut Valley Water District's (2016) Urban Water Management Plan. The water demand would be associated with household activities (i.e., bathroom and kitchen facilities), maintenance/cleaning activities, and landscape irrigation. The proposed Project would be required to conform with Chapter 13.18 (Water Efficient Landscapes) of the City of Industry Municipal Code and with the City's Water Efficient Landscape Guidelines. For example, one of the City's water efficiency measures states that water usage should be minimized through the planting of native and low-water species and the use of water-efficient and drip irrigation systems.

The Project applicant has obtained a will-serve letter from the Walnut Valley Water District to ensure that sufficient water is available to serve the Project. The WVWD has confirmed servicing the Project subject to certain standard conditions which the developer has agreed to comply. Given the scale of the Project and the projected availability of water demonstrated in the Walnut Valley Water District's Urban Water Management Plan, impacts would be less than significant.

e) *Less Than Significant Impact*. Given the scale of the Project and the limited wastewater that would be generated, the existing LACSD wastewater treatment facilities have sufficient capacity to meet the incremental wastewater volume expected to be generated by the Project. Impacts would be less than significant.

f) *Less Than Significant Impact*. The LACSD provides solid waste disposal services to the City of Industry, including the Project site. Solid waste generated by the proposed Project would

be processed by one or more facilities that currently serve the community's waste management needs, including the Puente Hills Materials Recovery Facility, Downey Area Recycling and Transfer Facility, South Gate Transfer Station, and Commerce Refuse-to-Energy Facility. Despite the closure of the local Puente Hills Landfill in October 2013, the LACSD has indicated that the network of existing waste management facilities is adequate to meet the region's needs in the short term. Long-term waste disposal needs would be met by exporting solid waste to the Mesquite Regional Landfill in Imperial County by rail via the Puente Hills Intermodal Facility, which is nearing completion in the City of Industry. The Puente Hills Intermodal Facility would be able to handle up to 8,000 tons per day of solid waste, while the Mesquite Regional Landfill, with a 100-year capacity, would be permitted to accept 20,000 tons per day (LACSD 2016).

Solid waste would be generated during both the construction and operational phases of the proposed Project. The volume of solid waste generated during construction would be relatively minor, since Project development would only require minor demolition and the construction of 25 single-family homes with a respective access road.

The Project would be required to adhere to the City of Industry's waste reduction measures. Additionally, the proposed Project would be required to comply with the provisions of the 2013 Green Building Standards Code (California Code of Regulations Title 24, Part 11), which outlines requirements for construction waste reduction, material selection, and natural resource conservation. The LACSD's existing and proposed solid waste disposal capacity is adequate to accommodate the incremental volume of solid waste that would be generated by the proposed Project. The Project would not require the development of additional landfill capacity beyond that which is already planned. Therefore, Project impacts would be less than significant.

g) *No Impact.* The California Integrated Waste Management Act requires that jurisdictions maintain a 50 percent or better diversion rate for solid waste. The City implements this requirement by such means as recycling, source reduction, and composting. Assembly Bill (AB) 939 also requires each California county to show 15 years of disposal capacity for all jurisdictions within the county or provide a plan to transform or divert its waste. AB 1327, the California Solid Waste Reuse and Recycling Access Act of 1991, requires local agencies to adopt ordinances mandating the use of recyclable materials in development projects.

The proposed Project would be required to comply with all applicable laws and regulations governing solid waste management and disposal, including those listed above. More specifically, the proposed Project would not affect the City of Industry's ability to continue to meet the required AB 939 waste diversion requirements. For example, the proposed Project would help the City achieve its source reduction, recycling, and waste stream diversion goals for solid waste through the provision and use of on-site recycling bins. Therefore, the Project would not cause any impacts by conflicting with statutes or regulations related to solid waste.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
18. TRIBAL CULTURAL RESOURCES.				
a) Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:				
i) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1 (k), or	☐	☒	☐	☐
ii) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☒	☐	☐

DISCUSSION OF IMPACTS

a) *Less Than Significant Impact With Mitigations Incorporated.* CEQA Section 21074 defines tribal cultural resources as either of the following:

1. Site features, places, cultural landscapes, sacred places, and objects of cultural value to a California Native American tribe that are either (a) included or determined to be eligible for inclusion in the California Register of Historical Resources; or (b) included in a local register of historical resources as defined in subdivision (k) of Public Resources Code Section 5020.1.

2. A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1.

The Soboba Band of Luiseño Indians and the Gabrieleño Band of Mission Indians–Kizh Nation were notified of the proposed Project on October 27, 2017. The Gabrieleño Band of Mission Indians–Kizh Nation requested consultation. City representatives and Cultural Resources consultant met with tribal representatives on December 13, 2017. During the consultation, tribal representatives provided information relative to the Project site. Due to the proximity of the Project to known village and commerce route locations, mitigation measures MM TCR-1, MM TCR-2, and MM TCR-3 have been included in the Project. No other responses to the notification letters were received. Therefore, with the implementation of the mitigation measures impacts will be reduced to less than significant.

MM TCR-1 *Retain a Native American Monitor:* The project Applicant will be required to obtain the services of a qualified Native American Monitor(s) during construction-related ground disturbance activities. Ground disturbance is defined by the Tribal Representatives from the Gabrieleño Band of Mission Indians-Kizh Nation as activities that include, but are not limited to, pavement removal, pot-holing or auguring, grubbing, weed abatement, boring, grading, excavation, drilling, and trenching, within the project area. The monitor(s) must be approved by the Tribal Representatives and will be present on-site during the construction phases that involve any ground disturbing activities. The Native American Monitor(s) will complete monitoring logs on a daily basis. The logs will provide descriptions of the daily activities, including construction activities, locations, soil, and any cultural materials identified. The monitor(s) shall possess Hazardous Waste Operations and Emergency Response (HAZWOPER) certification. In addition, the monitor(s) will be required to provide insurance certificates, including liability insurance, for any archaeological resource(s) encountered during grading and excavation activities pertinent to the provisions outlined in the California Environmental Quality Act, California Public Resources Code Division 13, Section 21083.2 (a) through (k). The on-site monitoring shall end when the project site grading and excavation activities are completed, or when the Tribal Representatives and monitor have indicated that the site has a low potential for archeological resources.

***Hazwoper is needed only if the site has hazardous concerns.*

Timing/Implementation: Throughout ground-disturbing construction activities

Enforcement/Monitoring: City of Industry Planning Department

MM TCR-2 *Unanticipated Discovery of Tribal Cultural Resources:* All archaeological resources unearthed by project construction activities shall be evaluated by the Qualified Archaeologist and Native Monitor. If the resources are Native American in origin, the Tribe shall coordinate with the landowner regarding treatment and curation of these resources. Typically, the Tribe will request reburial or preservation for educational purposes. If a resource is determined by the Qualified Archaeologist to constitute a "historical resource" pursuant to CEQA Guidelines Section 15064.5(a) or has a "unique archaeological resource" pursuant to Public Resources Code Section 21083.2(g), the Qualified Archaeologist shall coordinate with the applicant and the City to develop a formal treatment plan that would serve to reduce impacts to the resources. The treatment plan established for the resources shall be in accordance with CEQA Guidelines Section 15064.5(f) for historical resources and Public Resources Code Sections 21083.2(b) for unique archaeological resources. Preservation in

place (i.e., avoidance) is the preferred manner of treatment. If preservation in place is not feasible, treatment may include implementation of archaeological data recovery excavations to remove the resource along with subsequent laboratory processing and analysis. Any historic archaeological material that is not Native American in origin shall be curated at a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County or the Fowler Museum, if such an institution agrees to accept the material. If no institution accepts the archaeological material, they shall be donated to a local school or historical society in the area for educational purposes.

Timing/Implementation: *Upon discovery of resources*

Enforcement/Monitoring: *City of Industry Planning Department*

MM TCR-3 *Unanticipated Discovery of Human remains and associated funerary objects:* Human remains are defined as any physical remains of a human being. The term "human remains" encompasses more than human bones. In ancient as well as historic times, Tribal Traditions included, but were not limited to, the burial of associated cultural resources (Funerary objects) with the deceased, and the ceremonial burning of human remains. These remains are to be treated in the same manner as bone fragments that remain intact. Associated funerary objects are objects that, as part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later; other items made exclusively for burial purposes or to contain human remains can also be considered as associated funerary objects. NAGPRA guidance specifically states that the federal agencies will consult with organizations on whose aboriginal lands the remains and cultural items might be discovered, who are reasonably known to have a cultural relationship to the human remains and other cultural items. Therefore, for this project site, it is appropriate to consult with the Gabrieleno Band of Mission Indians – Kizh Nation as recommended by the NAHC.

Prior to the start of ground disturbing activities, the land owner shall arrange a designated site location within the footprint of the project for the respectful reburial of the human remains and/or ceremonial objects. Any discoveries of human skeletal material shall be immediately reported to the County Coroner. The monitor will immediately divert work at minimum of 50 feet and place an exclusion zone around the burial. The monitor will then notify the Qualified Archaeologist and the construction manager who will call the coroner. Work will continue to be diverted while the coroner determines whether the remains are Native American. The discovery is to be kept confidential and secure to prevent any further disturbance. If Native American, the coroner will notify the NAHC as mandated by state law who will then appoint a Most Likely Descendent. In the case where discovered human remains cannot be fully documented and recovered on the same day, the remains will be covered with muslin cloth and a steel plate that can be moved by heavy equipment placed over the excavation opening to protect the remains. If this type of steel plate is not available, a 24 hour guard should be posted outside of working hours. The Tribe will make every effort to recommend diverting the project and keeping the remains in situ and protected. If the project cannot be diverted, it may be determined that burials will be removed. The Tribe will work closely with

the Qualified Archaeologist to ensure that the excavation is treated carefully, ethically and respectfully. If data recovery is approved by the Tribe, documentation shall be taken which includes at a minimum detailed descriptive notes and sketches. Additional types of documentation shall be approved by the Tribe for data recovery purposes. Cremations will either be removed in bulk or by means as necessary to ensure completely recovery of all material. If the discovery of human remains includes 4 or more burials, the location is considered a cemetery and a separate treatment plan shall be created. The project applicant shall consult with the Tribe regarding avoidance of all cemetery sites. Once complete, a final report of all activities are to be submitted to the NAHC. The Tribe does NOT authorize any scientific study or the utilization of any invasive diagnostics on human remains.

If the coroner determines the remains represent a historic non-Native American burial, the burial shall be treated in the same manner of respect with agreement of the coroner. Reburial will be in an appropriate setting. If the coroner determines the remains to be modern, the coroner will take custody of the remains.

Each occurrence of human remains and associated funerary objects will be stored using opaque cloth bags. All human remains, funerary objects, sacred objects and objects of cultural patrimony will be removed to a secure container on site if possible. These items should be retained and reburied within six months of recovery. The site of reburial/repatriation shall be on the project site but at a location mitigated between the Tribe and the landowner at a site to be protected in perpetuity. There shall be no publicity regarding any cultural materials recovered.

Timing/Implementation: *Prior to ground-disturbing activities*

Enforcement/Monitoring: *City of Industry Planning Department*

NOTE: *Professional Standards:* Archaeological and Native American monitoring and excavation during construction projects will be consistent with current professional standards. All feasible care to avoid any unnecessary disturbance, physical modification, or separation of human remains and associated funerary objects shall be taken. Principal personnel must meet the Secretary of Interior standards for archaeology and have a minimum of 10 years of experience as a principal investigator working with Tribal Cultural Resources in southern California. The Qualified Archaeologist shall ensure that all other personnel are appropriately trained and qualified.

	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
19. MANDATORY FINDINGS OF SIGNIFICANCE				
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 rare or endangered plants or animals, or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? "Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.	☐	☐	☒	☐
c) Does the project have environmental effects that will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☒	☐	☐

DISCUSSION OF IMPACTS

a) *Less Than Significant Impact With Mitigation Incorporated*. Based on the analysis in subsection 4 - Biological Resources of this IS/MND, the proposed Project would not have substantial impacts on special-status species, stream habitat, and wildlife dispersal and migration. Furthermore, the proposed Project would not affect the local, regional, or national populations or ranges of any plant or animal species and would not threaten any plant communities. Similarly, as discussed in subsection 5, Cultural Resources, and subsection 18, Tribal Cultural Resources, with the incorporation of mitigation measures, the proposed Project would not have substantial impacts to historical or archaeological resources. Mitigation measures are included to protect significant cultural/archaeological and tribal cultural resources should such resources be accidentally discovered during construction. The proposed Project would not eliminate any important examples of California history or prehistory. Therefore, with the implementation of mitigation measures, impacts would be less than significant.

b) *Less Than Significant Impact*. A significant cumulative impact may occur if the project, in conjunction with related projects, would result in impacts that are less than significant when viewed separately but would be significant when viewed together. When

considering the proposed Project in combination with other past, present, and reasonably foreseeable future projects in the vicinity of the Project site, the proposed Project does not have the potential to cause impacts that are cumulatively considerable. As detailed in the above subsections, the proposed Project would not result in any significant and unmitigable impacts in any environmental categories. In all cases, the impacts associated with the Project are limited to the Project site or are of such a negligible degree that they would not result in a significant contribution to any cumulative impacts. Therefore, the proposed Project would have less than significant impacts.

c) *Less Than Significant Impact With Mitigation Incorporated.* As detailed above, with the implementation of mitigation measures, the proposed Project does not have the potential to result in direct or indirect substantial adverse effects on human beings. Mitigation measures have been incorporated in the Project for Air Quality, Hazards and Hazardous Materials, Geology and Soils and Noise to reduce any potential impacts to less than significant levels. Based on the analysis in this Initial Study, the Project would not cause environmental effects that have the potential to cause substantial adverse effects on human beings with mitigation incorporated.

MITIGATION AND MONITORING REPORT

INITIAL STUDY AND MITIGATED NEGATIVE DECLARATION

INDUSTRY WORKFORCE HOUSING COMMUNITY PROJECT

CITY OF INDUSTRY

December, 2017

No.	Mitigation Measure	Implementation Action	Enforcing Party	Monitoring Phase (Time Frame)	Verification /Approval Party	MM Implemented ? (Y/N) & Date
1	During site preparation and grading activity all actively graded areas within the Project site shall be watered at 2.1-hour watering intervals (e.g., 4 times per day) or a movable sprinkler system shall be in place to ensure minimum soil moisture of 12% is maintained for actively graded areas. Moisture content can be verified with use of a moisture probe by the grading contractor.	Periodic site inspections to confirm compliance	City Planning	During site preparation and ground-disturbing construction activities	City of Industry	
2	If archaeological resources are encountered during Project construction, all construction activities in the vicinity of the find must halt until an archaeologist certified by the Society of Professional Archaeologists examines the site, identifies the archaeological significance of the find, and recommends a course of action. Construction cannot resume until the site archaeologist states in writing that	Monitor, and if necessary halt until cleared by archeologist	Construction Contractor/ City of Industry / Archeologist	Throughout ground-disturbing construction activities	City of Industry	

No.	Mitigation Measure	Implementation Action	Enforcing Party	Monitoring Phase (Time Frame)	Verification /Approval Party	MM Implemented ? (Y/N) & Date
	the proposed construction activities will not damage significant archaeological resources.					
3	***Retain a Native American Monitor:*** The project Applicant will be required to obtain the services of a qualified Native American Monitor(s) during construction-related ground disturbance activities. Ground disturbance is defined by the Tribal Representatives from the Gabrieleño Band of Mission Indians-Kizh Nation as activities that include, but are not limited to, pavement removal, pot-holing or auguring, grubbing, weed abatement, boring, grading, excavation, drilling, and trenching, within the project area. The monitor(s) must be approved by the Tribal Representatives and will be present on-site during the construction phases that involve any ground disturbing activities. The Native American Monitor(s) will complete monitoring logs on a daily basis. The logs will provide descriptions of the daily activities, including construction activities, locations, soil, and any cultural materials identified. The monitor(s) shall possess Hazardous Waste Operations and Emergency Response (HAZWOPER) certification. In addition, the monitor(s) will be required to provide insurance certificates, including liability insurance, for any archaeological resource(s) encountered during grading and excavation activities pertinent to the	Native American Monitoring	Construction Contractor/ City of Industry/ Tribal Monitor	Prior to and during earth moving activities	City of Industry	

No.	Mitigation Measure	Implementation Action	Enforcing Party	Monitoring Phase (Time Frame)	Verification /Approval Party	MM Implemented ? (Y/N) & Date
	provisions outlined in the California Environmental Quality Act, California Public Resources Code Division 13, Section 21083.2 (a) through (k). The on-site monitoring shall end when the project site grading and excavation activities are completed, or when the Tribal Representatives and monitor have indicated that the site has a low potential for archeological resources. ***Hazwoper is needed only if the site has hazardous concerns.*					
4	***Unanticipated Discovery of Tribal Cultural Resources:*** All archaeological resources unearthed by project construction activities shall be evaluated by the Qualified Archaeologist and Native Monitor. If the resources are Native American in origin, the Tribe shall coordinate with the landowner regarding treatment and curation of these resources. Typically, the Tribe will request reburial or preservation for educational purposes. If a resource is determined by the Qualified Archaeologist to constitute a "historical resource" pursuant to CEQA Guidelines Section 15064.5(a) or has a "unique archaeological resource" pursuant to Public Resources Code Section 21083.2(g), the Qualified Archaeologist shall coordinate with the	Monitoring by Construction Manager/ Archeologist/ Native American Monitor	City of Industry	During ground disturbing activities	Archeologist	

No.	Mitigation Measure	Implementation Action	Enforcing Party	Monitoring Phase (Time Frame)	Verification /Approval Party	MM Implemented ? (Y/N) & Date
	applicant and the City to develop a formal treatment plan that would serve to reduce impacts to the resources. The treatment plan established for the resources shall be in accordance with CEQA Guidelines Section 15064.5(f) for historical resources and Public Resources Code Sections 21083.2(b) for unique archaeological resources. Preservation in place (i.e., avoidance) is the preferred manner of treatment. If preservation in place is not feasible, treatment may include implementation of archaeological data recovery excavations to remove the resource along with subsequent laboratory processing and analysis. Any historic archaeological material that is not Native American in origin shall be curated at a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County or the Fowler Museum, if such an institution agrees to accept the material. If no institution accepts the archaeological material, they shall be donated to a local school or historical society in the area for educational purposes.					

No.	Mitigation Measure	Implementation Action	Enforcing Party	Monitoring Phase (Time Frame)	Verification /Approval Party	MM Implemented ? (Y/N) & Date
5	***Unanticipated Discovery of Human remains and associated funerary objects:*** Human remains are defined as any physical remains of a human being. The term "human remains" encompasses more than human bones. In ancient as well as historic times, Tribal Traditions included, but were not limited to, the burial of associated cultural resources (Funerary objects) with the deceased, and the ceremonial burning of human remains. These remains are to be treated in the same manner as bone fragments that remain intact. Associated funerary objects are objects that, as part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later; other items made exclusively for burial purposes or to contain human remains can also be considered as associated funerary objects. NAGPRA guidance specifically states that the federal agencies will consult with organizations on whose aboriginal lands the remains and cultural items might be discovered, who are reasonably known to have a cultural relationship to the human remains and other cultural items. Therefore, for this project site, it is appropriate to consult with the Gabrieleno Band of Mission Indians – Kizh Nation as recommended by the NAHC.	Site Designation/ Follow-up actions	Construction Contractor/ City of Industry/ Tribal Monitor	Prior to earth moving activities	City of Industry	

No.	Mitigation Measure	Implementation Action	Enforcing Party	Monitoring Phase (Time Frame)	Verification /Approval Party	MM Implemented ? (Y/N) & Date
	Prior to the start of ground disturbing activities, the land owner shall arrange a designated site location within the footprint of the project for the respectful reburial of the human remains and/or ceremonial objects. Any discoveries of human skeletal material shall be immediately reported to the County Coroner. The monitor will immediately divert work at minimum of 50 feet and place an exclusion zone around the burial. The monitor will then notify the Qualified Archaeologist and the construction manager who will call the coroner. Work will continue to be diverted while the coroner determines whether the remains are Native American. The discovery is to be kept confidential and secure to prevent any further disturbance. If Native American, the coroner will notify the NAHC as mandated by state law who will then appoint a Most Likely Descendent. In the case where discovered human remains cannot be fully documented and recovered on the same day, the remains will be covered with muslin cloth and a steel plate that can be moved by heavy equipment placed over the excavation opening to protect the remains. If this type of steel plate is not available, a 24 hour guard should be posted outside of working hours. The Tribe will make every effort to recommend diverting the project and keeping the remains in situ and protected.					

No.	Mitigation Measure	Implementation Action	Enforcing Party	Monitoring Phase (Time Frame)	Verification /Approval Party	MM Implemented ? (Y/N) & Date
	If the project cannot be diverted, it may be determined that burials will be removed. The Tribe will work closely with the Qualified Archaeologist to ensure that the excavation is treated carefully, ethically and respectfully. If data recovery is approved by the Tribe, documentation shall be taken which includes at a minimum detailed descriptive notes and sketches. Additional types of documentation shall be approved by the Tribe for data recovery purposes. Cremations will either be removed in bulk or by means as necessary to ensure completely recovery of all material. If the discovery of human remains includes 4 or more burials, the location is considered a cemetery and a separate treatment plan shall be created. The project applicant shall consult with the Tribe regarding avoidance of all cemetery sites. Once complete, a final report of all activities are to be submitted to the NAHC. The Tribe does NOT authorize any scientific study or the utilization of any invasive diagnostics on human remains. If the coroner determines the remains represent a historic non-Native American burial, the burial shall be treated in the same manner of respect with agreement of the coroner. Reburial will be in an appropriate setting. If the coroner determines the remains to be modern, the					

No.	Mitigation Measure	Implementation Action	Enforcing Party	Monitoring Phase (Time Frame)	Verification /Approval Party	MM Implemented ? (Y/N) & Date
	coroner will take custody of the remains. Each occurrence of human remains and associated funerary objects will be stored using opaque cloth bags. All human remains, funerary objects, sacred objects and objects of cultural patrimony will be removed to a secure container on site if possible. These items should be retained and reburied within six months of recovery. The site of reburial/repatriation shall be on the project site but at a location mitigated between the Tribe and the landowner at a site to be protected in perpetuity. There shall be no publicity regarding any cultural materials recovered.					
6	If paleontological resources are encountered during Project construction, all construction activities in the vicinity of the find must halt until a professional paleontologist examines the site, identifies the paleontological significance of the find, and recommends a course of action. Construction cannot resume until the site paleontologist states in writing that the proposed construction activities will not damage significant paleontological resources.	Site inspection and paleontologist recommendation	Construction Contractor/ City of Industry / Paleontologist	Throughout ground-disturbing construction activities	City of Industry	

No.	Mitigation Measure	Implementation Action	Enforcing Party	Monitoring Phase (Time Frame)	Verification /Approval Party	MM Implemented ? (Y/N) & Date
7	Prior to the start of any construction activities the contractor shall install minimum 9-foot high temporary construction noise barriers at the Project's site boundaries adjacent to sensitive receivers on Walnut Drive, as shown on Exhibit 10-A of the Project Noise Impact Analysis, for the duration of Project construction. The noise control barriers must have a solid face from top to bottom. The noise control barriers must meet the minimum height and be constructed as follows: • The temporary noise barriers shall provide a minimum transmission loss of 20 dBA (Federal Highway Administration, Noise Barrier Design Handbook). The noise barrier shall be constructed using an acoustical blanket (e.g. vinyl acoustic curtains or quilted blankets) attached to the construction site perimeter fence or equivalent temporary fence posts; • The noise barrier must be maintained, and any damage promptly repaired. Gaps, holes, or weaknesses in the barrier or openings between the barrier and the ground shall be promptly repaired; • The noise control barrier and associated elements shall be completely removed, and the site appropriately restored upon the conclusion of the construction	Initial and periodic site inspection to ensure compliance	City of Industry	Throughout construction activities	City Planning	

No.	Mitigation Measure	Implementation Action	Enforcing Party	Monitoring Phase (Time Frame)	Verification /Approval Party	MM Implemented ? (Y/N) & Date
	activity.					
8	During all construction activities the applicant shall ensure that use of large construction equipment (e.g., dozers, graders, scrapers) capable of generating noise levels in excess of 78 dBA L_{max} at 50 feet shall be prohibited within 100 feet of nearby occupied sensitive residential homes to reduce the noise and vibration levels for the entire duration of Project construction. If the contractor can demonstrate that specific pieces of large construction equipment can demonstrate compliance with the 78 dBA L_{max} at 50 feet criteria, then they shall be allowed to operate within the buffer zone shown on Exhibit 10-A of the Project Noise Impact Analysis.	Ongoing Monitoring	Construction Contractor/ City of Industry	Throughout Construction Activities	City of Industry	
9	During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site.	Ongoing Monitoring	Construction Contractor/ City of Industry	Throughout Construction Activities	City of Industry	
10	The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receivers nearest the	Ongoing Monitoring	Construction Contractor/ City of Industry	Throughout Construction Activities	City of Industry	

No.	Mitigation Measure	Implementation Action	Enforcing Party	Monitoring Phase (Time Frame)	Verification /Approval Party	MM Implemented ? (Y/N) & Date
	Project site during all Project construction (i.e., to the northern center).					
11	Prior to the issuance of building permits, the applicant shall provide evidence to the Community Development Department that the following features will be incorporated in building design: Windows/Sliding Glass Doors: • Northeastern lots, closest to SR-60, require minimum second-floor STC ratings of 38, and minimum first-floor STC ratings of 36; • All other lots require minimum STC ratings of 36 for first and second-floors, and window/sliding glass door assemblies shall be well-fitted and well-weather-stripped. Doors (Non-Glass): All exterior doors shall be well weather-stripped and have minimum STC ratings of 25. Well-sealed perimeter gaps around the doors are essential to achieve the optimal STC rating. Walls: At any penetrations of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits shall be caulked or filled with mortar to form an airtight seal.	Building Permits	City of Industry	Prior to Building Permits	City of Industry	

No.	Mitigation Measure	Implementation Action	Enforcing Party	Monitoring Phase (Time Frame)	Verification /Approval Party	MM Implemented ? (Y/N) & Date
	Roof: Roof sheathing of wood construction shall be per manufacturer's specification or caulked plywood of at least one-half inch thick. Ceilings shall be per manufacturer's specification or well-sealed gypsum board of at least one-half inch thick. Insulation with at least a rating of R-19 shall be used in the attic space. Ventilation: Arrangements for any habitable room shall be such that any exterior door or window can be kept closed when the room is in use and still receive circulated air. A forced air circulation system (e.g. air conditioning) or active ventilation system (e.g. fresh air supply) shall be provided which satisfies the requirements of the Uniform Building Code.					
12	Prior to demolition permits, the contractor shall submit an asbestos work plan for the City's review and approval. The work plan shall indicate the proposed abatement methods and control measures for the removal of asbestos containing materials.	Demolition Permits	Construction contractor and City of Industry	Prior to demolition permits	City of Industry	

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Chapter 17.30
RESIDENTIAL ZONE (R)

Sections

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17.30.010 Purpose.

It is the intent and purpose of the Residential Zone to:

A. Implement the Housing Element of the General Plan and allow for a variety of housing types, including multifamily rental, factory-built, mobile homes, supportive housing, and transitional housing on select sites.

B. Create opportunities for residential development on select sites by amending the Zoning Code to provide residential development standards and approval procedures to facilitate the development of housing, including affordable housing, in the Residential Zone.

C. To implement state laws that require cities to demonstrate available land capacity and zoning tools to accommodate the City's projected need for housing.

D. Facilitate well-designed new residential development projects to promote a better balance of jobs and housing.

E. Stimulate economic development and reinvestment through regulations based upon recognized urban design principles that allow property owners to respond with flexibility to market forces.

F. Allow development standard modifications, and expedited processing for projects that address the Regional Housing Needs Allocation (RHNA).

17.30.020 Change of Zone.

A. Any change of an existing industrial or commercial zone to include, a residential zone, shall be made in accordance with the provisions of Chapter 17.28.

17.30.030 Permitted Uses.

A. The following residential uses shall be permitted pursuant to a planned development approved by the city council pursuant to Chapter 17.24:

1. Single family residential (attached or detached).
2. Multiple family residential (townhomes, condominiums, or rental apartments)
3. Mobile homes
4. Manufactured housing
5. Supportive housing (17.08.152)
6. Transitional housing (17.08.157)
7. Accessory uses or structures incidental to the principally permitted use.

17.30.040 Applicability.

The regulations set forth in this chapter may be applied to sites meeting the following criteria:

A. The development site is a minimum of one (1) acre.

B. The site is vacant or underutilized and could readily accommodate residential development.

C. Adequate infrastructure and services exist or may be readily extended to support residential uses on the site.

D. The site is near other residential development or residentially zoned lands.

E. The site is not located adjacent to industrial or commercial uses that would raise environmental or operational concerns, or would result in foreseeable conflicts between uses.

17.30.050 Property Development Standards

The following development standards shall apply to housing developments in the Residential Zone. The City may waive, or modify, any, or all, of these requirements during Design Review if it finds that one or more of the requirements is infeasible due to physical or other constraints on the property or would otherwise facilitate the construction of affordable housing to meet the City's RHNA requirements.

A. General Compatibility Standards.

1. General Design Standards. The housing units shall be designed and developed in a manner compatible with and complementary to existing and potential development in the immediate vicinity of the project site.
2. Adjacent Uses. Site planning on the perimeter shall provide for protection of the property from adverse surrounding influences and shall protect surrounding areas from potentially adverse influences of residents on the property.

3. Privacy. To the greatest extent possible, the design of the development shall promote privacy for residents and neighbors, security, and use of passive solar heating and cooling through proper placement of walls, windows, and landscaping.
4. Compatible Materials. Building design and materials shall blend with the neighborhood or existing structures on the site.

B. Property Development Standards.

1. Streets. All public streets within or abutting the residential use shall be dedicated and improved to city specifications for the particular classification of street consistent with Title 12 Streets and Sidewalks. All private streets shall meet fire code and access standards.
2. Sidewalks. Sidewalks shall be installed along all public street frontages.
3. Parking. Parking shall be provided as follows:
   a. One (1) space for studios, one-bedroom units and accessory apartments
   b. Two (2) spaces per two- or more-bedroom dwelling units.
   c. Where part of a planned development, a minimum of one (1) visitor parking space for every seven (7) dwelling units shall be provided. On-street parking, where permitted, may be used to satisfy visitor parking.
4. Common Open Space. Common open space shall comprise the greater of: (a) five percent of the total area of the site; or (b) seventy-five square feet for each dwelling unit. Land occupied by buildings, streets, driveways, parking, utility units, and trash enclosures shall not be counted in satisfying the open space requirement; land in landscaping and passive and active recreation/open space with a minimum depth/width of five feet shall be counted, and land occupied by recreational buildings and structures shall be counted. Common open space shall be suitable for and improved with amenities to promote physical activity and social interaction amongst residents of the development.

C. Development Standards by Type. The following table provides standards for a range of housing and density types.

Residential Development Standards				
DEVELOPMENT TYPE & DENSITY				
Development Type	**LOW DENSITY**	**MEDIUM DENSITY**	**MED-HIGH DENSITY**	**HIGH DENSITY**
Density Range (dwelling units/acre)	2 – 8	8 – 15	15 – 25	25 – 35
BUILDING TYPES				
Single House	X	X		
Duplex - Quadplex		X	X	
Bungalow Court	X	X	X	
Townhouse		X	X	X
Live/Work			X	X
Multifamily Apartments			X	X
Stacked Flats			X	X
Accessory Unit	X	X	X	X
LOT DIMENSIONS				
Minimum Lot Area	n.a.	n.a.	n.a.	n.a.
Maximum Lot Coverage	60%	70%	80%	90%
PRINCIPAL BUILDING SETBACKS				
Front	5 ' min – 20 ' max	5 ' min – 20 ' max	2 ' min - 15 ' max	0 ' min – 10 ' max
Side	5 ' min	5 ' min	0 ' min – 24 ' max	0 ' min – 24 ' max
Rear	10 ' min	5 ' min	3 ' min	3 ' min
ACCESSORY BUILDING SETBACKS				
Front	24 ' min	40 ' max from rear	40 ' max from rear	40 ' max from rear
Side	5 ' min	0 ' or 3 ' at rear	0 ' or 3 ' at corner	0 ' or 3 ' at corner
Rear	10 ' min	3 ' min	3 ' min	3 ' min
MAXIMUM BUILDING HEIGHT (Floors/Feet)				
Principal Building	2 / 35 '	2 / 35 '	3 / 50 '	4 / 60 '
Accessory	2 / 25 '	2 / 25 '	2 / 25 '	2 / 25 '

Industry Workforce Housing Community

Air Quality Impact Analysis

City of Industry

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LIST OF ABBREVIATED TERMS

(1)	Reference
µg/m3	Microgram per Cubic Meter
AADT	Annual Average Daily Trips
AQIA	Air Quality Impact Analysis
AQMD	Air Quality Management District
AQMP	Air Quality Management Plan
ARB	California Air Resources Board
BACM	Best Available Control Measures
BMPs	Best Management Practices
CAA	Federal Clean Air Act
CAAQS	California Ambient Air Quality Standards
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resources Board
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CO	Carbon Monoxide
DPM	Diesel Particulate Matter
EPA	Environmental Protection Agency
LST	Localized Significance Threshold
NAAQS	National Ambient Air Quality Standards
NO2	Nitrogen Dioxide
NOx	Oxides of Nitrogen
Pb	Lead
PM10	Particulate Matter 10 microns in diameter or less
PM2.5	Particulate Matter 2.5 microns in diameter or less
PPM	Parts Per Million
Project	Industry Workforce Housing Community
ROG	Reactive Organic Gases
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SIPs	State Implementation Plans
SRA	Source Receptor Area
TAC	Toxic Air Contaminant

TIA	Traffic Impact Analysis
TOG	Total Organic Gases
VMT	Vehicle Miles Traveled

EXECUTIVE SUMMARY

CONSTRUCTION-SOURCE EMISSIONS

REGIONAL IMPACTS

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

LOCALIZED IMPACTS

Project construction-source emissions would not exceed the SCAQMD's localized significance thresholds for any criteria pollutant with implementation of Mitigation Measure (MM) AQ-1. Therefore, a less than significant impact would occur.

Project construction-source emissions would be consistent with the applicable Air Quality Management Plans (AQMP).

ODORS

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

OPERATIONAL-SOURCE EMISSIONS

REGIONAL IMPACTS

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

LOCALIZED IMPACTS

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

Project operational-source emissions would be consistent with the applicable AQMP.

ODORS

Substantial odor-generating sources include land uses such as agricultural activities, feedlots, wastewater treatment facilities, landfills or various heavy industrial uses. The Project does not propose any such uses or activities that would result in potentially significant operational-source odor impacts. Potential sources of operational odors generated by the Project would include disposal of miscellaneous refuse. Moreover, SCAQMD Rule 402 acts to prevent occurrences of odor nuisances (1). Consistent with City requirements, all Project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with solid waste regulations. Potential operational-source odor impacts are therefore considered less-than-significant.

1 INTRODUCTION

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

1.1 SITE LOCATION

The proposed Industry Workforce Housing Community site is located at 20137 and 20249 East Walnut Drive in City of Industry, as shown on Exhibit 1-A. The Project site is currently occupied by a residential home and two billboard signs. It is bound to the north by State Route 60 (SR-60), to the south and west by existing residential homes, and to the east by an existing parking lot.

1.2 PROJECT DESCRIPTION

The Project is proposed to consist of up to 25 single-family detached residential dwelling units and approximately 4,500 square feet of community recreational space, as shown on Exhibit 1-B.

1.3 CONSTRUCTION-SOURCE AIR POLLUTANT EMISSIONS MITIGATION MEASURES

MM AQ-1

During site preparation and grading activity all actively graded areas within the Project site shall be watered at 2.1-hour watering intervals (e.g., 4 times per day) or a movable sprinkler system shall be in place to ensure minimum soil moisture of 12% in maintained for actively graded areas. Moisture content can be verified with use of a moisture probe by the grading contractor.

1.4 OPERATIONAL-SOURCE AIR POLLUTANT EMISSIONS MITIGATION MEASURES

No significant impacts would occur; thus, no mitigation is required.

EXHIBIT 1-A: LOCATION MAP

EXHIBIT 1-B: SITE PLAN

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2 AIR QUALITY SETTING

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

2.1 SOUTH COAST AIR BASIN

The Project site is located in the South Coast Air Basin (SCAB) within the jurisdiction of SCAQMD (2). The SCAQMD was created by the 1977 Lewis-Presley Air Quality Management Act, which merged four county air pollution control bodies into one regional district. Under the Act, the SCAQMD is responsible for bringing air quality in areas under its jurisdiction into conformity with federal and state air quality standards. As discussed above, the Project site is located within the South Coast Air Basin, a 6,745-square mile sub-region of the SCAQMD, which includes portions of Los Angeles, Riverside, and San Bernardino Counties, and all of Orange County. The larger South Coast district boundary includes 10,743 square miles.

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

2.2 REGIONAL CLIMATE

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

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

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

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

Due to its generally clear weather, about three-quarters of available sunshine is received in the SCAB. The remaining one-quarter is absorbed by clouds. The ultraviolet portion of this abundant radiation is a key factor in photochemical reactions. On the shortest day of the year there are approximately 10 hours of possible sunshine, and on the longest day of the year there are approximately 14 1/2 hours of possible sunshine.

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

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

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

2.3 Wind Patterns and Project Location

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

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

2.4 Existing Air Quality

Existing air quality is measured at established SCAQMD air quality monitoring stations. Monitored air quality is evaluated and in the context of ambient air quality standards. These standards are the levels of air quality that are considered safe, with an adequate margin of safety, to protect the public health and welfare. National Ambient Air Quality Standards (NAAQS) and California Ambient Air Quality Standards (CAAQS) currently in effect are shown in Table 2-1 (3).

The determination of whether a region's air quality is healthful or unhealthful is determined by comparing contaminant levels in ambient air samples to the state and federal standards presented in Table 2-1. The air quality in a region is considered to be in attainment by the state if the measured ambient air pollutant levels for O3, CO, SO2, NO2, PM10, and PM2.5 are not equaled or exceeded at any time in any consecutive three-year period; and the federal standards (other than O3, PM10, PM2.5, and those based on annual averages or arithmetic mean) are not exceeded more than once per year. The O3 standard is attained when the fourth highest eight-hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when 99 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.

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

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

See footnotes on next page ...

For more information please call ARB-PIO at (916) 322-2990 **California Air Resources Board (10/1/15)**

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

1. California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, and visibility reducing particles), are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$ is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent measurement method which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the U.S. EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the U.S. EPA.
8. On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm.
9. On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 $\mu g/m^3$ to 12.0 $\mu g/m^3$. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 $\mu g/m^3$, as was the annual secondary standard of 15 $\mu g/m^3$. The existing 24-hour PM10 standards (primary and secondary) of 150 $\mu g/m^3$ also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.
10. To attain the 1-hour national standard, the 3-year average of the annual 98th percentile of the 1-hour daily maximum concentrations at each site must not exceed 100 ppb. Note that the national 1-hour standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the national 1-hour standard to the California standards the units can be converted from ppb to ppm. In this case, the national standard of 100 ppb is identical to 0.100 ppm.
11. On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-year average of the annual 99th percentile of the 1-hour daily maximum concentrations at each site must not exceed 75 ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

    Note that the 1-hour national standard is in units of parts per billion (ppb). California standards are in units of parts per million (ppm). To directly compare the 1-hour national standard to the California standard the units can be converted to ppm. In this case, the national standard of 75 ppb is identical to 0.075 ppm.
12. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
13. The national standard for lead was revised on October 15, 2008 to a rolling 3-month average. The 1978 lead standard (1.5 $\mu g/m^3$ as a quarterly average) remains in effect until one year after an area is designated for the 2008 standard, except that in areas designated nonattainment for the 1978 standard, the 1978 standard remains in effect until implementation plans to attain or maintain the 2008 standard are approved.
14. In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.

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2.5 REGIONAL AIR QUALITY

The SCAQMD monitors levels of various criteria pollutants at 30 monitoring stations throughout the air district. In 2014, the federal and state ambient air quality standards (NAAQS and CAAQS) were exceeded on one or more days for ozone, PM10, and PM2.5 at most monitoring locations (4). No areas of the SCAB exceeded federal or state standards for NO2, SO2, CO, sulfates or lead. See Table 2-2 for attainment designations for the SCAB (5). Appendix 3.1 provides geographic representation of the state and federal attainment status for applicable criteria pollutants within the SCAB.

TABLE 2-2: ATTAINMENT STATUS OF CRITERIA POLLUTANTS IN THE SOUTH COAST AIR BASIN (SCAB)

Criteria Pollutant	State Designation	Federal Designation
Ozone - 1hour standard	Nonattainment	No Standard
Ozone - 8 hour standard	Nonattainment	Nonattainment (Extreme)
PM_{10}	Nonattainment	Attainment (Maintenance*)
$PM_{2.5}$	Nonattainment	Nonattainment (Serious)
Carbon Monoxide	Attainment	Attainment (Maintenance*)
Nitrogen Dioxide	Attainment	Attainment (Maintenance*)
Sulfur Dioxide	Attainment	Attainment
Lead[1]	Attainment	Nonattainment (Partial)

Source: State/Federal designations were taken from http://www.arb.ca.gov/desig/adm/adm.htm
Note: See Appendix 3.1 for a detailed map of State/National Area Designations within the South Coast Air Basin

2.6 LOCAL AIR QUALITY

Relative to the Project site, the nearest long-term air quality monitoring site for Ozone (O_3), Carbon Monoxide (CO), and Nitrogen Dioxide (NO_2 is the South Coast Air Quality Management District Pomona Walnut Valley monitoring station, located approximately 7.8 miles east of the Project site in Pomona (SRA 10). Data for Particulate Matter ≤ 10 Microns (PM10) and Ultra-Fine Particulates ($PM_{2.5}$) was obtained from the East San Gabriel Valley 1 monitoring station (SRA 9) located approximately 10.6 miles northeast of the Project site. It should be noted that the East San Gabriel Valley 1 monitoring stations were utilized in lieu of the South San Gabriel Valley monitoring station only in instances where data was not available.

The most recent three (3) years of data available is shown on Table 2-3 and identifies the number of days ambient air quality standards were exceeded for the study area, which is considered to be representative of the local air quality at the Project site (6). Additionally, data for SO2 has been omitted as attainment is regularly met in the South Coast Air Basin and few monitoring stations measure SO2 concentrations.

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

TABLE 2-3: PROJECT AREA AIR QUALITY MONITORING SUMMARY 2014-2016

POLLUTANT	STANDARD	YEAR		
		2014	2015	2016
Ozone (O_3)				
Maximum 1-Hour Concentration (ppm)		0.123	0.136	0.127
Maximum 8-Hour Concentration (ppm)		0.099	0.098	0.092
Number of Days Exceeding State 1-Hour Standard	> 0.09 ppm	22.00	30.00	20.00
Number of Days Exceeding State 8-Hour Standard	> 0.07 ppm	56.00	55.00	29.00
Number of Days Exceeding Federal 1-Hour Standard	> 0.12 ppm	0	2.00	1.00
Number of Days Exceeding Federal 8-Hour Standard	> 0.075 ppm	53.00	53.00	26.00
Number of Days Exceeding Health Advisory	≥ 0.15 ppm	--	--	--
Carbon Monoxide (CO)				
Maximum 1-Hour Concentration (ppm)		2.00	1.80	1.70
Maximum 8-Hour Concentration (ppm)		1.60	1.60	1.30
Number of Days Exceeding State 1-Hour Standard	> 20 ppm	--	--	--
Number of Days Exceeding Federal / State 8-Hour Standard	> 9.0 ppm	--	--	--
Number of Days Exceeding Federal 1-Hour Standard	> 35 ppm	--	--	--
Nitrogen Dioxide (NO_2)				
Maximum 1-Hour Concentration (ppm)		0.0889	0.0723	0.0693
Annual Arithmetic Mean Concentration (ppm)		22.10	21.20	20.10
Number of Days Exceeding State 1-Hour Standard	> 0.18 ppm	--	--	--
Particulate Matter ≤ 10 Microns (PM_{10})				
Maximum 24-Hour Concentration (μg/m^3)		96.00	101.00	74.00
Number of Samples		60.00	59.00	60.00
Number of Samples Exceeding State Standard	> 50 μg/m^3	22.00	37.10	12.00
Number of Samples Exceeding Federal Standard	> 150 μg/m^3	0	0	0
Particulate Matter ≤ 2.5 Microns ($PM_{2.5}$)				
Maximum 24-Hour Concentration (μg/m^3)		32.40	44.30	32.17
Annual Arithmetic Mean (μg/m^3)		11.63	9.400	10.15
Number of Samples Exceeding Federal 24-Hour Standard	> 35 μg/m^3	0	1	0

-- = data not available from SCAQMD or ARB at the nearest monitoring stations

Criteria pollutants are pollutants that are regulated through the development of human health based and/or environmentally based criteria for setting permissible levels. Criteria pollutants, their typical sources, and effects are identified below (7):

- Carbon Monoxide (CO): Is a colorless, odorless gas produced by the incomplete combustion of carbon-containing fuels, such as gasoline or wood. CO concentrations tend to be the highest during the winter morning, when little to no wind and surface-based inversions trap the pollutant at ground levels. Because CO is emitted directly from internal combustion engines, unlike ozone, motor vehicles operating at slow speeds are the primary source of CO in the Basin. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.
- Sulfur Dioxide (SO2): Is a colorless, extremely irritating gas or liquid. It enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal and from chemical processes occurring at chemical plants and refineries. When SO2 oxidizes in the atmosphere, it forms sulfates (SO4). Collectively, these pollutants are referred to as sulfur oxides (SOX).
- Nitrogen Oxides (Oxides of Nitrogen, or NOx): Nitrogen oxides (NOx) consist of nitric oxide (NO), nitrogen dioxide (NO2) and nitrous oxide (N2O) and are formed when nitrogen (N2) combines with oxygen (O2). Their lifespan in the atmosphere ranges from one to seven days for nitric oxide and nitrogen dioxide, to 170 years for nitrous oxide. Nitrogen oxides are typically created during combustion processes, and are major contributors to smog formation and acid deposition. NO2 is a criteria air pollutant, and may result in numerous adverse health effects; it absorbs blue light, resulting in a brownish-red cast to the atmosphere and reduced visibility. Of the seven types of nitrogen oxide compounds, NO2 is the most abundant in the atmosphere. As ambient concentrations of NO2 are related to traffic density, commuters in heavy traffic may be exposed to higher concentrations of NO2 than those indicated by regional monitors.
- Ozone (O3): Is a highly reactive and unstable gas that is formed when volatile organic compounds (VOCs) and nitrogen oxides (NOX) undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.
- PM10 (Particulate Matter less than 10 microns): A major air pollutant consisting of tiny solid or liquid particles of soot, dust, smoke, fumes, and aerosols. The size of the particles (10 microns or smaller, about 0.0004 inches or less) allows them to easily enter the lungs where they may be deposited, resulting in adverse health effects. PM10 also causes visibility reduction and is a criteria air pollutant.
- PM2.5 (Particulate Matter less than 2.5 microns): A similar air pollutant consisting of tiny solid or liquid particles which are 2.5 microns or smaller (which is often referred to as fine particles). These particles are formed in the atmosphere from primary gaseous emissions that include sulfates formed from SO2 release from power plants and industrial facilities and nitrates that are formed from NOX release from power plants, automobiles and other types of combustion sources. The chemical composition of fine particles highly depends on location, time of year, and weather conditions. PM2.5 is a criteria air pollutant.
- Volatile Organic Compounds (VOC): Volatile organic compounds are hydrocarbon compounds (any compound containing various combinations of hydrogen and carbon atoms) that exist in the ambient air. VOCs contribute to the formation of smog through atmospheric photochemical reactions and/or may be toxic. Compounds of carbon (also known as organic compounds) have

different levels of reactivity; that is, they do not react at the same speed or do not form ozone to the same extent when exposed to photochemical processes. VOCs often have an odor, and some examples include gasoline, alcohol, and the solvents used in paints. Exceptions to the VOC designation include: carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate. VOCs are a precursor to O3, which is a criteria pollutant. The SCAQMD uses the terms VOC and ROG (see below) interchangeably.

- Reactive Organic Gases (ROG): Similar to VOC, Reactive Organic Gases (ROG) are also precursors in forming ozone. Smog is formed when ROG and nitrogen oxides react in the presence of sunlight. The SCAQMD uses the terms ROG and VOC (see previous) interchangeably.
- Lead (Pb): Lead is a heavy metal that is highly persistent in the environment. In the past, the primary source of lead in the air was emissions from vehicles burning leaded gasoline. As a result of the removal of lead from gasoline, there have been no violations at any of the SCAQMD's regular air monitoring stations since 1982. Currently, emissions of lead are largely limited to stationary sources such as lead smelters. It should be noted that the Project is not anticipated to generate a quantifiable amount of lead emissions. Lead is a criteria air pollutant.

Health Effects of Air Pollutants

Ozone

Individuals exercising outdoors, children, and people with preexisting lung disease, such as asthma and chronic pulmonary lung disease, are considered to be the most susceptible sub-groups for ozone effects. Short-term exposure (lasting for a few hours) to ozone at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. Elevated ozone levels are associated with increased school absences. In recent years, a correlation between elevated ambient ozone levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An increased risk for asthma has been found in children who participate in multiple sports and live in communities with high ozone levels.

Ozone exposure under exercising conditions is known to increase the severity of the responses described above. Animal studies suggest that exposure to a combination of pollutants that includes ozone may be more toxic than exposure to ozone alone. Although lung volume and resistance changes observed after a single exposure diminish with repeated exposures, biochemical and cellular changes appear to persist, which can lead to subsequent lung structural changes.

Carbon Monoxide

Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise, and electrocardiograph changes indicative of decreased oxygen supply to the heart. Inhaled CO has no direct toxic effect on the lungs, but exerts its effect on tissues by interfering with oxygen transport and competing with oxygen to combine with hemoglobin present in the blood to form carboxyhemoglobin (COHb). Hence, conditions with an increased demand for oxygen supply can be adversely affected by exposure to CO. Individuals most at risk include fetuses, patients with

diseases involving heart and blood vessels, and patients with chronic hypoxemia (oxygen deficiency) as seen at high altitudes.

Reduction in birth weight and impaired neurobehavioral development have been observed in animals chronically exposed to CO, resulting in COHb levels similar to those observed in smokers. Recent studies have found increased risks for adverse birth outcomes with exposure to elevated CO levels; these include pre-term births and heart abnormalities.

Particulate Matter

A consistent correlation between elevated ambient fine particulate matter (PM10 and PM2.5) levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. In recent years, some studies have reported an association between long-term exposure to air pollution dominated by fine particles and increased mortality, reduction in life-span, and an increased mortality from lung cancer.

Daily fluctuations in PM2.5 concentration levels have also been related to hospital admissions for acute respiratory conditions in children, to school and kindergarten absences, to a decrease in respiratory lung volumes in normal children, and to increased medication use in children and adults with asthma. Recent studies show lung function growth in children is reduced with long-term exposure to particulate matter.

The elderly, people with pre-existing respiratory or cardiovascular disease, and children appear to be more susceptible to the effects of high levels of PM10 and PM2.5.

Nitrogen Dioxide

Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is associated with long-term exposure to NO2 at levels found in homes with gas stoves, which are higher than ambient levels found in Southern California. Increase in resistance to air flow and airway contraction is observed after short-term exposure to NO2 in healthy subjects. Larger decreases in lung functions are observed in individuals with asthma or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these sub-groups.

In animals, exposure to levels of NO2 considerably higher than ambient concentrations results in increased susceptibility to infections, possibly due to the observed changes in cells involved in maintaining immune functions. The severity of lung tissue damage associated with high levels of ozone exposure increases when animals are exposed to a combination of ozone and NO2.

Sulfur Dioxide

A few minutes of exposure to low levels of SO2 can result in airway constriction in some asthmatics, all of whom are sensitive to its effects. In asthmatics, increase in resistance to air flow, as well as reduction in breathing capacity leading to severe breathing difficulties, are observed after acute exposure to SO2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO2.

Animal studies suggest that despite SO2 being a respiratory irritant, it does not cause substantial lung injury at ambient concentrations. However, very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract.

Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO2 levels. In these studies, efforts to separate the effects of SO2 from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.

Lead

Fetuses, infants, and children are more sensitive than others to the adverse effects of Pb exposure. Exposure to low levels of Pb can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased Pb levels are associated with increased blood pressure.

Pb poisoning can cause anemia, lethargy, seizures, and death; although it appears that there are no direct effects of Pb on the respiratory system. Pb can be stored in the bone from early age environmental exposure, and elevated blood Pb levels can occur due to breakdown of bone tissue during pregnancy, hyperthyroidism (increased secretion of hormones from the thyroid gland) and osteoporosis (breakdown of bony tissue). Fetuses and breast-fed babies can be exposed to higher levels of Pb because of previous environmental Pb exposure of their mothers.

Odors

The science of odor as a health concern is still new. Merely identifying the hundreds of VOCs that cause odors poses a big challenge. Offensive odors can potentially affect human health in several ways. First, odorant compounds can irritate the eye, nose, and throat, which can reduce respiratory volume. Second, studies have shown that the VOCs that cause odors can stimulate sensory nerves to cause neurochemical changes that might influence health, for instance, by compromising the immune system. Finally, unpleasant odors can trigger memories or attitudes linked to unpleasant odors, causing cognitive and emotional effects such as stress.

2.7 Regulatory Background

2.7.1 Federal Regulations

The U.S. EPA is responsible for setting and enforcing the NAAQS for O3, CO, NOx, SO2, PM10, PM2.5, and lead (3). The U.S. EPA has jurisdiction over emissions sources that are under the authority of the federal government including aircraft, locomotives, and emissions sources outside state waters (Outer Continental Shelf). The U.S. EPA also establishes emission standards for vehicles sold in states other than California. Automobiles sold in California must meet the stricter emission requirements of the CARB.

The Federal Clean Air Act (CAA) was first enacted in 1955, and has been amended numerous times in subsequent years (1963, 1965, 1967, 1970, 1977, and 1990). The CAA establishes the

federal air quality standards, the NAAQS, and specifies future dates for achieving compliance (8). The CAA also mandates that states submit and implement State Implementation Plans (SIPs) for local areas not meeting these standards. These plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA that identify specific emission reduction goals for areas not meeting the NAAQS require a demonstration of reasonable further progress toward attainment and incorporate additional sanctions for failure to attain or to meet interim milestones. The sections of the CAA most directly applicable to the development of the Project site include Title I (Non-Attainment Provisions) and Title II (Mobile Source Provisions). Title I provisions were established with the goal of attaining the NAAQS for the following criteria pollutants O3, NO2, SO2, PM10, CO, PM2.5, and lead. The NAAQS were amended in July 1997 to include an additional standard for O3 and to adopt a NAAQS for PM2.5. Table 2-1 (previously presented) provides the NAAQS within the basin.

Mobile source emissions are regulated in accordance with Title II provisions. These provisions require the use of cleaner burning gasoline and other cleaner burning fuels such as methanol and natural gas. Automobile manufacturers are also required to reduce tailpipe emissions of hydrocarbons and nitrogen oxides (NOx). NOx is a collective term that includes all forms of nitrogen oxides (NO, NO2, NO3) which are emitted as byproducts of the combustion process.

2.7.2 California Regulations

The CARB, which became part of the California EPA in 1991, is responsible for ensuring implementation of the California Clean Air Act (AB 2595), responding to the federal CAA, and for regulating emissions from consumer products and motor vehicles. The California CAA mandates achievement of the maximum degree of emissions reductions possible from vehicular and other mobile sources in order to attain the state ambient air quality standards by the earliest practical date. The CARB established the CAAQS for all pollutants for which the federal government has NAAQS and, in addition, establishes standards for sulfates, visibility, hydrogen sulfide, and vinyl chloride. However, at this time, hydrogen sulfide and vinyl chloride are not measured at any monitoring stations in the SCAB because they are not considered to be a regional air quality problem. Generally, the CAAQS are more stringent than the NAAQS (9) (3).

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

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

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

- Implementing reasonably available transportation control measures and assuring a substantial reduction in growth rate of vehicle trips and miles traveled;
- Significant use of low emissions vehicles by fleet operators;
- Sufficient control strategies to achieve a five percent or more annual reduction in emissions or 15 percent or more in a period of three years for ROGs, NOx, CO and PM10. However, air basins may use alternative emission reduction strategy that achieves a reduction of less than five percent per year under certain circumstances.

2.7.3 Air Quality Management Planning

Currently, the NAAQS and CAAQS are exceeded in most parts of the SCAB. In regards to the NAAQS, the Project region within the SCAB is in nonattainment for ozone (8-hour) and PM2.5. For the CAAQS, the Project region within the SCAB is in nonattainment for ozone (1-hour and 8-hour), PM10, and PM2.5. In response, the SCAQMD has adopted a series of Air Quality Management Plans (AQMPs) to meet the state and federal ambient air quality standards (7). AQMPs are updated regularly in order to more effectively reduce emissions, accommodate growth, and to minimize any negative fiscal impacts of air pollution control on the economy. A detailed discussion on the AQMP and Project consistency with the AQMP is provided in Section 3.9.

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3 PROJECT AIR QUALITY IMPACT

3.1 INTRODUCTION

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

3.2 STANDARDS OF SIGNIFICANCE

The SCAQMD has developed regional and localized significance thresholds for regulated pollutants, as summarized at Table 3-1 (10). The SCAQMD's CEQA Air Quality Significance Thresholds (March 2015) indicate that any projects in the SCAB with daily emissions that exceed any of the indicated thresholds should be considered as having an individually and cumulatively significant air quality impact.

TABLE 3-1: MAXIMUM DAILY EMISSIONS THRESHOLDS (1 OF 2)

Pollutant	Construction	Operations
Regional Thresholds		
NOx	100 lbs/day	55 lbs/day
VOC	75 lbs/day	55 lbs/day
PM10	150 lbs/day	150 lbs/day
PM2.5	55 lbs/day	55 lbs/day
Sox	150 lbs/day	150 lbs/day
CO	550 lbs/day	550 lbs/day
Lead	3 lbs/day	3 lbs/day

TABLE 3-1: MAXIMUM DAILY EMISSIONS THRESHOLDS (2 OF 2)

Pollutant	Construction	Operations
Localized Thresholds		
NOx	103 lbs/day (demolition)	N/A
	193 lbs/day (site preparation)	N/A
	164 lbs/day (grading)	N/A
CO	612 lbs/day (demolition)	N/A
	1,226 lbs/day (site preparation)	N/A
	999 lbs/day (grading)	N/A
PM10	4 lbs/day (demolition)	N/A
	9 lbs/day (site preparation)	N/A
	5 lbs/day (grading)	N/A
PM2.5	3 lbs/day (demolition)	N/A
	6 lbs/day (site preparation)	N/A
	5 lbs/day (grading)	N/A

Note: lbs/day = pounds per day.

3.3 PROJECT-RELATED SOURCES OF POTENTIAL IMPACT

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

On October 17, 2017, the SCAQMD in conjunction with the California Air Pollution Control Officers Association (CAPCOA) and other California air districts, released the latest version of the California Emissions Estimator Model™ (CalEEMod™) v2016.3.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (NO_x, VOC, PM_{10}, $PM_{2.5}$, SO_x, and CO) and greenhouse gas (GHG) emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures (11). Accordingly, the latest version of CalEEMod™ has been used for this Project to determine construction and operational air quality emissions. Output from the model runs for both construction and operational activity are provided in Appendices 3.2.

3.4 CONSTRUCTION EMISSIONS

Construction activities associated with the Project will result in emissions of CO, VOCs, NOx, SOx, PM10, and PM2.5. Construction related emissions are expected from the following construction activities:

- Demolition
- Site Preparation

- Grading
- Building Construction
- Paving
- Architectural Coating
- Construction Workers Commuting

Construction is expected to commence in February 2018 and will last through March 2019. Construction duration by phase is shown on Table 3-2. The construction schedule utilized in the analysis represents a "worst-case" analysis scenario should construction occur any time after the respective dates since emission factors for construction decrease as time passes and the analysis year increases due to emission regulations becoming more stringent.[2] The duration of construction activity and associated construction equipment were based on past project experience and consultation with the client. The duration of construction activity and associated equipment represents a reasonable approximation of the expected construction fleet as required per CEQA guidelines. Site specific construction fleet may vary due to specific project needs at the time of construction. Please refer to specific detailed modeling inputs/outputs contained in Appendix 3.2 of this analysis. A detailed summary of construction equipment assumptions by phase is provided at Table 3-3.

Dust is typically a major concern during rough grading activities. Because such emissions are not amenable to collection and discharge through a controlled source, they are called "fugitive emissions". Fugitive dust emissions rates vary as a function of many parameters (soil silt, soil moisture, wind speed, area disturbed, number of vehicles, depth of disturbance or excavation, etc.). The CalEEMod model was utilized to calculate fugitive dust emissions resulting from this phase of activity. Based on consultation with the client, the Project site is expected to balance (will not require soil import/export).

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

Off-Site Utility and Infrastructure Improvements

Construction emissions associated with off-site utility and infrastructure improvements may occur, however at this time, a specific schedule of off-site utility and infrastructure improvements is unknown. However impacts associated with these expected activities are not expected to exceed the emissions identified for project-related construction activities. As such, no impacts beyond what has already been identified in this report are expected to occur.

2 As shown in the California Emissions Estimator Model (CalEEMod) User's Guide Version 2013.2, Table 3.4 "OFFROAD Equipment Emission Factors" as the analysis year increases, emission factors for the same equipment pieces decrease due to the natural turnover of older equipment being replaced by newer less polluting equipment and new regulatory requirements.

TABLE 3-2: CONSTRUCTION DURATION

Phase Name	Start Date	End Date	Days
Demolition	02/01/18	02/28/18	20
Site Preparation	03/01/18	03/07/18	5
Grading	03/08/18	04/05/18	21
Building Construction	04/06/18	01/17/19	205
Paving	01/18/19	02/12/19	18
Architectural Coating	02/13/19	03/08/19	18

TABLE 3-3: CONSTRUCTION EQUIPMENT ASSUMPTIONS

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

3.4.1 CONSTRUCTION EMISSIONS SUMMARY

SCAQMD Rules that are currently applicable during construction activity for this Project include but are not limited to: Rule 1403 (Asbestos); Rule 1113 (Architectural Coatings) (12); Rule 431.2 (Low Sulfur Fuel) (13); Rule 403 (Fugitive Dust) (14); and Rule 1186 / 1186.1 (Street Sweepers) (15). It should be noted that Best Available Control Measures (BACMs) are not mitigation as they

are standard regulatory requirements. As such, credit for Rule 403 and Rule 1113 have been taken.

Impacts without Mitigation

The estimated maximum daily construction emissions without mitigation are summarized on Table 3-4. Detailed construction model outputs are presented in Appendix 3.2.

TABLE 3-4: EMISSIONS SUMMARY OF CONSTRUCTION (WITHOUT MITIGATION)

Year	Emissions (pounds per day)					
	VOC	NOx	CO	SOx	PM10	PM2.5
2018	6.17	71.77	24.58	0.10	23.51	13.08
2019	16.01	40.05	19.60	0.04	1.94	1.73
Maximum Daily Emissions	**16.01**	**71.77**	**24.58**	**0.10**	**23.51**	**13.08**
SCAQMD Regional Threshold	75	100	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

3.5 OPERATIONAL EMISSIONS

Operational activities associated with the proposed Project will result in emissions of ROG, NOX, CO, SOX, PM10, and PM2.5. Operational emissions would be expected from the following primary sources:

- Area Source Emissions
- Energy Source Emissions
- Mobile Source Emissions

3.5.1 AREA SOURCE EMISSIONS

Architectural Coatings

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

Consumer Products

Consumer products include, but are not limited to detergents, cleaning compounds, polishes, personal care products, and lawn and garden products. Many of these products contain organic compounds which when released in the atmosphere can react to form ozone and other photochemically reactive pollutants. The emissions associated with use of consumer products were calculated based on assumptions provided in the CalEEMod model. In the case of the commercial/retail uses proposed by the Project, no substantive on-site use of consumer products is anticipated.

Landscape Maintenance Equipment

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

3.5.2 Energy Source Emissions

Combustion Emissions Associated with Natural Gas and Electricity

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

3.5.3 Mobile Source Emissions

Vehicles

Project-related operational air quality impacts derive primarily from vehicle trips generated by the Project. Trip characteristics based on CalEEMod defaults were used in the analysis.

Fugitive Dust Related to Vehicular Travel

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

3.5.4 Operational Emissions Summary

The estimated maximum peak operational emissions are summarized on Table 3-5. Detailed construction model outputs are presented in Appendix 3.2. Under the assumed scenarios, emissions resulting from the Project operations would not exceed the applicable SCAQMD regional thresholds of significance for any criteria pollutant. Therefore, a less than significant impact would occur and no mitigation measures are required.

TABLE 3-5: SUMMARY OF PEAK OPERATIONAL EMISSIONS

Operational Activities – Summer Scenario	Emissions (pounds per day)					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Area Source	7.58	0.54	14.79	0.03	1.92	1.92
Energy Source	0.02	0.17	0.07	1.11E-03	0.01	0.01
Mobile	0.55	2.74	7.38	0.02	1.83	0.51
Total Maximum Daily Emissions	**8.15**	**3.45**	**22.24**	**0.06**	**3.76**	**2.44**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**
Operational Activities – Winter Scenario	**Emissions (pounds per day)**					
	VOC	NO_x	CO	SO_x	PM_{10}	$PM_{2.5}$
Area Source	7.58	0.54	14.79	0.03	1.92	1.92
Energy Source	0.02	0.17	0.07	1.11E-03	0.01	0.01
Mobile	0.52	2.81	6.92	0.02	1.83	0.51
Total Maximum Daily Emissions	**8.13**	**3.52**	**21.78**	**0.06**	**3.76**	**2.44**
SCAQMD Regional Threshold	55	55	550	150	150	55
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**	**NO**	**NO**

3.6 LOCALIZED SIGNIFICANCE - CONSTRUCTION ACTIVITY

BACKGROUND ON LOCALIZED SIGNIFICANCE THRESHOLDS (LSTS)

The analysis makes use of methodology included in the SCAQMD *Final Localized Significance Threshold Methodology* (Methodology) (16). The SCAQMD has established that impacts to air quality are significant if there is a potential to contribute or cause localized exceedances of the federal and/or state ambient air quality standards (NAAQS/CAAQS). Collectively, these are referred to as Localized Significance Thresholds (LSTs).

The significance of localized emissions impacts depends on whether ambient levels in the vicinity of any given project are above or below State standards. In the case of CO and NO2, if ambient levels are below the standards, a project is considered to have a significant impact if project emissions result in an exceedance of one or more of these standards. For the nonattainment pollutants PM_{10} and $PM_{2.5}$, background ambient concentrations already exceed state and/or federal standards. LSTs for PM_{10} and $PM_{2.5}$ are therefore based on SCAQMD Rules 403/1303 (construction-source/operational-source emissions respectively) and are established as an allowable change in concentration. Background concentrations are irrelevant.

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

makes use of methodology included in the SCAQMD *Final Localized Significance Threshold Methodology* (17). For this Project, the appropriate Source Receptor Area (SRA) for the LST analysis is the San Gabriel Valley monitoring station (SRA 10). LSTs apply to carbon monoxide (CO), nitrogen dioxide (NO_2), particulate matter ≤ 10 microns (PM_{10}), and particulate matter ≤ 2.5 microns ($PM_{2.5}$).

EMISSIONS CONSIDERED

SCAQMD's Methodology clearly states that "off-site mobile emissions from the Project should NOT be included in the emissions compared to LSTs (18)." Therefore, for purposes of the construction LST analysis only emissions included in the CalEEMod "on-site" emissions outputs were considered.

APPLICABILITY OF LSTS FOR THE PROJECT

For this Project, the appropriate Source Receptor Area (SRA) for the LST is the Perris Valley monitoring station (SRA 24). LSTs apply to carbon monoxide (CO), nitrogen dioxide (NO2), particulate matter ≤ 10 microns (PM10), and particulate matter ≤ 2.5 microns (PM2.5). The SCAQMD produced look-up tables for projects less than or equal to 5 acres in size.

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

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

SENSITIVE RECEPTORS

Some people are especially sensitive to air pollution and are given special consideration when evaluating air quality impacts from projects. These groups of people include children, the elderly, persons with preexisting respiratory or cardiovascular illness, and athletes and others who engage in frequent exercise. Structures that house these persons or places where they gather to exercise are defined as "sensitive receptors". The nearest sensitive receptor is an existing residential home located approximately 25 meters/82 feet east of the Project site.

MAXIMUM DAILY DISTURBED-ACREAGE

Table 3-7 is used to determine the maximum daily disturbed-acreage for use in determining the applicability of the SCAQMD's LST look-up tables. As shown in Table 3-7, the Project could actively disturb approximately 1.0 acre per day during demolition, 3.5 acres per day during site preparation and 2.5 acres per day during grading activity. A linear regression model based on SCAQMD's LST look-up tables was used to determine the localized significance thresholds. This methodology is consistent with recent recommendations made by SCAQMD planning staff.

TABLE 3-7: MAXIMUM DAILY DISTURBED-ACREAGE

Construction Phase	Equipment Type	Equipment Quantity	Acres graded per 8-hour day	Operating Hours per Day	Acres graded per day
Demolition	Rubber Tired Dozers	2	0.5	8	1
	Crawler Tractors	0	0.5	8	0
	Graders	0	0.5	8	0
	Scrapers	0	1	8	0
Total acres graded per day during Demolition					1
Construction Phase	**Equipment Type**	**Equipment Quantity**	**Acres graded per 8-hour day**	**Operating Hours per Day**	**Acres graded per day**
Site Preparation	Rubber Tired Dozers	3	0.5	8	1.5
	Crawler Tractors	4	0.5	8	2
	Graders	0	0.5	8	0
	Scrapers	0	1	8	0
Total acres graded per day during Site Preparation					3.5
Construction Phase	**Equipment Type**	**Equipment Quantity**	**Acres graded per 8-hour day**	**Operating Hours per Day**	**Acres graded per day**
Grading	Rubber Tired Dozers	1	0.5	8	0.5
	Crawler Tractors	3	0.5	8	1.5
	Graders	1	0.5	8	0.5
	Scrapers	0	1	8	0
Total acres graded per day during Grading					2.5

CONSTRUCTION-SOURCE EMISSIONS LST ANALYSIS

Since the total acreage disturbed is less than five acres per day for both the site preparation phase and the grading phase, the SCAQMD's screening look-up tables are utilized in determining impacts. It should be noted that since the look-up tables identifies thresholds at only 1 acre, 2 acres, and 5 acres, linear regression has been utilized, consistent with SCAQMD guidance, in order to interpolate the threshold values for the other disturbed acreage not identified. As

previously noted, a 25-meter receptor distance is utilized to determine the LSTs for emissions of CO, NO2, PM10, and PM2.5.

Impacts Without Mitigation

Without implementation of MMs, emissions during construction activity will exceed SCAQMD's localized significance thresholds for PM_{10} and $PM_{2.5}$ during site preparation and grading. Table 3-8 identifies the localized impacts at the nearest receptor location in the vicinity of the Project.

TABLE 3-8: LOCALIZED SIGNIFICANCE SUMMARY CONSTRUCTION (WITHOUT MITIGATION)

On-Site Demolition Emissions	**Emissions (pounds per day)**			
	NO_x	**CO**	**PM_{10}**	**$PM_{2.5}$**
Maximum Daily Emissions	**38.32**	**22.30**	**2.06**	**1.82**
SCAQMD Localized Threshold	103	612	4	3
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**
On-Site Site Preparation Emissions	**Emissions (pounds per day)**			
	NO_x	**CO**	**PM_{10}**	**$PM_{2.5}$**
Maximum Daily Emissions	**71.70**	**23.76**	**23.31**	**13.03**
SCAQMD Localized Threshold	193	1,226	9	6
Threshold Exceeded?	**NO**	**NO**	**YES**	**YES**
On-Site Grading Emissions	**Emissions (pounds per day)**			
	NO_x	**CO**	**PM_{10}**	**$PM_{2.5}$**
Maximum Daily Emissions	**48.30**	**17.54**	**10.17**	**5.35**
SCAQMD Localized Threshold	164	999	7	5
Threshold Exceeded?	**NO**	**NO**	**YES**	**YES**

Impacts With Mitigation

With implementation of MM AQ-1, emissions during construction activity will not exceed SCAQMD's localized significance thresholds. Table 3-9 identifies the localized impacts at the nearest receptor location in the vicinity of the Project.

TABLE 3-9: LOCALIZED SIGNIFICANCE SUMMARY CONSTRUCTION (WITH MITIGATION 1 OF 2)

On-Site Demolition Emissions	**Emissions (pounds per day)**			
	NO_x	**CO**	**PM_{10}**	**$PM_{2.5}$**
Maximum Daily Emissions	**38.32**	**22.30**	**1.97**	**1.81**
SCAQMD Localized Threshold	103	612	4	3
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**
On-Site Site Preparation Emissions	**Emissions (pounds per day)**			
	NO_x	**CO**	**PM_{10}**	**$PM_{2.5}$**
Maximum Daily Emissions	**71.70**	**23.76**	**8.37**	**5.51**
SCAQMD Localized Threshold	193	1,226	9	6
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**

TABLE 3-9: LOCALIZED SIGNIFICANCE SUMMARY CONSTRUCTION (WITH MITIGATION 2 OF 2)

On-Site Grading Emissions	Emissions (pounds per day)			
	NO_x	CO	PM_{10}	$PM_{2.5}$
Maximum Daily Emissions	**48.30**	**17.54**	**4.09**	**2.72**
SCAQMD Localized Threshold	164	999	7	5
Threshold Exceeded?	**NO**	**NO**	**NO**	**NO**

3.7 LOCALIZED SIGNIFICANCE – LONG-TERM OPERATIONAL ACTIVITY

The proposed project involves the construction and operation of the following: 25 single-family detached residential dwelling. According to SCAQMD LST methodology, LSTs would apply to the operational phase of a proposed project, if the project includes stationary sources, or attracts mobile sources that may spend long periods queuing and idling at the site (e.g., transfer facilities and warehouse buildings). The proposed project does not include such uses, and thus, due to the lack of significant stationary source emissions, no long-term localized significance threshold analysis is needed.

3.8 CO "HOT SPOT" ANALYSIS

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

An adverse CO concentration, known as a "hot spot", would occur if an exceedance of the state one-hour standard of 20 ppm or the eight-hour standard of 9 ppm were to occur. At the time of the 1993 Handbook, the SCAB was designated nonattainment under the California AAQS and National AAQS for CO (19).

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

To establish a more accurate record of baseline CO concentrations affecting the SCAB, a CO "hot spot" analysis was conducted in 2003 for four busy intersections in Los Angeles at the peak morning and afternoon time periods. This "hot spot" analysis did not predict any violation of CO standards, as shown on Table 3-10.

Based on the SCAQMD's 2003 AQMP and the 1992 Federal Attainment Plan for Carbon Monoxide (1992 CO Plan), peak carbon monoxide concentrations in the SCAB were a result of unusual meteorological and topographical conditions and not a result of traffic volumes and congestion

at a particular intersection. As evidence of this, for example, 9.3 ppm 8-hr CO concentration measured at the Long Beach Blvd. and Imperial Hwy. intersection (highest CO generating intersection within the "hot spot" analysis), only 0.7 ppm was attributable to the traffic volumes and congestion at this intersection; the remaining 8.6 ppm were due to the ambient air measurements at the time the 2003 AQMP was prepared (19). In contrast, the ambient 8-hr CO concentration within the Project study area is estimated at 1.4 ppm—1.6 ppm (please refer to previous Table 2-3). Therefore, even if the traffic volumes for the proposed Project were double or even triple of the traffic volumes generated at the Long Beach Blvd. and Imperial Hwy. intersection, coupled with the on-going improvements in ambient air quality, the Project would not be capable of resulting in a CO "hot spot" at any study area intersections.

Similar considerations are also employed by other Air Districts when evaluating potential CO concentration impacts. More specifically, the Bay Area Air Quality Management District (BAAQMD) concludes that under existing and future vehicle emission rates, a given project would have to increase traffic volumes at a single intersection by more than 44,000 vehicles per hour—or 24,000 vehicles per hour where vertical and/or horizontal air does not mix—in order to generate a significant CO impact (20).

Traffic volumes generating the CO concentrations for the "hot spot" analysis, shown on Table 3-11. The busiest intersection evaluated was that at Wilshire Blvd. and Veteran Ave., which has a daily traffic volume of approximately 100,000 vehicles per day. The 2003 AQMP estimated that the 1-hour concentration for this intersection was 4.6 ppm; this indicates that, should the daily traffic volume increase four times to 400,000 vehicles per day, CO concentrations (4.6 ppm x 4= 18.4 ppm) would still not likely exceed the most stringent 1-hour CO standard (20.0 ppm)

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

TABLE 3-10: CO MODEL RESULTS

Intersection Location	Carbon Monoxide Concentrations (ppm)		
	Morning 1-hour	Afternoon 1-hour	8-hour
Wilshire-Veteran	4.6	3.5	4.2
Sunset-Highland	4	4.5	3.9
La Cienega-Century	3.7	3.1	5.8
Long Beach-Imperial	3	3.1	9.3

Source: 2003 AQMP
Notes: ppm: parts per million. Federal 1-hour standard is 35 ppm and the deferral 8-hour standard is 9.0 ppm.

TABLE 3-11: TRAFFIC VOLUMES

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

Source: 2003 AQMP
Notes: vph-vehicles per hour

3.9 Air Quality Management Planning

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

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

In March 2017, the AQMD released the Final 2016 AQMP. The 2016 AQMP continues to evaluate current integrated strategies and control measures to meet the NAAQS, as well as, explore new and innovative methods to reach its goals. Some of these approaches include utilizing incentive programs, recognizing existing co-benefit programs from other sectors, and developing a strategy with fair-share reductions at the federal, state, and local levels (21). Similar to the 2012 AQMP, the 2016 AQMP incorporates scientific and technological information and planning assumptions, including the 2016 RTP/SCS and updated emission inventory methodologies for various source

categories (22). The Project's consistency with the AQMP will be determined using the 2016 AQMP is discussed below:

Criteria for determining consistency with the AQMP are defined in Chapter 12, Section 12.2 and Section 12.3 of the SCAQMD's CEQA Air Quality Handbook (1993) (23). These indicators are discussed below:

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

Construction Impacts

Consistency Criterion No. 1 refers to violations of the CAAQS and NAAQS. CAAQS and NAAQS violations would occur if LSTs were exceeded. As evaluated as part of the Project LST analysis (previously presented), the Project's localized construction-source emissions would not exceed applicable LSTs, and a less than significant impact is expected.

Operational Impacts

The Project regional analysis demonstrates that Project operational-source emissions would not exceed applicable thresholds, and would therefore not result in or cause violations of the CAAQS and NAAQS.

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

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

Overview

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

Construction Impacts

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

Operational Impacts

A project would conflict with the AQMP if it will exceed the assumptions in the AQMP or increments based on the year of project buildout and phase.

The City of Industry's General Plan Land Use and Zoning designation for the Project site is Commercial. The Project is proposed to consist of approximately 25 single family housing dwelling units on 3.5 acres and 1.8 acres open space/recreational area. In accordance with the Regional Housing Needs Assessment (RHNA), a Housing Overlay Zone has been proposed to allow for range of housing types and other land uses within the City of Industry (24). As such, the Project site consists of two of the three sites selected by the City for housing use and therefore is permitted/conditionally permitted under the City General Plan Land Use designations. Additionally, the proposed residential use will generate less traffic and will produce less emissions than a project conforming to the commercial land use designation.

On the basis of the preceding discussion, the Project is determined to be consistent with the second criterion.

AQMP Consistency Conclusion

The Project would not result in or cause NAAQS or CAAQS violations. The Project's proposed land use designation for the subject site is consistent with the development intensities as reflected in the adopted General Plan. The Project is therefore considered to be consistent with the AQMP.

3.10 Potential Impacts to Sensitive Receptors

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

Results of the LST analysis indicate that the Project will not exceed the SCAQMD localized significance thresholds during construction. Therefore, sensitive receptors would not be subjected to a significant air quality impact during Project construction.

The proposed Project would not result in a CO "hotspot" as a result of Project related traffic during ongoing operations, nor would the Project result in a significant adverse health impact as discussed in Section 3.9. Thus a less than significant impact to sensitive receptors during operational activity is expected.

3.11 Odors

Substantial odor-generating sources include land uses such as agricultural activities, feedlots, wastewater treatment facilities, landfills or various heavy industrial uses. The Project does not propose any such uses or activities that would result in potentially significant operational-source odor impacts. Potential sources of operational odors generated by the Project would include disposal of miscellaneous commercial refuse. Consistent with City requirements, all Project-generated refuse would be stored in covered containers and removed at regular intervals in

compliance with solid waste regulations, thereby precluding substantial generation of odors due to temporary holding of refuse on-site Moreover, SCAQMD Rule 402 acts to prevent occurrences of odor nuisances (1).

3.12 CUMULATIVE IMPACTS

The Project area is designated as an extreme non-attainment area for ozone, and a non-attainment area for PM_{10}, $PM_{2.5}$, and lead.

The AQMD has published a report on how to address cumulative impacts from air pollution: *White Paper on Potential Control Strategies to Address Cumulative Impacts from Air Pollution* (25). In this report the AQMD clearly states (Page D-3):

"...the AQMD uses the same significance thresholds for project specific and cumulative impacts for all environmental topics analyzed in an Environmental Assessment or EIR. The only case where the significance thresholds for project specific and cumulative impacts differ is the Hazard Index (HI) significance threshold for toxic air contaminant (TAC) emissions. The project specific (project increment) significance threshold is HI > 1.0 while the cumulative (facility-wide) is HI > 3.0. It should be noted that the HI is only one of three TAC emission significance thresholds considered (when applicable) in a CEQA analysis. The other two are the maximum individual cancer risk (MICR) and the cancer burden, both of which use the same significance thresholds (MICR of 10 in 1 million and cancer burden of 0.5) for project specific and cumulative impacts.

Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant."

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

Construction Impacts

The Project-specific evaluation of emissions presented in the preceding analysis demonstrates that Project construction-source air pollutant emissions would not result in exceedances of regional thresholds. Therefore, Project construction-source emissions would be considered less than significant on a project-specific and cumulative basis.

Operational Impacts

Project operational-source emissions would not exceed applicable SCAQMD regional thresholds. Therefore, Project operational-source emissions would be considered less than significant on a project-specific and cumulative basis.

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4 FINDINGS & CONCLUSIONS

4.1 CONSTRUCTION-SOURCE EMISSIONS

REGIONAL IMPACTS

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

LOCALIZED IMPACTS

Project construction-source emissions would not exceed the SCAQMD's localized significance thresholds for any criteria pollutant with implementation of MM AQ-1. Therefore, a less than significant impact would occur.

Project construction-source emissions would be consistent with the applicable AQMP.

ODORS

Established requirements addressing construction equipment operations, and construction material use, storage, and disposal requirements act to minimize odor impacts that may result from construction activities. There are no anticipated Project construction-source emissions. Therefore, potential construction-source odor impacts are considered less than significant.

4.2 OPERATIONAL-SOURCE EMISSIONS

REGIONAL IMPACTS

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

LOCALIZED IMPACTS

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

Project operational-source emissions would be consistent with the applicable AQMP.

ODORS

Substantial odor-generating sources include land uses such as agricultural activities, feedlots, wastewater treatment facilities, landfills or various heavy industrial uses. The Project does not propose any such uses or activities that would result in potentially significant operational-source odor impacts. Potential sources of operational odors generated by the Project would include

disposal of miscellaneous residential refuse. Moreover, SCAQMD Rule 402 acts to prevent occurrences of odor nuisances (26). Consistent with City requirements, all Project-generated refuse would be stored in covered containers and removed at regular intervals in compliance with solid waste regulations. Potential operational-source odor impacts are therefore considered less-than-significant.

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6 CERTIFICATION

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

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

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University of California, Irvine • June, 2006

PROFESSIONAL AFFILIATIONS

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

PROFESSIONAL CERTIFICATIONS

Planned Communities and Urban Infill – Urban Land Institute • June, 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April, 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August, 2007
AB2588 Regulatory Standards – Trinity Consultants • November, 2006
Air Dispersion Modeling – Lakes Environmental • June, 2006

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APPENDIX 3.1:

STATE/FEDERAL ATTAINMENT STATUS OF CRITERIA POLLUTANTS

TABLE 2-3

National Ambient Air Quality Standards (NAAQS) Attainment Status - South Coast Air Basin

Criteria Pollutant	Averaging Time	Designation[a]	Attainment Date[b]
Ozone (O_3)	(1979) **1-Hour** (0.12 ppm)[c]	Nonattainment ("extreme")	2/26/2023 (revised deadline)
	(2015) **8-Hour** (0.070 ppm)[d]	Pending – Expect Nonattainment ("extreme")	Pending (beyond 2032)
	(2008) **8-Hour** (0.075 ppm)[d]	Nonattainment ("extreme")	7/20/2032
	(1997) **8-Hour** (0.08 ppm)[d]	Nonattainment ("extreme")	6/15/2024
PM2.5[e]	(2006) **24-Hour** (35 μg/m³)	Nonattainment ("serious")	12/31/2019
	(2012) **Annual** (12.0 μg/m³)	Nonattainment ("moderate")	12/31/2021
	(1997) **Annual** (15.0 μg/m³)	Attainment (final determination pending)	4/5/2015 (attained 2013)
PM10[f]	(1987) **24-hour** (150 μg/m³)	Attainment (Maintenance)	7/26/2013 (attained)
Lead (Pb)[g]	(2008) **3-Months Rolling** (0.15 μg/m³)	Nonattainment (Partial) (Attainment determination to be requested)	12/31/2015
CO	(1971) **1-Hour** (35 ppm)	Attainment (Maintenance)	6/11/2007 (attained)
	(1971) **8-Hour** (9 ppm)	Attainment (Maintenance)	6/11/2007 (attained)
NO_2[h]	(2010) **1-Hour** (100 ppb)	Unclassifiable/Attainment	N/A (attained)
	(1971) **Annual** (0.053 ppm)	Attainment (Maintenance)	9/22/1998 (attained)
SO_2[i]	(2010) **1-Hour** (75 ppb)	Designations Pending (expect Unclassifiable/Attainment)	N/A (attained)
	(1971) **24-Hour** (0.14 ppm) (1971) **Annual** (0.03 ppm)	Unclassifiable/Attainment	3/19/1979 (attained)

a) U.S. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassifiable/Attainment or Unclassifiable

b) A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for an attainment demonstration

c) The 1979 1-hour ozone NAAQS (0.12 ppm) was revoked, effective 6/15/05 ; however, the Basin has not attained this standard and therefore has some continuing obligations with respect to the revoked standard; original attainment date was 11/15/2010; the revised attainment date is 2/6/23

d) The 2008 8-hour ozone NAAQS (0.075 ppm) was revised to 0.070 ppm, effective 12/28/15 with classifications and implementation goals to be finalized by 10/1/17; the 1997 8-hour ozone NAAQS (0.08 ppm) was revoked in the 2008 ozone NAAQS implementation rule, effective 4/6/15; there are continuing obligations under the revoked 1997 and revised 2008 ozone NAAQS until they are attained

e) The attainment deadline for the 2006 24-hour PM2.5 NAAQS was 12/31/15 for the former "moderate" classification; U.S.EPA approved reclassification to "serious," effective 2/12/16 with an attainment deadline of 12/31/2019; the 2012 (proposal year) annual PM2.5 NAAQS was revised on 1/15/13, effective 3/18/13, from 15 to 12 μg/m³; new annual designations were final 1/15/15, effective 4/15/15; on July 25, 2016 U.S. EPA finalized a determination that the Basin attained the 1997 annual (15.0 μg/m³) and 24-hour PM2.5 (65 μg/m³) NAAQS, effective August 24, 2016

f) The annual PM10 NAAQS was revoked, effective 12/18/06; the 24-hour PM10 NAAQS deadline was 12/31/2006; the Basin's Attainment Re-designation Request and PM10 Maintenance Plan was approved by U.S. EPA on 6/26/13, effective 7/26/13

g) Partial Nonattainment designation – Los Angeles County portion of the Basin only for near-source monitors; expect to remain in attainment based on current monitoring data; attainment re-designation request pending

h) New 1-hour NO_2 NAAQS became effective 8/2/10, with attainment designations 1/20/12; annual NO_2 NAAQS retained

i) The 1971 annual and 24-hour SO2 NAAQS were revoked, effective 8/23/10; however, these 1971 standards will remain in effect until one year after U.S. EPA promulgates area designations for the 2010 SO2 1-hour NAAQS; final area designations expected by 12/31/20 due to new source-specific monitoring requirements; Basin expected to be in attainment due to ongoing clean data

TABLE 2-4
National Ambient Air Quality Standards (NAAQS) Attainment Status
Coachella Valley Portion of the Salton Sea Air Basin

Criteria Pollutant	Averaging Time	Designation[a]	Attainment Date[b]
Ozone (O_3)	(1979) **1-Hour** (0.12 ppm)[c]	Attainment	11/15/2007 (attained 12/31/2013)
	(2015) **8-Hour** (0.070 ppm)[d]	Pending – Expect Nonattainment (Severe)	Pending
	(2008) **8-Hour** (0.075 ppm)[d]	Nonattainment (Severe-15)	7/20/2027
	(1997) **8-Hour** (0.08 ppm)[d]	Nonattainment (Severe-15)	6/15/2019
PM2.5[e]	(2006) **24-Hour** (35 μg/m³)	Unclassifiable/Attainment	N/A (attained)
	(2012) **Annual** (12.0 μg/m³)	Unclassifiable/Attainment	N/A (attained)
	(1997) **Annual** (15.0 μg/m³)	Unclassifiable/Attainment	N/A (attained)
PM10[f]	(1987) **24-hour** (150 μg/m³)	Nonattainment ("serious")	12/31/2006
Lead (Pb)	(2008) **3-Months Rolling** (0.15 μg/m³)	Unclassifiable/Attainment	Unclassifiable/ Attainment
CO	(1971) **1-Hour** (35 ppm)	Unclassifiable/Attainment	N/A (attained)
	(1971) **8-Hour** (9 ppm)	Unclassifiable/Attainment	N/A (attained)
NO_2[g]	(2010) **1-Hour** (100 ppb)	Unclassifiable/Attainment	N/A (attained)
	(1971) **Annual** (0.053 ppm)	Unclassifiable/Attainment	N/A (attained)
SO_2[h]	(2010) **1-Hour** (75 ppb)	Designations Pending	N/A
	(1971) **24-Hour** (0.14 ppm) (1971) **Annual** (0.03 ppm)	Unclassifiable/Attainment	Unclassifiable/ Attainment

a) U.S. EPA often only declares Nonattainment areas; everywhere else is listed as Unclassifiable/Attainment or Unclassifiable
b) A design value below the NAAQS for data through the full year or smog season prior to the attainment date is typically required for an attainment demonstration
c) The 1979 1-hour ozone NAAQS (0.12 ppm) was revoked, effective 6/15/05; the Southeast Desert Modified Air Quality Management Area, including the Coachella Valley, had not timely attained this standard by the 11/15/07 "severe-17" deadline, based on 2005-2007 data; on 8/25/14, U.S. EPA proposed a clean data finding based on 2011–2013 data and a determination of attainment for the former 1-hour ozone NAAQS for the Southeast Desert nonattainment area; this rule was finalized by U.S. EPA on 4/15/15, effective 5/15/15, that included preliminary 2014 data
d) The 2008 8-hour ozone NAAQS (0.075 ppm) was revised to 0.070 ppm, effective 12/28/15 with classifications and implementation goals to be finalized by 10/1/17; the 1997 8-hour ozone NAAQS (0.08 ppm) was revoked in the 2008 ozone NAAQS implementation rule, effective 4/6/15; there are continuing obligations under the 1997 and 2008 ozone NAAQS until they are attained
e) The annual PM2.5 standard was revised on 1/15/13, effective 3/18/13, from 15 to 12 μg/m³
f) The annual PM10 standard was revoked, effective 12/18/06; the 24-hour PM10 NAAQS attainment deadline was 12/31/2006; the Coachella Valley Attainment Re-designation Request and PM10 Maintenance Plan was postponed by U.S. EPA pending additional monitoring and analysis in the southeastern Coachella Valley
g) New 1-hour NO_2 NAAQS became effective 8/2/10; attainment designations 1/20/12; annual NO_2 NAAQS retained
h) The 1971 Annual and 24-hour SO_2 NAAQS were revoked, effective 8/23/10; however, these 1971 standards will remain in effect until one year after U.S. EPA promulgates area designations for the 2010 SO_2 1-hour standard; final area designations expected by 12/31/2020 with SSAB expected to be designated Unclassifiable/Attainment

The current status of CAAQS attainment for the pollutants with State standards is presented in Table 2-5 for the Basin and the Riverside County portion of the SSAB (Coachella Valley).

TABLE 2-5

California Ambient Air Quality Standards (CAAQS) Attainment Status
South Coast Air Basin and Coachella Valley portion of Salton Sea Air Basin

Pollutant	Averaging Time and Level[b]	Designation[a]	
		South Coast Air Basin	Coachella Valley
Ozone (O_3)	**1-Hour** (0.09 ppm)[c]	Nonattainment	Nonattainment
	8-Hour (0.070 ppm)[d]	Nonattainment	Nonattainment
PM2.5	**Annual** (12.0 μg/m³)	Nonattainment	Attainment
PM10	**24-Hour** (50 μg/m³)	Nonattainment	Nonattainment
	Annual (20 μg/m³)	Nonattainment	Nonattainment
Lead (Pb)	**30-Day Average** (1.5 μg/m³)	Attainment	Attainment
CO	**1-Hour** (20 ppm)	Attainment	Attainment
	8-Hour (9.0 ppm)	Attainment	Attainment
NO_2	**1-Hour** (0.18 ppm)	Attainment	Attainment
	Annual (0.030 ppm)	Attainment	Attainment
SO_2	**1-Hour** (0.25 ppm)	Attainment	Attainment
	24-Hour (0.04 ppm)	Attainment	Attainment
Sulfates	**24-Hour** (25 μg/m³)	Attainment	Attainment
H_2S[c]	**1-Hour** (0.03 ppm)	Unclassified	Unclassified[c)]

a) CA State designations shown were updated by CARB in 2016, based on the 2013–2015 3-year period; stated designations are based on a 3-year data period after consideration of outliers and exceptional events; Source: http://www.arb.ca.gov/desig/statedesig.htm#current

b) CA State standards, or CAAQS, for ozone, CO, SO_2, NO_2, PM10 and PM2.5 are values not to be exceeded; lead, sulfates, and H_2S standards are values not to be equaled or exceeded; CAAQS are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations

c) SCAQMD began monitoring H_2S in the southeastern Coachella Valley in November 2013 due to odor events related to the Salton Sea; three full years of data are not yet available for a State designation, but nonattainment is anticipated for the H_2S CAAQS in at least part of the Coachella Valley

The 1979 federal 1-hour ozone standard (0.12 ppm) was revoked by the U.S. EPA and replaced by the 8-hour average ozone standard (0.08 ppm), effective June 15, 2005. However, the Basin and the former Southeast Desert Modified Air Quality Management Area (which included the Coachella Valley) had not attained the 1-hour federal ozone NAAQS by the attainment dates in 2010 and 2007, respectively, and, therefore, had continuing obligations under the former standard. On August 25, 2014, U.S. EPA

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APPENDIX 3.2:

CALEEMOD EMISSIONS MODEL OUTPUTS

E. Walnut Street Residential (Unmitigated)

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	25.00	Dwelling Unit	3.86	45,000.00	72

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot acreage from Tentative Tract Map. Average home size conservatively based on the largest floor plan of 1,800 SF.

Construction Phase - Construction schedule adjusted to reflect information provided by Client and project Opening Year.

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

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes. Hours are based on an 8-hour workday.

Off-road Equipment -

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

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

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

Trips and VMT -

Demolition -

Grading -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	8.00	21.00
tblConstructionPhase	NumDays	230.00	205.00
tblGrading	MaterialImported	0.00	12,000.00
tblLandUse	LotAcreage	8.12	3.86
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	6.1652	71.7742	24.5810	0.1014	20.3885	3.1203	23.5088	10.2131	2.8707	13.0838	0.0000	10,602.1127	10,602.1127	1.8200	0.0000	10,647.6129
2019	16.0091	40.0534	19.6020	0.0448	0.2571	1.8196	1.9394	0.0682	1.7001	1.7323	0.0000	4,367.4469	4,367.4469	1.1453	0.0000	4,396.0787
Maximum	**16.0091**	**71.7742**	**24.5810**	**0.1014**	**20.3885**	**3.1203**	**23.5088**	**10.2131**	**2.8707**	**13.0838**	**0.0000**	**10,602.1127**	**10,602.1127**	**1.8200**	**0.0000**	**10,647.6129**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	6.1652	71.7742	24.5810	0.1014	8.0742	3.1203	11.1945	4.0156	2.8707	6.8863	0.0000	10,602.1127	10,602.1127	1.8200	0.0000	10,647.6129
2019	16.0091	40.0534	19.6020	0.0448	0.2571	1.8196	1.9394	0.0682	1.7001	1.7323	0.0000	4,367.4469	4,367.4469	1.1453	0.0000	4,396.0787
Maximum	**16.0091**	**71.7742**	**24.5810**	**0.1014**	**8.0742**	**3.1203**	**11.1945**	**4.0156**	**2.8707**	**6.8863**	**0.0000**	**10,602.1127**	**10,602.1127**	**1.8200**	**0.0000**	**10,647.6129**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**59.65**	**0.00**	**48.39**	**60.28**	**0.00**	**41.83**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.5825	0.5427	14.7865	0.0325		1.9211	1.9211		1.9211	1.9211	234.1730	453.7138	687.8868	0.7020	0.0159	710.1730
Energy	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064
Mobile	0.5234	2.8082	6.9164	0.0224	1.8002	0.0265	1.8267	0.4817	0.0249	0.5067		2,277.1708	2,277.1708	0.1245		2,280.2824
Total	**8.1262**	**3.5243**	**21.7767**	**0.0561**	**1.8002**	**1.9616**	**3.7618**	**0.4817**	**1.9600**	**2.4418**	**234.1730**	**2,952.2753**	**3,186.4483**	**0.8307**	**0.0200**	**3,213.1618**

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	7.5825	0.5427	14.7865	0.0325		1.9211	1.9211		1.9211	1.9211	234.1730	453.7138	687.8868	0.7020	0.0159	710.1730
Energy	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064
Mobile	0.5234	2.8082	6.9164	0.0224	1.8002	0.0265	1.8267	0.4817	0.0249	0.5067		2,277.1708	2,277.1708	0.1245		2,280.2824
Total	**8.1262**	**3.5243**	**21.7767**	**0.0561**	**1.8002**	**1.9616**	**3.7618**	**0.4817**	**1.9600**	**2.4418**	**234.1730**	**2,952.2753**	**3,186.4483**	**0.8307**	**0.0200**	**3,213.1618**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	2/1/2018	2/28/2018	5	20	
2	Site Preparation	Site Preparation	3/1/2018	3/7/2018	5	5	
3	Grading	Grading	3/8/2018	4/5/2018	5	21	
4	Building Construction	Building Construction	4/6/2018	1/17/2019	5	205	
5	Paving	Paving	1/18/2019	2/12/2019	5	18	
6	Architectural Coating	Architectural Coating	2/13/2019	3/8/2019	5	18	

Acres of Grading (Site Preparation Phase): 10

Acres of Grading (Grading Phase): 42

Acres of Paving: 0

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

OffRoad Equipment

E. Walnut Street Residential (Unmitigated) - South Coast AQMD Air District, Winter

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	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Crawler Tractors	4	8.00	212	0.43
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Crawler Tractors	3	8.00	212	0.43
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Crawler Tractors	3	8.00	212	0.43
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	8.00	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	11.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	1,500.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	9.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1182	0.0000	0.1182	0.0179	0.0000	0.0179			0.0000			0.0000
Off-Road	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048		3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**3.7190**	**38.3225**	**22.3040**	**0.0388**	**0.1182**	**1.9386**	**2.0568**	**0.0179**	**1.8048**	**1.8227**		**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.9100e-003	0.1717	0.0340	4.3000e-004	9.6100e-003	6.6000e-004	0.0103	2.6300e-003	6.4000e-004	3.2700e-003		46.2780	46.2780	3.3700e-003		46.3622
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	0.0879	0.0635	0.6811	1.7200e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		171.1019	171.1019	5.8400e-003		171.2479
Total	**0.0928**	**0.2352**	**0.7152**	**2.1500e-003**	**0.1773**	**2.0000e-003**	**0.1793**	**0.0471**	**1.8700e-003**	**0.0490**		**217.3798**	**217.3798**	**9.2100e-003**		**217.6101**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0461	0.0000	0.0461	6.9800e-003	0.0000	6.9800e-003			0.0000			0.0000
Off-Road	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048	0.0000	3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**3.7190**	**38.3225**	**22.3040**	**0.0388**	**0.0461**	**1.9386**	**1.9847**	**6.9800e-003**	**1.8048**	**1.8118**	**0.0000**	**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.9100e-003	0.1717	0.0340	4.3000e-004	9.6100e-003	6.6000e-004	0.0103	2.6300e-003	6.4000e-004	3.2700e-003		46.2780	46.2780	3.3700e-003		46.3622
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	0.0879	0.0635	0.6811	1.7200e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		171.1019	171.1019	5.8400e-003		171.2479
Total	**0.0928**	**0.2352**	**0.7152**	**2.1500e-003**	**0.1773**	**2.0000e-003**	**0.1793**	**0.0471**	**1.8700e-003**	**0.0490**		**217.3798**	**217.3798**	**9.2100e-003**		**217.6101**

3.3 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					20.1873	0.0000	20.1873	10.1597	0.0000	10.1597			0.0000			0.0000
Off-Road	6.0597	71.6980	23.7636	0.0570		3.1187	3.1187		2.8692	2.8692		5,742.1116	5,742.1116	1.7876		5,786.8015
Total	**6.0597**	**71.6980**	**23.7636**	**0.0570**	**20.1873**	**3.1187**	**23.3060**	**10.1597**	**2.8692**	**13.0289**		**5,742.1116**	**5,742.1116**	**1.7876**		**5,786.8015**

3.3 Site Preparation - 2018

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	0.1055	0.0762	0.8174	2.0600e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		205.3223	205.3223	7.0100e-003		205.4974
Total	**0.1055**	**0.0762**	**0.8174**	**2.0600e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**205.3223**	**205.3223**	**7.0100e-003**		**205.4974**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8730	0.0000	7.8730	3.9623	0.0000	3.9623			0.0000			0.0000
Off-Road	6.0597	71.6980	23.7636	0.0570		3.1187	3.1187		2.8692	2.8692	0.0000	5,742.1116	5,742.1116	1.7876		5,786.8015
Total	**6.0597**	**71.6980**	**23.7636**	**0.0570**	**7.8730**	**3.1187**	**10.9917**	**3.9623**	**2.8692**	**6.8315**	**0.0000**	**5,742.1116**	**5,742.1116**	**1.7876**		**5,786.8015**

3.3 Site Preparation - 2018

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	0.1055	0.0762	0.8174	2.0600e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		205.3223	205.3223	7.0100e-003		205.4974
Total	**0.1055**	**0.0762**	**0.8174**	**2.0600e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**205.3223**	**205.3223**	**7.0100e-003**		**205.4974**

3.4 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.2077	0.0000	8.2077	3.5490	0.0000	3.5490			0.0000			0.0000
Off-Road	3.8960	48.2970	17.5424	0.0439		1.9577	1.9577		1.8011	1.8011		4,420.8874	4,420.8874	1.3763		4,455.2944
Total	**3.8960**	**48.2970**	**17.5424**	**0.0439**	**8.2077**	**1.9577**	**10.1654**	**3.5490**	**1.8011**	**5.3501**		**4,420.8874**	**4,420.8874**	**1.3763**		**4,455.2944**

3.4 Grading - 2018

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	0.6377	22.2999	4.4167	0.0557	1.2482	0.0862	1.3344	0.3421	0.0825	0.4246		6,010.1235	6,010.1235	0.4379		6,021.0706
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	0.0879	0.0635	0.6811	1.7200e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		171.1019	171.1019	5.8400e-003		171.2479
Total	**0.7255**	**22.3634**	**5.0978**	**0.0575**	**1.4159**	**0.0876**	**1.5034**	**0.3866**	**0.0837**	**0.4703**		**6,181.2253**	**6,181.2253**	**0.4437**		**6,192.3184**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.2010	0.0000	3.2010	1.3841	0.0000	1.3841			0.0000			0.0000
Off-Road	3.8960	48.2970	17.5424	0.0439		1.9577	1.9577		1.8011	1.8011	0.0000	4,420.8874	4,420.8874	1.3763		4,455.2944
Total	**3.8960**	**48.2970**	**17.5424**	**0.0439**	**3.2010**	**1.9577**	**5.1587**	**1.3841**	**1.8011**	**3.1852**	**0.0000**	**4,420.8874**	**4,420.8874**	**1.3763**		**4,455.2944**

3.4 Grading - 2018

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	0.6377	22.2999	4.4167	0.0557	1.2482	0.0862	1.3344	0.3421	0.0825	0.4246		6,010.1235	6,010.1235	0.4379		6,021.0706
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	0.0879	0.0635	0.6811	1.7200e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		171.1019	171.1019	5.8400e-003		171.2479
Total	**0.7255**	**22.3634**	**5.0978**	**0.0575**	**1.4159**	**0.0876**	**1.5034**	**0.3866**	**0.0837**	**0.4703**		**6,181.2253**	**6,181.2253**	**0.4437**		**6,192.3184**

3.5 Building Construction - 2018

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	3.9734	42.8532	19.7374	0.0430		2.0130	2.0130		1.8820	1.8820		4,243.6666	4,243.6666	1.1473		4,272.3492
Total	**3.9734**	**42.8532**	**19.7374**	**0.0430**		**2.0130**	**2.0130**		**1.8820**	**1.8820**		**4,243.6666**	**4,243.6666**	**1.1473**		**4,272.3492**

3.5 Building Construction - 2018

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	0.0133	0.3642	0.1005	7.6000e-004	0.0192	2.7000e-003	0.0219	5.5300e-003	2.5800e-003	8.1100e-003		81.2269	81.2269	6.1100e-003		81.3797
Worker	0.0527	0.0381	0.4087	1.0300e-003	0.1006	8.0000e-004	0.1014	0.0267	7.4000e-004	0.0274		102.6611	102.6611	3.5000e-003		102.7487
Total	**0.0661**	**0.4023**	**0.5092**	**1.7900e-003**	**0.1198**	**3.5000e-003**	**0.1233**	**0.0322**	**3.3200e-003**	**0.0355**		**183.8881**	**183.8881**	**9.6100e-003**		**184.1285**

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	3.9734	42.8532	19.7374	0.0430		2.0130	2.0130		1.8820	1.8820	0.0000	4,243.6666	4,243.6666	1.1473		4,272.3492
Total	**3.9734**	**42.8532**	**19.7374**	**0.0430**		**2.0130**	**2.0130**		**1.8820**	**1.8820**	**0.0000**	**4,243.6666**	**4,243.6666**	**1.1473**		**4,272.3492**

3.5 Building Construction - 2018

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	0.0133	0.3642	0.1005	7.6000e-004	0.0192	2.7000e-003	0.0219	5.5300e-003	2.5800e-003	8.1100e-003		81.2269	81.2269	6.1100e-003		81.3797
Worker	0.0527	0.0381	0.4087	1.0300e-003	0.1006	8.0000e-004	0.1014	0.0267	7.4000e-004	0.0274		102.6611	102.6611	3.5000e-003		102.7487
Total	**0.0661**	**0.4023**	**0.5092**	**1.7900e-003**	**0.1198**	**3.5000e-003**	**0.1233**	**0.0322**	**3.3200e-003**	**0.0355**		**183.8881**	**183.8881**	**9.6100e-003**		**184.1285**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6440	39.6763	19.1447	0.0430		1.8165	1.8165		1.6972	1.6972		4,187.5330	4,187.5330	1.1363		4,215.9399
Total	**3.6440**	**39.6763**	**19.1447**	**0.0430**		**1.8165**	**1.8165**		**1.6972**	**1.6972**		**4,187.5330**	**4,187.5330**	**1.1363**		**4,215.9399**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0121	0.3435	0.0924	7.6000e-004	0.0192	2.3100e-003	0.0215	5.5300e-003	2.2100e-003	7.7400e-003		80.4949	80.4949	5.8900e-003		80.6422
Worker	0.0480	0.0336	0.3649	1.0000e-003	0.1006	7.8000e-004	0.1014	0.0267	7.2000e-004	0.0274		99.4190	99.4190	3.1100e-003		99.4967
Total	**0.0601**	**0.3771**	**0.4573**	**1.7600e-003**	**0.1198**	**3.0900e-003**	**0.1229**	**0.0322**	**2.9300e-003**	**0.0351**		**179.9139**	**179.9139**	**9.0000e-003**		**180.1389**

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	3.6440	39.6763	19.1447	0.0430		1.8165	1.8165		1.6972	1.6972	0.0000	4,187.5330	4,187.5330	1.1363		4,215.9399
Total	**3.6440**	**39.6763**	**19.1447**	**0.0430**		**1.8165**	**1.8165**		**1.6972**	**1.6972**	**0.0000**	**4,187.5330**	**4,187.5330**	**1.1363**		**4,215.9399**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0121	0.3435	0.0924	7.6000e-004	0.0192	2.3100e-003	0.0215	5.5300e-003	2.2100e-003	7.7400e-003		80.4949	80.4949	5.8900e-003		80.6422
Worker	0.0480	0.0336	0.3649	1.0000e-003	0.1006	7.8000e-004	0.1014	0.0267	7.2000e-004	0.0274		99.4190	99.4190	3.1100e-003		99.4967
Total	**0.0601**	**0.3771**	**0.4573**	**1.7600e-003**	**0.1198**	**3.0900e-003**	**0.1229**	**0.0322**	**2.9300e-003**	**0.0351**		**179.9139**	**179.9139**	**9.0000e-003**		**180.1389**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7754	18.1337	17.4301	0.0270		1.0022	1.0022		0.9238	0.9238		2,640.3188	2,640.3188	0.8193		2,660.8004
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7754**	**18.1337**	**17.4301**	**0.0270**		**1.0022**	**1.0022**		**0.9238**	**0.9238**		**2,640.3188**	**2,640.3188**	**0.8193**		**2,660.8004**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1226	0.0859	0.9324	2.5500e-003	0.2571	2.0000e-003	0.2591	0.0682	1.8400e-003	0.0700		254.0708	254.0708	7.9400e-003		254.2693
Total	**0.1226**	**0.0859**	**0.9324**	**2.5500e-003**	**0.2571**	**2.0000e-003**	**0.2591**	**0.0682**	**1.8400e-003**	**0.0700**		**254.0708**	**254.0708**	**7.9400e-003**		**254.2693**

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	1.7754	18.1337	17.4301	0.0270		1.0022	1.0022		0.9238	0.9238	0.0000	2,640.3188	2,640.3188	0.8193		2,660.8004
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7754**	**18.1337**	**17.4301**	**0.0270**		**1.0022**	**1.0022**		**0.9238**	**0.9238**	**0.0000**	**2,640.3188**	**2,640.3188**	**0.8193**		**2,660.8004**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1226	0.0859	0.9324	2.5500e-003	0.2571	2.0000e-003	0.2591	0.0682	1.8400e-003	0.0700		254.0708	254.0708	7.9400e-003		254.2693
Total	**0.1226**	**0.0859**	**0.9324**	**2.5500e-003**	**0.2571**	**2.0000e-003**	**0.2591**	**0.0682**	**1.8400e-003**	**0.0700**		**254.0708**	**254.0708**	**7.9400e-003**		**254.2693**

3.7 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6431					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717		375.2641	375.2641	0.0317		376.0565
Total	**15.9984**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**		**375.2641**	**375.2641**	**0.0317**		**376.0565**

3.7 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0107	7.4700e-003	0.0811	2.2000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		22.0931	22.0931	6.9000e-004		22.1104
Total	**0.0107**	**7.4700e-003**	**0.0811**	**2.2000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0900e-003**		**22.0931**	**22.0931**	**6.9000e-004**		**22.1104**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6431					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717	0.0000	375.2641	375.2641	0.0317		376.0565
Total	**15.9984**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**	**0.0000**	**375.2641**	**375.2641**	**0.0317**		**376.0565**

3.7 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0107	7.4700e-003	0.0811	2.2000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		22.0931	22.0931	6.9000e-004		22.1104
Total	**0.0107**	**7.4700e-003**	**0.0811**	**2.2000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0900e-003**		**22.0931**	**22.0931**	**6.9000e-004**		**22.1104**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5234	2.8082	6.9164	0.0224	1.8002	0.0265	1.8267	0.4817	0.0249	0.5067		2,277.1708	2,277.1708	0.1245		2,280.2824
Unmitigated	0.5234	2.8082	6.9164	0.0224	1.8002	0.0265	1.8267	0.4817	0.0249	0.5067		2,277.1708	2,277.1708	0.1245		2,280.2824

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	238.00	247.75	215.50	807,058	807,058
Total	238.00	247.75	215.50	807,058	807,058

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064
NaturalGas Unmitigated	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	1881.82	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064
Total		**0.0203**	**0.1734**	**0.0738**	**1.1100e-003**		**0.0140**	**0.0140**		**0.0140**	**0.0140**		**221.3907**	**221.3907**	**4.2400e-003**	**4.0600e-003**	**222.7064**

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					
Single Family Housing	1.88182	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064
Total		**0.0203**	**0.1734**	**0.0738**	**1.1100e-003**		**0.0140**	**0.0140**		**0.0140**	**0.0140**		**221.3907**	**221.3907**	**4.2400e-003**	**4.0600e-003**	**222.7064**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.5825	0.5427	14.7865	0.0325		1.9211	1.9211		1.9211	1.9211	234.1730	453.7138	687.8868	0.7020	0.0159	710.1730
Unmitigated	7.5825	0.5427	14.7865	0.0325		1.9211	1.9211		1.9211	1.9211	234.1730	453.7138	687.8868	0.7020	0.0159	710.1730

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0771					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8910					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	6.5509	0.5187	12.7138	0.0324		1.9097	1.9097		1.9097	1.9097	234.1730	450.0000	684.1730	0.6984	0.0159	706.3681
Landscaping	0.0635	0.0240	2.0728	1.1000e-004		0.0114	0.0114		0.0114	0.0114		3.7138	3.7138	3.6500e-003		3.8049
Total	**7.5825**	**0.5427**	**14.7866**	**0.0325**		**1.9211**	**1.9211**		**1.9211**	**1.9211**	**234.1730**	**453.7138**	**687.8868**	**0.7020**	**0.0159**	**710.1730**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0771					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8910					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	6.5509	0.5187	12.7138	0.0324		1.9097	1.9097		1.9097	1.9097	234.1730	450.0000	684.1730	0.6984	0.0159	706.3681
Landscaping	0.0635	0.0240	2.0728	1.1000e-004		0.0114	0.0114		0.0114	0.0114		3.7138	3.7138	3.6500e-003		3.8049
Total	**7.5825**	**0.5427**	**14.7866**	**0.0325**		**1.9211**	**1.9211**		**1.9211**	**1.9211**	**234.1730**	**453.7138**	**687.8868**	**0.7020**	**0.0159**	**710.1730**

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

E. Walnut Street Residential (Unmitigated)

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	25.00	Dwelling Unit	3.86	45,000.00	72

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot acreage from Tentative Tract Map. Average home size conservatively based on the largest floor plan of 1,800 SF.

Construction Phase - Construction schedule adjusted to reflect information provided by Client and project Opening Year.

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

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes. Hours are based on an 8-hour workday.

Off-road Equipment -

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

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

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

Trips and VMT -

Demolition -

Grading -

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	8.00	21.00
tblConstructionPhase	NumDays	230.00	205.00
tblGrading	MaterialImported	0.00	12,000.00
tblLandUse	LotAcreage	8.12	3.86
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	6.1567	71.7675	24.6667	0.1025	20.3885	3.1203	23.5088	10.2131	2.8707	13.0838	0.0000	10,723.6915	10,723.6915	1.8011	0.0000	10,768.7186
2019	16.0082	40.0503	19.6321	0.0449	0.2571	1.8195	1.9393	0.0682	1.7001	1.7323	0.0000	4,376.6879	4,376.6879	1.1451	0.0000	4,405.3150
Maximum	**16.0082**	71.7675	**24.6667**	**0.1025**	**20.3885**	**3.1203**	**23.5088**	**10.2131**	**2.8707**	**13.0838**	**0.0000**	**10,723.6915**	**10,723.6915**	**1.8011**	**0.0000**	**10,768.7186**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	6.1567	71.7675	24.6667	0.1025	8.0742	3.1203	11.1945	4.0156	2.8707	6.8863	0.0000	10,723.6915	10,723.6915	1.8011	0.0000	10,768.7186
2019	16.0082	40.0503	19.6321	0.0449	0.2571	1.8195	1.9393	0.0682	1.7001	1.7323	0.0000	4,376.6879	4,376.6879	1.1451	0.0000	4,405.3150
Maximum	**16.0082**	71.7675	**24.6667**	**0.1025**	**8.0742**	**3.1203**	**11.1945**	**4.0156**	**2.8707**	**6.8863**	**0.0000**	**10,723.6915**	**10,723.6915**	**1.8011**	**0.0000**	**10,768.7186**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**59.65**	**0.00**	**48.39**	**60.28**	**0.00**	**41.83**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.5825	0.5427	14.7865	0.0325		1.9211	1.9211		1.9211	1.9211	234.1730	453.7138	687.8868	0.7020	0.0159	710.1730
Energy	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064
Mobile	0.5479	2.7388	7.3786	0.0237	1.8002	0.0263	1.8265	0.4817	0.0248	0.5065		2,405.8556	2,405.8556	0.1250		2,408.9816
Total	**8.1507**	**3.4549**	**22.2389**	**0.0574**	**1.8002**	**1.9614**	**3.7616**	**0.4817**	**1.9599**	**2.4416**	**234.1730**	**3,080.9602**	**3,315.1331**	**0.8313**	**0.0200**	**3,341.8610**

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	7.5825	0.5427	14.7865	0.0325		1.9211	1.9211		1.9211	1.9211	234.1730	453.7138	687.8868	0.7020	0.0159	710.1730
Energy	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064
Mobile	0.5479	2.7388	7.3786	0.0237	1.8002	0.0263	1.8265	0.4817	0.0248	0.5065		2,405.8556	2,405.8556	0.1250		2,408.9816
Total	**8.1507**	**3.4549**	**22.2389**	**0.0574**	**1.8002**	**1.9614**	**3.7616**	**0.4817**	**1.9599**	**2.4416**	**234.1730**	**3,080.9602**	**3,315.1331**	**0.8313**	**0.0200**	**3,341.8610**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	2/1/2018	2/28/2018	5	20	
2	Site Preparation	Site Preparation	3/1/2018	3/7/2018	5	5	
3	Grading	Grading	3/8/2018	4/5/2018	5	21	
4	Building Construction	Building Construction	4/6/2018	1/17/2019	5	205	
5	Paving	Paving	1/18/2019	2/12/2019	5	18	
6	Architectural Coating	Architectural Coating	2/13/2019	3/8/2019	5	18	

Acres of Grading (Site Preparation Phase): 10

Acres of Grading (Grading Phase): 42

Acres of Paving: 0

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

OffRoad Equipment

E. Walnut Street Residential (Unmitigated) - South Coast AQMD Air District, Summer

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	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Crawler Tractors	4	8.00	212	0.43
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Crawler Tractors	3	8.00	212	0.43
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Crawler Tractors	3	8.00	212	0.43
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	8.00	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	11.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	1,500.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	9.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1182	0.0000	0.1182	0.0179	0.0000	0.0179			0.0000			0.0000
Off-Road	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048		3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**3.7190**	**38.3225**	**22.3040**	**0.0388**	**0.1182**	**1.9386**	**2.0568**	**0.0179**	**1.8048**	**1.8227**		**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.7700e-003	0.1693	0.0314	4.4000e-004	9.6100e-003	6.5000e-004	0.0103	2.6300e-003	6.2000e-004	3.2600e-003		47.1232	47.1232	3.2200e-003		47.2038
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	0.0808	0.0580	0.7526	1.8400e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		182.9028	182.9028	6.2400e-003		183.0587
Total	**0.0856**	**0.2273**	**0.7840**	**2.2800e-003**	**0.1773**	**1.9900e-003**	**0.1793**	**0.0471**	**1.8500e-003**	**0.0490**		**230.0260**	**230.0260**	**9.4600e-003**		**230.2625**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0461	0.0000	0.0461	6.9800e-003	0.0000	6.9800e-003			0.0000			0.0000
Off-Road	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048	0.0000	3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**3.7190**	**38.3225**	**22.3040**	**0.0388**	**0.0461**	**1.9386**	**1.9847**	**6.9800e-003**	**1.8048**	**1.8118**	**0.0000**	**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.7700e-003	0.1693	0.0314	4.4000e-004	9.6100e-003	6.5000e-004	0.0103	2.6300e-003	6.2000e-004	3.2600e-003		47.1232	47.1232	3.2200e-003		47.2038
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	0.0808	0.0580	0.7526	1.8400e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		182.9028	182.9028	6.2400e-003		183.0587
Total	**0.0856**	**0.2273**	**0.7840**	**2.2800e-003**	**0.1773**	**1.9900e-003**	**0.1793**	**0.0471**	**1.8500e-003**	**0.0490**		**230.0260**	**230.0260**	**9.4600e-003**		**230.2625**

3.3 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					20.1873	0.0000	20.1873	10.1597	0.0000	10.1597			0.0000			0.0000
Off-Road	6.0597	71.6980	23.7636	0.0570		3.1187	3.1187		2.8692	2.8692		5,742.1116	5,742.1116	1.7876		5,786.8015
Total	**6.0597**	**71.6980**	**23.7636**	**0.0570**	**20.1873**	**3.1187**	**23.3060**	**10.1597**	**2.8692**	**13.0289**		**5,742.1116**	**5,742.1116**	**1.7876**		**5,786.8015**

3.3 Site Preparation - 2018

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	0.0970	0.0695	0.9032	2.2100e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		219.4833	219.4833	7.4800e-003		219.6704
Total	**0.0970**	**0.0695**	**0.9032**	**2.2100e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**219.4833**	**219.4833**	**7.4800e-003**		**219.6704**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.8730	0.0000	7.8730	3.9623	0.0000	3.9623			0.0000			0.0000
Off-Road	6.0597	71.6980	23.7636	0.0570		3.1187	3.1187		2.8692	2.8692	0.0000	5,742.1116	5,742.1116	1.7876		5,786.8015
Total	**6.0597**	**71.6980**	**23.7636**	**0.0570**	**7.8730**	**3.1187**	**10.9917**	**3.9623**	**2.8692**	**6.8315**	**0.0000**	**5,742.1116**	**5,742.1116**	**1.7876**		**5,786.8015**

3.3 Site Preparation - 2018

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	0.0970	0.0695	0.9032	2.2100e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		219.4833	219.4833	7.4800e-003		219.6704
Total	**0.0970**	**0.0695**	**0.9032**	**2.2100e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**219.4833**	**219.4833**	**7.4800e-003**		**219.6704**

3.4 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.2077	0.0000	8.2077	3.5490	0.0000	3.5490			0.0000			0.0000
Off-Road	3.8960	48.2970	17.5424	0.0439		1.9577	1.9577		1.8011	1.8011		4,420.8874	4,420.8874	1.3763		4,455.2944
Total	**3.8960**	**48.2970**	**17.5424**	**0.0439**	**8.2077**	**1.9577**	**10.1654**	**3.5490**	**1.8011**	**5.3501**		**4,420.8874**	**4,420.8874**	**1.3763**		**4,455.2944**

3.4 Grading - 2018

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	0.6193	21.9929	4.0726	0.0568	1.2482	0.0846	1.3328	0.3421	0.0809	0.4230		6,119.9014	6,119.9014	0.4186		6,130.3655
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	0.0808	0.0580	0.7526	1.8400e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		182.9028	182.9028	6.2400e-003		183.0587
Total	**0.7001**	**22.0508**	**4.8253**	**0.0586**	**1.4159**	**0.0859**	**1.5018**	**0.3866**	**0.0821**	**0.4687**		**6,302.8041**	**6,302.8041**	**0.4248**		**6,313.4241**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					3.2010	0.0000	3.2010	1.3841	0.0000	1.3841			0.0000			0.0000
Off-Road	3.8960	48.2970	17.5424	0.0439		1.9577	1.9577		1.8011	1.8011	0.0000	4,420.8874	4,420.8874	1.3763		4,455.2944
Total	**3.8960**	**48.2970**	**17.5424**	**0.0439**	**3.2010**	**1.9577**	**5.1587**	**1.3841**	**1.8011**	**3.1852**	**0.0000**	**4,420.8874**	**4,420.8874**	**1.3763**		**4,455.2944**

3.4 Grading - 2018

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	0.6193	21.9929	4.0726	0.0568	1.2482	0.0846	1.3328	0.3421	0.0809	0.4230		6,119.9014	6,119.9014	0.4186		6,130.3655
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	0.0808	0.0580	0.7526	1.8400e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		182.9028	182.9028	6.2400e-003		183.0587
Total	**0.7001**	**22.0508**	**4.8253**	**0.0586**	**1.4159**	**0.0859**	**1.5018**	**0.3866**	**0.0821**	**0.4687**		**6,302.8041**	**6,302.8041**	**0.4248**		**6,313.4241**

3.5 Building Construction - 2018

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	3.9734	42.8532	19.7374	0.0430		2.0130	2.0130		1.8820	1.8820		4,243.6666	4,243.6666	1.1473		4,272.3492
Total	**3.9734**	**42.8532**	**19.7374**	**0.0430**		**2.0130**	**2.0130**		**1.8820**	**1.8820**		**4,243.6666**	**4,243.6666**	**1.1473**		**4,272.3492**

3.5 Building Construction - 2018

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	0.0128	0.3636	0.0905	7.9000e-004	0.0192	2.6600e-003	0.0219	5.5300e-003	2.5400e-003	8.0700e-003		83.5974	83.5974	5.6900e-003		83.7397
Worker	0.0485	0.0348	0.4516	1.1000e-003	0.1006	8.0000e-004	0.1014	0.0267	7.4000e-004	0.0274		109.7417	109.7417	3.7400e-003		109.8352
Total	**0.0613**	**0.3983**	**0.5421**	**1.8900e-003**	**0.1198**	**3.4600e-003**	**0.1233**	**0.0322**	**3.2800e-003**	**0.0355**		**193.3391**	**193.3391**	**9.4300e-003**		**193.5749**

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	3.9734	42.8532	19.7374	0.0430		2.0130	2.0130		1.8820	1.8820	0.0000	4,243.6666	4,243.6666	1.1473		4,272.3492
Total	**3.9734**	**42.8532**	**19.7374**	**0.0430**		**2.0130**	**2.0130**		**1.8820**	**1.8820**	**0.0000**	**4,243.6666**	**4,243.6666**	**1.1473**		**4,272.3492**

3.5 Building Construction - 2018

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	0.0128	0.3636	0.0905	7.9000e-004	0.0192	2.6600e-003	0.0219	5.5300e-003	2.5400e-003	8.0700e-003		83.5974	83.5974	5.6900e-003		83.7397
Worker	0.0485	0.0348	0.4516	1.1000e-003	0.1006	8.0000e-004	0.1014	0.0267	7.4000e-004	0.0274		109.7417	109.7417	3.7400e-003		109.8352
Total	**0.0613**	**0.3983**	**0.5421**	**1.8900e-003**	**0.1198**	**3.4600e-003**	**0.1233**	**0.0322**	**3.2800e-003**	**0.0355**		**193.3391**	**193.3391**	**9.4300e-003**		**193.5749**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6440	39.6763	19.1447	0.0430		1.8165	1.8165		1.6972	1.6972		4,187.5330	4,187.5330	1.1363		4,215.9399
Total	**3.6440**	**39.6763**	**19.1447**	**0.0430**		**1.8165**	**1.8165**		**1.6972**	**1.6972**		**4,187.5330**	**4,187.5330**	**1.1363**		**4,215.9399**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0116	0.3433	0.0830	7.8000e-004	0.0192	2.2700e-003	0.0215	5.5300e-003	2.1800e-003	7.7000e-003		82.8659	82.8659	5.4800e-003		83.0030
Worker	0.0441	0.0307	0.4044	1.0700e-003	0.1006	7.8000e-004	0.1014	0.0267	7.2000e-004	0.0274		106.2890	106.2890	3.3200e-003		106.3721
Total	**0.0557**	**0.3739**	**0.4874**	**1.8500e-003**	**0.1198**	**3.0500e-003**	**0.1229**	**0.0322**	**2.9000e-003**	**0.0351**		**189.1549**	**189.1549**	**8.8000e-003**		**189.3751**

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	3.6440	39.6763	19.1447	0.0430		1.8165	1.8165		1.6972	1.6972	0.0000	4,187.5330	4,187.5330	1.1363		4,215.9399
Total	**3.6440**	**39.6763**	**19.1447**	**0.0430**		**1.8165**	**1.8165**		**1.6972**	**1.6972**	**0.0000**	**4,187.5330**	**4,187.5330**	**1.1363**		**4,215.9399**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0116	0.3433	0.0830	7.8000e-004	0.0192	2.2700e-003	0.0215	5.5300e-003	2.1800e-003	7.7000e-003		82.8659	82.8659	5.4800e-003		83.0030
Worker	0.0441	0.0307	0.4044	1.0700e-003	0.1006	7.8000e-004	0.1014	0.0267	7.2000e-004	0.0274		106.2890	106.2890	3.3200e-003		106.3721
Total	**0.0557**	**0.3739**	**0.4874**	**1.8500e-003**	**0.1198**	**3.0500e-003**	**0.1229**	**0.0322**	**2.9000e-003**	**0.0351**		**189.1549**	**189.1549**	**8.8000e-003**		**189.3751**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.7754	18.1337	17.4301	0.0270		1.0022	1.0022		0.9238	0.9238		2,640.3188	2,640.3188	0.8193		2,660.8004
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7754**	**18.1337**	**17.4301**	**0.0270**		**1.0022**	**1.0022**		**0.9238**	**0.9238**		**2,640.3188**	**2,640.3188**	**0.8193**		**2,660.8004**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1126	0.0784	1.0335	2.7300e-003	0.2571	2.0000e-003	0.2591	0.0682	1.8400e-003	0.0700		271.6275	271.6275	8.5000e-003		271.8399
Total	**0.1126**	**0.0784**	**1.0335**	**2.7300e-003**	**0.2571**	**2.0000e-003**	**0.2591**	**0.0682**	**1.8400e-003**	**0.0700**		**271.6275**	**271.6275**	**8.5000e-003**		**271.8399**

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	1.7754	18.1337	17.4301	0.0270		1.0022	1.0022		0.9238	0.9238	0.0000	2,640.3188	2,640.3188	0.8193		2,660.8004
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.7754**	**18.1337**	**17.4301**	**0.0270**		**1.0022**	**1.0022**		**0.9238**	**0.9238**	**0.0000**	**2,640.3188**	**2,640.3188**	**0.8193**		**2,660.8004**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1126	0.0784	1.0335	2.7300e-003	0.2571	2.0000e-003	0.2591	0.0682	1.8400e-003	0.0700		271.6275	271.6275	8.5000e-003		271.8399
Total	**0.1126**	**0.0784**	**1.0335**	**2.7300e-003**	**0.2571**	**2.0000e-003**	**0.2591**	**0.0682**	**1.8400e-003**	**0.0700**		**271.6275**	**271.6275**	**8.5000e-003**		**271.8399**

3.7 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6431					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717		375.2641	375.2641	0.0317		376.0565
Total	**15.9984**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**		**375.2641**	**375.2641**	**0.0317**		**376.0565**

3.7 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	9.7900e-003	6.8200e-003	0.0899	2.4000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		23.6198	23.6198	7.4000e-004		23.6383
Total	**9.7900e-003**	**6.8200e-003**	**0.0899**	**2.4000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0900e-003**		**23.6198**	**23.6198**	**7.4000e-004**		**23.6383**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6431					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717	0.0000	375.2641	375.2641	0.0317		376.0565
Total	**15.9984**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**	**0.0000**	**375.2641**	**375.2641**	**0.0317**		**376.0565**

3.7 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	9.7900e-003	6.8200e-003	0.0899	2.4000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		23.6198	23.6198	7.4000e-004		23.6383
Total	**9.7900e-003**	**6.8200e-003**	**0.0899**	**2.4000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0900e-003**		**23.6198**	**23.6198**	**7.4000e-004**		**23.6383**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5479	2.7388	7.3786	0.0237	1.8002	0.0263	1.8265	0.4817	0.0248	0.5065		2,405.8556	2,405.8556	0.1250		2,408.9816
Unmitigated	0.5479	2.7388	7.3786	0.0237	1.8002	0.0263	1.8265	0.4817	0.0248	0.5065		2,405.8556	2,405.8556	0.1250		2,408.9816

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	238.00	247.75	215.50	807,058	807,058
Total	238.00	247.75	215.50	807,058	807,058

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064
NaturalGas Unmitigated	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	1881.82	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064
Total		**0.0203**	**0.1734**	**0.0738**	**1.1100e-003**		**0.0140**	**0.0140**		**0.0140**	**0.0140**		**221.3907**	**221.3907**	**4.2400e-003**	**4.0600e-003**	**222.7064**

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					
Single Family Housing	1.88182	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064
Total		**0.0203**	**0.1734**	**0.0738**	**1.1100e-003**		**0.0140**	**0.0140**		**0.0140**	**0.0140**		**221.3907**	**221.3907**	**4.2400e-003**	**4.0600e-003**	**222.7064**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.5825	0.5427	14.7865	0.0325		1.9211	1.9211		1.9211	1.9211	234.1730	453.7138	687.8868	0.7020	0.0159	710.1730
Unmitigated	7.5825	0.5427	14.7865	0.0325		1.9211	1.9211		1.9211	1.9211	234.1730	453.7138	687.8868	0.7020	0.0159	710.1730

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0771					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8910					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	6.5509	0.5187	12.7138	0.0324		1.9097	1.9097		1.9097	1.9097	234.1730	450.0000	684.1730	0.6984	0.0159	706.3681
Landscaping	0.0635	0.0240	2.0728	1.1000e-004		0.0114	0.0114		0.0114	0.0114		3.7138	3.7138	3.6500e-003		3.8049
Total	**7.5825**	**0.5427**	**14.7866**	**0.0325**		**1.9211**	**1.9211**		**1.9211**	**1.9211**	**234.1730**	**453.7138**	**687.8868**	**0.7020**	**0.0159**	**710.1730**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0771					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8910					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	6.5509	0.5187	12.7138	0.0324		1.9097	1.9097		1.9097	1.9097	234.1730	450.0000	684.1730	0.6984	0.0159	706.3681
Landscaping	0.0635	0.0240	2.0728	1.1000e-004		0.0114	0.0114		0.0114	0.0114		3.7138	3.7138	3.6500e-003		3.8049
Total	**7.5825**	**0.5427**	**14.7866**	**0.0325**		**1.9211**	**1.9211**		**1.9211**	**1.9211**	**234.1730**	**453.7138**	**687.8868**	**0.7020**	**0.0159**	**710.1730**

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

E. Walnut Street Residential (Mitigated)

South Coast AQMD Air District, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	25.00	Dwelling Unit	3.86	45,000.00	72

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot acreage from Tentative Tract Map. Average home size conservatively based on the largest floor plan of 1,800 SF.

Construction Phase - Construction schedule adjusted to reflect information provided by Client and project Opening Year.

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

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes. Hours are based on an 8-hour workday.

Off-road Equipment -

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

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

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

Trips and VMT -

Demolition -

Grading -

Construction Off-road Equipment Mitigation - Increase watering to 4 times per day.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	74
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	74
tblConstructionPhase	NumDays	8.00	21.00
tblGrading	MaterialImported	0.00	12,000.00
tblLandUse	LotAcreage	8.12	3.86
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	8.6610	113.9158	42.8868	0.1462	20.3885	4.0617	23.5088	10.2131	3.7701	13.0838	0.0000	15,029.6674	15,029.6674	2.9769	0.0000	15,104.0906
2019	16.0091	40.0534	19.6020	0.0448	0.2571	1.8196	1.9394	0.0682	1.7001	1.7323	0.0000	4,367.4469	4,367.4469	1.1453	0.0000	4,396.0787
Maximum	**16.0091**	**113.9158**	**42.8868**	**0.1462**	**20.3885**	**4.0617**	**23.5088**	**10.2131**	**3.7701**	**13.0838**	**0.0000**	**15,029.6674**	**15,029.6674**	**2.9769**	**0.0000**	**15,104.0906**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	8.6610	113.9158	42.8868	0.1462	5.4499	4.0617	8.5702	2.6949	3.7701	5.5656	0.0000	15,029.6674	15,029.6674	2.9769	0.0000	15,104.0906
2019	16.0091	40.0534	19.6020	0.0448	0.2571	1.8196	1.9394	0.0682	1.7001	1.7323	0.0000	4,367.4469	4,367.4469	1.1453	0.0000	4,396.0787
Maximum	**16.0091**	**113.9158**	**42.8868**	**0.1462**	**5.4499**	**4.0617**	**8.5702**	**2.6949**	**3.7701**	**5.5656**	**0.0000**	**15,029.6674**	**15,029.6674**	**2.9769**	**0.0000**	**15,104.0906**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**72.36**	**0.00**	**58.70**	**73.13**	**0.00**	**50.74**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.5825	0.5427	14.7865	0.0325		1.9211	1.9211		1.9211	1.9211	234.1730	453.7138	687.8868	0.7020	0.0159	710.1730
Energy	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064
Mobile	0.5234	2.8082	6.9164	0.0224	1.8002	0.0265	1.8267	0.4817	0.0249	0.5067		2,277.1708	2,277.1708	0.1245		2,280.2824
Total	**8.1262**	**3.5243**	**21.7767**	**0.0561**	**1.8002**	**1.9616**	**3.7618**	**0.4817**	**1.9600**	**2.4418**	**234.1730**	**2,952.2753**	**3,186.4483**	**0.8307**	**0.0200**	**3,213.1618**

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	7.5825	0.5427	14.7865	0.0325		1.9211	1.9211		1.9211	1.9211	234.1730	453.7138	687.8868	0.7020	0.0159	710.1730
Energy	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064
Mobile	0.5234	2.8082	6.9164	0.0224	1.8002	0.0265	1.8267	0.4817	0.0249	0.5067		2,277.1708	2,277.1708	0.1245		2,280.2824
Total	**8.1262**	**3.5243**	**21.7767**	**0.0561**	**1.8002**	**1.9616**	**3.7618**	**0.4817**	**1.9600**	**2.4418**	**234.1730**	**2,952.2753**	**3,186.4483**	**0.8307**	**0.0200**	**3,213.1618**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	2/1/2018	2/28/2018	5	20	
2	Site Preparation	Site Preparation	3/1/2018	3/7/2018	5	5	
3	Grading	Grading	3/8/2018	4/5/2018	5	21	
4	Building Construction	Building Construction	3/20/2018	2/4/2019	5	230	
5	Paving	Paving	2/5/2019	2/28/2019	5	18	
6	Architectural Coating	Architectural Coating	3/1/2019	3/26/2019	5	18	

Acres of Grading (Site Preparation Phase): 10

Acres of Grading (Grading Phase): 42

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Crawler Tractors	4	8.00	212	0.43
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Crawler Tractors	3	8.00	212	0.43
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Crawler Tractors	3	8.00	212	0.43
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	8.00	9	0.56
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	8.00	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	11.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	1,500.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	9.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1182	0.0000	0.1182	0.0179	0.0000	0.0179			0.0000			0.0000
Off-Road	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048		3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**3.7190**	**38.3225**	**22.3040**	**0.0388**	**0.1182**	**1.9386**	**2.0568**	**0.0179**	**1.8048**	**1.8227**		**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.9100e-003	0.1717	0.0340	4.3000e-004	9.6100e-003	6.6000e-004	0.0103	2.6300e-003	6.4000e-004	3.2700e-003		46.2780	46.2780	3.3700e-003		46.3622
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	0.0879	0.0635	0.6811	1.7200e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		171.1019	171.1019	5.8400e-003		171.2479
Total	**0.0928**	**0.2352**	**0.7152**	**2.1500e-003**	**0.1773**	**2.0000e-003**	**0.1793**	**0.0471**	**1.8700e-003**	**0.0490**		**217.3798**	**217.3798**	**9.2100e-003**		**217.6101**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0307	0.0000	0.0307	4.6500e-003	0.0000	4.6500e-003			0.0000			0.0000
Off-Road	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048	0.0000	3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**3.7190**	**38.3225**	**22.3040**	**0.0388**	**0.0307**	**1.9386**	**1.9693**	**4.6500e-003**	**1.8048**	**1.8095**	**0.0000**	**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.9100e-003	0.1717	0.0340	4.3000e-004	9.6100e-003	6.6000e-004	0.0103	2.6300e-003	6.4000e-004	3.2700e-003		46.2780	46.2780	3.3700e-003		46.3622
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	0.0879	0.0635	0.6811	1.7200e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		171.1019	171.1019	5.8400e-003		171.2479
Total	**0.0928**	**0.2352**	**0.7152**	**2.1500e-003**	**0.1773**	**2.0000e-003**	**0.1793**	**0.0471**	**1.8700e-003**	**0.0490**		**217.3798**	**217.3798**	**9.2100e-003**		**217.6101**

3.3 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					20.1873	0.0000	20.1873	10.1597	0.0000	10.1597			0.0000			0.0000
Off-Road	6.0597	71.6980	23.7636	0.0570		3.1187	3.1187		2.8692	2.8692		5,742.1116	5,742.1116	1.7876		5,786.8015
Total	**6.0597**	**71.6980**	**23.7636**	**0.0570**	**20.1873**	**3.1187**	**23.3060**	**10.1597**	**2.8692**	**13.0289**		**5,742.1116**	**5,742.1116**	**1.7876**		**5,786.8015**

3.3 Site Preparation - 2018

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	0.1055	0.0762	0.8174	2.0600e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		205.3223	205.3223	7.0100e-003		205.4974
Total	**0.1055**	**0.0762**	**0.8174**	**2.0600e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**205.3223**	**205.3223**	**7.0100e-003**		**205.4974**

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					5.2487	0.0000	5.2487	2.6415	0.0000	2.6415			0.0000			0.0000
Off-Road	6.0597	71.6980	23.7636	0.0570		3.1187	3.1187		2.8692	2.8692	0.0000	5,742.1116	5,742.1116	1.7876		5,786.8015
Total	**6.0597**	**71.6980**	**23.7636**	**0.0570**	**5.2487**	**3.1187**	**8.3674**	**2.6415**	**2.8692**	**5.5107**	**0.0000**	**5,742.1116**	**5,742.1116**	**1.7876**		**5,786.8015**

3.3 Site Preparation - 2018

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	0.1055	0.0762	0.8174	2.0600e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		205.3223	205.3223	7.0100e-003		205.4974
Total	**0.1055**	**0.0762**	**0.8174**	**2.0600e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**205.3223**	**205.3223**	**7.0100e-003**		**205.4974**

3.4 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.2077	0.0000	8.2077	3.5490	0.0000	3.5490			0.0000			0.0000
Off-Road	3.8960	48.2970	17.5424	0.0439		1.9577	1.9577		1.8011	1.8011		4,420.8874	4,420.8874	1.3763		4,455.2944
Total	**3.8960**	**48.2970**	**17.5424**	**0.0439**	**8.2077**	**1.9577**	**10.1654**	**3.5490**	**1.8011**	**5.3501**		**4,420.8874**	**4,420.8874**	**1.3763**		**4,455.2944**

3.4 Grading - 2018

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	0.6377	22.2999	4.4167	0.0557	1.2482	0.0862	1.3344	0.3421	0.0825	0.4246		6,010.1235	6,010.1235	0.4379		6,021.0706
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	0.0879	0.0635	0.6811	1.7200e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		171.1019	171.1019	5.8400e-003		171.2479
Total	**0.7255**	**22.3634**	**5.0978**	**0.0575**	**1.4159**	**0.0876**	**1.5034**	**0.3866**	**0.0837**	**0.4703**		**6,181.2253**	**6,181.2253**	**0.4437**		**6,192.3184**

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					2.1340	0.0000	2.1340	0.9228	0.0000	0.9228			0.0000			0.0000
Off-Road	3.8960	48.2970	17.5424	0.0439		1.9577	1.9577		1.8011	1.8011	0.0000	4,420.8874	4,420.8874	1.3763		4,455.2944
Total	**3.8960**	**48.2970**	**17.5424**	**0.0439**	**2.1340**	**1.9577**	**4.0917**	**0.9228**	**1.8011**	**2.7238**	**0.0000**	**4,420.8874**	**4,420.8874**	**1.3763**		**4,455.2944**

3.4 Grading - 2018

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	0.6377	22.2999	4.4167	0.0557	1.2482	0.0862	1.3344	0.3421	0.0825	0.4246		6,010.1235	6,010.1235	0.4379		6,021.0706
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	0.0879	0.0635	0.6811	1.7200e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		171.1019	171.1019	5.8400e-003		171.2479
Total	**0.7255**	**22.3634**	**5.0978**	**0.0575**	**1.4159**	**0.0876**	**1.5034**	**0.3866**	**0.0837**	**0.4703**		**6,181.2253**	**6,181.2253**	**0.4437**		**6,192.3184**

3.5 Building Construction - 2018

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	3.9734	42.8532	19.7374	0.0430		2.0130	2.0130		1.8820	1.8820		4,243.6666	4,243.6666	1.1473		4,272.3492
Total	**3.9734**	**42.8532**	**19.7374**	**0.0430**		**2.0130**	**2.0130**		**1.8820**	**1.8820**		**4,243.6666**	**4,243.6666**	**1.1473**		**4,272.3492**

3.5 Building Construction - 2018

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	0.0133	0.3642	0.1005	7.6000e-004	0.0192	2.7000e-003	0.0219	5.5300e-003	2.5800e-003	8.1100e-003		81.2269	81.2269	6.1100e-003		81.3797
Worker	0.0527	0.0381	0.4087	1.0300e-003	0.1006	8.0000e-004	0.1014	0.0267	7.4000e-004	0.0274		102.6611	102.6611	3.5000e-003		102.7487
Total	**0.0661**	**0.4023**	**0.5092**	**1.7900e-003**	**0.1198**	**3.5000e-003**	**0.1233**	**0.0322**	**3.3200e-003**	**0.0355**		**183.8881**	**183.8881**	**9.6100e-003**		**184.1285**

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	3.9734	42.8532	19.7374	0.0430		2.0130	2.0130		1.8820	1.8820	0.0000	4,243.6666	4,243.6666	1.1473		4,272.3492
Total	**3.9734**	**42.8532**	**19.7374**	**0.0430**		**2.0130**	**2.0130**		**1.8820**	**1.8820**	**0.0000**	**4,243.6666**	**4,243.6666**	**1.1473**		**4,272.3492**

3.5 Building Construction - 2018

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	0.0133	0.3642	0.1005	7.6000e-004	0.0192	2.7000e-003	0.0219	5.5300e-003	2.5800e-003	8.1100e-003		81.2269	81.2269	6.1100e-003		81.3797
Worker	0.0527	0.0381	0.4087	1.0300e-003	0.1006	8.0000e-004	0.1014	0.0267	7.4000e-004	0.0274		102.6611	102.6611	3.5000e-003		102.7487
Total	**0.0661**	**0.4023**	**0.5092**	**1.7900e-003**	**0.1198**	**3.5000e-003**	**0.1233**	**0.0322**	**3.3200e-003**	**0.0355**		**183.8881**	**183.8881**	**9.6100e-003**		**184.1285**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6440	39.6763	19.1447	0.0430		1.8165	1.8165		1.6972	1.6972		4,187.5330	4,187.5330	1.1363		4,215.9399
Total	**3.6440**	**39.6763**	**19.1447**	**0.0430**		**1.8165**	**1.8165**		**1.6972**	**1.6972**		**4,187.5330**	**4,187.5330**	**1.1363**		**4,215.9399**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0121	0.3435	0.0924	7.6000e-004	0.0192	2.3100e-003	0.0215	5.5300e-003	2.2100e-003	7.7400e-003		80.4949	80.4949	5.8900e-003		80.6422
Worker	0.0480	0.0336	0.3649	1.0000e-003	0.1006	7.8000e-004	0.1014	0.0267	7.2000e-004	0.0274		99.4190	99.4190	3.1100e-003		99.4967
Total	**0.0601**	**0.3771**	**0.4573**	**1.7600e-003**	**0.1198**	**3.0900e-003**	**0.1229**	**0.0322**	**2.9300e-003**	**0.0351**		**179.9139**	**179.9139**	**9.0000e-003**		**180.1389**

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	3.6440	39.6763	19.1447	0.0430		1.8165	1.8165		1.6972	1.6972	0.0000	4,187.5330	4,187.5330	1.1363		4,215.9399
Total	**3.6440**	**39.6763**	**19.1447**	**0.0430**		**1.8165**	**1.8165**		**1.6972**	**1.6972**	**0.0000**	**4,187.5330**	**4,187.5330**	**1.1363**		**4,215.9399**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0121	0.3435	0.0924	7.6000e-004	0.0192	2.3100e-003	0.0215	5.5300e-003	2.2100e-003	7.7400e-003		80.4949	80.4949	5.8900e-003		80.6422
Worker	0.0480	0.0336	0.3649	1.0000e-003	0.1006	7.8000e-004	0.1014	0.0267	7.2000e-004	0.0274		99.4190	99.4190	3.1100e-003		99.4967
Total	**0.0601**	**0.3771**	**0.4573**	**1.7600e-003**	**0.1198**	**3.0900e-003**	**0.1229**	**0.0322**	**2.9300e-003**	**0.0351**		**179.9139**	**179.9139**	**9.0000e-003**		**180.1389**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8048	18.3178	17.5842	0.0273		1.0094	1.0094		0.9310	0.9310		2,665.5770	2,665.5770	0.8219		2,686.1241
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.8048**	**18.3178**	**17.5842**	**0.0273**		**1.0094**	**1.0094**		**0.9310**	**0.9310**		**2,665.5770**	**2,665.5770**	**0.8219**		**2,686.1241**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1226	0.0859	0.9324	2.5500e-003	0.2571	2.0000e-003	0.2591	0.0682	1.8400e-003	0.0700		254.0708	254.0708	7.9400e-003		254.2693
Total	**0.1226**	**0.0859**	**0.9324**	**2.5500e-003**	**0.2571**	**2.0000e-003**	**0.2591**	**0.0682**	**1.8400e-003**	**0.0700**		**254.0708**	**254.0708**	**7.9400e-003**		**254.2693**

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	1.8048	18.3178	17.5842	0.0273		1.0094	1.0094		0.9310	0.9310	0.0000	2,665.5770	2,665.5770	0.8219		2,686.1241
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.8048**	**18.3178**	**17.5842**	**0.0273**		**1.0094**	**1.0094**		**0.9310**	**0.9310**	**0.0000**	**2,665.5770**	**2,665.5770**	**0.8219**		**2,686.1241**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1226	0.0859	0.9324	2.5500e-003	0.2571	2.0000e-003	0.2591	0.0682	1.8400e-003	0.0700		254.0708	254.0708	7.9400e-003		254.2693
Total	**0.1226**	**0.0859**	**0.9324**	**2.5500e-003**	**0.2571**	**2.0000e-003**	**0.2591**	**0.0682**	**1.8400e-003**	**0.0700**		**254.0708**	**254.0708**	**7.9400e-003**		**254.2693**

3.7 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6431					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717		375.2641	375.2641	0.0317		376.0565
Total	**15.9984**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**		**375.2641**	**375.2641**	**0.0317**		**376.0565**

3.7 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0107	7.4700e-003	0.0811	2.2000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		22.0931	22.0931	6.9000e-004		22.1104
Total	**0.0107**	**7.4700e-003**	**0.0811**	**2.2000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0900e-003**		**22.0931**	**22.0931**	**6.9000e-004**		**22.1104**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6431					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717	0.0000	375.2641	375.2641	0.0317		376.0565
Total	**15.9984**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**	**0.0000**	**375.2641**	**375.2641**	**0.0317**		**376.0565**

3.7 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0107	7.4700e-003	0.0811	2.2000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		22.0931	22.0931	6.9000e-004		22.1104
Total	**0.0107**	**7.4700e-003**	**0.0811**	**2.2000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0900e-003**		**22.0931**	**22.0931**	**6.9000e-004**		**22.1104**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5234	2.8082	6.9164	0.0224	1.8002	0.0265	1.8267	0.4817	0.0249	0.5067		2,277.1708	2,277.1708	0.1245		2,280.2824
Unmitigated	0.5234	2.8082	6.9164	0.0224	1.8002	0.0265	1.8267	0.4817	0.0249	0.5067		2,277.1708	2,277.1708	0.1245		2,280.2824

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	238.00	247.75	215.50	807,058	807,058
Total	238.00	247.75	215.50	807,058	807,058

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064
NaturalGas Unmitigated	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	1881.82	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064
Total		**0.0203**	**0.1734**	**0.0738**	**1.1100e-003**		**0.0140**	**0.0140**		**0.0140**	**0.0140**		**221.3907**	**221.3907**	**4.2400e-003**	**4.0600e-003**	**222.7064**

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					
Single Family Housing	1.88182	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064
Total		**0.0203**	**0.1734**	**0.0738**	**1.1100e-003**		**0.0140**	**0.0140**		**0.0140**	**0.0140**		**221.3907**	**221.3907**	**4.2400e-003**	**4.0600e-003**	**222.7064**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.5825	0.5427	14.7865	0.0325		1.9211	1.9211		1.9211	1.9211	234.1730	453.7138	687.8868	0.7020	0.0159	710.1730
Unmitigated	7.5825	0.5427	14.7865	0.0325		1.9211	1.9211		1.9211	1.9211	234.1730	453.7138	687.8868	0.7020	0.0159	710.1730

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0771					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8910					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	6.5509	0.5187	12.7138	0.0324		1.9097	1.9097		1.9097	1.9097	234.1730	450.0000	684.1730	0.6984	0.0159	706.3681
Landscaping	0.0635	0.0240	2.0728	1.1000e-004		0.0114	0.0114		0.0114	0.0114		3.7138	3.7138	3.6500e-003		3.8049
Total	**7.5825**	**0.5427**	**14.7866**	**0.0325**		**1.9211**	**1.9211**		**1.9211**	**1.9211**	**234.1730**	**453.7138**	**687.8868**	**0.7020**	**0.0159**	**710.1730**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0771					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8910					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	6.5509	0.5187	12.7138	0.0324		1.9097	1.9097		1.9097	1.9097	234.1730	450.0000	684.1730	0.6984	0.0159	706.3681
Landscaping	0.0635	0.0240	2.0728	1.1000e-004		0.0114	0.0114		0.0114	0.0114		3.7138	3.7138	3.6500e-003		3.8049
Total	**7.5825**	**0.5427**	**14.7866**	**0.0325**		**1.9211**	**1.9211**		**1.9211**	**1.9211**	**234.1730**	**453.7138**	**687.8868**	**0.7020**	**0.0159**	**710.1730**

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

E. Walnut Street Residential (Mitigated)

South Coast AQMD Air District, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	25.00	Dwelling Unit	3.86	45,000.00	72

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot acreage from Tentative Tract Map. Average home size conservatively based on the largest floor plan of 1,800 SF.

Construction Phase - Construction schedule adjusted to reflect information provided by Client and project Opening Year.

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

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes. Hours are based on an 8-hour workday.

Off-road Equipment -

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

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

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

Trips and VMT -

Demolition -

Grading -

Construction Off-road Equipment Mitigation - Increase watering to 4 times per day.

E. Walnut Street Residential (Mitigated) - South Coast AQMD Air District, Summer

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	74
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	74
tblConstructionPhase	NumDays	8.00	21.00
tblGrading	MaterialImported	0.00	12,000.00
tblLandUse	LotAcreage	8.12	3.86
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	8.6307	113.5993	42.6472	0.1474	20.3885	4.0600	23.5088	10.2131	3.7685	13.0838	0.0000	15,160.6972	15,160.6972	2.9578	0.0000	15,234.6426
2019	16.0082	40.0503	19.6321	0.0449	0.2571	1.8195	1.9393	0.0682	1.7001	1.7323	0.0000	4,376.6879	4,376.6879	1.1451	0.0000	4,405.3150
Maximum	**16.0082**	**113.5993**	**42.6472**	**0.1474**	**20.3885**	**4.0600**	**23.5088**	**10.2131**	**3.7685**	**13.0838**	**0.0000**	**15,160.6972**	**15,160.6972**	**2.9578**	**0.0000**	**15,234.6426**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2018	8.6307	113.5993	42.6472	0.1474	5.4499	4.0600	8.5702	2.6949	3.7685	5.5656	0.0000	15,160.6972	15,160.6972	2.9578	0.0000	15,234.6426
2019	16.0082	40.0503	19.6321	0.0449	0.2571	1.8195	1.9393	0.0682	1.7001	1.7323	0.0000	4,376.6879	4,376.6879	1.1451	0.0000	4,405.3150
Maximum	**16.0082**	**113.5993**	**42.6472**	**0.1474**	**5.4499**	**4.0600**	**8.5702**	**2.6949**	**3.7685**	**5.5656**	**0.0000**	**15,160.6972**	**15,160.6972**	**2.9578**	**0.0000**	**15,234.6426**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**72.36**	**0.00**	**58.70**	**73.13**	**0.00**	**50.74**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	7.5825	0.5427	14.7865	0.0325		1.9211	1.9211		1.9211	1.9211	234.1730	453.7138	687.8868	0.7020	0.0159	710.1730
Energy	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064
Mobile	0.5479	2.7388	7.3786	0.0237	1.8002	0.0263	1.8265	0.4817	0.0248	0.5065		2,405.8556	2,405.8556	0.1250		2,408.9816
Total	**8.1507**	**3.4549**	**22.2389**	**0.0574**	**1.8002**	**1.9614**	**3.7616**	**0.4817**	**1.9599**	**2.4416**	**234.1730**	**3,080.9602**	**3,315.1331**	**0.8313**	**0.0200**	**3,341.8610**

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	7.5825	0.5427	14.7865	0.0325		1.9211	1.9211		1.9211	1.9211	234.1730	453.7138	687.8868	0.7020	0.0159	710.1730
Energy	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064
Mobile	0.5479	2.7388	7.3786	0.0237	1.8002	0.0263	1.8265	0.4817	0.0248	0.5065		2,405.8556	2,405.8556	0.1250		2,408.9816
Total	**8.1507**	**3.4549**	**22.2389**	**0.0574**	**1.8002**	**1.9614**	**3.7616**	**0.4817**	**1.9599**	**2.4416**	**234.1730**	**3,080.9602**	**3,315.1331**	**0.8313**	**0.0200**	**3,341.8610**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	2/1/2018	2/28/2018	5	20	
2	Site Preparation	Site Preparation	3/1/2018	3/7/2018	5	5	
3	Grading	Grading	3/8/2018	4/5/2018	5	21	
4	Building Construction	Building Construction	3/20/2018	2/4/2019	5	230	
5	Paving	Paving	2/5/2019	2/28/2019	5	18	
6	Architectural Coating	Architectural Coating	3/1/2019	3/26/2019	5	18	

Acres of Grading (Site Preparation Phase): 10

Acres of Grading (Grading Phase): 42

Acres of Paving: 0

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

OffRoad Equipment

E. Walnut Street Residential (Mitigated) - South Coast AQMD Air District, Summer

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	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Crawler Tractors	4	8.00	212	0.43
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Crawler Tractors	3	8.00	212	0.43
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Crawler Tractors	3	8.00	212	0.43
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	8.00	9	0.56
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	8.00	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	11.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	1,500.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	9.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.1182	0.0000	0.1182	0.0179	0.0000	0.0179			0.0000			0.0000
Off-Road	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048		3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**3.7190**	**38.3225**	**22.3040**	**0.0388**	**0.1182**	**1.9386**	**2.0568**	**0.0179**	**1.8048**	**1.8227**		**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.7700e-003	0.1693	0.0314	4.4000e-004	9.6100e-003	6.5000e-004	0.0103	2.6300e-003	6.2000e-004	3.2600e-003		47.1232	47.1232	3.2200e-003		47.2038
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	0.0808	0.0580	0.7526	1.8400e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		182.9028	182.9028	6.2400e-003		183.0587
Total	**0.0856**	**0.2273**	**0.7840**	**2.2800e-003**	**0.1773**	**1.9900e-003**	**0.1793**	**0.0471**	**1.8500e-003**	**0.0490**		**230.0260**	**230.0260**	**9.4600e-003**		**230.2625**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0307	0.0000	0.0307	4.6500e-003	0.0000	4.6500e-003			0.0000			0.0000
Off-Road	3.7190	38.3225	22.3040	0.0388		1.9386	1.9386		1.8048	1.8048	0.0000	3,871.7665	3,871.7665	1.0667		3,898.4344
Total	**3.7190**	**38.3225**	**22.3040**	**0.0388**	**0.0307**	**1.9386**	**1.9693**	**4.6500e-003**	**1.8048**	**1.8095**	**0.0000**	**3,871.7665**	**3,871.7665**	**1.0667**		**3,898.4344**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	4.7700e-003	0.1693	0.0314	4.4000e-004	9.6100e-003	6.5000e-004	0.0103	2.6300e-003	6.2000e-004	3.2600e-003		47.1232	47.1232	3.2200e-003		47.2038
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	0.0808	0.0580	0.7526	1.8400e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		182.9028	182.9028	6.2400e-003		183.0587
Total	**0.0856**	**0.2273**	**0.7840**	**2.2800e-003**	**0.1773**	**1.9900e-003**	**0.1793**	**0.0471**	**1.8500e-003**	**0.0490**		**230.0260**	**230.0260**	**9.4600e-003**		**230.2625**

3.3 Site Preparation - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					20.1873	0.0000	20.1873	10.1597	0.0000	10.1597			0.0000			0.0000
Off-Road	6.0597	71.6980	23.7636	0.0570		3.1187	3.1187		2.8692	2.8692		5,742.1116	5,742.1116	1.7876		5,786.8015
Total	**6.0597**	**71.6980**	**23.7636**	**0.0570**	**20.1873**	**3.1187**	**23.3060**	**10.1597**	**2.8692**	**13.0289**		**5,742.1116**	**5,742.1116**	**1.7876**		**5,786.8015**

3.3 Site Preparation - 2018

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	0.0970	0.0695	0.9032	2.2100e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		219.4833	219.4833	7.4800e-003		219.6704
Total	**0.0970**	**0.0695**	**0.9032**	**2.2100e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**219.4833**	**219.4833**	**7.4800e-003**		**219.6704**

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					5.2487	0.0000	5.2487	2.6415	0.0000	2.6415			0.0000			0.0000
Off-Road	6.0597	71.6980	23.7636	0.0570		3.1187	3.1187		2.8692	2.8692	0.0000	5,742.1116	5,742.1116	1.7876		5,786.8015
Total	**6.0597**	**71.6980**	**23.7636**	**0.0570**	**5.2487**	**3.1187**	**8.3674**	**2.6415**	**2.8692**	**5.5107**	**0.0000**	**5,742.1116**	**5,742.1116**	**1.7876**		**5,786.8015**

3.3 Site Preparation - 2018

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	0.0970	0.0695	0.9032	2.2100e-003	0.2012	1.6000e-003	0.2028	0.0534	1.4800e-003	0.0548		219.4833	219.4833	7.4800e-003		219.6704
Total	**0.0970**	**0.0695**	**0.9032**	**2.2100e-003**	**0.2012**	**1.6000e-003**	**0.2028**	**0.0534**	**1.4800e-003**	**0.0548**		**219.4833**	**219.4833**	**7.4800e-003**		**219.6704**

3.4 Grading - 2018

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					8.2077	0.0000	8.2077	3.5490	0.0000	3.5490			0.0000			0.0000
Off-Road	3.8960	48.2970	17.5424	0.0439		1.9577	1.9577		1.8011	1.8011		4,420.8874	4,420.8874	1.3763		4,455.2944
Total	**3.8960**	**48.2970**	**17.5424**	**0.0439**	**8.2077**	**1.9577**	**10.1654**	**3.5490**	**1.8011**	**5.3501**		**4,420.8874**	**4,420.8874**	**1.3763**		**4,455.2944**

3.4 Grading - 2018

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	0.6193	21.9929	4.0726	0.0568	1.2482	0.0846	1.3328	0.3421	0.0809	0.4230		6,119.9014	6,119.9014	0.4186		6,130.3655
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	0.0808	0.0580	0.7526	1.8400e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		182.9028	182.9028	6.2400e-003		183.0587
Total	**0.7001**	**22.0508**	**4.8253**	**0.0586**	**1.4159**	**0.0859**	**1.5018**	**0.3866**	**0.0821**	**0.4687**		**6,302.8041**	**6,302.8041**	**0.4248**		**6,313.4241**

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					2.1340	0.0000	2.1340	0.9228	0.0000	0.9228			0.0000			0.0000
Off-Road	3.8960	48.2970	17.5424	0.0439		1.9577	1.9577		1.8011	1.8011	0.0000	4,420.8874	4,420.8874	1.3763		4,455.2944
Total	**3.8960**	**48.2970**	**17.5424**	**0.0439**	**2.1340**	**1.9577**	**4.0917**	**0.9228**	**1.8011**	**2.7238**	**0.0000**	**4,420.8874**	**4,420.8874**	**1.3763**		**4,455.2944**

3.4 Grading - 2018

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	0.6193	21.9929	4.0726	0.0568	1.2482	0.0846	1.3328	0.3421	0.0809	0.4230		6,119.9014	6,119.9014	0.4186		6,130.3655
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	0.0808	0.0580	0.7526	1.8400e-003	0.1677	1.3400e-003	0.1690	0.0445	1.2300e-003	0.0457		182.9028	182.9028	6.2400e-003		183.0587
Total	**0.7001**	**22.0508**	**4.8253**	**0.0586**	**1.4159**	**0.0859**	**1.5018**	**0.3866**	**0.0821**	**0.4687**		**6,302.8041**	**6,302.8041**	**0.4248**		**6,313.4241**

3.5 Building Construction - 2018

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	3.9734	42.8532	19.7374	0.0430		2.0130	2.0130		1.8820	1.8820		4,243.6666	4,243.6666	1.1473		4,272.3492
Total	**3.9734**	**42.8532**	**19.7374**	**0.0430**		**2.0130**	**2.0130**		**1.8820**	**1.8820**		**4,243.6666**	**4,243.6666**	**1.1473**		**4,272.3492**

3.5 Building Construction - 2018

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	0.0128	0.3636	0.0905	7.9000e-004	0.0192	2.6600e-003	0.0219	5.5300e-003	2.5400e-003	8.0700e-003		83.5974	83.5974	5.6900e-003		83.7397
Worker	0.0485	0.0348	0.4516	1.1000e-003	0.1006	8.0000e-004	0.1014	0.0267	7.4000e-004	0.0274		109.7417	109.7417	3.7400e-003		109.8352
Total	**0.0613**	**0.3983**	**0.5421**	**1.8900e-003**	**0.1198**	**3.4600e-003**	**0.1233**	**0.0322**	**3.2800e-003**	**0.0355**		**193.3391**	**193.3391**	**9.4300e-003**		**193.5749**

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	3.9734	42.8532	19.7374	0.0430		2.0130	2.0130		1.8820	1.8820	0.0000	4,243.6666	4,243.6666	1.1473		4,272.3492
Total	**3.9734**	**42.8532**	**19.7374**	**0.0430**		**2.0130**	**2.0130**		**1.8820**	**1.8820**	**0.0000**	**4,243.6666**	**4,243.6666**	**1.1473**		**4,272.3492**

3.5 Building Construction - 2018

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	0.0128	0.3636	0.0905	7.9000e-004	0.0192	2.6600e-003	0.0219	5.5300e-003	2.5400e-003	8.0700e-003		83.5974	83.5974	5.6900e-003		83.7397
Worker	0.0485	0.0348	0.4516	1.1000e-003	0.1006	8.0000e-004	0.1014	0.0267	7.4000e-004	0.0274		109.7417	109.7417	3.7400e-003		109.8352
Total	**0.0613**	**0.3983**	**0.5421**	**1.8900e-003**	**0.1198**	**3.4600e-003**	**0.1233**	**0.0322**	**3.2800e-003**	**0.0355**		**193.3391**	**193.3391**	**9.4300e-003**		**193.5749**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	3.6440	39.6763	19.1447	0.0430		1.8165	1.8165		1.6972	1.6972		4,187.5330	4,187.5330	1.1363		4,215.9399
Total	**3.6440**	**39.6763**	**19.1447**	**0.0430**		**1.8165**	**1.8165**		**1.6972**	**1.6972**		**4,187.5330**	**4,187.5330**	**1.1363**		**4,215.9399**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0116	0.3433	0.0830	7.8000e-004	0.0192	2.2700e-003	0.0215	5.5300e-003	2.1800e-003	7.7000e-003		82.8659	82.8659	5.4800e-003		83.0030
Worker	0.0441	0.0307	0.4044	1.0700e-003	0.1006	7.8000e-004	0.1014	0.0267	7.2000e-004	0.0274		106.2890	106.2890	3.3200e-003		106.3721
Total	**0.0557**	**0.3739**	**0.4874**	**1.8500e-003**	**0.1198**	**3.0500e-003**	**0.1229**	**0.0322**	**2.9000e-003**	**0.0351**		**189.1549**	**189.1549**	**8.8000e-003**		**189.3751**

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	3.6440	39.6763	19.1447	0.0430		1.8165	1.8165		1.6972	1.6972	0.0000	4,187.5330	4,187.5330	1.1363		4,215.9399
Total	**3.6440**	**39.6763**	**19.1447**	**0.0430**		**1.8165**	**1.8165**		**1.6972**	**1.6972**	**0.0000**	**4,187.5330**	**4,187.5330**	**1.1363**		**4,215.9399**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.0116	0.3433	0.0830	7.8000e-004	0.0192	2.2700e-003	0.0215	5.5300e-003	2.1800e-003	7.7000e-003		82.8659	82.8659	5.4800e-003		83.0030
Worker	0.0441	0.0307	0.4044	1.0700e-003	0.1006	7.8000e-004	0.1014	0.0267	7.2000e-004	0.0274		106.2890	106.2890	3.3200e-003		106.3721
Total	**0.0557**	**0.3739**	**0.4874**	**1.8500e-003**	**0.1198**	**3.0500e-003**	**0.1229**	**0.0322**	**2.9000e-003**	**0.0351**		**189.1549**	**189.1549**	**8.8000e-003**		**189.3751**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.8048	18.3178	17.5842	0.0273		1.0094	1.0094		0.9310	0.9310		2,665.5770	2,665.5770	0.8219		2,686.1241
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.8048**	**18.3178**	**17.5842**	**0.0273**		**1.0094**	**1.0094**		**0.9310**	**0.9310**		**2,665.5770**	**2,665.5770**	**0.8219**		**2,686.1241**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1126	0.0784	1.0335	2.7300e-003	0.2571	2.0000e-003	0.2591	0.0682	1.8400e-003	0.0700		271.6275	271.6275	8.5000e-003		271.8399
Total	**0.1126**	**0.0784**	**1.0335**	**2.7300e-003**	**0.2571**	**2.0000e-003**	**0.2591**	**0.0682**	**1.8400e-003**	**0.0700**		**271.6275**	**271.6275**	**8.5000e-003**		**271.8399**

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	1.8048	18.3178	17.5842	0.0273		1.0094	1.0094		0.9310	0.9310	0.0000	2,665.5770	2,665.5770	0.8219		2,686.1241
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.8048**	**18.3178**	**17.5842**	**0.0273**		**1.0094**	**1.0094**		**0.9310**	**0.9310**	**0.0000**	**2,665.5770**	**2,665.5770**	**0.8219**		**2,686.1241**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	0.1126	0.0784	1.0335	2.7300e-003	0.2571	2.0000e-003	0.2591	0.0682	1.8400e-003	0.0700		271.6275	271.6275	8.5000e-003		271.8399
Total	**0.1126**	**0.0784**	**1.0335**	**2.7300e-003**	**0.2571**	**2.0000e-003**	**0.2591**	**0.0682**	**1.8400e-003**	**0.0700**		**271.6275**	**271.6275**	**8.5000e-003**		**271.8399**

3.7 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6431					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717		375.2641	375.2641	0.0317		376.0565
Total	**15.9984**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**		**375.2641**	**375.2641**	**0.0317**		**376.0565**

3.7 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	9.7900e-003	6.8200e-003	0.0899	2.4000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		23.6198	23.6198	7.4000e-004		23.6383
Total	**9.7900e-003**	**6.8200e-003**	**0.0899**	**2.4000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0900e-003**		**23.6198**	**23.6198**	**7.4000e-004**		**23.6383**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	15.6431					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.3553	2.4472	2.4551	3.9600e-003		0.1717	0.1717		0.1717	0.1717	0.0000	375.2641	375.2641	0.0317		376.0565
Total	**15.9984**	**2.4472**	**2.4551**	**3.9600e-003**		**0.1717**	**0.1717**		**0.1717**	**0.1717**	**0.0000**	**375.2641**	**375.2641**	**0.0317**		**376.0565**

3.7 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	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	9.7900e-003	6.8200e-003	0.0899	2.4000e-004	0.0224	1.7000e-004	0.0225	5.9300e-003	1.6000e-004	6.0900e-003		23.6198	23.6198	7.4000e-004		23.6383
Total	**9.7900e-003**	**6.8200e-003**	**0.0899**	**2.4000e-004**	**0.0224**	**1.7000e-004**	**0.0225**	**5.9300e-003**	**1.6000e-004**	**6.0900e-003**		**23.6198**	**23.6198**	**7.4000e-004**		**23.6383**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.5479	2.7388	7.3786	0.0237	1.8002	0.0263	1.8265	0.4817	0.0248	0.5065		2,405.8556	2,405.8556	0.1250		2,408.9816
Unmitigated	0.5479	2.7388	7.3786	0.0237	1.8002	0.0263	1.8265	0.4817	0.0248	0.5065		2,405.8556	2,405.8556	0.1250		2,408.9816

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	238.00	247.75	215.50	807,058	807,058
Total	238.00	247.75	215.50	807,058	807,058

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064
NaturalGas Unmitigated	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Single Family Housing	1881.82	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064
Total		**0.0203**	**0.1734**	**0.0738**	**1.1100e-003**		**0.0140**	**0.0140**		**0.0140**	**0.0140**		**221.3907**	**221.3907**	**4.2400e-003**	**4.0600e-003**	**222.7064**

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					
Single Family Housing	1.88182	0.0203	0.1734	0.0738	1.1100e-003		0.0140	0.0140		0.0140	0.0140		221.3907	221.3907	4.2400e-003	4.0600e-003	222.7064
Total		**0.0203**	**0.1734**	**0.0738**	**1.1100e-003**		**0.0140**	**0.0140**		**0.0140**	**0.0140**		**221.3907**	**221.3907**	**4.2400e-003**	**4.0600e-003**	**222.7064**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	7.5825	0.5427	14.7865	0.0325		1.9211	1.9211		1.9211	1.9211	234.1730	453.7138	687.8868	0.7020	0.0159	710.1730
Unmitigated	7.5825	0.5427	14.7865	0.0325		1.9211	1.9211		1.9211	1.9211	234.1730	453.7138	687.8868	0.7020	0.0159	710.1730

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0771					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8910					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	6.5509	0.5187	12.7138	0.0324		1.9097	1.9097		1.9097	1.9097	234.1730	450.0000	684.1730	0.6984	0.0159	706.3681
Landscaping	0.0635	0.0240	2.0728	1.1000e-004		0.0114	0.0114		0.0114	0.0114		3.7138	3.7138	3.6500e-003		3.8049
Total	**7.5825**	**0.5427**	**14.7866**	**0.0325**		**1.9211**	**1.9211**		**1.9211**	**1.9211**	**234.1730**	**453.7138**	**687.8868**	**0.7020**	**0.0159**	**710.1730**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.0771					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	0.8910					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	6.5509	0.5187	12.7138	0.0324		1.9097	1.9097		1.9097	1.9097	234.1730	450.0000	684.1730	0.6984	0.0159	706.3681
Landscaping	0.0635	0.0240	2.0728	1.1000e-004		0.0114	0.0114		0.0114	0.0114		3.7138	3.7138	3.6500e-003		3.8049
Total	**7.5825**	**0.5427**	**14.7866**	**0.0325**		**1.9211**	**1.9211**		**1.9211**	**1.9211**	**234.1730**	**453.7138**	**687.8868**	**0.7020**	**0.0159**	**710.1730**

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

LSA

BERKELEY
CARLSBAD
FRESNO
IRVINE
LOS ANGELES
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROSEVILLE
SAN LUIS OBISPO

December 4, 2017

Ms. Alexa Washburn, LEED AP, Vice President of Planning
National Community Renaissance
9421 Haven Avenue
Rancho Cucamonga, California 91730

Subject: Results of Biological Resources Assessment Survey for the Industry Workforce Housing Community Project (LSA Project No. NCO1703)

Dear Ms. Washburn:

LSA is pleased to present this letter report summarizing the results of a general biological resources assessment for the proposed Industry Workforce Housing Community Project located on approximately 3.9 acres associated with Assessor's Parcel Number [APN] 8762-002-901 at 20249 E. Walnut Drive in the City of Industry, Los Angeles County, California (attached Figure 1). More specifically, the site is within the La Puente Land Grant in projected Section 18, Township 2 South, Range 9 West, as shown on the U.S. Geological Survey (USGS) *Yorba Linda, California* 7.5-minute quadrangle. The project proposes the development of 25 detached single-family affordable homes, and approximately 4,500 square feet of community recreational space (attached Figure 2).

METHODS

A literature review was conducted to determine the existence or potential occurrence of special-status plant and animal species on or in the vicinity of the project site. Database records for the *Yorba Linda, La Habra, Baldwin Park*, and *San Dimas, California* USGS 7.5-minute quadrangles were searched on November 2, 2017, using the California Department of Fish and Wildlife's Natural Diversity Data Base application *Rarefind 5* (CDFW CNDDB, v 2017) and the California Native Plant Society's *Electronic Inventory of Rare and Endangered Vascular Plants of California* (CNPS online edition, v8-03, http://www.cnps.org/inventory). Aerial photographs (Google 2017) were reviewed and U.S. Fish and Wildlife Service (USFWS) listed species and designated critical habitat information was used to determine the locations of any listed species sightings and critical habitat boundaries on and in the vicinity of the project site.

The general biological resources survey was conducted by LSA Biologist Denise Woodard on November 5, 2017, between 11:00 a.m. and 12:30 p.m. Weather conditions were mild and partly cloudy with approximately 60 percent cloud cover during the site visit, with a recorded temperature of 67° Fahrenheit. Winds were mostly calm at approximately 1 to 3 miles per hour.

Observations regarding general site conditions, vegetation, potential jurisdictional waters, and suitability of habitat for special-status plants, wildlife, and other biological resources present were recorded. Soil types were determined using the WebSoil Survey (USDA/NRCS, http://websoilsurvey.sc.egov.usda.gov). All plant and animal species observed during the field survey were noted and are listed in Attachment A.

RESULTS AND DISCUSSION

Elevation, Topography, and Soils

The proposed project site is partially developed with a single-family residence. However, to accommodate this development, all existing buildings and structures will be removed. The remainder of the project site is undeveloped and highly disturbed due to current and past land use practices. Review of historical aerial photographs (Google Earth) shows the undeveloped portion of the project site is routinely subjected to weed abatement activities. Historically, the site supported agriculture activities and multiple outbuildings as recently as December 2005. The project site is bordered by single-family residences to the south and east, commercial buildings to the west, and California State Route 60 to the north. The site elevation is approximately 509 to 529 feet above mean sea level (amsl). The site is generally flat and level; however, the topography of the project area slopes slightly to the west. A dirt stockpile was observed on site along the northern site boundary. Mapped soils on the site are Urban land-Sorrento-Arbolado complex, 2 to 9 percent slopes (WebSoil Survey). Soils observed on the site were sandy loam in nature and highly disturbed and compacted, as expected for a site that historically was used for agriculture purposes.

Vegetation and Land Cover

The majority of the project site is highly disturbed due to recent weed abatement activities. The site is sparsely vegetated with ruderal species. The dominant plant species observed on site include telegraph weed (*Heterotheca grandiflora*), dove weed (*Croton setigerus*), crab grass (*Digitaria sanguinalis*), and Russian thistle (*Salsola tragus*). A single Mexican elderberry (*Sambucus mexicana*) is located near the southeast corner of the project site. Attached Figure 5 depicts site conditions. Attachment A includes a complete list of plant species observed.

Wildlife

Wildlife species observed during the field survey include Say's phoebe (*Sayornis saya*), yellow-rumped warbler (*Setophaga coronata*), and Botta's pocket gopher (*Thomomys bottae*).

Potential Jurisdictional Waters and Streambeds

The U.S. Army Corps of Engineers (USACE), under Section 404 of the Federal Clean Water Act (CWA), regulates discharges of dredged or fill material into "waters of the United States." These waters include wetlands and non-wetland bodies of water that meet specific criteria, including a connection to interstate commerce. This connection may be direct (through a tributary system linking a stream channel with traditional navigable waters used in interstate or foreign commerce) or it may be indirect (through a connection identified in USACE regulations). The USACE typically regulates as non-wetland waters of the U.S. any body of water displaying an "ordinary high water mark" (OHWM). In order to be considered a "jurisdictional wetland" under Section 404, an area must possess hydrophytic vegetation, hydric soils, and wetland hydrology. The CDFW, under Sections 1600 et seq. of the California Fish and Game Code, regulates alterations to lakes, rivers, and streams. A stream is defined by the presence of a channel bed and banks and at least an occasional flow of water. The Regional Water Quality Control Board (RWQCB) is responsible for the administration of Section 401 of the CWA, through water quality certification of any activity that

may result in a discharge to jurisdictional waters of the U.S. The RWQCB may also regulate discharges to "waters of the State," including wetlands, under the California Porter-Cologne Water Quality Control Act.

No drainage features, ponded areas, wetlands, or riparian habitat subject to jurisdiction of the CDFW, USACE, and/or RWQCB were found within the project site. A drainage feature occurs adjacent to the southwesterly portion of the project site, but will not be affected by the proposed project. Therefore, the project will have no effects to jurisdictional waters regulated by the CDFW, USACE and RWQCB.

Threatened and Endangered Species

Under provisions of Section 7(a)(2) of the Federal Endangered Species Act (FESA), a federal agency that permits, licenses, funds, or otherwise authorizes a project activity must consult with the USFWS to ensure that its actions would not jeopardize the continued existence of any listed threatened or endangered species or destroy or adversely modify critical habitat. The USFWS designates as threatened or endangered, species that are at risk of extinction and may also adopt recovery plans that identify specific areas that are essential to the conservation of a listed species. Critical habitat areas that may require special management considerations or protections can also be designated.

The California Endangered Species Act (CESA) is administered by the CDFW and prohibits the "Take" of plant and animal species identified as either threatened or endangered in the State of California by the Fish and Game Commission (Fish and Game Code Section 2050 to 2097). "Take" is defined as hunt, pursue, catch, capture, or kill. Sections 2091 and 2081 of the CESA allow the CDFW to authorize exceptions to the prohibition of "Take" of State-listed threatened or endangered plant and animal species for purposes such as public and private development. The CDFW requires formal consultation to ensure that a proposed project's actions would not jeopardize the continued existence of any listed species or destroy or adversely affect listed species' habitats.

One federally listed species, Least Bell's vireo (*Vireo bellii pusillus*), has been reported within a 2-mile radius of the project site. No federally designated critical habitat is present on or in the immediate vicinity of the project site. Potential project effects to the least Bell's vireo are discussed below.

Least Bell's Vireo

The least Bell's vireo (LBV) is a State and federally listed endangered species of songbird associated with riparian vegetation in southwestern California. The project site consists of developed areas and nonnative grassland vegetation, and does not contain riparian vegetation suitable for least Bell's vireo. The drainage feature adjacent to the southwesterly project boundary contains a small narrow band of riparian vegetation that is considered marginally suitable for the least Bell's vireo. Because the habitat quality within the drainage feature is marginal and will not be affected by the project, the proposed project is not anticipated to affect any other threatened or endangered species, or their critical habitat.

Other Special-Interest Species

The CDFW, USFWS, local agencies, and special-interest groups, such as the CNPS, maintain lists of species that they consider to be in need of monitoring. Legal protection for these special-interest species varies widely. Special-interest species known to occur in the region are listed below.

- Crotch bumble bee (*Bombus crotchii*; California Special Animal[1] [SA]);
- Yellow warbler (*Setophaga petechia*; California Species of Special Concern[2] [CSC]);

These species have a limited population distribution in southern California and development is further reducing their ranges and numbers. The Crotch bumble bee has no official State or federal protection status but requires consideration under the California Environmental Quality Act (CEQA). When nesting, the yellow warbler is protected by California Fish and Game Code Sections 3503 and 3503.5, and by the Migratory Bird Treaty Act (MBTA) of 1918 (16 USC 703–711). There is a low likelihood the Crotch bumble bee occurs within the project site due to the developed and disturbed habitat conditions.. Suitable riparian nesting habitat is absent from the project site for the yellow warbler. However, the drainage feature adjacent to the southwesterly project boundary contains a small narrow band of riparian vegetation that is considered marginally suitable for the yellow warbler. This drainage feature will not be affected by the proposed project. Therefore, the project will have no adverse effect to the Crotch bumble bee or yellow warbler.

No other special-interest species are expected to occur within the project site.

Migratory Bird Treaty Act

Nesting bird species are protected by California Fish and Game Code Sections 3503 and 3503.5, and by the MBTA, which make it unlawful to take, possess, or needlessly destroy the nest or eggs of any migratory bird or bird of prey.

The Mexican elderberry tree and ornamental trees and shrubs on the project site may provide nesting habitat for birds observed using the site as well as other birds known from the region. It is recommended that vegetation-clearing activities be scheduled outside of the avian nesting season (February 1 through August 31). If construction activities are planned during the avian nesting season, a pre-construction nesting bird survey should be conducted within three days prior to commencement to avoid impacts to birds protected under the California Fish and Game Code and MBTA.

Burrowing Owl

Burrowing owls (*Athene cunicularia*) are found in open, dry grasslands, agricultural and range lands, and desert habitats. They can also inhabit grass, forb, and shrub stages of pinyon and ponderosa pine habitats. They nest in abandoned burrows of ground squirrels or other animals, in pipes, under piles of rock or debris, and in other similar features.

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1 Refers to all the animal taxa tracked in the CNDDB, regardless of their legal or protection status.

2 Refers to species with vulnerable or seriously declining populations.

A habitat suitability assessment for burrowing owl was conducted during the site visit. The project site does not contain suitable habitat for the burrowing owl due to the absence of potential nesting sites as described above. No burrowing owls or burrowing owl sign (e.g., whitewash, pellets, scat, tracks, and/or feathers) were observed during the habitat assessment survey.

Focused burrowing owl surveys were not conducted for the proposed project due to the absence of suitable habitat for the burrowing owl on the proposed project site at this time. If on-site conditions change, a pre-construction survey is recommended within three days prior to beginning site grading to avoid and minimize potential adverse effects to burrowing owls by construction activities. If burrowing owls are found to be present, project-specific mitigation would be developed and authorized through consultation with the City of Industry and the CDFW.

Natural Communities of Interest

Examples of CNDDB designated special-status plant communities include riparian and coastal sage scrub habitats. The ruderal vegetation present on the project site is not a CDFW natural community of concern. Thus, the project will have no effects related to any natural communities of concern.

Adopted Habitat Conservation Plan

The project site is not within an area covered by an adopted Habitat Conservation Plan (HCP). Therefore, the proposed project will have no effects to an adopted HCP.

IMPACTS AND RECOMMENDATIONS

The majority of the project site is a highly disturbed and vegetated by ruderal vegetation. Impacts to this vegetation community are not considered significant.

Indirect impacts to surrounding areas as a result of the project may include, but are not limited to, increased dust, noise, lighting, traffic, and storm water runoff. Because of the small scale of the project, substantial indirect impacts are not anticipated. The City of Industry is subject to ongoing urbanization and consequent loss of habitat and open space. However, the project site is considered to be an in-fill project that is currently surrounded by existing development. Therefore, significant cumulative effects to biological resources as a result of the proposed project are not anticipated.

Based on the disturbed habitat conditions, the project is not anticipated to result in any effects to federally or State-listed as endangered or threatened species or to any non-listed special-status species. Although suitable habitat for the burrowing owl is considered absent at this time, a pre-construction burrowing owl survey may be required within three days prior to beginning site grading in the event that site conditions change (e.g., as a result of disking or mowing) to create more suitable habitat. If project activities are planned during the avian nesting season (approximately February 1 through August 31), nesting bird surveys would be required within three days prior to disturbance to ensure that birds protected under the MBTA and California Fish and Game Code are not disturbed by construction-related activities (e.g., noise and increased human presence).

Sincerely,

LSA ASSOCIATES, INC.

Claudia Bauer, MS
Senior Biologist

Attachments: Attachment A: Plants and Animals Species Observed On Site
Figure 1: Regional and Project Location
Figure 2: Conceptual Site Plan
Figure 3: Soils
Figure 4: Vegetation, Land Use, and Photograph Locations
Figure 5: Site Photographs

Attachment A: List of Plant and Wildlife Species Observed

Scientific Name	Common Name
MAGNOLIOPHYTA: MAGNOLIOPSIDA	**DICOT FLOWERING PLANTS**
Adoxaceae	**Moschatel family**
Sambucus mexicana	Mexican elderberry
Asteraceae	**Sunflower family**
Erigeron canadensis	Canada horseweed
Heterotheca grandiflora	Telegraph weed
Lactuca serriola(non-native species)	Prickly lettuce
Brassicaceae	**Mustard family**
Hirschfeldia incana (non-native species)	Shortpod mustard
Chenopodiaceae	**Saltbush family**
Salsola tragus (non-native species)	Russian thistle
Convolvulaceae	**Morning Glory family**
Convolvulus arvensis(non-native species)	Field bindweed
Euphorbiaceae	**Spurge family**
Croton setigerus	Dove weed
Solanaceae	**Nightshade family**
Datura wrightii	Jimsonweed
MAGNOLIOPHYTA: LILIOPSIDA	**MONOCOT FLOWERING PLANTS**
Poaceae	**Grass family**
Digitaria sanguinalis (non-native)	Crab grass
AVES	**BIRDS**
Tyrannidae	**Tyrant Flycatchers**
Sayornis saya	Say's phoebe
Parulidae	**New World Warblers**
Setophaga coronata	Yellow-rumped warbler
MAMMALIA	**MAMMALS**
Geomyidae	**Gophers**
Thomomys bottae	Botta's pocket gopher

LSA

FIGURE 1

0 1000 2000
FEET

SOURCE: Bing Aerial, 2015; ESRI Streetmap, 2013.

I:\NCO1703\Reports\Bio\fig1_RegLoc.mxd (12/1/2017)

Industry Workforce Housing Community Project
Biological Resources Assessment

Regional and Project Location

LSA

FIGURE 2

N

0 50 100
FEET

Source: GoogleEarth, 2016; IMG Construction Management, 2017

I:\NCO1703\Reports\Bio\fig2_SitePlan.mxd (12/4/2017)

Industry Workforce Housing Community Project
Biological Resources Assessment

Conceptual Site Plan

LSA

LEGEND

Project Boundary

Soils

1136: Urban land-Sorrento-Arbolado complex, 2 to 9 percent slopes

N

0 75 150
FEET

FIGURE 3

Industry Workforce Housing Community Project
Biological Resources Assessment

Source: GoogleEarth, 2016; Soil Data Mart, 2017.

Soils

I:\NCO1703\Reports\Bio\fig3_Soils.mxd (12/1/2017)

LSA

LEGEND

Project Boundary

Photo Location

Vegetation and Land Use

Mexican Elderberry

Residential/Developed

Ruderal

Soil Stockpile

N

0 75 150
FEET

Source: GoogleEarth, 2016

FIGURE 4

Industry Workforce Housing Community Project
Biological Resources Assessment

Vegetation, Land Use, and Photo Locations

I:\NCO1703\Reports\Bio\fig4_Veg_PhotoLoc.mxd (12/1/2017)

Photograph 1: *View facing west from east end of project site.*

Photograph 2: *View facing east along northern boundary of project site. Soil stockpile visible on right.*

Photograph 3: *View facing west along southern boundary of project site.*

Photograph 4: *View facing southwest at single family residence at center of project site.*

LSA

FIGURE 5

Industry Workforce Housing Community Project
Biological Resources Assessment

Site Photographs

I:\NCO1703\Reports\Bio\fig5_SitePhotos.cdr (12/01/2017)

CULTURAL RESOURCES ASSESSMENT

INDUSTRY WORKFORCE HOUSING COMMUNITY PROJECT

ASSESSOR'S PARCEL NUMBER 8762-002-901

CITY OF INDUSTRY

LOS ANGELES COUNTY, CALIFORNIA

LSA

December 2017

CULTURAL RESOURCES ASSESSMENT

INDUSTRY WORKFORCE HOUSING COMMUNITY PROJECT

ASSESSOR'S PARCEL NUMBER 8762-002-901

CITY OF INDUSTRY

LOS ANGELES COUNTY, CALIFORNIA

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LSA Project No. NCO1704

LSA

December 2017

MANAGEMENT SUMMARY

At the request of National Community Renaissance, LSA conducted a cultural resources assessment for a proposed residential project on 3.89 acres on Assessor's Parcel Number (APN) 8762-002-901 located within the City of Industry (City), Los Angeles County, California. To facilitate the project, which is known as the Industry Workforce Housing Community Project, all of the existing buildings and structures will be removed. In compliance with the California Environmental Quality Act (CEQA), the City as Lead Agency for the project required this study as part of the environmental review process.

The purpose of the study is to provide the City with the necessary information and analysis to determine whether the proposed project would cause substantial adverse changes to any historical/archaeological resources that may exist in or around the project area, as mandated by CEQA. In order to identify and evaluate such resources, LSA conducted a historical/archaeological resources records search, pursued historical background research, and carried out intensive-level field surveys. As a result of these efforts, one historic-period (50 years of age or older) residence (20137 East Walnut Drive South) was identified within the project area and evaluated as part of this study. However, it was determined that this built environment resource is not a "historical resource" as defined by CEQA. No archaeological resources were identified within the project area, which is both severely disturbed and partially obscured, and the sensitivity of the project for potential subsurface resources is negligible. Therefore, no further cultural resource investigations or monitoring are recommended. In the event any archaeological resources are identified during earthmoving activities, work in the area should be halted until the nature and significance of the find can be assessed by a qualified archaeologist.

In the event human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be prehistoric, the Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection within 48 hours of notification by the NAHC. The MLD may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

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A: RECORDS SEARCH BIBLIOGRAPHY
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INTRODUCTION

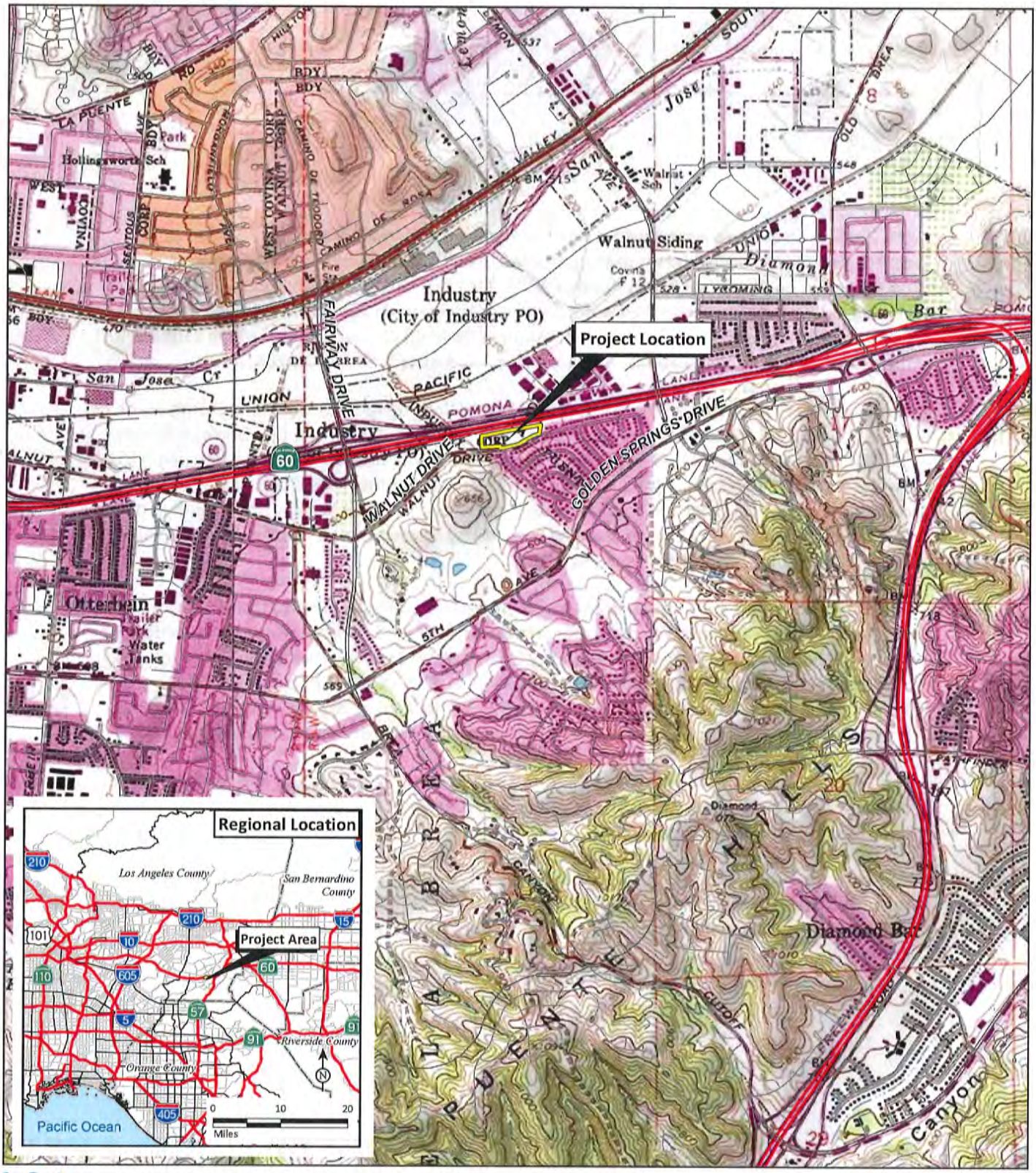
LSA is under contract to National Community Renaissance to conduct a cultural resources assessment for the development of the proposed Industry Workforce Housing Community Project on 3.89 acres on Assessor's Parcel Number (APN) 8762-002-901 located in the City of Industry (City), Los Angeles County, California. This assessment was completed pursuant to the California Environmental Quality Act (CEQA), Public Resources Code (PRC) Chapter 2.6, Section 21083.2, and the California Code of Regulations, Title 14, Chapter 3, Article 5, Section 15064.5.

The project area is located on the north side of East Walnut Drive South and immediately south of State Route 60 (SR-60) as shown on the *Yorba Linda, California* 7.5-minute U.S. Geologic Survey (USGS) topographic map dated 2015 within Township 2 South, Range 9 West, unsectioned (Figure 1). The Sri Guru Singh Sabha, Walnut temple is located west of the project site. Single-family residences are located east and south of the project site, across East Walnut Drive South in the City of Walnut. The site is currently occupied by one existing historic-period residence (20137 East Walnut Drive South) and vacant land (Figure 2).

The proposed project will include 25 detached single-family affordable homes, and approximately 4,500 square feet of community recreational space on 3.86 acres of land owned by the Industry Property and Housing Management Authority located. A lot line adjustment is required to consolidate 2.33 acres of APN: 8762-002-902 with APN: 8762-002-901 to create a 3.86 acre parcel. The Project is on one parcel of land; APN: 8762-002-901 located at 20249 E. Walnut Drive. The Project includes a Zone Change to rezone the property from Industrial (I) to Residential (R).

The two-story homes would range in size from 1,608 SF to 1,952 square feet in floor area. Three different plans are proposed consisting of three and four bedroom units with Traditional, Spanish, and English Cottage-style architecture.

Access to the homes would be provided by a new private street accessed from Walnut Drive. Each of the units would have a two-car garage. Access to the garages is provided via stub alleys. Eleven open parking spaces would be provided along the north property line, providing a buffer to State Route-60.



LSA

FIGURE 1

0 1000 2000
FEET

SOURCE: USGS 7.5' Quads: San Dimas, Yorba Linda, Baldwin Park & La Habra, 1981; ESRI Streetmap, 2013.

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Industry Workforce Housing Community Project
Cultural Resources Assessment

Regional and Project Location

LSA

LEGEND

Project Parcel

N

0 75 150
FEET

Source: GoogleEarth, 2016

I:\NCO1704\Reports\Cultural\fig2_Project.mxd (12/1/2017)

FIGURE 2

Industry Workforce Housing Community Project
Cultural Resources Assessment

Project Area

HISTORICAL OVERVIEW

PREHISTORY

The description of various prehistoric stages or chronologies identifying cultural evolution in the southern California area has been attempted numerous times, several of which chronologies are reviewed in Moratto (2004). No single description is universally accepted. The various chronologies are based primarily on material developments identified by researchers familiar with sites in a region, and variation exists essentially due to the differences in those items found at the sites. Small differences occur over time and space, which combine to form patterns that are variously interpreted.

Currently, two primary regional culture chronology syntheses are commonly referenced in the archaeological literature. The first, Wallace (1955), describes four cultural horizons or time periods: Horizon I – Early Man (9000–6500 BC), Horizon II – Milling Stone Assemblages (6500–2000 BC), Horizon III – Intermediate Cultures (2000 BC–AD 200), and Horizon IV – Late Prehistoric Cultures (AD 200–historic contact). This chronology was refined (Wallace 1978) using absolute chronological dates unavailable in 1955.

The second cultural chronology (Warren 1968) is based broadly on Southern California prehistoric cultures, and was also revised (Warren 1984; Warren and Crabtree 1986). Warren's chronology includes five periods in prehistory: Lake Mojave (7000–5000 BC), Pinto (4000–3000 BC), Gypsum (1000 BC–AD 1), Saratoga Springs (AD 500–1000), and Protohistoric (AD 1500–historic contact). Changes in settlement pattern and subsistence focus are viewed as cultural adaptations to a changing environment, which begins with gradual environmental warming in the late Pleistocene, continues with the desiccation of the desert lakes, followed by a brief return to pluvial conditions, and concludes with a general warming and drying trend, with periodic reversals that continue to the present (Warren 1986).

ETHNOGRAPHY

The Late Prehistoric Period ended in 1769, when Franciscan friars and Spanish soldiers began establishing mission outposts along the California coast. At that time, the project area was occupied by the Gabrielino Indians. The word Gabrielino refers to the Shoshonean (Takic) speaking Native Americans who lived throughout Los Angeles, western San Bernardino and Riverside, and Orange Counties, and who were historically affiliated with Mission San Gabriel Archangel. Some of these Shoshonean people also called themselves *Tong-va* (Johnson 1962; McCawley 1996).

What is known about the Gabrielino was recorded principally during the initial European expeditions through the Southern California area. Due to the rapid reduction in indigenous population, later expeditions did not encounter the same pristine native populations observed during earlier excursions.

The Gabrielino were hunters and gatherers who used both inland and coastal food resources. They caught and collected seasonally occurring food resources and evolved a semi-sedentary lifestyle, living in permanent and semi-permanent villages along inland watercourses and coastal estuaries.

These villages took advantage of the varied resources available at such locales. Seasonally, as foods became available, the Gabrielino moved to temporary gathering camps and collected plant foods such as acorns, buckwheat, chia, berries, or fruits. They also periodically established camps along the coast or at estuaries to gather shellfish or to hunt waterfowl (Hudson 1971; McCawley 1996).

The Gabrielino lived in small, semi-permanent villages that were the focus of family life. Patrilineally linked extended families lived within each village (Kroeber 1925; Johnson 1962; Bean and Smith 1978). These kin groups were affiliated in several village clans. Both the clans and the villages were apparently exogamous, as Mission records suggest that after her marriage, a woman resided at her husband's village.

Gabrielino villages were politically independent even when marriage ties existed. The village was administered by a headman who inherited his position from his father. Shamans guided religious and medical activities, and group hunting or fishing was supervised by individual male specialists.

An active and elaborate Gabrielino ritual system was present when the Spanish padres arrived to establish Mission San Gabriel. Rituals included individual rites of passage, village rites, and participation in the widespread *Chingichngish* cult. The cult of the culture hero, *Chingichngish*, was observed and recorded by Franciscan Friar Geronimo Boscana while he resided at Missions San Juan Capistrano and San Luis Rey (Harrington 1933, 1934; Boscana 1933; Hanna 1933).

HISTORY

Because the resource being evaluated dates to the post-World War II period, the early history of California, including the Spanish/Mission Period (1769 to 1821), Mexican/Rancho Period (1821 to 1848), and the early part of the American Period, is not particularly relevant. Therefore, this section focuses on the history and development of the City of Industry.

City of Industry

The United States officially obtained California from Mexico through the Treaty of Guadalupe Hidalgo on February 2, 1848, beginning the American Period (Cleland 1962). In 1850, California was accepted into the Union of the United States, primarily due to the population increase created by the Gold Rush of 1849. Initially, the State's population was not evenly distributed and the vast majority of individuals lived in the San Francisco Bay region and near the gold fields. However, Los Angeles began to grow as a mercantile center.

The Mexican land grants had created large pastoral estates in California and the demand for beef during the Gold Rush led to a cattle boom that lasted from 1849–1855. After California gained statehood in 1850, owners of many ranchos were required to establish the validity of their property titles following the 1851 creation of the U.S. Land Commission (Clay and Troesken 2005). Rancho La Puente, which included the project area and the future City of Industry, was filed with the Public Land Commission in autumn 1852 by the Temple and Workman families and the patent was confirmed in 1867 by President Andrew Johnson (Workman and Temple Family Homestead Museum 2017).

Beginning circa 1855, the demand for beef began to decline due to imports of sheep from New Mexico and cattle from the Mississippi and Missouri Valleys. When the beef market collapsed, many California ranchers, such as the Workmans, lost their ranchos through foreclosure (Workman and Temple Family Homestead Museum 2017). A series of disastrous floods in 1861 and 1862, followed by two years of extreme drought, which continued to some extent until 1876, altered ranching forever in the area (Jackson 1982).

In 1886, a rate war between the Santa Fe and Southern Pacific Railroads lowered transit fares and brought an influx of tourists, new settlers, and land speculators to southern California, creating real estate booms (and subsequent busts) throughout many developing cities and communities, including what would later become the City of Industry (Apostol 2008). In the rapidly growing cities in southern California, the 1890s brought economic decline following the real estate boom of the late 1880s, resulting in a slowdown in commercial development and residential growth.

The area did not experience complete revitalization until the turn of the century, when residential and commercial development and the establishment of infrastructure increased substantially in growing communities throughout the La Puente Valley, the area that presently includes the cities of Industry, La Puente, El Monte, Baldwin Park, and Walnut, as well as the greater San Gabriel Valley. Agriculture soon dominated the landscape of La Puente Valley as settlers planted fields of alfalfa and oats and groves of walnut, citrus, and avocados on subdivided lots purchased from land companies (Hernandez 2011). La Puente Valley would remain predominantly agrarian for the first half of the twentieth century. It was not until the end of World War II (WWII), that the demographic began to shift.

In the early post-war period, housing shortages became critical as veterans returned home seeking to start families. This housing demand led to a boom in the construction of single-family houses as populations continued to grow exponentially. Vast housing tracts and single-home infill quickly replaced the groves and grain fields as developers rushed to meet demand. This rapid development transformed much of La Puente Valley into a middle class bedroom community for the much larger City of Los Angeles.

In response to the meteoric rise of suburbanization and creation of a consumer class, the railroad companies began expanding their cargo transportation operations in the area (Hernandez 2011). This in turn increased the potential for significant growth and profitability within the commercial and industrial sectors. This made former agricultural land adjacent or close to the rail lines and expanding transportation corridors highly desirable. Anxious that this lucrative land would quickly be monopolized by residential development, powerful businessmen began to compete fiercely for possession of the land and zoning control (Hernandez 2011).

This dynamic spurred the creation of a new form of city: one that was incorporated to allow local control of the industries in the area by the owners of said industries. Hernandez (2011) explains:

> "Traditionally, a city's planning and development was the county's responsibility, but [cities like] Lakewood established a precedent in awarding project contracts to the private sector. In other words, we see the emergence of private subcontracting, or the privatization of government functions. Before proposing Lakewood's incorporation, the private sector was attempting to

> figure out a way to finance the new city because they did not have the authority to collect taxes. The answer to that inconvenience rested in the county granting the unincorporated city "services" such as maintenance, police, and sanitation by way of a contract (61). This results in the complement to the privatization of government projects by inverting the relationship, as the private sector could now contract public services." (Hernandez 2011:11).

In order to prevent surrounding cities from annexing industrial land for tax revenue, local corporate leaders and a small number of power brokers followed the founders of Lakewood's "privatized city" example and the City of Industry was incorporated on June 18, 1957 (Shyong and Vives 2015; City of Industry 2017).

Today, 92 percent of the City is zoned for industrial uses and 8 percent is zoned for commercial uses (City of Industry 2017). The City's residential population has vacillated between 777 in 2000, a meager 219 in 2010, and an estimated 440 in 2017 (United States Census 2000 and 2010; City of Industry 2017).

METHODS

RECORDS SEARCH

On November 1, 2017, LSA archaeologist Gini Austerman completed a cultural resources records search for the project area and a one-mile radius around it at the South Central Coastal Information Center (SCCIC) of the California Historical Resources Information System (CHRIS) located at the California University of California, Riverside. The SCCIC is the State-designated repository for records pertaining to cultural resources in Los Angeles County. The objectives of this research were (1) to establish the status and extent of previously recorded cultural resources sites, surveys and studies, (2) to note the likelihood of encountering cultural resources and their type(s) based on previously recorded resources within 1 mile of the project area, and (3) to uncover relevant historical contexts. Data sources consulted at the SCCIC include archaeological site records, historic USGS topographic maps, reports from previous studies, and the State Historic Resource Inventory (HRI) for Los Angeles County, which contains listings for the National Register of Historic Places (National Register), California Register of Historical Resources (California Register), California Historical Landmarks (CHL), and California Points of Historical Interest (CPHI).

ARCHIVAL RESEARCH

LSA conducted archival research in November 2017. Research methodology focused on the review of a variety of primary and secondary source materials relating to the history and development of the project area. Sources included, but were not limited to, online sources, published literature in local and regional history, historic aerial photographs, historic maps, and news articles. Based on archival research, historic context information relevant to the project area was developed.

Some of the repositories and individuals contacted for this project are listed below. All references are included at the end of this report.

- Los Angeles County Assessor.
- South Central Coastal Information Center.
- City of Industry Planning Department. Contacted via phone in November 2017 about the project area and request building permits. No building permits were available for 20137 East Walnut Drive South.
- Los Angeles County Building and Safety. Contacted via phone in November 2017 about the project area and request building permits. No building permits were available for 20137 East Walnut Drive South.
- Historical newspaper articles via Newspapers.com. No information about the residence was available.
- City directory information via Ancestry.com. No information about the residence was available.
- HistoricAerials.com.
- USGS maps.

ARCHITECTURAL FIELD SURVEY

On November 8, 2017, LSA architectural historian Elisa Bechtel conducted an intensive-level architectural survey of the historic-period building and features. During the survey, numerous photographs were taken of the exterior of the building, as well as other features, and detailed notations were made regarding the structural and architectural characteristics and current conditions of the building and its associated features. A brief reconnaissance survey of the immediate vicinity was also conducted.

ARCHAEOLOGICAL FIELD SURVEY

On November 8, 2017, LSA archaeologist Riordan Goodwin conducted an intensive pedestrian survey of the entire project area for prehistoric and historic cultural residues utilizing transects spaced approximately 10 meters apart. Special attention was given to rodent burrows and associated backdirt for evidence of subsurface artifacts and deposits. The purpose of this survey was to identify and document any cultural resources that might be exposed and locate areas within the project area that might be sensitive for cultural resources prior to the beginning of ground-disturbing activities.

RESULTS

RECORDS SEARCH

Data from the SCCIC indicated 23 cultural resources studies have been conducted within a one-mile radius of the project area, one of which included a portion of the project parcels (see Appendix A for records search bibliography). No resources were previously documented within the project area; however, two historic-period resources had been previously documented within the one-mile study area: a segment of what was originally a portion of the Southern Pacific Railroad's Los Angeles Division, now part of the Union Pacific Railroad (19-186112) and the home of Captain William Banning (19-186578), which is approximately 2000 feet (0.4 mile) south of the project area and is a California Point of Historical Interest (LAn-022).

ARCHIVAL RESEARCH

The following historic context information relevant to the project area was developed based on archival research. As part of this study, the previous surveys were reviewed and additional research was conducted in an effort to verify and add to the data that have already been collected, as well as to explore other contexts within which the property might be significant. Building permit history of the property was sought for information regarding original owners, architects, and contractors and historic city directories were reviewed for information regarding the residents at this address. However, no original building permits or resident information were found.

Historic maps and aerial photographs indicate that, throughout its history, the project area had remained largely agricultural well into the mid-20th century. What appears to be a small residence, a large ancillary building, and other associated structures surrounded by groves are visible within the project area in 1946 (HistoricAerials.com var.). However, large sections of groves begin to disappear from the project area and the surrounding area between 1948 and 1964 and are replaced by vacant land (HistoricAerials.com var.). In 1964, grading is visible just south of the project area as the immediate area is beginning to be transformed into residential tracts (HistoricAerials.com var.). In 1965, the single-family residence located at 20137 East Walnut Drive South appears in aerial photographs, but the large ancillary building is no longer extant (HistoricAerials.com var.).

By 1972, State Route 60 is clearly visible immediately north of the project area (HistoricAerials.com var.). Residential tracts and commercial development quickly consumed the surrounding areas, leaving the project area as one of the few predominantly undeveloped lots in the area (HistoricAerials.com var.). Sometime between 2005 and 2009, the original pre-1946 residence and its remaining associated buildings are no longer extant, leaving the 1964 residence as the only structure within the project area, save for one billboards along State Route 60 (HistoricAerials.com var.).

ARCHAEOLOGICAL FIELD SURVEY

The archaeological survey was somewhat hindered by a ground surface partially obscured by vegetation (approximately 15% consisting of ground wreath, mustard, puncture vine, Russian thistle, telegraph weed and other pioneer species) and a large linear soil stockpile. The project parcel has

been disturbed by residential development, highway sign construction, and weed-abatement activities. Soils are silty alluvium, which is a dynamic depositional context not conducive to archaeological preservation. No archaeological resources were identified.

ARCHITECTURAL FIELD SURVEY

The architectural field survey documented one historic-period resource consisting of a single-family residence (20137 East Walnut Drive South) within the project area. The property is described below and on the Department of Parks and Recreation (DPR) Series 523 forms attached as Appendix B. The remainder of the project area is undeveloped.

The single-family residence at 20137 East Walnut Drive South (Figures 3 through 6) is a one-story Ranch-style house built in 1964. It has an irregular plan and is oriented to the south. The house is surmounted by a low-pitched, gable-on-hip roof sheathed in composition shingles and has wide eaves. The exterior walls are clad in modern stucco and modern stone skirting. The south facing, asymmetrical façade (Figure 3) includes: two pairs of modern vinyl-framed sliding windows; a large, vinyl-framed fixed window flanked by sliding end vents; a recessed porch sheltered beneath the eave; and an east-facing, modern, wood and glass door. A two-car garage with a modern door is located immediately northeast of the residence, connected to the latter by a covered breezeway.

Figure 3: Façade, view to the north (11/8/17).

The remaining elevations (Figures 3 through 6) are relatively nondescript, featuring additional modern vinyl windows. There are additional doors located within the breezeway, a side entrance door to the residence and a second door that provides access to the garage. The rear elevation includes a small water heater closet sheltered beneath an extended eave (Figures 5 and 6).

Figure 4: East elevation, view to the west (11/8/17).

Figure 5: North elevation, view to the southwest (11/8/17).

Figure 6: North and west elevations, view to the southeast (11/8/17).

The associated yard features mature landscaping including trees, concrete edged planters, and manicured hedges, and is cordoned off from the rest of the parcel by chain link fencing. The driveway is spanned by a modern, wrought iron gate set between tall, stone veneer-clad pilasters (Figure 7). The residence is in good condition; but is a common property type and style and has sustained alterations to its fenestration and siding, compromising its architectural integrity.

Figure 7: Modern pilasters and gate, view to the northwest (11/8/17).

The remainder of the property, outside the fencing, includes numerous mature trees, a large berm, an irrigation ditch, and vacant land.

SIGNIFICANCE EVALUATION

Based on the research and field survey results discussed above, this section presents the historical significance evaluations for the historic-period residence and the conclusions regarding whether it qualifies as a "historical resource" as defined by CEQA.

DEFINITIONS

CEQA (PRC Chapter 2.6, Section 21083.2 and CCR Title 145, Chapter 3, Article 5, Section 15064.5) calls for the evaluation of resources to determine whether they qualify as "historical resources" as defined by CEQA. The criteria for determining the historical significance of resources are based on Section 15064.5 of the CEQA Guidelines and Guidelines for the Nomination of Properties to the California Register. Properties eligible for listing in the California Register and subject to review under CEQA are those meeting the criteria for listing in the California Register, National Register, or designation under a local ordinance. Once a resource has been determined to be a "historical resource," it must be determined whether there will be impacts to the resource.

California Register of Historical Resources

For a property to be eligible for inclusion in the California Register, one or more of the following criteria must be met:

1. It is associated with the events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States;
2. It is associated with the lives of persons important to local, California, or national history;
3. It embodies the distinctive characteristics of a type, period, region, or method or construction, or represents the work of a master, or possesses high artistic values; and/or
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

In addition to meeting one or more of the above criteria, the California Register requires that sufficient time has passed since a resource's period of significance to "obtain a scholarly perspective on the events or individuals associated with the resource." Fifty years is used as a general estimate of time needed to develop the perspective to understand the resource's significance (CCR 4852 [d][2]).

The California Register also requires that a resource possess integrity, which is defined as "the authenticity of an historical resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance" (California Office of Historic Preservation 1999:2). To retain integrity, a resource should have its original location, design, setting, materials, workmanship, feeling, and association. Which of these factors is most important depends on the particular criterion under which the resource is considered eligible for listing (California Office of Historic Preservation 1999). There are seven aspects of integrity:

a) *Location* is the place where the historic property was constructed or the place where the historic event occurred.

b) *Design* is the combination of elements that create the form, plan, space, structure, and style of a property.

c) *Setting* is the physical environment of a historic property.

d) *Materials* are the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property.

e) *Workmanship* is the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory.

f) *Feeling* is a property's expression of the aesthetic or historic sense of a particular period of time.

g) *Association* is the direct link between an important historic event or person and a historic property.

EVALUATION

Summary of Resource

The project area consists of 3.89 acres developed with a single historic-period, single-family residence (APN 8762-002-901/20137 East Walnut Drive South), some mature trees, and vacant land. Over the years, the residence located within the project area has sustained minor exterior alterations to its fenestration and siding, which has compromised its integrity of design, materials, and workmanship, albeit slightly. In addition, the setting, which once consisted of agricultural and vacant land, has been significantly compromised by the removal of the property's original groves and associated structures.

Significance Evaluation

As previously stated, the property is being evaluated for significance under the California Register criteria. The City of Industry does not have criteria for local designation.

Under California Register Criterion 1, while the project area was originally associated with the region's agricultural industry, none of the original structures or groves from this time remain. The single-family residence at 20137 East Walnut Drive South was built in 1964 and is associated with the post-World War II residential boom that made a significant contribution to the broad patterns of regional and even national history. "More than 40 million housing units were built in the United States during the 30 year period following the end of World War II, and at least 30 million of these were single-family houses" (California Department of Transportation 2011:2). These homes were typically modest in size and style and constructed in a short time as part of large tracts marketed to the working class. Unlike pre-war tracts by subdividers, the post-war tracts were often developed using only one or two builders and the homes were similar in size, quality, and degree of architectural elaboration (California Department of Transportation 2011). "The fundamental unit for postwar housing is not the individual house, but the tract, or a single construction phase within a larger tract or new community" and typically a single home would not be individually significant in this context (California Department of Transportation 2011:121). Within the historic context of

housing development from 1945-1973, this modest, altered residence, which was not part of a larger subdivision, is not individually significant and is therefore not eligible for listing in the California Register under Criterion 1.

Under California Register Criterion 2, no original building permits were found for the property and no other information was found to confirm its architect, builder, or owners/occupants during the historic period. Online searches, including review of historical city directories, newspaper databases, and Ancestry.com, provided no evidence indicating that the property is associated with people significant in local, State, or national history. Therefore, the property is not eligible for listing in the California Register under Criterion 2.

Under California Register Criterion 3, while this Ranch-style residence retains a fair level of integrity, having sustained only minor alterations to its fenestration and siding, the property is a typical example of its method of construction, type, and style and does not appear to be the work of a master. The observed level of workmanship does not rise above the ordinary. Therefore, the property is not eligible for listing in the California Register under Criterion 3.

Under California Register Criterion 4, the residence was built in 1964 using common materials and practices and does not have the potential to yield important information in history. Since there were no archaeological resources identified in association with the property by either the records search or the survey, it does not have the potential to yield information important to the prehistory or history of the local area, California, or the nation. Therefore, the property is not eligible for the California Register under Criterion 4.

CONCLUSION

Based on the above analysis the property does not meet any of the criteria for listing in the California Register and there are no local criteria. Therefore, it is not a historical resource as defined by CEQA.

RECOMMENDATIONS

The foregoing report has provided background information on the project area, outlined the methods used in the current study, and presented the results of the various avenues of research. Throughout the course of the study, no "historical resources," as defined by CEQA, were encountered within or adjacent to the project area and there is little to no potential for undocumented subsurface archaeological resources. Therefore, the City may reach a finding of *No Impact* regarding cultural resources and no mitigation measures or archaeological monitoring are recommended. No further cultural resources investigation is recommended for the project unless development plans change to include areas not covered by this study. However, in the event any archaeological resources are identified during earthmoving activities, work in the area should be halted until the nature and significance of the find can be assessed by a qualified archaeologist.

If human remains are encountered, State Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the County Coroner has made a determination of origin and disposition pursuant to State Public Resources Code Section 5097.98. The County Coroner must be notified of the find immediately. If the remains are determined to be Native American, the County Coroner will notify the Native American Heritage Commission (NAHC), which will determine and notify a Most Likely Descendant (MLD). With the permission of the landowner or his/her authorized representative, the MLD may inspect the site of the discovery. The MLD shall complete the inspection and make recommendations or preferences for treatment within 48 hours of being granted access to the site. The MLD recommendations may include scientific removal and nondestructive analysis of human remains and items associated with Native American burials, preservation of Native American human remains and associated items in place, relinquishment of Native American human remains and associated items to the descendants for treatment, or any other culturally appropriate treatment.

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1984 The Desert Region. In *California Archaeology*, by M. Moratto with contributions by D.A. Fredrickson, C. Raven, and C. N. Warren, pp. 339–430. Academic Press, Orlando, Florida.
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APPENDIX A

RECORDS SEARCH BIBLIOGRAPHY

Report List

NC01704

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
LA-00273		1977	Bove, Frederick J.	An Environmental Impact Report - an Archaeological Resource Survey and Impact Assessment of a Proposed Development on The Property of the Christian Chapel of Walnut Valley		
LA-00342		1978	Taylor, Thomas T.	Report of the Archaeological Survey of Five Possible Steel Tank Reservoir Sites and Pipe Routes for the Walnut Valley Water District		19-000883
LA-01712		1976	Crabtree, Robert H.	Draft Environmental Impact Report on Tentative Tract No. 30893 and the Proposed Zone Change in Los Angeles County, Ca	Envista Environmental Sciences	
LA-02027		1977	Ivie, Pamela J.	Draft Minor Environmental Impact Report Tentative Tract No. 33037 County of Los Angeles	University of California, Los Angeles Archaeological Survey	
LA-02801		1992	White, Robert S.	An Archaeological Assessment of the 169+/- Acre South Pointe Master Plan Located in Diamond Bar, Los Angeles County	Archaeological Associates, Ltd.	
LA-02882		1993	McKenna, Jeanette A.	Cultural Resources Investigations, Site Inventory, and Evaluations, the Cajon Pieline Project Corridor, Los Angeles and San Bernadino Counties, California	Mc Kenna et al.	19-000967, 19-001046
LA-02970		1992	Chamberlaine, Pat and Jean Rivers-Council	Cajon Pipeline Project Draft Environmental Impact Statement Environmental Impact Report	City of Adelanto, and Bureau of Land Management	19-000059, 19-000060, 19-000067, 19-000077, 19-000194, 19-000213, 19-000216, 19-000248, 19-000441, 19-000444, 19-000823, 19-000903, 19-000925, 19-000926, 19-000927, 19-000962, 19-001015, 19-001046, 19-001134, 19-001354, 19-001595, 56-000027, 56-000062, 56-000141, 56-000240, 56-000241, 56-000644, 56-000842, 56-000916, 56-000917
LA-04172		1997	Anonymous	Phase I Archaeological Survey and Cultural Resources Assessment for a 58.5 Ac Parcel, Rowland Heights, Los Angeles County, Ca.	W & S Consultants	
LA-04173		1997	Vitar, Terri	Preliminary Cultural Resources Assessment, Southlands Expansion Project	EIP Associates, Inc.	
LA-04612	Cellular -	1999	Duke, Curt	Cultural Resource Assessment for Pacific Bell Mobile Services Facility La 952-01, County of Los Angeles, California	LSA Associates, Inc.	

Report List

NC01704

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
LA-04835		1999	Ashkar, Shahira	Cultural Resources Inventory Report for Williams Communications, Inc. Proposed Fiber Optic Cable System Installation Project, Los Angeles to Riverside, Los Angeles and Riverside Counties	Jones & Stokes Associates, Inc.	19-186109, 19-186112, 19-187090
LA-04883		2000	Storey, Noelle	Negative Archaeological Survey Report - Highway Project Description	Caltrans	
LA-04954		2001	Smith, Philomene C.	Road Reconstruction Along Route 60 From 1.1km East of Stimson Ave. to Diamond Bar Blvd. Undercrossing	Department of Transportation Office of Environmental Planning	
LA-05735		1975	Crabtree, Robert H.	Survey of 85 Acres in Diamond Bar, E-201	Archaeological Research, Inc.	
LA-05736	Cellular -	2001	Duke, Curt	Cultural Resource Assessment, Cingular Wireless Facility No. Vy 059-01 Los Angeles County, California	LSA Associates, Inc.	
LA-05897	Cellular -	2002	Duke, Curt	Cultural Resource Assessment Cingular Wireless Facility No. Vy 139-01 Los Angeles County, California	LSA Associates, Inc.	
LA-08249		2002	Peterson, Patricia A.	Cultural Resources Records Search and Survey Report for the Reclaimed Water Backbone Transmission Project, Los Angeles County, California	Chambers Group, Inc.	19-000179, 19-001044, 19-001045, 19-001046, 19-002805, 19-120031, 19-186112
LA-08821	Cellular -	2006	Bonner, Wayne H.	Cultural Resources Records Search and Site Visit Results for Royal Street Communications, Llc Candidate La0449a (nogales Sub-sce), 574 South Lemon Avenue, City of Industry, Los Angeles County, California	Michael Brandman Associates	19-186112
LA-10230	Cellular -	2009	Bonner, Wayne H.	Cultural Resources Records Search and Site Visit Results for T-Mobile USA Candidate IE25736A (LA Royal Vista Golf Course), 20055 Colima Road, Walnut, Los Angeles County, California	Michael Brandman Associates	
LA-10890		2000	Krautkramer, Richard and Wrobleski, David	A Class III Archaeological Investigation for the Monterey Park Treatment Facility, and Monitoring Well Construction Project, Los Angeles County, CA	Express Archaeological Solutions	19-001009
LA-11065		2009	Hatoff, Brian	Verizon - Fairlance 574 South Lemon Ave., City of Industry, CA 91787	URS	19-186112

Report List

NC01704

Report No.	Other IDs	Year	Author(s)	Title	Affiliation	Resources
LA-11821		2010	Panich, Lee and Holson, John	Archaeological Survey Report, Tehachapi Renewable transmission Project Segment 8 Telecommunictaions route, Los Angeles and San Bernardino Counties, California	Pacific Legacy	19-000179, 19-000522, 19-000852, 19-000853, 19-000854, 19-001046, 19-001049, 19-001136, 19-001414, 19-001867, 19-186112
LA-13222		2016	Roland, Jennifer	Phase I Investigation for the Crown Castle VY220 SCE Nogalas Substat Antenna Installation Project, City of Industry, Los Angeles County, California	NWB Environmental Services, LLC	

APPENDIX B

DPR 532 SERIES FORMS

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

PRIMARY RECORD

Primary # _____
HRI # _____
Trinomial _____
NRHP Status Code 6Z
Other Listings _____
Review Code _____ Reviewer _____ Date _____

Resource Name or #: 20137 East Walnut Drive South

P1. Other Identifier: _____

*P2. Location: ☐ Not for Publication ☒ Unrestricted *a. County: Los Angeles and (P2b and P2c or P2d. Attach a Location Map as necessary.)

*b. USGS 7.5' Quad: *Yorba Linda, CA* Date: 2015 T 2S ; R 9 ; S.B.B.M.

c. Address: 20137 East Walnut Drive South City: Industry Zip: 91789

d. UTM: Zone: 11; _____ mE/ _____ mN (G.P.S.)

e. Other Locational Data: (e.g., parcel #, directions to resource, elevation, etc., as appropriate) APN: 8762-002-902

*P3a. Description: (Describe resource and its major elements. Include design, materials, condition, alterations, size, setting, and boundaries)
The single-family residence at 20137 East Walnut Drive South is a one-story Ranch-style house built in 1964. It has an irregular plan and is oriented to the south. The house is surmounted by a low-pitched, gable-on-hip roof sheathed in composition shingles and has wide eaves. The exterior walls are clad in modern stucco and modern stone skirting. The south facing, asymmetrical façade includes: two pairs of modern vinyl-framed sliding windows; a large, vinyl-framed fixed window flanked by sliding end vents; a recessed porch sheltered beneath the eave; and an east-facing, modern, wood and glass door. A two-car garage with a modern door is located immediately northeast of the residence, connected to the latter by a covered breezeway. The remaining elevations are relatively nondescript, featuring additional modern vinyl windows. There are additional doors located within the breezeway, a side entrance door to the residence and a second door that provides access to the garage. The rear elevation includes a small water heater closet sheltered beneath an extended eave. The associated yard features mature landscaping including trees, concrete edged planters, and manicured hedges, and is cordoned off from the rest of the parcel by chain link fencing. The driveway is spanned by a modern, wrought iron gate set between tall, stone veneer-clad pilasters. The residence is in good condition; but is a common property type and style and has sustained alterations to its fenestration and siding, compromising its architectural integrity. The remainder of the property, outside the fencing, includes numerous mature trees, a large berm, an irrigation ditch, and vacant land.

*P3b. Resource Attributes: (List attributes and codes) HP2-Single-family property

*P4. Resources Present: ☒Building ☐Structure ☐Object ☐Site ☐District ☐Element of District ☐Other (Isolates, etc.)

P5a. Photo or Drawing (Photo required for buildings, structures, and objects.)

See Continuation Sheet

P5b. Description of Photo: (View, date, accession #) Façade, view to the north (11/8/17).

*P6. Date Constructed/Age and Sources: ☒Historic ☐Prehistoric ☐Both
1964 (Los Angeles County Office of the Assessor)

*P7. Owner and Address:
Unknown

*P8. Recorded by: (Name, affiliation, and address)
Elisa Bechtel, MLitt
LSA Associates, Inc.
1500 Iowa Avenue, Suite 200
Riverside, CA 92507

*P9. Date Recorded:
November, 2017

*P10. Survey Type: (Describe)
Intensive-level CEQA compliance

*P11. Report Citation: (Cite survey report and other sources, or enter "none.") Bechtel and Goodwin 2017, Cultural Resources Assessment for the Affordable SFR Project, Assessor's Parcel Number 8762-002-901, City of Industry, Los Angeles County, California.

*Attachments: ☐NONE ☒Location Map ☐Sketch Map ☒Continuation Sheet ☒Building, Structure, and Object Record ☐Archaeological Record ☐District Record ☐Linear Feature Record ☐Milling Station Record ☐Rock Art Record ☐Artifact Record ☐Photograph Record ☐ Other (List):

State of California — The Resources Agency
DEPARTMENT OF PARKS AND RECREATION

Primary # _____
HRI# _____

BUILDING, STRUCTURE, AND OBJECT RECORD

*NRHP Status Code 6Z

*Resource Name or # (Assigned by recorder) 20137 East Walnut Drive South

B1. Historic Name:
B2. Common Name:
B3. Original Use: Single-family residence B4. Present Use: Single-family residence
*B5. Architectural Style: Ranch
*B6. Construction History: (Construction date, alterations, and date of alterations)
No permits available. Original build date confirmed by Los Angeles County Office of the Assessor
*B7. Moved? ☐No ☒Yes ☐Unknown Date: _____ Original Location: _____
*B8. Related Features:
B9a. Architect: Unknown b. Builder: Unknown
*B10. Significance: Theme: Residential Development Area: City of Industry
Period of Significance: 1964 Property Type: Single-family residence Applicable Criteria: NA
(Discuss importance in terms of historical or architectural context as defined by theme, period, and geographic scope. Also address integrity.)

This Ranch-style, altered residence is not eligible for listing in the California Register of Historical Resources (California Register) under any criteria and there is no local ordinance. It is not a historical resource for purposes of the California Environmental Quality Act (CEQA).

Historic Context. The area that would become present-day Industry and the neighboring cities of Walnut, La Puente, El Monte, and Baldwin Park were originally part of Rancho La Puente. During the last years of the nineteenth century, settlers purchased subdivided lots form land companies and cultivated the land with fields of alfalfa and oats and groves of walnut, citrus, and avocados on (Hernandez 2011). La Puente Valley would remain predominantly agrarian for the first half of the twentieth century.

It was not until the end of World War II (WWII), that the demographic began to shift. In the early post-war period, housing shortages became critical as veterans returned home seeking to start families. This housing demand led to a boom in the construction of single-family houses as populations continued to grow exponentially. Vast housing tracts and single-home infill quickly replaced the groves and grain fields as developers rushed to meet demand. This rapid development transformed much of La Puente Valley into a middle class bedroom community for the much larger City of Los Angeles.

In response to the meteoric rise of suburbanization and creation of a consumer class, the railroad companies began expanding their cargo transportation operations in the area (ibid.). This in turn increased the potential for significant growth and profitability within the commercial and industrial sectors. This made former agricultural land adjacent or close to the rail lines and expanding transportation corridors highly desirable. Anxious that this lucrative land would quickly be monopolized by residential development, powerful businessmen began to compete fiercely for possession of the land and zoning control (ibid.). *See Continuation Sheet*

B11. Additional Resource Attributes: (List attributes and codes)
*B12. References:

California Department of Transportation
2011 *Tract Housing in California, 1945–1973. A Context for National Register Evaluation.* Caltrans Division of Environmental Analysis, Sacramento.

City of Industry
2017 "Facts About the City," accessed online in November 2017 at: http://www.cityofindustry.org/about-industry/facts-about-the-city.

See Continuation Sheet

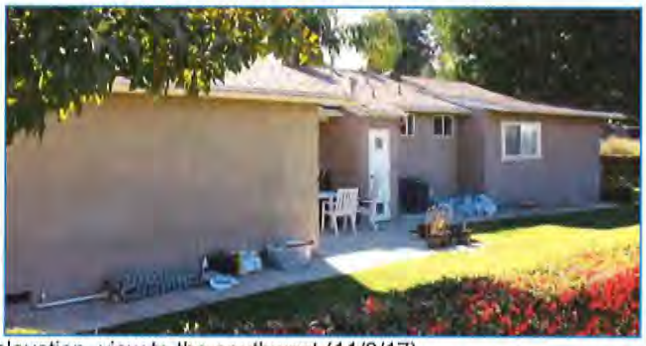
B13. Remarks:
*B14. Evaluator: Elisa Bechtel, MLitt, LSA Associates, Inc., 1500 Iowa Avenue, Suite 200, Riverside, CA 92507
*Date of Evaluation: November 2017

(Sketch Map with north arrow required.)

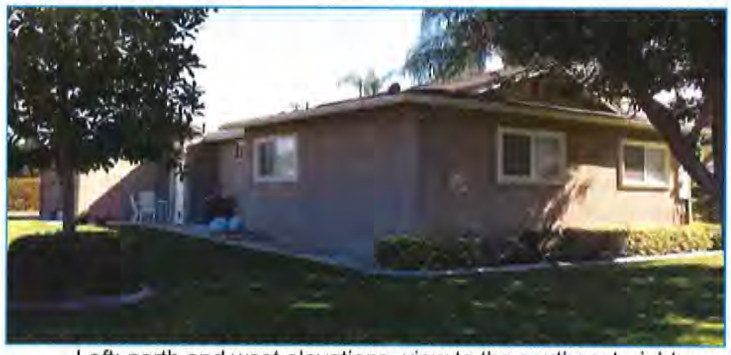
Refer to Location Map

(This space reserved for official comments.)

P5a. Photo or Drawing (continued from page 1)



Left: east elevation, view to the west; right: north elevation, view to the southwest (11/8/17).



Left: north and west elevations, view to the southeast; right: modern pilasters and gate, view to the northwest (11/8/17).

***B10. Significance:** (continued from page 4) This dynamic spurred the creation of a new form of city: one that was incorporated to allow local control of the industries in the area by the owners of said industries. Hernandez (2011) explains:

> "Traditionally, a city's planning and development was the county's responsibility, but [cities like] Lakewood established a precedent in awarding project contracts to the private sector. In other words, we see the emergence of private subcontracting, or the privatization of government functions. Before proposing Lakewood's incorporation, the private sector was attempting to figure out a way to finance the new city because they did not have the authority to collect taxes. The answer to that inconvenience rested in the county granting the unincorporated city "services" such as maintenance, police, and sanitation by way of a contract (61). This results in the complement to the privatization of government projects by inverting the relationship, as the private sector could now contract public services." (Hernandez 2011:11).

In order to prevent surrounding cities from annexing industrial land for tax revenue, local corporate leaders and a small number of power brokers followed the founders of Lakewood's "privatized city" example and the City of Industry was incorporated on June 18, 1957 (Shyong and Vives 2015; City of Industry 2017).

Today, 92 percent of the City is zoned for industrial uses and 8 percent is zoned for commercial uses (City of Industry 2017). The City's residential population has vacillated between 777 in 2000, a meager 219 in 2010, and an estimated 440 in 2017 (United States Census 2000 and 2010; City of Industry 2017).

Property Specific Information: Historic maps and aerial photographs indicate that, throughout its history, the project area had remained largely agricultural well into the mid-20th century. What appears to be a small residence, a large ancillary building, and other associated structures surrounded by groves are visible within the project area in 1946 (HistoricAerials.com var.). However, large sections of groves begin to disappear from the project area and the surrounding area between 1948 and 1964 and are replaced by vacant land (HistoricAerials.com var.). In 1964, grading is visible just south of the project area as the immediate area is beginning to be transformed into residential tracts (HistoricAerials.com var.). In 1965, the single-family residence located at 20137 East Walnut Drive South appears in aerial photographs, but the large ancillary building is no longer extant (HistoricAerials.com var.).

By 1972, State Route 60 is clearly visible immediately north of the project area (HistoricAerials.com var.). Residential tracts and commercial development quickly consumed the surrounding areas, leaving the project area as one of the few predominantly undeveloped lots in the area (HistoricAerials.com var.). Sometime between 2005 and 2009, the original pre-1946 residence and its remaining associated buildings are no longer extant, leaving the 1964 residence as the only structure within the project area, save for one billboards along State Route 60 (HistoricAerials.com var.).

Significance Evaluation. In compliance with CEQA, this property is being evaluated under the California Register criteria. There is no local preservation ordinance or criteria.

Criterion 1 - Associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States. While the project area was originally associated with the region's agricultural industry, none of the original structures or groves from this time remain. The single-family residence at 20137 East Walnut Drive South was built in 1964 and is associated with the post-World War II residential boom that made a significant contribution to the broad patterns of regional and even national history. "More than 40 million housing units were built in the United States during the 30 year period following the end of World War II, and at least 30 million of these were single-family houses" (California Department of Transportation 2011:2). These homes were typically modest in size and style and constructed in a short time as part of large tracts marketed to the working class. Unlike pre-war tracts by subdividers, the post-war tracts were often developed using only one or two builders and the homes were similar in size, quality, and degree of architectural elaboration (California Department of Transportation 2011). "The fundamental unit for postwar housing is not the individual house, but the tract, or a single construction phase within a larger tract or new community" and typically a single home would not be individually significant in this context (California Department of Transportation 2011:121). Within the historic context of housing development from 1945-1973, this modest, altered residence, which was not part of a larger subdivision, is not individually significant and is therefore not eligible for listing in the California Register under Criterion 1.

Criterion 2 - Associated with the lives of persons important to local, California or national history. No original building permits were found for the property and no other information was found to confirm its architect, builder, or owners/occupants during the historic period. Online searches, including review of historical city directories, newspaper databases, and Ancestry.com, provided no evidence indicating that the property is associated with people significant in local, State, or national history.

Criterion 3 - Embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of a master or possesses high artistic values. While this Ranch-style residence retains a fair level of integrity, having sustained only minor alterations to its fenestration and siding, the property is a typical example of its method of construction, type, and style and does not appear to be the work of a master. The observed level of workmanship does not rise above the ordinary. Therefore, the property is not eligible for listing in the California Register under Criterion 3.

Criterion 4 - Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation. the residence was built in 1964 using common materials and practices and does not have the potential to yield important information in history. Since there were no archaeological resources identified in association with the property by either the records search or the survey, it does not have the potential to yield information important to the prehistory or history of the local area, California, or the nation.

***B12. References:** (continued from page 2)

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State of California - Resource Agency
DEPARTMENT OF PARKS AND RECREATION
LOCATION MAP

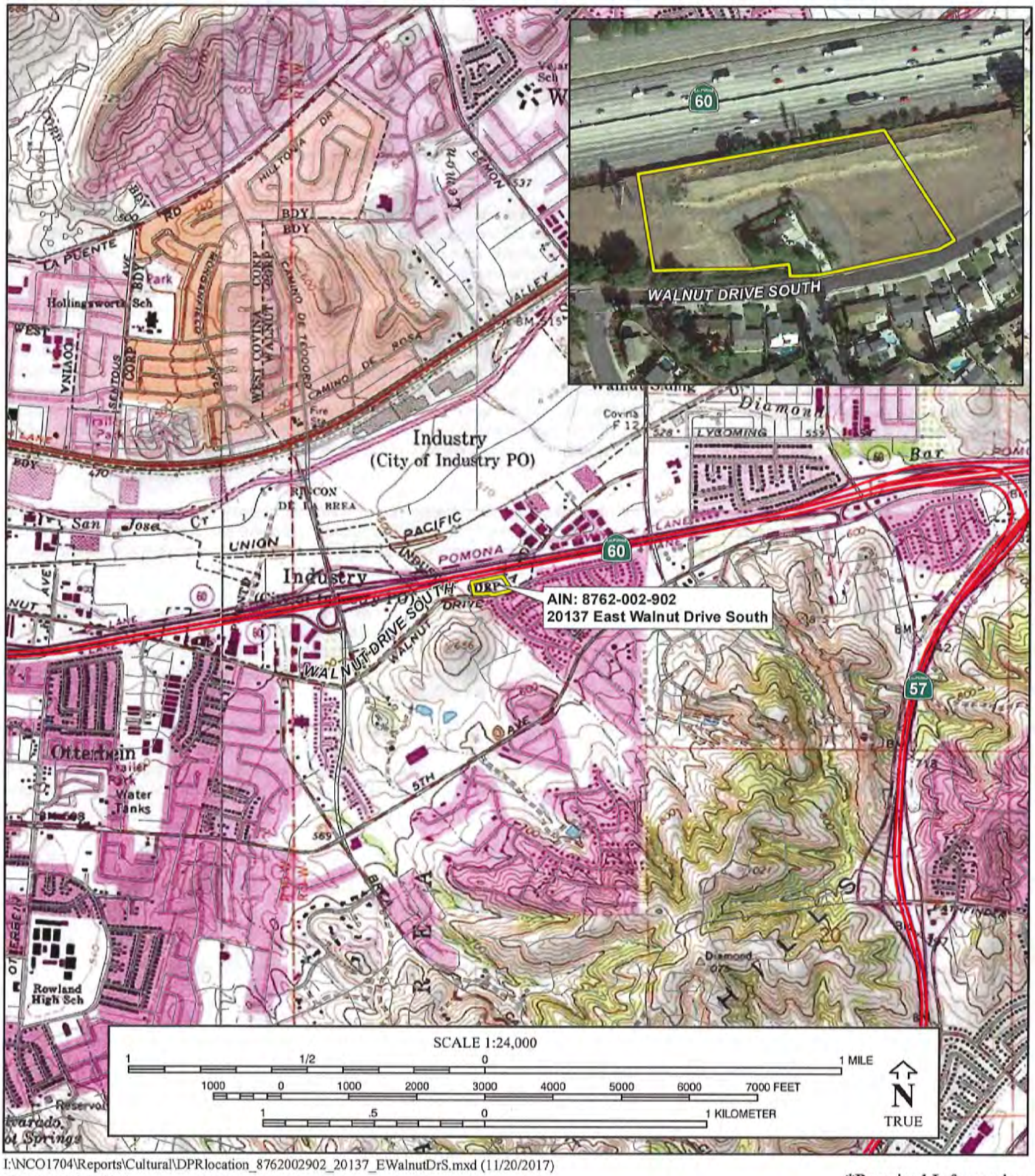
Primary # _____
HRI # _____
Trinomial _____

*Resource Name or # (Assigned by recorder) 20137 East Walnut Drive South

*Map Name: USGS 7.5' Quads, San Dimas, Baldwin Park, Yorba Linda, La Habra; Google Earth

*Scale: 1:24000

*Date of Map: 1981; 2016



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*Required Information

GEOTECHNICAL EXPLORATION REPORT
PROPOSED RESIDENTIAL DEVELOPMENT
INDUSTRY WORKFORCE HOUSING COMMUNITY
20249 E. WALNUT DRIVE SOUTH
CITY OF INDUSTRY, CALIFORNIA

Prepared for:

NATIONAL COMMUNITY RENAISSANCE

20137 & 20249 Haven Avenue
Rancho Cucamonga, California 91730

Project No. 11842.001

December 1, 2017

Leighton and Associates, Inc.
A LEIGHTON GROUP COMPANY

Leighton and Associates, Inc.
A LEIGHTON GROUP COMPANY

December 1, 2017

Project No. 11842.001

National Community Renaissance
9421 Haven Avenue
Rancho Cucamonga, California 91730

Attention: Mr. Chris Killian, Sr. Vice President

Subject: Geotechnical Exploration Report
Proposed Residential Development
Industry Workforce Housing Community
20249 E. Walnut Drive South
City of Industry, California

In accordance with our proposal dated October 31, 2017, authorized by you on November 1, 2017, Leighton and Associates, Inc. (Leighton) is pleased to present this geotechnical exploration report for the proposed Industry Workforce Housing Community residential development project located at 20249 E. Walnut Drive South in the City of Industry California. The purpose of our study was to evaluate the geotechnical conditions at the site and to provide geotechnical recommendations for the design and construction of the project as currently proposed.

Based on our exploration and evaluation, the proposed improvements are considered feasible from a geotechnical standpoint. Presented in this report are findings and geotechnical recommendations to aid in the design and construction of the proposed improvements.

10532 Acacia Street, Suite B-6 • Rancho Cucamonga, CA 91730-5455
909.484.2205 • 909.484.2170 Fax

We appreciate this opportunity to be of service. If you have any questions regarding this report or if we can be of further service, please call us at your convenience at **(866) *LEIGHTON***, directly at the phone extensions or e-mail addresses listed below.

Respectfully submitted,

LEIGHTON AND ASSOCIATES, INC.

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Leighton

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1.0 INTRODUCTION

1.1 Site Description and Proposed Improvements

The project site is located at 20249 E. Walnut Drive South in the City of Industry, California. The site is bordered by the SR-60 freeway to the north, E. Walnut Drive South followed by existing single-family residential properties to the south, an existing asphalt paved parking lot and religious center to the west, and an existing single-family residential property to the east. The site is relatively flat and is currently occupied by one centrally located single-family residential property that is generally surrounded by vacant land. In addition, a large stockpile of soil currently exists in the northern portion of the site that has been estimated to be approximately 12,000 cubic yards in size. The site location (latitude 33.9969°. longitude -117.8624°) and surrounding area are shown on Figure 1, *Site Location Map*.

Based on review of historical aerial photographs (NETR, 2017), the project site appeared to be used primarily for agricultural purposes between approximately 1946 and 1964. By approximately 1965, it appears that the residential structure that currently exists in the central portion of the project site was constructed, and by 1972, the SR-60 freeway had been constructed. In addition, it appears that the existing stockpile of soil that currently exists in the northern portion of the site was placed between approximately 2005 and 2009.

Based on information provided by you, we understand the proposed development includes 25 affordable, single-family detached two-story homes with approximately 4,500 square feet of community recreational space on 3.86 acres of land. The existing single-family residential structure and associated improvements are planned to be removed. A new private street accessed from Walnut Drive, utility infrastructure and landscape improvements are assumed as part of the planned development. Although loading information for the proposed new structures has not been provided at this time, we expect the loading will be similar to typical two-story detached single-family residential structures.

1.2 Purpose and Scope

The purpose of our geotechnical exploration was to evaluate the soil and groundwater conditions at the site through review of available data, exploratory

borings and onsite percolation testing, in order to provide geotechnical recommendations for design and construction of the proposed improvements.

The scope of this geotechnical exploration included the following tasks:

- *Background Review* – A background review was performed of readily available, relevant geotechnical and geological literature pertinent to the site. References used in preparation of this report are listed in Section 6.0.

- *Pre-Field Exploration Activities* – A site visit was performed by a member of our technical staff to mark the boring locations. Underground Service Alert (USA) was notified to locate and mark existing underground utilities prior to our subsurface exploration.

- *Field Exploration* – Our field exploration was performed on November 7, 2017, and consisted of four, 8-inch-diameter, hollow-stem-auger borings (LB-5 through LB-8), each drilled to depths ranging between approximately 21.5 and 40.5 feet below the existing ground surface (bgs). The approximate locations of the borings are shown on Figure 2, *Boring Location Map.*

  During drilling of the hollow-stem auger borings (LB-5 through LB-8), both bulk and drive samples were obtained from the borings for geotechnical laboratory testing. Drive samples were collected from the borings using a Modified California Ring sampler in accordance with ASTM Test Method D 3550. Standard Penetration Tests (SPT) were also performed within the hollow-stem auger borings in accordance with ASTM Test Method D 1586 to help in evaluating the density and consistency of the site soils. The SPT and California Ring samplers were driven for a total penetration of 18 inches, unless practical refusal was encountered, using a 140-pound automatic hammer falling freely for 30 inches. The number of blows per 6 inches of penetration was recorded on the boring logs.

  The borings were logged in the field by a certified engineering geologist. Each soil sample collected was reviewed and described in accordance with the Unified Soil Classification System (USCS). The samples were sealed and packaged for transportation to our laboratory. After completion of drilling, the borings (LB-5 through LB-8) were backfilled to the ground surface with excess soils generated during the exploration. The boring logs are presented in Appendix A, *Field Exploration Logs.*

- *Laboratory Tests* – Laboratory tests were performed on selected soil samples obtained during our field investigation. The laboratory testing program was designed to evaluate the physical and engineering characteristics of the onsite soil. Tests performed during this investigation include:
  - In- situ Moisture Content and Dry Density (ASTM D2216 and ASTM D2937)
  - Atterberg Limits (ASTM D 4318)
  - Expansion Index (ASTM D 4829)
  - Gradation (ASTM D 6913)
  - Percent Passing No. 200 Sieve (ASTM D 1140)
  - Consolidation (ASTM D 2435)
  - Corrosivity Suite – pH, Sulfate, Chloride, and Resistivity (California Test Methods 417, 422, and 532/643)

  The laboratory test results are presented in Appendix B, *Laboratory Test Results*.

- *Engineering Analysis* - The data obtained from our background review, field exploration, and laboratory testing program were evaluated and analyzed to develop geotechnical recommendations for the project as currently planned.

- *Report Preparation* - The results of the exploration are summarized in this report presenting our findings, conclusions and recommendations.

1.3 Previous Studies

In 2010, Leighton Consulting, Inc. performed a geotechnical investigation for the proposed street widening and storm drain improvements along South Walnut Drive from west of Moscada Avenue to Calbourne Drive (Leighton Consulting, Inc., 2010). The investigation included four (4) hollow-stem auger borings (B-1 through B-4) drilled to depths between approximately 16.5 to 26.5 feet bgs within the subject project site boundary, geotechnical laboratory testing and analysis to provide recommendations for the proposed improvements. The approximate locations of the previous hollow-stem auger borings drilled at the project site are shown on Figure 2, *Boring Location Map*. Copies of the boring logs from our previous investigation are presented in Appendix C, and copies of the laboratory test results from our previous investigation are presented in Appendix D.

In 2014, Leighton Consulting, Inc. performed a soil suitability assessment of the approximately 12,000-cubic yard soil stockpile that currently exists at the project site for export to Walnut Drive South (Leighton Consulting, Inc., 2014). That study included collecting soil samples from nineteen (19) locations on the soil stockpile and transporting the samples to a certified analytical laboratory for testing for constituents under the guidelines of the Department of Toxic Substances Control (DTSC). The soil stockpile is understood to have been generated from excavations associated with CalTrans construction activities along the SR-60 freeway. It was reported that, based on the results of the analytical testing in 2014 for Title 22 CAM 17 metals, total petroleum hydrocarbons (TPHs), organochlorine pesticides (OCPs), polychlorinated biphenyls (PCBs) and polynuclear aromatic hydrocarbons (PAHs), the concentrations detected in the stockpile soil samples do not pose a significant threat to public health or the environment and are suitable for unrestricted land use, including residential development. If there has been any new soil introduced to the site since the date of previous sampling in 2014, additional assessment may be necessary.

In 2015, Leighton Consulting, Inc. performed a geotechnical review of the proposed street widening and storm drain improvement plans and provided updated geotechnical recommendations for the project (Leighton Consulting, Inc., 2015).

2.0 GEOTECHNICAL FINDINGS

2.1 Geologic Setting

The site is located to the northwest of the Chino Hills within the Peninsular Ranges Geomorphic Province of California. This is an area of large scale crustal disturbance as the relatively northwestward moving Peninsular Ranges province collides with the Transverse Ranges province (San Gabriel Mountains) to the north. Several active or potentially active faults have been mapped in the region and are believed to accommodate compression associated with this collision. The major structural features that surround this region include the Cucamonga fault, San Jose fault, and the San Gabriel Mountains to the north, the San Jacinto fault to the east, the Puente/Chino Hills and Chino fault to the south/southeast, and the Whittier-Elsinore fault to the south. The Chino Hills are a structural block, northeast of the Whittier fault and southwest of the Chino fault, that uplifted and emerged in the Pleistocene.

The site is mapped in an area underlain by young alluvial fan deposits and the elevated hills to the southeast mapped as bedrock identified as the Soquel Member of the Puente Formation (Morton and Miller, 2006). The Soquel Member typically consists of massive to thickly bedded, medium-to coarse-grained sandstone and locally consists of siltstone and claystone. The regional geology of the project site and surrounding areas is shown on the Figure 3, *Regional Geology* Map.

2.2 Subsurface Soil Conditions

As interpreted from our subsurface explorations (hollow-stem auger borings), the site is underlain by a thin veneer of previously placed artificial fill overlying Quaternary age young alluvial fan deposits. Tertiary age bedrock materials exist below the site at various depths below the alluvial deposits. The stratigraphy of the subsurface soil and bedrock materials encountered in each soil boring is presented on the boring logs (Appendix A), a general description of the earth materials as encountered are described below:

Artificial Fill: The previously placed artificial fill soils at the site as encountered in our recent exploratory borings (LB-5 through LB-8) are on the order of less than 2 feet deep, consisting primarily of grayish brown to olive brown, dry sandy silt to silty sand. Localized thicker accumulations of fill materials should be

anticipated during future earthwork construction. The existing artificial fill materials encountered at the site are likely associated with the previous and existing improvements at the site. However, records documenting observation and testing during fill placement were not available for review.

Quaternary Age Young Alluvial Fan Deposits: Quaternary age young alluvial fan deposits were encountered near the surface in our previous borings drilled at the site (B-1 through B-4) and beneath the artificial fill materials in all four of our recent borings drilled at the site (LB-5 through LB-8). The alluvial materials as encountered in our borings vary across the site with location and depth, and generally consist of medium brown to olive brown, slightly moist to wet, clay, sandy clay, sandy silt, silty sand and sand.

Puente Formation Bedrock: Upper Miocene age marine sedimentary bedrock of the Puente Formation was encountered at various depths below the young alluvial fan deposits in two of our previous borings drilled at the site (B-2 and B-4) and in all four of our recent borings drilled at the site (LB-5 through LB-8). The depth to bedrock varied across the site at the explored locations from approximately 10 feet bgs in the eastern portion of the site to approximately 32 feet bgs in the central portion of the site. The bedrock materials as encountered generally consist of orange brown to light gray brown, claystone and siltstone with lesser amounts of interbedded sandstone.

2.2.1 Expansive Soil Characteristics

Expansive soils contain significant amounts of clay particles that swell considerably when wetted and shrink when dried. Foundations constructed on these soils are subject to uplifting forces caused by the swelling. Without proper mitigation measures, heaving and cracking of both building foundations and slabs-on-grade could result. Based on our exploration, the near surface onsite soils are variable and generally consist of silty sand, sandy silt and clay. The laboratory test results of representative near-surface (upper 5 feet) samples from our recent and previous investigations at the site (borings B-1 and LB-6) indicate low to moderate expansion potential when wetted (EI = 42 and 66).

2.2.2 Soil Corrosivity

In general, soil environments that are detrimental to concrete have high concentrations of soluble sulfates and/or pH values of less than 5.5, see

Section 4.3 of ACI 318 (ACI, 2014). The 2016 California Building Code (CBC), provides specific guidelines for the concrete mix-design when the soluble sulfate content of the soil exceeds 0.1 percent by weight or 1,000 parts per million (ppm). The minimum amount of chloride ions in the soil environment that are corrosive to steel, either in the form of reinforcement protected by concrete cover or plain steel substructures, such as steel pipes, is 500 ppm per California Test 532. Concentrations of chloride ions above the stated concentration or other characteristics such as soil resistivity or redox potential may warrant special corrosion protection measures.

As a part of our recent and previous investigations at the site, representative near-surface (upper 5 feet) bulk samples from borings B-1 and LB-6 and a drive sample at 10 feet deep were tested to provide a preliminary evaluation of corrosivity. The test results indicates soluble sulfate concentrations of 85 to 128 ppm, chloride contents of 43 to 57 ppm, pH values of 6.19 to 7.36 and minimum resistivity values of 1,020 to 2,140 ohm-cm.

The results of the resistivity test indicate that the underlying soil is corrosive to buried ferrous metals per ASTM STP 1013. Based on the measured water-soluble sulfate contents from the soil samples, concrete in contact with the soil is expected to have negligible exposure to sulfate attack per ACI 318-14. The samples tested for water-soluble chloride content indicate a low potential for corrosion of steel in concrete due to the chloride content of the soil. The chemical analysis test results for the onsite soil from our recent and previous geotechnical explorations are included in Appendix B and D of this report.

2.2.3 Soil Compressibility

Two (2) samples of the onsite soils recovered from the borings were subjected to consolidation testing to evaluate the compressibility of these materials under loads representative of anticipated structural bearing stresses. The results of in-situ resistance testing in our explorations and laboratory consolidation testing indicate that the onsite soils generally have low compressibility below the bearing grade of the planned foundations. The results of testing from our recent and previous geotechnical explorations are included in Appendix B and D of this report.

2.2.4 Shear Strength

Evaluation of the shear strength characteristics of the soils included laboratory Direct Shear testing. The results of testing are included in Appendix B.

2.3 Groundwater Conditions

Groundwater was encountered during drilling in one of our previous borings drilled at the site (LB-4) and in all four of our recent borings drilled at the site (LB-5 through LB-8) at depths generally ranging between approximately 17.2 feet and 22.5 feet bgs. Groundwater was encountered at a greater depth of 32.1 feet bgs in boring LB-8. The groundwater in our borings was generally encountered below the contact between the alluvium and underlying bedrock, with the exception of boring LB-7 located in the central portion of the site, where groundwater was encountered at 18.1 feet bgs, or approximately 14 feet above the contact between the alluvium and underlying bedrock.

According to groundwater information obtained through the California Geological Survey (CGS) and presented in the Seismic Hazard Zone Report for the Yorba Linda Quadrangle (CGS, 2005a), the historically shallowest groundwater depth in the vicinity of the project site is on the order of 0 to 30 feet bgs. However, based on review of available groundwater level information available from the State of California Department of Water Resources (DWR, 2017) for nearby groundwater monitoring wells less than one mile from the project site (State Well Nos. 02S10W13A003S, 02S10W13A002S 02S09W17D002S), the shallowest groundwater level during a monitoring period between approximately 1990 and 2017 is 16.9 feet bgs.

Based on the currently proposed development scheme, groundwater is not expected to pose a constraint during and after construction. Although groundwater is not considered a constraint for the project, seasonal fluctuations in groundwater level, localized zones of perched water including water due to nearby landscaping, and an increase in soil moisture should be anticipated during and following locally intense rainfall or stormwater runoff.

3.0 GEOLOGIC AND SEISMIC HAZARDS

Geologic and seismic hazards include surface fault rupture, seismic shaking, liquefaction, seismically induced settlement, lateral spreading, seismically induced landslides, flooding, seismically induced flooding, seiches and tsunamis. The following sections discuss these hazards and their potential impact at the project site.

3.1 Surface Fault Rupture

Our review of available in-house literature indicates that no known active faults have been mapped across the site, and the site is not located within a designated Alquist-Priolo Earthquake Fault Zone (CGS, 2015; Bryant and Hart, 2007). Therefore, a surface fault rupture hazard evaluation is not mandated for this site.

The location of the closest active faults to the site was evaluated using the United States Geological Survey (USGS) Earthquake Hazards Program National Seismic Hazard Maps (USGS, 2008c). The closest active faults to the site are the San Jose fault, Elsinore Fault Zone (Whittier fault), Puente Hills fault and Chino fault, located approximately 3.0 miles, 4.1 miles, 6.8 miles and 7.1 miles from the site, respectively. The Puente Hills fault is a blind thrust fault that is concealed at depth, without the potential for surface fault rupture. The San Andreas fault, which is the largest active fault in California, is approximately 27 miles northeast of the site. Major regional faults with surface expression in proximity to the site are shown on Figure 4, *Regional Fault Map*.

3.2 Strong Ground Shaking

The site is located within a seismically active region, as is Southern California in general. The intensity of ground shaking at a given location depends primarily upon the earthquake magnitude, the distance from the source, and the site response characteristics. For the purpose of this report, the ground motion at the site due to earthquake shaking will be characterized by the code-based Peak Ground Acceleration (PGA_M) and the design response spectrum.

The code-based Peak Ground Acceleration (PGA_M) for the site was calculated at 0.78g using the United States Geological Survey (USGS) web-based Seismic Design Maps application (USGS, 2008a). The PGA_M corresponds to a modal earthquake with a probability of exceedance of 2 percent in 50 years (i.e., 2475-year return period). The modal earthquake is a magnitude 6.51 earthquake with

a distance of approximately 8.6 kilometers (5.3 miles) from the site (USGS, 2008b). The seismicity data are also included in Appendix E.

The code-based site response spectra parameters for the design earthquake are as follows:

Table 1 – 2016 CBC Based Ground Motion Parameters (Mapped Values)

Categorization/Coefficient [1]	Value
Site Latitude	33.9969°
Site Longitude	-117.8624°
Site Class	D
Mapped Spectral Response Acceleration at Short Period (0.2 sec), S_S	2.146g
Mapped Spectral Response Acceleration at Long Period (1 sec), S_1	0.759g
Short Period (0.2 sec)Site Coefficient, F_a	1.0
Long Period (1 sec) Site Coefficient, F_v	1.5
Adjusted Spectral Response Acceleration at Short Period (0.2 sec), S_{MS}	2.146g
Adjusted Spectral Response Acceleration at Long Period (1 sec), S_{M1}	1.138g
Design Spectral Response Acceleration at Short Period (0.2 sec), S_{DS}	1.431g
Design Spectral Response Acceleration at Long Period (1 sec), S_{D1}	0.759g

Seismic response spectra parameters were computed per Chapter 11 of ASCE 7-10 using the Seismic Design Map Tool, Version 3.1.0, last updated on June 23, 2014 by the United States Geological Survey (USGS).

3.3 Liquefaction

The term liquefaction is generally referenced to loss of strength and stiffness in soils due to build-up of pore water pressure when subject to cyclic or monotonic loading. Both sandy and clayey soils are susceptible to loss of strength and stiffness. Because of the difference in strength characteristic and methods for evaluating strength loss potential for granular and clayey soils, the term liquefaction is used for granular soils while cyclic softening is used for fine-grained soils (i.e. clays and plastic silts).

In general, adverse effects of liquefaction or cyclic softening include excessive ground settlement, loss of bearing support for structural foundations, and seismically induced lateral ground deformations.

As shown on the State of California Seismic Hazard Zones map for the Yorba Linda Quadrangle (CGS, 2005b), the project site is located within an area that has been identified by the State of California as being potentially susceptible to liquefaction (Figure 5, *Seismic Hazard Map*). As previously stated, groundwater was encountered at the project site as shallow as approximately 17.2 feet bgs, and the shallowest groundwater level reported for nearby monitoring wells between approximately 1990 and 2017 is 16.9 feet bgs. Based on this information, a design groundwater level of 15 feet bgs has been used in our analysis for liquefaction potential at the site. Based on the results of our analysis, an isolated, non-continuous soil layer at a depth of approximately 25 feet in Boring LB-7 is potentially susceptible to liquefaction. However, since this layer is relatively thin compared to the thick overlying layer of nonliquefiable soil, the potential for surface manifestations resulting in building damage is low. The results of the liquefaction analysis are presented in Appendix F.

3.4 Earthquake-Induced Settlement

Seismically induced settlement consists of dry dynamic settlement (above groundwater) and liquefaction-induced settlement (below groundwater). During a strong seismic event, seismically induced settlement can occur within loose to moderately dense sandy soil due to reduction in volume during, and shortly after, an earthquake event. Settlement caused by ground shaking is often non-uniformly distributed, which can result in differential settlement.

Based on our analysis of the subsurface materials as encountered in our borings, the total seismically induced settlement at the site is estimated to be on the order of up to 3 inches (Appendix F).

3.5 Earthquake-Induced Lateral Spreading

Liquefaction may also cause lateral spreading. For seismically induced lateral displacements to occur, the liquefiable zone must be continuous, unconstrained laterally, and free to move along gently sloping ground toward an unconfined area. Because potential liquefiable layers are not continuous across the site, the

potential for seismically induced lateral ground displacements to occur at the site is considered low.

3.6 Earthquake-Induced Landslides

Based on the State of California Seismic Hazard Zones Map for the Yorba Linda Quadrangle (CGS, 2005b), the site is not located within an area that has been identified by the State of California as being potentially susceptible to seismically induced landslides (Figure 5, *Seismic Hazard Map*). In addition, the project site and immediate surrounding areas are relatively flat. Based on these considerations, the potential for seismically induced landsliding is considered low. Proposed slopes, if any, should be engineered and constructed at a gradient of 2:1 (horizontal:vertical) or flatter.

3.7 Earthquake-Induced Flooding

Earthquake-induced flooding can be caused by failure of dams or other water-retaining structures as a result of earthquakes. The project site is not located within a flood impact zone from dam failure as indicated on Figure 6, *Dam Inundation Map*. Therefore, the potential for earthquake-induced flooding to occur due to a failure of a dam is considered low. In addition, a catastrophic failure of a dam is expected to be a very unlikely event in that dam safety regulations exist and are enforced by the Division of Safety of Dams, Army Corp of Engineers and Department of Water Resources. Inspectors may require dam owners to perform work, maintenance or implement controls if issues are found with the safety of the dam.

3.8 Seiches and Tsunamis

Seiches are large waves generated in enclosed bodies of water in response to ground shaking. Since no enclosed body of water is located in the vicinity of the site, the potential hazard for seiches is negligible. Tsunamis are waves generated in large bodies of water by fault displacement or major ground movement. Based on the inland location of the site and the lack of large enclosed water bodies nearby, seiche and tsunami risks are not considered hazards for the project site.

3.9 Flooding Hazard

According to a Federal Emergency Management Agency (FEMA) flood insurance rate map (FEMA, 2008), the site is not located within a flood hazard zone (Figure 7, *Flood Hazard Map*). Flooding in the vicinity of the project site is generally isolated to the main drainage channel (San Jose Creek) located northwest of the project site. The site is located within "Zone X", or is an area determined to be outside of the 0.2 percent annual chance floodplain (FEMA, 2008).

4.0 CONCLUSIONS AND ESIGN RECOMMENDATIONS

4.1 General Conclusions

Based on this investigation, construction of the proposed improvements appears feasible from a geotechnical standpoint. No severe geologic or geotechnical issues were identified that would preclude construction of the proposed improvements. The most significant geotechnical issues at the site are strong seismic shaking, liquefaction potential and seismically induced settlement.

Geotechnical recommendations for the proposed development are presented in the following sections and are intended to provide sufficient geotechnical information to develop the project in general accordance with 2016 CBC requirements. The following recommendations are considered minimal from a geotechnical viewpoint as there may be more restrictive requirements of the architect, structural engineer, governing agencies and the City of Industry.

The geotechnical consultant should review the grading plan, foundation plan and specifications as they become available to verify that the recommendations presented in this report have been incorporated into the plans prepared for the project.

4.2 Earthwork

We recommend all earthwork for the project be performed in accordance with the following recommendations, future grading plan review report(s), the City of Industry grading requirements. The General Earthwork and Grading Specifications provided in Appendix G may be used as guidelines to develop grading specifications. In case of conflict the following recommendations should supersede those provided in Appendix G.

4.2.1 Site Preparation

After demolition of existing improvements at the site, the project site should be cleared of any vegetation, trash and debris, which should be properly disposed of offsite. Efforts should be made to remove or reroute any existing utility lines that interfere the proposed construction. Any resulting cavities should be properly backfilled and compacted.

4.2.2 Site Grading

The project area is generally underlain by previously placed artificial fill overlying alluvial fan deposits. To provide a uniform support and reduce the potential for differential settlement, the existing artificial fill and near-surface alluvial materials should be removed to expose competent native alluvial soils and replaced with engineered fill to provide support for the proposed buildings and other structural improvements. The removals should extend to a depth of at least 3 feet below the proposed foundation bottom or 5 feet below pad grade, whichever is deeper. Where feasible, overexcavation and recompaction should extend a minimum horizontal distance of 5 feet from the edges of the foundations, or if greater, at least a 1:1 projection from the bottom edges of the foundations. Subgrade for concrete flatwork, streets, or other non-structural improvements should be overexcavated 18 inches below existing grade or finish grade, whichever is deeper.

Leighton should verify the vertical and lateral removal and overexcavation limits during grading as local conditions may require additional removals (i.e., encountering soft or unsuitable existing fill or other deleterious materials).

Subgrade Preparation: After completion of the overexcavations and prior to fill placement, the exposed soils should be scarified to a minimum depth of 6 inches, moisture conditioned to at least 2 to 4 percentage points above optimum moisture content and compacted to at least 90 percent relative compaction based on ASTM Test Method D 1557. Any soft or unsuitable earth materials encountered at the bottom of the excavations should be removed and replaced with compacted fill.

Fill Placement: The onsite soils, less any deleterious material (construction debris) or organic matter, may be reused as fills. Oversized material greater than 8 inches in maximum dimension should not be placed in the fill. It should be noted that excavation in the sandstone bedrock is likely to produce oversized materials. Any soil to be placed as fill, whether onsite soils or imported material, should be reviewed and possibly tested by Leighton.

All fill soils should be placed in loose lifts not exceeding 8 inches, moisture-conditioned to at least 2 to 4 percentage points above optimum

moisture content, and compacted to a minimum of 90 percent of the maximum dry density as determined by ASTM Test Method D 1557. The optimum lift thickness to produce a uniformly compacted fill will depend on the type and size of compaction equipment used.

Any required import material should consist of non-corrosive and predominantly granular soils with an Expansion Index (EI) of 20 or less. The imported materials should contain sufficient fines (binder material) so as to result in a stable subgrade when compacted. All proposed import materials should be approved by the geotechnical engineer of record prior to being transported to the site.

Shrinkage and Subsidence: The change in volume of excavated and recompacted soil varies according to soil type and location. This volume change is represented as a percentage increase (bulking) or decrease (shrinkage) in volume of fill after removal and recompaction. Field and laboratory data used in our calculations included laboratory-measured maximum dry density for the general soil type encountered at the subject site, the measured in-place densities of near surface soils encountered and our experience. We preliminarily estimate the onsite artificial fill and near surface alluvial materials requiring removal and recompaction will have a shrinkage factor of approximately 15 percent (±5 percent) during grading.

The level of fill compaction, variations in the dry density of the existing soil and other factors influence the amount of volume change. Some adjustments to earthwork volume should be anticipated during grading of the site.

4.3 Trench Backfill

Utility trenches should be backfilled with compacted fill in accordance with Sections 306-1.2 and 306-1.3 of the Standard Specifications for Public Works Construction, ("Greenbook"), 2015 Edition. Utility trenches can be backfilled with onsite material free of rubble, debris, organic and oversized material up to 3 inches in largest dimension. Prior to backfilling trenches, pipes should be bedded in and covered with either:

(1) **Sand:** A uniform, sand material that has a Sand Equivalent (SE) greater-than-or-equal-to 30, passing the No. 4 U.S. Standard Sieve (or as specified by the pipe manufacturer), or

(2) **CLSM:** Controlled Low Strength Material (CLSM) conforming to Section 201-6 of the *Standard Specifications for Public Works Construction,* ("Greenbook"), 2015 Edition.

Pipe bedding should extend at least 4 inches below the pipeline invert and at least 12 inches over the top of the pipeline. Native and clean fill soils may be used as backfill over the pipe bedding zone, and should be placed in thin lifts, moisture conditioned above optimum, and mechanically compacted to at least 90 percent relative compaction, relative to the ASTM D 1557 laboratory maximum density.

4.4 Foundation Recommendations

Conventional shallow foundations or post-tensioned foundations may be used to support the loads of the proposed residences. Overexcavation and recompaction of the footing subgrade soil should be performed as detailed in the previous sections.

The following recommendations are based on the onsite soil conditions and soils with a moderate expansion potential. Variance in expansion potential of onsite soil is anticipated; therefore, additional testing is recommended upon completion of rough grading to confirm the expansion potential result presented in this report. For preliminary analysis, a weighted plasticity index of 20 should be assumed. Standard engineering and earthwork construction practices, such as proper foundation design and controlled moisture conditioning or mixing with non-expansive soils will reduce the impacts associated with expansive soils.

Special structural details should be considered for use of prefabricated roof trusses, particularly long-span trusses, for buildings founded on expansive soils. The structural engineer should refer to the design commentary on stiffness in section 4.5.6 (page 34) and 9.1 and R9.1 (page S-152) of PTI (2008). These commentary are written for buildings with post-tensioned foundations, but the concept also applies to buildings with conventional foundations on expansive soils.

4.4.1 Conventional Shallow Foundations

Minimum Embedment and Width: Based on our investigation, footings for conventional one- to two-story structures should have a minimum embedment of 18 inches, with a minimum width of 24 and 15 inches for isolated and continuous footings, respectively.

Allowable Bearing: An allowable bearing pressure of 1,800 pounds-per-square-foot (psf) may be used, based on the minimum embedment depth and width above. This allowable bearing value may be increased by 250 psf per foot increase in depth or width to a maximum allowable bearing pressure of 4,000 psf. These allowable bearing pressures are for total dead load and sustained live loads. Footing reinforcement should be designed by the structural engineer.

Lateral Load Resistance: Soil resistance available to withstand lateral loads on a shallow foundation is a function of the frictional resistance along the base of the footing and the passive resistance that may develop as the face of the structure tends to move into the soil. The frictional resistance between the base of the foundation and the subgrade soil may be computed using an allowable coefficient of friction of 0.3. The passive resistance may be computed using an allowable (factor of safety of 1.5 applied) equivalent fluid pressure of 240 pounds per cubic foot (pcf), assuming there is constant contact between the footing and undisturbed soil. Friction and passive pressure may be combined without reduction, provided the footings can move laterally sufficiently to develop passive pressure (approximately ¼ inch); otherwise, friction alone should be assumed.

Increase in Bearing and Friction – Short Duration Loads: For the case of short term loading (seismic and wind loading), an increase of 1/3 would apply to the bearing pressure and friction values. The ultimate bearing pressure is assumed to be roughly three times the allowable bearing pressure. However, this ultimate pressure only considers structural failure/collapse (life safety) and not structural damage or significant cosmetic damage. Excessive settlement is anticipated to occur well before the ultimate bearing pressure is attained.

Settlement Estimates: The recommended overexcavation, relative compaction and allowable bearing pressure are based on a total allowable, post construction settlement of 1 inch. Differential settlement due to static loading is estimated at ½ inch over a horizontal distance of 30 feet between or along similarly loaded footings. Since settlement is a function of footing sustained load, size and contact bearing pressure, differential settlement can be expected between adjacent columns or walls where a large differential loading condition exists.

The structural engineer should also incorporate the estimated seismically induced vertical settlement into the design of the foundation system. Seismic differential settlement is estimated to be 1.5 inches over 30 feet for the design-level earthquake.

4.4.2 Conventional Slabs-on-Grade

Concrete slabs-on-grade should be designed by the structural engineer in accordance with the current CBC for soil with a moderate expansion potential. Observation and testing to confirm the expansion potential of the near surface soil should be conducted near the completion of site grading. From a geotechnical standpoint, conventional slabs-on-grade should be at least 4 inches thick with No. 3 rebar placed at center of the slab at 18 inches on center at each direction. The structural engineer should design the actual thickness and reinforcement based on anticipated loading conditions in accordance with the current California Building Code (CBC) for a soil with medium expansion potential. The recommended maximum joint spacing for the slab should not exceed 15 feet. Where conventional light floor loading conditions exist, the following minimum recommendations should be used. More stringent requirements may be required by local agencies, the structural engineer, the architect, or the CBC. Laboratory testing should be conducted at finish grade to evaluate the Expansion Index (EI) of near-surface subgrade soils upon completion of grading.

The following parameters may be used to design the slabs-on-grade:

Table 2 – Recommendations for Conventional Slabs-on-Grade

Parameters	Recommended Values
Expansion Potential	Medium
Slab Thickness	4 inches (minimum)
Subgrade Reaction	200 pounds per cubic inch (pci)
Bearing Capacity	1,500 psf
Maximum joint spacing should not exceed 15 feet. The moisture of the subgrade soils should be at 130% optimum moisture to a depth of 18 inches below the slab. The subgrade soils should be evaluated by the geotechnical engineer to verify adequate moisture conditioning has been maintained prior to pouring concrete.	

Minor cracking of the concrete as it cures, due to drying and shrinkage is normal and should be expected. However, cracking is often aggravated by a high water/cement ratio, high concrete temperature at the time of placement, small nominal aggregate size, and rapid moisture loss due to hot, dry, and/or windy weather conditions during placement and curing. Cracking due to temperature and moisture fluctuations can also be expected. Low slump concrete can reduce the potential for shrinkage cracking. The structural engineer may consider using additional reinforcement in slabs and foundations to reduce the potential for concrete cracking.

Interior slabs-on-grade are recommended to be underlain by a synthetic sheeting to serve as a retarder to moisture vapor transmission in areas where moisture-sensitive floor covering (such as vinyl, tile, or carpet) or equipment is planned. The sheeting is recommended to be a minimum 15-mil thick Stego® Wrap installed per manufacturer's specifications. Prior to installing the synthetic sheeting, the exposed subgrade surface should be clear of all extruding rock and gravel that could damage the sheeting. The sheeting should be evaluated for the presence of punctures or tears by the installer prior to pouring concrete. Installation of the sheeting should include proper overlap and taping of seams.

Leighton does not practice in the field of moisture vapor transmission evaluation, since this is not specifically a geotechnical issue. Therefore, we recommend that

a qualified person, such as the flooring subcontractor and/or structural engineer, be consulted with to evaluate the general and specific moisture vapor transmission paths and any impact on the proposed construction. That person should provide recommendations for mitigation of potential adverse impact of moisture vapor transmission on various components of the structures as deemed appropriate.

These recommended design parameters are based on responsibly maintained improvements. Such improvements include properly designed planters, if adjacent to structures. In utilizing these parameters, the structural engineer should design the foundation system to the acceptable deflection criteria determined by the architect.

We recommend that soil moisture around the immediate perimeter of the slab be maintained near optimum-moisture content (or above) during construction and up to occupancy of the structures.

Our recommendations assume a reasonable degree of owner responsibility. Property owners should be informed and educated regarding the importance of maintaining a constant level of soil moisture. Owners should be made aware of the potential negative consequences of both excessive watering, as well as allowing expansive soils to become too dry (i.e., the soil will undergo shrinkage as it dries up, followed by swelling during the rainy season or when irrigation is resumed, resulting in potential distress to improvements and structures). Planters should not be located adjacent to foundations unless they are properly designed with drainage. Trees should also not be planted adjacent to foundations. Lawn and other landscaped areas should have proper drainage, and should not allow water to pond adjacent to structures. If the owners do not adequately maintain correct irrigation and drainage, some degree of foundation movement may occur.

4.4.3 Post-Tensioned Foundations

The following parameters may be used to design post-tensioned foundations:

Table 3 – Post-Tensioned Foundation Design Recommendations

Expansion Index		66
Edge Moisture Variation, e_m	Center Lift (feet)	9
	Edge Lift (feet)	4.6
Differential Swell, Y_m	Center Lift (inches)	0.6
	Edge Lift (inches)	1.0
Subgrade Reaction		120 pci
Allowable Bearing Pressure		1,500 psf
The moisture of the subgrade soils should be at 130% optimum moisture to a depth of 18 inches below the slab. The subgrade soils should be evaluated by the geotechnical engineer to verify adequate moisture conditioning has been maintained prior to pouring concrete.		

The recommended slab design parameters are based on Post-Tensioning Institute's *Design of Post-Tensioned Slabs-on-Ground*, 4th Edition with 2008 supplement. These recommendations apply to either ribbed slab or uniform thickness slab with thicken edges.

These design parameters are based on certain climatological assumptions with regard to soil-moisture conditions around and beneath the post-tensioned slabs. Soil-moisture change below slabs is the major factor in expansive soil problems.

4.5 Pavement Design

As a part of our previous study (Leighton, 2010), we collected one representative soil sample from the site and performed laboratory testing to evaluate the R-value of the soil. The test result is included in Appendix D and indicates an R-value of 39. Using a design R-value of 30 for the subgrade and an R-value of 78 for base material, the recommended pavement section for traffic indices 5 through 7 are as follows:

Table 4 – Recommended Asphalt Concrete Pavement Structural Sections

Traffic Index (TI)	Asphalt Concrete (feet)	Base Course (feet)
5	0.25	0.45
6	0.3	0.6
7	0.35	0.75

The asphalt concrete pavement structural sections were designed using the method in the California *Highway Design Manual*. Additional R-value testing should be conducted after the completion of rough grading. We can determine the recommended paving and base course thicknesses for other Traffic Indices if required. Field inspection and periodic testing is recommended to verify that the recommended thicknesses or greater are achieved, and that proper construction procedures are followed.

The recommended pavement sections should be established on at least 18 inches of engineered fill as described in Section 4.2.2 of this report.

The asphalt concrete should conform to the specifications outlined in Section 203-6 of the Green Book, and asphalt concrete construction methods should meet the requirements of Section 302-5 of the Green Book.

The base course should conform to requirements of Section 26 of State of California Department of Transportation Standard Specifications (Caltrans), latest edition, or meet the specifications for untreated base as defined in Section 200-2 of the latest edition of the Standard Specifications for Public Works Construction (Green Book). The existing asphalt paving may be used for base course if it is crushed and processed to meet the requirements of crushed miscellaneous base per the Green Book. The base course should be compacted to at least 95 percent relative compaction.

4.6 Surface Drainage

Positive drainage of surface water away from structures is very important. Water should not be allowed to pond adjacent to buildings. Positive drainage may be accomplished by providing drainage away from buildings a minimum of 2 percent for earthen surfaces for a lateral distance of at least five feet and further maintained by a swale or drainage path at a gradient of at least 1 percent. Where necessary, drainage paths may be shortened by the use of area drains and collector pipes. Eave gutters are recommended and should reduce water infiltration into the subgrade materials. Downspouts should be connected to appropriate outlet devices.

Irrigation of landscaping should be controlled to maintain, as much as possible, consistent moisture content sufficient to provide healthy plant growth without over watering.

4.7 Stormwater Infiltration

According to the County of Los Angeles Department of Public Works (LADPW) *Guidelines for Design, Investigation, and Reporting Low Impact Development Stormwater Infiltration* (LADPW, 2014), the invert of any planned stormwater infiltration device must be at least 10 feet above groundwater elevation. In addition, the subsurface materials shall have a corrected infiltration rate equal to or greater than 0.3 inch per hour, and stormwater infiltration shall not increase the potential for static and seismic settlement of structures on or adjacent to the site.

Based on groundwater information obtained through the California Geological Survey (CGS, 2005a), the historically shallowest groundwater depth in the vicinity of the project site is on the order of 0 to 30 feet bgs. However, based on our subsurface exploration and review of available groundwater level information, a design historic high groundwater level of 15 feet bgs is recommended for the project site. In addition, based on our field exploration performed at the project site, the upper soils encountered in our recent borings are primarily fine grained (silt or clay) or sand that contains enough silt or clay that would likely restrict any infiltration potential. Our experience with performing in-situ infiltration testing in similar soils, the near-surface site soils are likely to yield an inadequate infiltration rate. Furthermore, the project site is located within an identified hazard zone for liquefaction. In addition, the site soils are expansive, and introducing water into the soil below foundations and other improvements may result in distress.

Based on these findings, stormwater infiltration is not recommended for the project site.

4.8 Corrosion Protection Measures

For screening purposes, representative soil samples were tested for corrosivity to preliminarily evaluate corrosion potential to buried concrete (e.g., footings, retaining walls) and buries ferrous pipes. The chemical analysis test results are included in Appendices B and D of this report and are summarized in the table below:

Table 5 – Corrosivity Test Results

Test Parameter	Test Results	General Classification of Hazard
Water-Soluble Sulfate in Soil (ppm)	85 to 128	Negligible sulfate exposure to buried concrete
Water-Soluble Chloride in Soil (ppm)	43 to 57	Non-corrosive to buried concrete
pH	6.19 to 7.36	Mildly acidic to mildly alkaline
Minimum Resistivity (saturated, ohm-cm)	1,020 to 2,140	Corrosive to buried ferrous pipes (per Caltrans)

Based on the measured water-soluble sulfate content from the tested soil sample, concrete in contact with the soil is expected to have negligible exposure to sulfate attack per ACI 318-14. The sample tested for water-soluble chloride content indicate a low potential for corrosion of steel in concrete due to the chloride content of the soil. Therefore, common Type II cement may be used for concrete construction onsite and the concrete should be designed in accordance with CBC 2016 requirements. Type V cement should be used for concrete exposed to recycled water.

The results of the resistivity test indicate that the underlying soil is corrosive to buried ferrous metals per ASTM STP 1013. A registered corrosion engineer may be consulted to provide specific mitigation measures for protection of buried metals in direct contact with onsite soils.

4.9 Retaining Walls

We recommend that retaining walls be backfilled with very low expansive soil and constructed with a backdrain in accordance with the recommendations provided on Figure 8, *Retaining Wall Backfill and Subdrain Detail*. Using expansive soil as retaining wall backfill will result in higher lateral earth pressures exerted on the wall and are, therefore, not recommended. Based on these recommendations, the following parameters may be used for the design of conventional retaining walls.

Table 6 – Retaining Wall Design Parameters

Static Equivalent Fluid Pressure (pcf)	
Condition	Level Backfill
Active (drained)	40
At-Rest (drained, compacted fill backfill)	60
Passive (ultimate)	360 (Max. 5,000 psf)

The above values do not contain an appreciable factor of safety, so the structural engineer should apply the applicable factors of safety and/or load factors during design.

Cantilever walls that are designed to yield at least 0.001H, where H is equal to the wall height, may be designed using the active condition. Rigid walls and walls braced at the top should be designed using the at-rest condition.

Passive pressure is used to compute soil resistance to lateral structural movement. In addition, for sliding resistance, a frictional resistance coefficient of 0.3 may be used at the concrete and soil interface. The lateral passive resistance should be taken into account only if it is ensured that the soil providing passive resistance, embedded against the foundation elements, will remain intact with time. A soil unit weight of 120 pcf may be assumed for calculating the actual weight of the soil over the wall footing.

In addition to the above lateral forces due to retained earth, surcharge due to improvements, such as an adjacent structure or traffic loading, should be considered in the design of the retaining wall. Loads applied within a 1:1 projection from the surcharging structure on the stem of the wall should be considered in the design. A third of uniform vertical surcharge-loads should be applied at the surface as a horizontal pressure on cantilever (active) retaining walls, while half of uniform vertical surcharge-loads should be applied as a horizontal pressure on braced (at-rest) retaining walls. To account for automobile parking surcharge, we suggest that a uniform horizontal pressure of 100 psf (for restrained walls) or 70 psf (for cantilever walls) be added for design, where autos are parked within a horizontal distance behind the retaining wall less than the height of the retaining wall stem.

We recommend that the wall designs for walls taller than 6 feet be checked seismically using an *additive seismic* Equivalent Fluid Pressure (EFP) of 27 pcf, which is added to the *active* EFP. The *additive seismic* EFP should be applied with a standard EFP pressure distribution.

Conventional retaining wall footings should have a minimum width of 24 inches and a minimum embedment of 12 inches below the lowest adjacent grade. An allowable bearing pressure of 1,800 psf may be used for retaining wall footing design, based on the minimum footing width and depth. This bearing value may be increased by 250 psf per foot increase in width or depth to a maximum allowable bearing pressure of 4,000 psf.

Retaining walls greater than 6 feet in height should be evaluated by Leighton on a case-by-case basis.

4.10 Concrete Flatwork

Exterior concrete slabs-on-grade should have a minimum thickness of 4 inches. Common Type II cement should be adequate for concrete flatwork not exposed to recycled water. Type V cement should be used for concrete exposed to recycled water. Concrete flatwork should be placed on previously compacted fill. If this material has been disturbed, the subgrade soil to a depth of 12 inches should be moisture conditioned to slightly above optimum moisture content and recompacted to minimum 90 percent relative compaction.

Exterior concrete driveways, ramps, curbs, gutters, sidewalks, patio slabs, and swimming pool decks, often crack. Inclusion of joints at frequent intervals and reinforcement will help control the locations of the cracks, and thus reduce *the* unsightly appearance. Construction or weakened plane joints should be spaced at intervals of 8 feet or less for driveways, ramps, sidewalks, patio slabs, pool decks, curbs and gutters. If cracking occurs, repairs may be needed to mitigate the trip hazard and/or improve the appearance.

Cracking of concrete is often not due to settlement or heave of soils, but often due to other factors such as the use of too high a water/cement ratio and/or inadequate steps being taken to prevent moisture loss during curing. These causes of concrete distress can be reduced by proper design of the concrete mix, and by proper placement and curing of the concrete.

4.11 Additional Geotechnical Services

The geotechnical recommendations presented in this report are based on subsurface conditions as interpreted from limited subsurface explorations, limited laboratory testing and information available at the time the report is prepared. Additional geotechnical investigation and analysis may be required based on final improvement plans. Leighton should review the site and grading plans when available and comment further on the geotechnical aspects of the project. Geotechnical observation and testing should be conducted during excavation and all phases of grading operations. Our conclusions and recommendations should be reviewed and verified by Leighton during construction and revised accordingly if geotechnical conditions encountered vary from our preliminary findings and interpretations.

Geotechnical observation and testing should be provided during the following activities:

- Grading and excavation of the site;
- During overexcavation and removal of unsuitable soil;
- Subgrade preparation;
- Compaction of all fill materials;
- Utility trench backfilling and compaction;
- Footing excavation and slab-on-grade preparation;
- Pavement subgrade and base preparation;
- Placement of asphalt concrete and/or concrete; and
- When any unusual conditions are encountered.

5.0 LIMITATIONS

This report was based solely on data obtained from a limited number of geotechnical exploration, and soil samples and tests. Such information is, by necessity, incomplete. The nature of many sites is such that differing soil or geologic conditions can be present within small distances and under varying climatic conditions. Changes in subsurface conditions can and do occur over time. Therefore, the findings, conclusions, and recommendations presented in this report are only valid if Leighton has the opportunity to observe subsurface conditions during grading and construction, to confirm that our preliminary data are representative for the site. Leighton should also review the construction plans and project specifications, when available, to comment on the geotechnical aspects.

This report was prepared using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable geotechnical consultants practicing in this or similar localities. The findings, conclusion, and recommendations included in this report are considered preliminary and are subject to verification. We do not make any warranty, either expressed or implied.

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Important Information about This

Geotechnical-Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

While you cannot eliminate all such risks, you can manage them. The following information is provided to help.

The Geoprofessional Business Association (GBA) has prepared this advisory to help you – assumedly a client representative – interpret and apply this geotechnical-engineering report as effectively as possible. In that way, clients can benefit from a lowered exposure to the subsurface problems that, for decades, have been a principal cause of construction delays, cost overruns, claims, and disputes. If you have questions or want more information about any of the issues discussed below, contact your GBA-member geotechnical engineer. Active involvement in the Geoprofessional Business Association exposes geotechnical engineers to a wide array of risk-confrontation techniques that can be of genuine benefit for everyone involved with a construction project.

Geotechnical-Engineering Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical-engineering study conducted for a given civil engineer will not likely meet the needs of a civil-works constructor or even a different civil engineer. Because each geotechnical-engineering study is unique, each geotechnical-engineering report is unique, prepared *solely* for the client. *Those who rely on a geotechnical-engineering report prepared for a different client can be seriously misled.* No one except authorized client representatives should rely on this geotechnical-engineering report without first conferring with the geotechnical engineer who prepared it. *And no one – not even you – should apply this report for any purpose or project except the one originally contemplated.*

Read this Report in Full

Costly problems have occurred because those relying on a geotechnical-engineering report did not read it *in its entirety*. Do not rely on an executive summary. Do not read selected elements only. *Read this report in full.*

You Need to Inform Your Geotechnical Engineer about Change

Your geotechnical engineer considered unique, project-specific factors when designing the study behind this report and developing the confirmation-dependent recommendations the report conveys. A few typical factors include:

- the client's goals, objectives, budget, schedule, and risk-management preferences;
- the general nature of the structure involved, its size, configuration, and performance criteria;
- the structure's location and orientation on the site; and
- other planned or existing site improvements, such as retaining walls, access roads, parking lots, and underground utilities.

Typical changes that could erode the reliability of this report include those that affect:

- the site's size or shape;
- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light-industrial plant to a refrigerated warehouse;
- the elevation, configuration, location, orientation, or weight of the proposed structure;
- the composition of the design team; or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes – even minor ones – and request an assessment of their impact. *The geotechnical engineer who prepared this report cannot accept responsibility or liability for problems that arise because the geotechnical engineer was not informed about developments the engineer otherwise would have considered.*

This Report May Not Be Reliable

Do not rely on this report if your geotechnical engineer prepared it:

- for a different client;
- for a different project;
- for a different site (that may or may not include all or a portion of the original site); or
- before important events occurred at the site or adjacent to it; e.g., man-made events like construction or environmental remediation, or natural events like floods, droughts, earthquakes, or groundwater fluctuations.

Note, too, that it could be unwise to rely on a geotechnical-engineering report whose reliability may have been affected by the passage of time, because of factors like changed subsurface conditions; new or modified codes, standards, or regulations; or new techniques or tools. *If your geotechnical engineer has not indicated an "apply-by" date on the report, ask what it should be,* and, in general, *if you are the least bit uncertain* about the continued reliability of this report, contact your geotechnical engineer before applying it. A minor amount of additional testing or analysis – if any is required at all – could prevent major problems.

Most of the "Findings" Related in This Report Are Professional Opinions

Before construction begins, geotechnical engineers explore a site's subsurface through various sampling and testing procedures. *Geotechnical engineers can observe actual subsurface conditions only at those specific locations where sampling and testing were performed.* The data derived from that sampling and testing were reviewed by your geotechnical engineer, who then applied professional judgment to form opinions about subsurface conditions throughout the site. Actual sitewide-subsurface conditions may differ – maybe significantly – from those indicated in this report. Confront that risk by retaining your geotechnical engineer to serve on the design team from project start to project finish, so the individual can provide informed guidance quickly, whenever needed.

This Report's Recommendations Are Confirmation-Dependent

The recommendations included in this report – including any options or alternatives – are confirmation-dependent. In other words, *they are not final*, because the geotechnical engineer who developed them relied heavily on judgment and opinion to do so. Your geotechnical engineer can finalize the recommendations *only after observing actual subsurface conditions* revealed during construction. If through observation your geotechnical engineer confirms that the conditions assumed to exist actually do exist, the recommendations can be relied upon, assuming no other changes have occurred. *The geotechnical engineer who prepared this report cannot assume responsibility or liability for confirmation-dependent recommendations if you fail to retain that engineer to perform construction observation.*

This Report Could Be Misinterpreted

Other design professionals' misinterpretation of geotechnical-engineering reports has resulted in costly problems. Confront that risk by having your geotechnical engineer serve as a full-time member of the design team, to:

- confer with other design-team members,
- help develop specifications,
- review pertinent elements of other design professionals' plans and specifications, and
- be on hand quickly whenever geotechnical-engineering guidance is needed.

You should also confront the risk of constructors misinterpreting this report. Do so by retaining your geotechnical engineer to participate in prebid and preconstruction conferences and to perform construction observation.

Give Constructors a Complete Report and Guidance

Some owners and design professionals mistakenly believe they can shift unanticipated-subsurface-conditions liability to constructors by limiting the information they provide for bid preparation. To help prevent the costly, contentious problems this practice has caused, include the complete geotechnical-engineering report, along with any attachments or appendices, with your contract documents, *but be certain to note conspicuously that you've included the material for informational purposes only*. To avoid misunderstanding, you may also want to note that "informational purposes" means constructors have no right to rely on the interpretations, opinions, conclusions, or recommendations in the report, but they may rely on the factual data relative to the specific times, locations, and depths/elevations referenced. Be certain that constructors know they may learn about specific project requirements, including options selected from the report, *only* from the design drawings and specifications. Remind constructors that they may perform their own studies if they want to, and *be sure to allow enough time* to permit them to do so. Only then might you be in a position to give constructors the information available to you, while requiring them to at least share some of the financial responsibilities stemming from unanticipated conditions. Conducting prebid and preconstruction conferences can also be valuable in this respect.

Read Responsibility Provisions Closely

Some client representatives, design professionals, and constructors do not realize that geotechnical engineering is far less exact than other engineering disciplines. That lack of understanding has nurtured unrealistic expectations that have resulted in disappointments, delays, cost overruns, claims, and disputes. To confront that risk, geotechnical engineers commonly include explanatory provisions in their reports. Sometimes labeled "limitations," many of these provisions indicate where geotechnical engineers' responsibilities begin and end, to help others recognize their own responsibilities and risks. *Read these provisions closely*. Ask questions. Your geotechnical engineer should respond fully and frankly.

Geoenvironmental Concerns Are Not Covered

The personnel, equipment, and techniques used to perform an environmental study – e.g., a "phase-one" or "phase-two" environmental site assessment – differ significantly from those used to perform a geotechnical-engineering study. For that reason, a geotechnical-engineering report does not usually relate any environmental findings, conclusions, or recommendations; e.g., about the likelihood of encountering underground storage tanks or regulated contaminants. *Unanticipated subsurface environmental problems have led to project failures*. If you have not yet obtained your own environmental information, ask your geotechnical consultant for risk-management guidance. As a general rule, *do not rely on an environmental report prepared for a different client, site, or project, or that is more than six months old.*

Obtain Professional Assistance to Deal with Moisture Infiltration and Mold

While your geotechnical engineer may have addressed groundwater, water infiltration, or similar issues in this report, none of the engineer's services were designed, conducted, or intended to prevent uncontrolled migration of moisture – including water vapor – from the soil through building slabs and walls and into the building interior, where it can cause mold growth and material-performance deficiencies. Accordingly, ***proper implementation of the geotechnical engineer's recommendations will not of itself be sufficient to prevent moisture infiltration.*** Confront the risk of moisture infiltration by including building-envelope or mold specialists on the design team. ***Geotechnical engineers are not building-envelope or mold specialists.***

GEOPROFESSIONAL BUSINESS ASSOCIATION

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e-mail: info@geoprofessional.org www.geoprofessional.org

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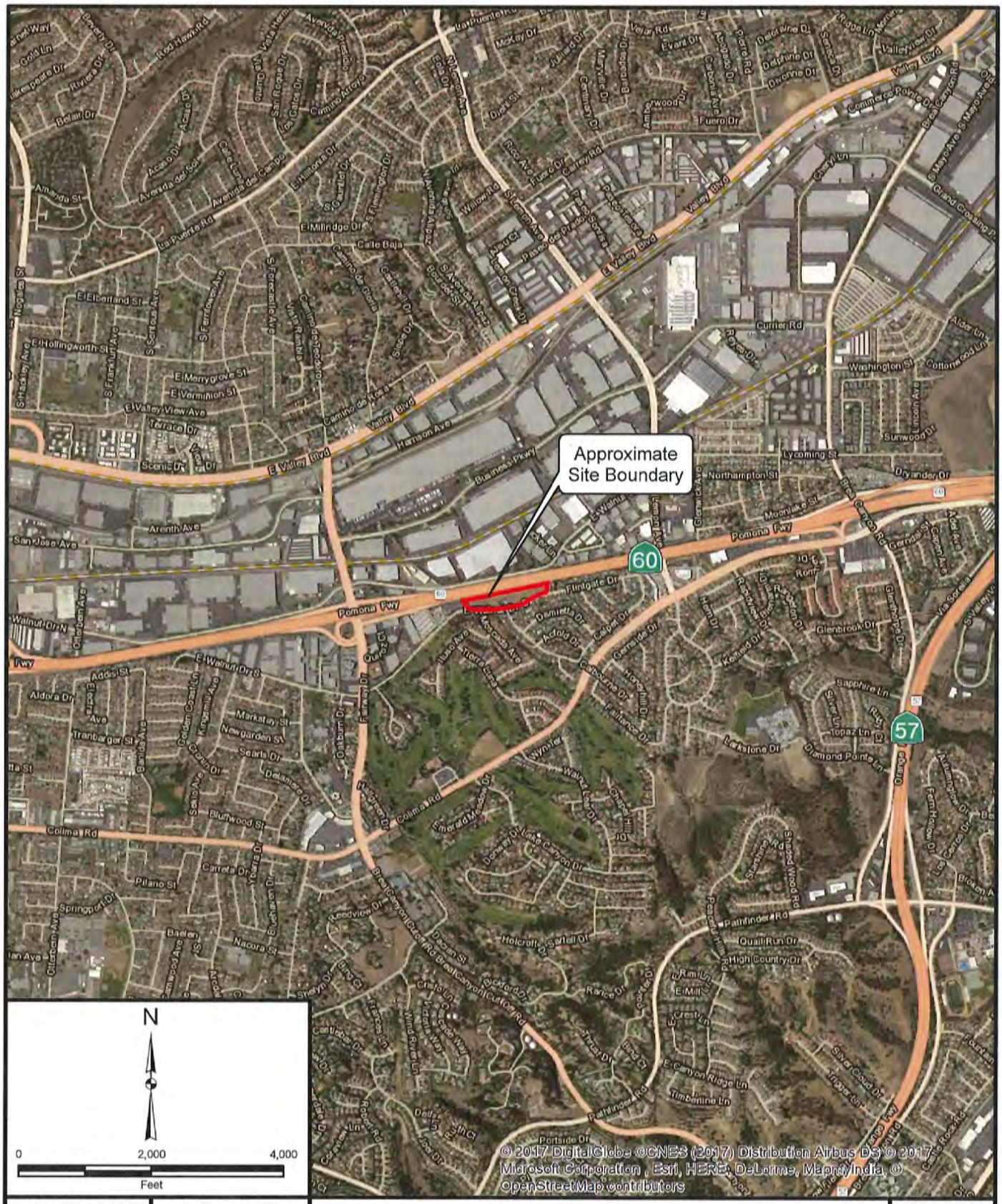

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Scale: 1 " = 2,000 '	Date: November 2017

Base Map: ESRI ArcGIS Online 2017
Thematic Information: Leighton
Author: Leighton Geomatics (btran)

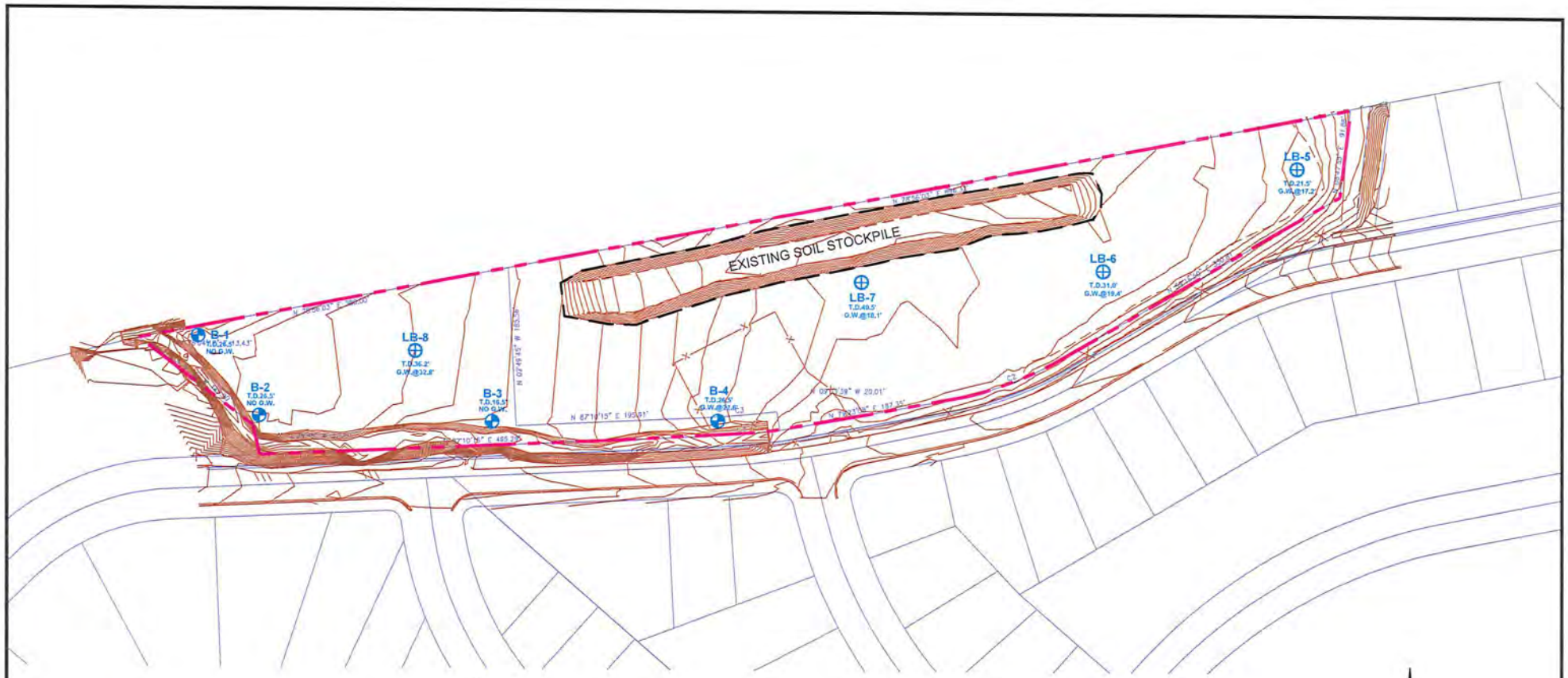
SITE LOCATION MAP

Proposed Residential Development
20137 & 20249 E. Walnut Drive South
City of Industry, California

Figure 1

Leighton

Map Saved as V:\Drafting\11842\001\Maps\11842-001_F01_SLM_2017-11-10.mxd on 11/10/2017 1:45:07 PM



LEGEND

B-4
T.D.26.5'
G.W.@22.5'

APPROXIMATE LOCATION OF HOLLOW-STEM AUGER BORING SHOWING TOTAL DEPTH (T.D.) AND DEPTH TO GROUNDWATER (G.W.) IN FEET BELOW EXISTING GRADE (LEIGHTON, 2010)

LB-8
T.D.36.2'
G.W.@32.8'

APPROXIMATE LOCATION OF HOLLOW-STEM AUGER BORING SHOWING TOTAL DEPTH (T.D.) AND DEPTH TO GROUNDWATER (G.W.) IN FEET BELOW EXISTING GRADE (CURRENT STUDY)

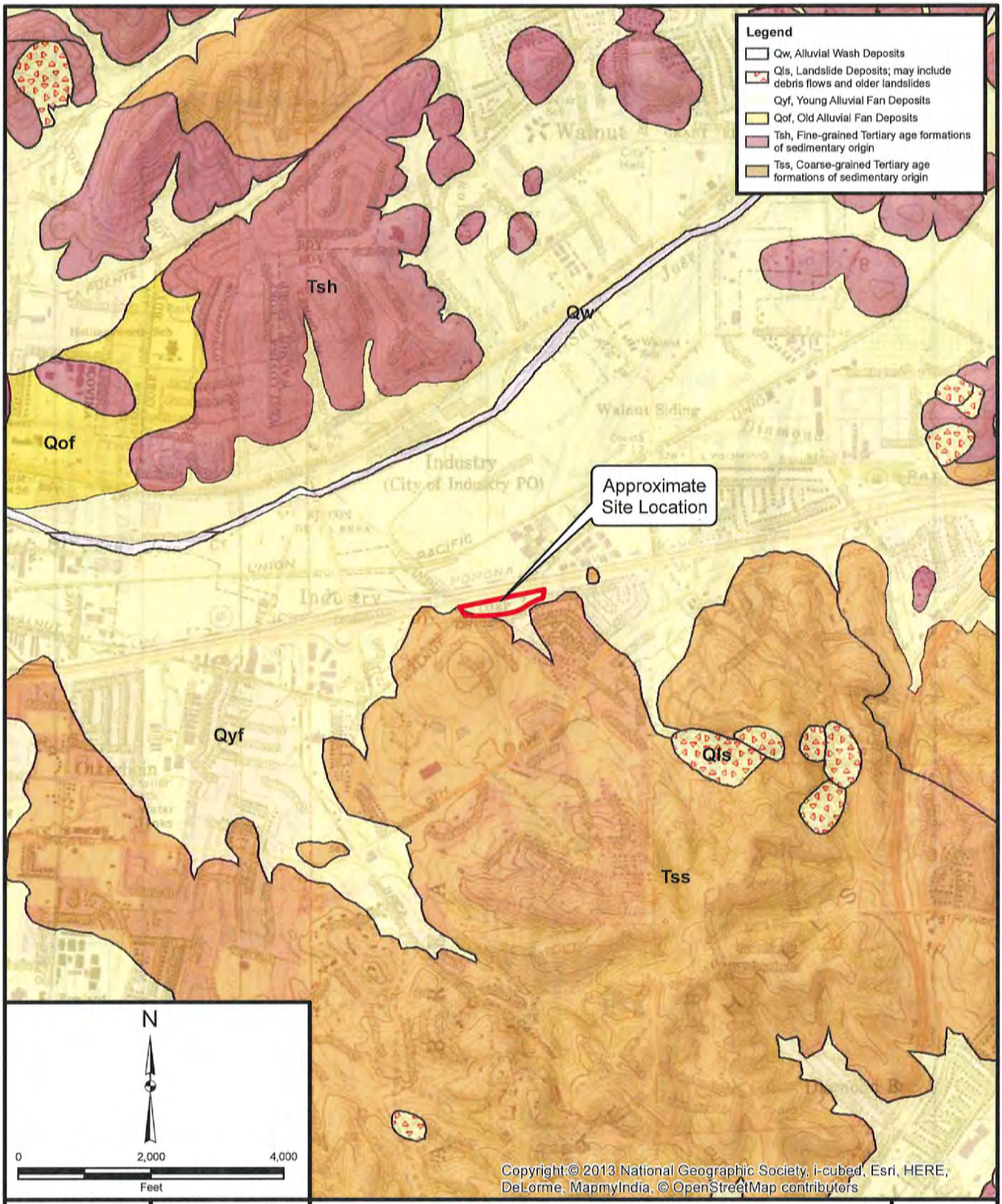
N

0 100 200
SCALE FEET

Proj: 11842.001	Eng/Geol: JDH/JMP	**BORING LOCATION MAP**
Scale: 1"=100'	Date: November 2017	Proposed Residential Development 20137 & 20249 E. Walnut Drive South City of Industry, California
Drafted By: BQT / Checked By: BQT / V:\DRAFTING\11842001\CAD\2017-11-10\11842-001_F02_BLM_2017-11-21.DWG (11-21-17 3:57:01PM) Plotted by: bhan		

Figure 2

Leighton



Project: 11842.001	Eng/Geol: JDH/JMP
Scale:1 " = 2,000 '	Date: November 2017

Base Map: ESRI ArcGIS Online 2017
Thematic Information: Leighton, USGS
Author: Leighton Geomatics (btran)

REGIONAL GEOLOGY MAP

Proposed Residential Development
20137 & 20249 E. Walnut Drive South
City of Industry, California

Figure 3

Leighton

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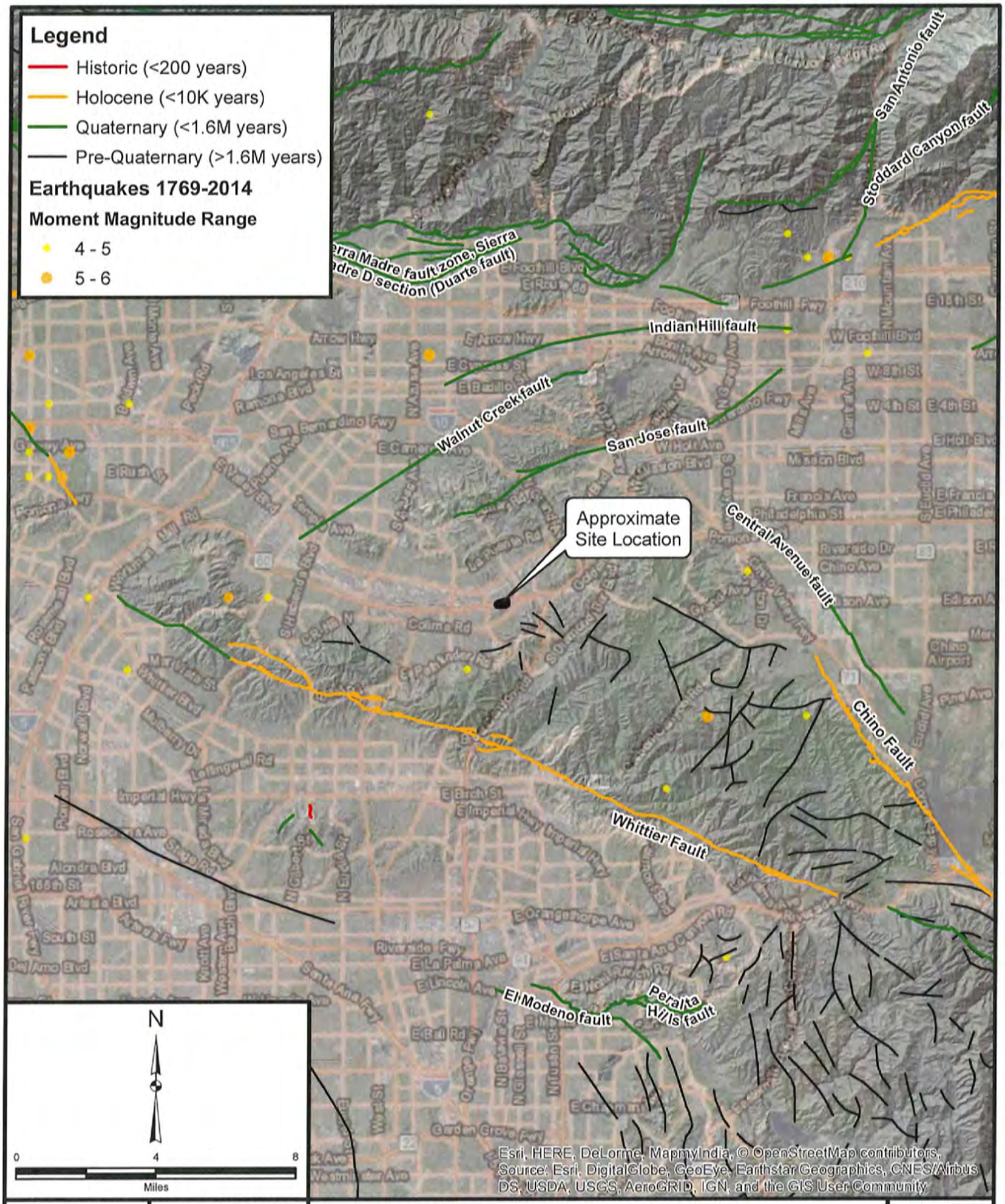

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Scale:1 " = 4 miles	Date: November 2017

Base Map: ESRI ArcGIS Online 2017
Thematic Information: Leighton, CGS, Bryant 2010
Author: Leighton Geomatics (btran)

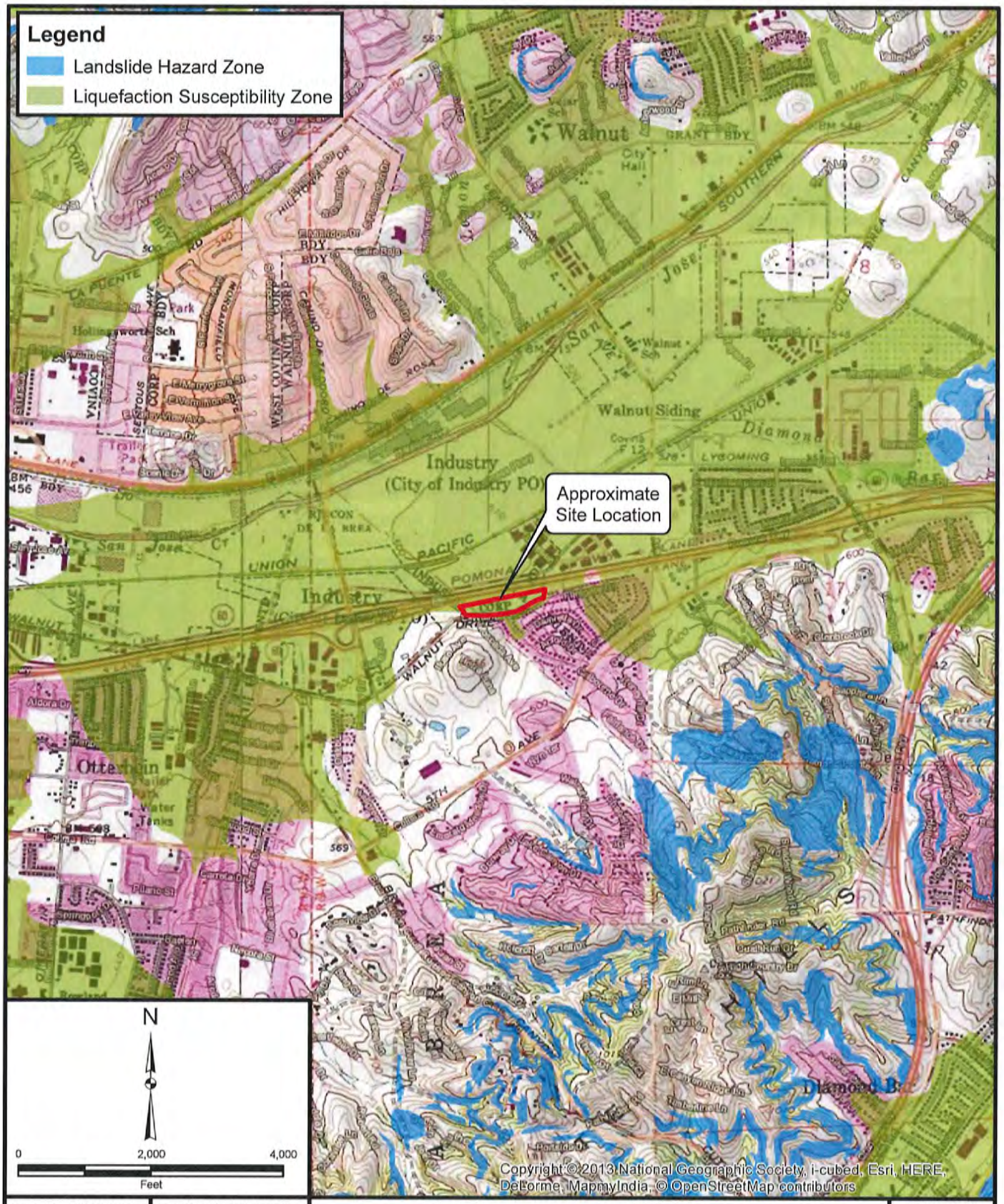
REGIONAL FAULT AND HISTORIC SEISMICITY MAP

Proposed Residential Development
20137 & 20249 E. Walnut Drive South
City of Industry, California

Figure 4

Leighton

Map Saved as V:\Drafting\11842\001\Maps\11842-001_F04_RF&SHM_2017-11-21.mxd on 11/10/2017 2:08:54 PM



Project: 11842.001	Eng/Geol: JDH/JMP
Scale: 1 " = 2,000 '	Date: November 2017

Base Map: ESRI ArcGIS Online 2017
Thematic Information: Leighton, CGS
Author: Leighton Geomatics (btran)

SEISMIC HAZARD MAP

Proposed Residential Development
20137 & 20249 E. Walnut Drive South
City of Industry, California

Figure 5

Leighton

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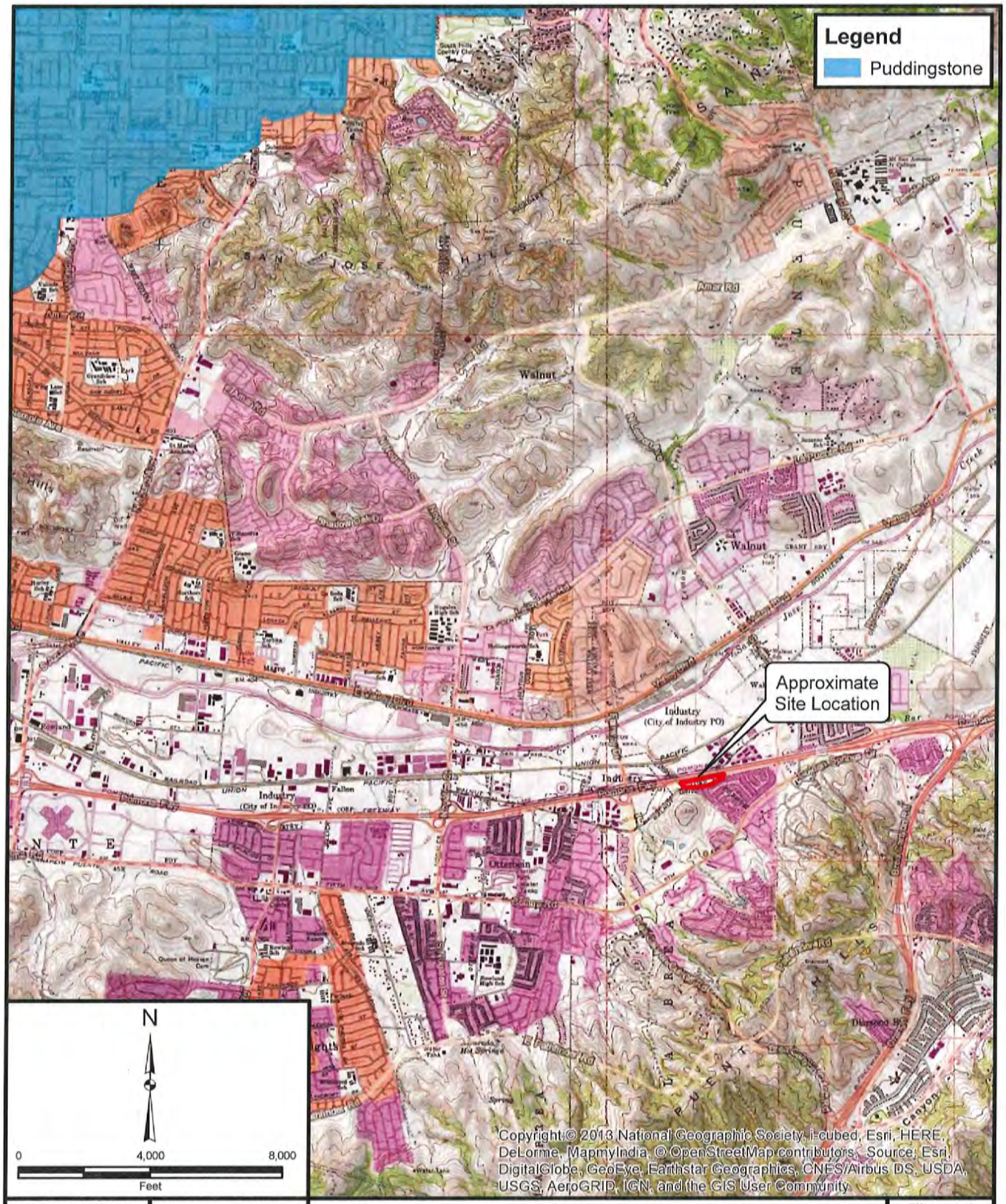

Project: 11842.001	Eng/Geol: JDH/JMP
Scale:1 " = 4,000 '	Date: November 2017

Base Map: ESRI ArcGIS Online 2017
Thematic Information: Leighton, CA DWR, FEMA
Author: Leighton Geomatics (btran)

DAM INUNDATION MAP

Proposed Residential Development
20137 & 20249 E. Walnut Drive South
City of Industry, California

Figure 6

Leighton

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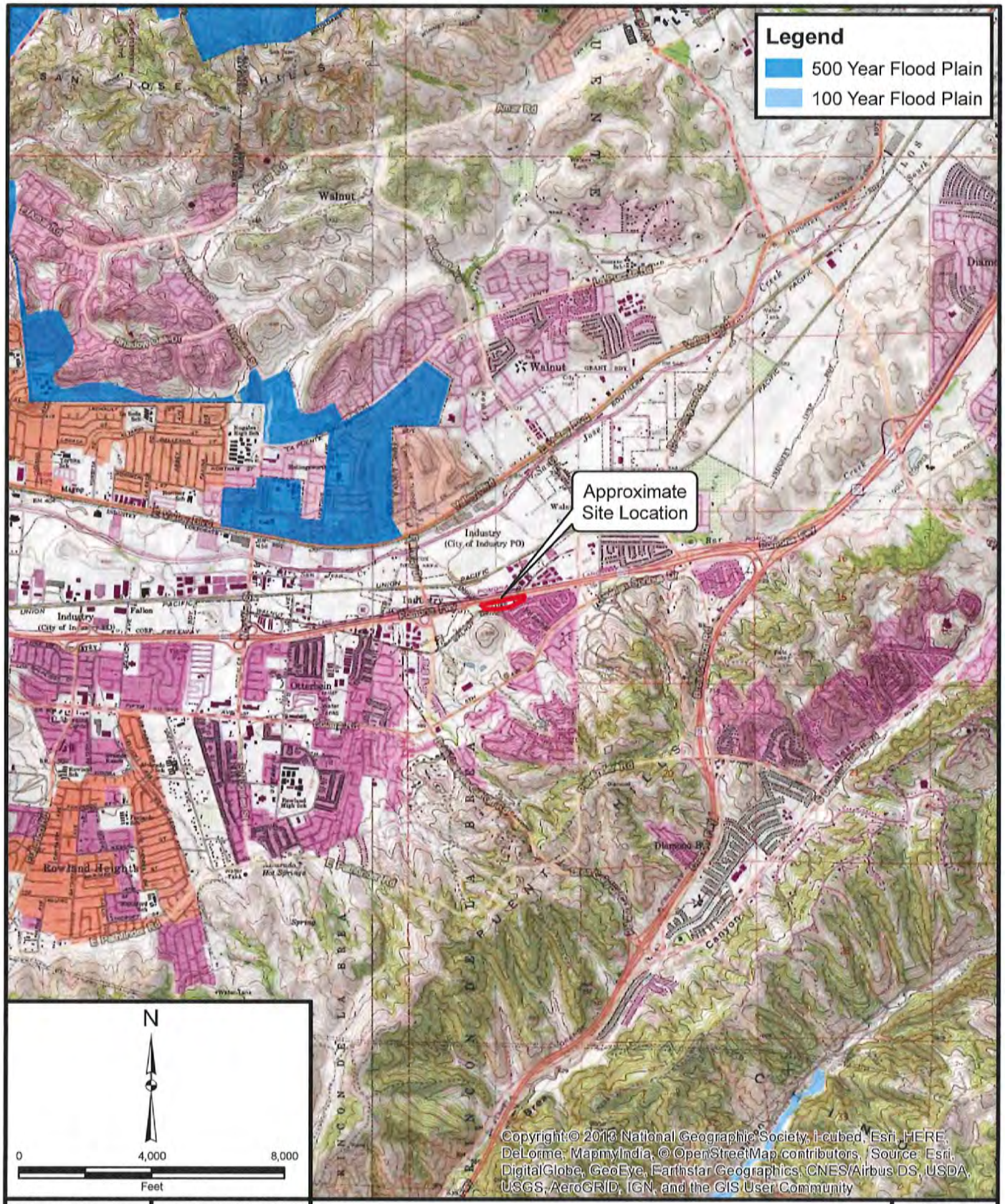

Project: 11842.001	Eng/Geol: JDH/JMP
Scale:1 " = 4,000 '	Date: November 2017

Base Map: ESRI ArcGIS Online 2017
Thematic Information: Leighton, CA DWR, FEMA
Author: Leighton Geomatics (btran)

FLOOD HAZARD ZONE MAP

Proposed Residential Development
20137 & 20249 E. Walnut Drive South
City of Industry, California

Figure 7

Leighton

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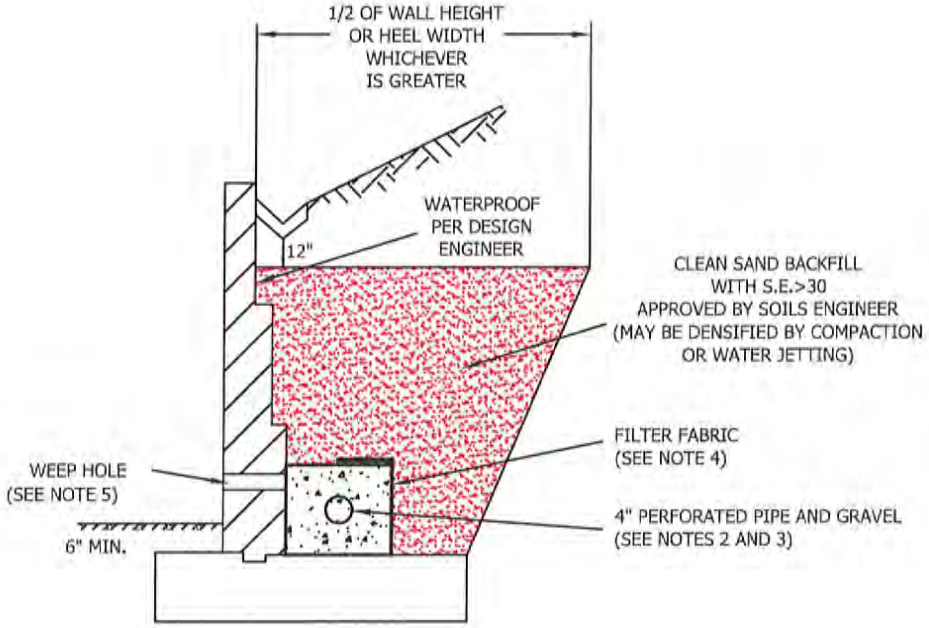
SUBDRAIN OPTIONS AND BACKFILL WHEN NATIVE MATERIAL HAS EXPANSION INDEX OF >50



NOTE: AS AN ALTERNATE TO CLEAN SAND BACKFILL, CLEAN GRAVEL MAY BE UTILIZED WITH APPROVED FILTER FABRIC. A SECOND ALTERNATE IS TO UTILIZE AN AGGREGATE BASE MATERIAL COMPACTED TO 90% RELATIVE COMPACTION. A SAMPLE OF THE PROPOSED BASE MUST BE APPROVED BY THE GEOTECHNICAL CONSULTANT PRIOR TO BACKFILL FOR SUITABILITY. COMPACTION SHOULD BE ACHIEVED WITHOUT DAMAGING THE WALL.

GENERAL NOTES:

* Waterproofing should be provided where moisture nuisance problem through the wall is undesirable.
* Water proofing of the walls is not under purview of the geotechnical engineer
* All drains should have a gradient of 1 percent minimum
*Outlet portion of the subdrain should have a 4-inch diameter solid pipe discharged into a suitable disposal area designed by the project engineer. The subdrain pipe should be accessible for maintenance (rodding)
*Other subdrain backfill options are subject to the review by the geotechnical engineer and modification of design parameters.

Notes:
1) Sand should have a sand equivalent of 30 or greater and may be densified by water jetting.
2) 1 Cu. ft. per ft. of 1/4- to 1 1/2-inch size gravel wrapped in filter fabric
3) Pipe type should be ASTM D1527 Acrylonitrile Butadiene Styrene (ABS) SDR35 or ASTM D1785 Polyvinyl Chloride plastic (PVC), Schedule 40, Armco A2000 PVC, or approved equivalent. Pipe should be installed with perforations down. Perforations should be 3/8 inch in diameter placed at the ends of a 120-degree arc in two rows at 3-inch on center (staggered)
4) Filter fabric should be Mirafi 140NC or approved equivalent.
5) Weephole should be 3-inch minimum diameter and provided at 10-foot maximum intervals. If exposure is permitted, weepholes should be located 12 inches above finished grade. If exposure is not permitted such as for a wall adjacent to a sidewalk/curb, a pipe under the sidewalk to be discharged through the curb face or equivalent should be provided. For a basement-type wall, a proper subdrain outlet system should be provided.
6) Retaining wall plans should be reviewed and approved by the geotechnical engineer.
7) Walls over six feet in height are subject to a special review by the geotechnical engineer and modifications to the above requirements.

RETAINING WALL BACKFILL AND SUBDRAIN DETAIL

WHEN NATIVE MATERIAL HAS EXPANSION INDEX OF >50

Leighton

Figure 8

APPENDIX A

FIELD EXPLORATION LOGS (CURRENT STUDY)

Leighton

GEOTECHNICAL BORING LOG LB-5

Project No.	11842.001	**Date Drilled**	11-7-17
Project	20137 & 20249 E. Walnut Dr. S	**Logged By**	JWJ
Drilling Co.	Martini Drilling Corporation	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	521'
Location	See Figure 2 - Boring Location Map	**Sampled By**	JWJ

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
									This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.	
520	0			BB-1				ML	@0' to 5': Hand Auger **Artificial fill, undocumented: (Afu)** @0': Sandy SILT, with some clay, grayish brown, dry	
								ML\CL	**Quaternary alluvium: (Qa)** @2': Clayey SILT, medium gray brown, dry	
515	5			R-1	5 12 19			CL	@5': CLAY with sand, very stiff, medium brown to olive gray, moist, high plasticity, fine sand	
				R-2	12 25 43				**Tertiary age Puente formation: (Tp)** @7': SILTSTONE, hard, pale brown to dark orange brown to black, laminated, fractured, red iron oxide staining	
510	10			R-3 BB-2	17 50/5"				@10': SANDSTONE, light gray, with red iron oxide staining, very faint thin (1/8-inch to 1/4-inch thick) laminations	
				R-4	30 50/4"				@12': Light gray, friable	
505	15			R-5	15 50/2"				@15': SILTSTONE, gray, dry, with interbedded light yellow brown to light gray sandstone, friable, moist, fine sand	
									Groundwater measured @0819 hours @17.2	
				S-1	16 25 25				@18': Sandy CLAYSTONE, light gray to orange brown, moist, fine sand, oxidation staining prevalent **Groundwater measured @0805 hours @18.5' bgs**	
500	20			S-2	19 23 50/6"				@20': Sandy CLAYSTONE, light gray, with yellow and orange brown oxidation staining, sampler wet, groundwater encountered	
495	25								Total Depth of Boring: 21.5 feet bgs Groundwater encountered @18.5 feet bgs during drilling Groundwater measured @17.2 bgs after 14 minutes Boring backfilled with soil cuttings and tamped upon completion of drilling	
490	30									
	35									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG LB-6

Project No.	11842.001	**Date Drilled**	11-7-17
Project	20137 & 20249 E. Walnut Dr. S	**Logged By**	JWJ
Drilling Co.	Martini Drilling Corporation	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	518'
Location	See Figure 2 - Boring Location Map	**Sampled By**	JWJ

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	0			BB-1				ML	@0' to 5': Hand Auger **Artificial fill, undocumented: (Afu)** @0': SILT with sand, grayish brown, dry	SA,AL, EI,CR
515								CL	**Quaternary alluvium: (Qa)** @2': CLAY with silt and sand, medium brown, slightly moist	
	5			R-1	19 19 23				@5': CLAY, very stiff, medium brown, moist/slightly moist, high plasticity	
510				R-2	13 14 16				@7': CLAY, very stiff, medium brown, slightly moist, some carbonate deposits, high plasticity	
	10			R-3	9 13 36				**Tertiary age Puente formation: (Tp)** @10': Sandy CLAYSTONE, light gray, moist, with faint laminations (1/8-inch to 1/4-inch thick), interbedded dark red (oxidized) sand beds	
505				R-4	18 40 50/4"				@12': SANDSTONE, medium orange brown, moist, fine sand, faint oxidized laminations	
	15			R-5	28 50/5"				@15': CLAYSTONE, dark gray to light gray, with some light yellow staining, thinly laminated, moist	
500				S-1	20 50/5"				@18': CLAYSTONE/SILTSTONE, medium gray with yellow laminations, moist	
	20			S-2	22 40 50/4"				@19': Transitions to Silty SANDSTONE, medium olive brown to reddish brown, oxidized, saturated, groundwater encountered, fine sand, iron oxide stains **Groundwater measured @0943 hours @19.4 feet bgs** @20': Harder drilling @20.5': Becomes Silty Sandy CLAYSTONE, dark to light gray, moist, with orange brown sandy laminations	
495										
	25			S-3	21 30 50/4"				@25': CLAYSTONE/SILTSTONE, gray, moist, with well-defined thin unoxidized and oxidized laminations, alternating **Groundwater measured @0928 hours @25.0 feet bgs**	
490										
	30			S-4	21 50/6"				@30': CLAYSTONE, with interbedded sand laminations, gray to orange brown, moist	
485									Total Depth of Boring: 31.0 feet bgs Groundwater measured @25.0 feet bgs during drilling Groundwater measured @19.4 feet bgs after 15 minutes Boring backfilled with soil cuttings and tamped upon completion of drilling	
	35									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG LB-7

Project No.	11842.001	**Date Drilled**	11-7-17
Project	20137 & 20249 E. Walnut Dr. S	**Logged By**	JWJ
Drilling Co.	Martini Drilling Corporation	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	517'
Location	See Figure 2 - Boring Location Map	**Sampled By**	JWJ

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	0			BB-1				SM	@0' to 5': Hand Auger	
								SM-SC	**Artificial fill, undocumented: (Afu)** @0': Silty SAND, brown, dry	
515									**Quaternary alluvium: (Qa)** @1': Silty SAND to Clayey SAND, moist, dark brown	
	5			R-1	6 8 10			SC-CL	@5': Clayey SAND to Sandy CLAY, stiff/medium dense, medium brown to dark brown, slightly moist, low plasticity, fine sand	
510				R-2	6 11 14			SM	@7': Silty SAND with clay, medium dense, light reddish brown, moist, fine sand, low plasticity	
	10			R-3	9 11 13			CL	@10': Sandy CLAY, stiff, reddish brown, moist, fine sand, low plasticity, trace hard concretions, possible carbonate deposits	
505				R-4	3 4 8				@12': Silty CLAY, medium stiff, dark yellowish brown, very moist to wet, easily indented by finger/fingernail, trace iron oxide stains/nodules	CN
	15			R-5	4 5 5				@15': Clayey SAND, dark brown, medium stiff, wet	SA, AL
500										
				S-1	2 3 4			SM-ML	@18': Sandy SILT to Silty SAND, medium stiff/loose, medium olive brown, fine sand **Groundwater measured @1100 hours @18.1' bgs** **Groundwater measured @1043 hours @18.6' bgs**	
	20			S-2	2 2 3			SC-SM	@20': Silty Clayey SAND, loose, medium olive brown, wet, fine sand, non-plastic	SA, AL
495										
	25			S-3	1 2 1			SP-SM SM	@25': SAND with silt, very loose, medium olive brown, wet, medium sand (possible slough) @25.5': Silty SAND, very loose, medium brown, wet, fine sand	-200
490										
	30			S-4	3 6 10			CL	@30': Silty SAND, very loose, brown, fine to medium sand, wet (possible slough)	
485				S-5	11 10 21				@30.5': Silty Sandy CLAY, very stiff, olive brown, moist, low plasticity, fine sand, trace gravel @31' to 31.5': Rig chatter **Tertiary age Puente formation: (Tp)** @32': SILTSTONE/CLAYSTONE, gray, with yellow orange orange brown oxidation staining, well-defined thin laminations	
	35									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG LB-7

Project No.	11842.001	**Date Drilled**	11-7-17
Project	20137 & 20249 E. Walnut Dr. S	**Logged By**	JWJ
Drilling Co.	Martini Drilling Corporation	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	517'
Location	See Figure 2 - Boring Location Map	**Sampled By**	JWJ

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	35			S-6	5 12 40				1/8-inch to 1/4-inch thick, alternating oxidized and unoxidized laminations @35': SILTSTONE/CLAYSTONE, gray to orange brown, moist, with white carbonate mineralization, possible gypsum, oxidation staining prevalent, well-defined thin laminations	
480										
	40			S-7	50/5"				@40': Sandy SILTSTONE, light gray, moist, wet on outside of sampler, poor recovery Total Depth of Boring: 40.5 feet bgs Groundwater measured @18.6 feet bgs during drilling Groundwater measured @18.1 feet bgs after 17 minutes Boring backfilled with soil cuttings and tamped upon completion of drilling	
475										
	45									
470										
	50									
465										
	55									
460										
	60									
455										
	65									
450										
	70									

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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GEOTECHNICAL BORING LOG LB-8

Project No.	11842.001	**Date Drilled**	11-7-17
Project	20137 & 20249 E. Walnut Dr. S	**Logged By**	JWJ
Drilling Co.	Martini Drilling Corporation	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	508'
Location	See Figure 2 - Boring Location Map	**Sampled By**	JWJ

Elevation Feet	Depth Feet	Graphic Log (N – S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	0			BB-1				SM	@0' to 5': Hand Auger	
									Artificial fill, undocumented: (Afu)	
								SM-SC	@0': Silty SAND, dark brown, dry	
									Quaternary alluvium: (Qa)	
505									@1': Silty SAND to Clayey SAND, dark brown, moist, some clay	
	5			R-1	4 5 11			SC-SM	@5': Silty Clayey SAND, medium dense, dark brown, moist, trace pinhole pores, trace rootlets	CN
				R-2	10 14 15				@7': Some clay	
500										
	10			R-3	7 8 13			CL	@10': Sandy CLAY, stiff, reddish brown, moist, fine sand, low plasticity, some silt	
				R-4	5 8 13				@12': Reddish brown, moist, low plasticity, fine sand, trace hard carbonate nodules, some silt	
495										
	15			R-5	5 7 10				@15': Iron oxide stains/nodules, some silt	
490				S-1	2 3 6				@18': Silty Sandy CLAY, stiff, medium brown, moist, fine sand, low plasticity	
	20			S-2	2 4 5				@20': CLAY, stiff, moist, reddish brown, high plasticity	
				S-3-1 S-3-2	3 8 11				**Tertiary age Puente formation: (Tp)** @22': SILTSTONE, light gray, moist, with interbedded orange brown sandstone	
485										
	25			S-4-1 S-4-2	3 3 4				@26.2': Lower blow counts, becomes wet	
480										
	30			S-5	2 2 3				@30': SILTSTONE/CLAYSTONE, with some dark brown sandstone, moist, hard claystone, dark bluish gray	
475									**Groundwater measured @1257 hours @32.8 feet bgs**	
	35								**Groundwater measured @1235 hours @34.2 feet bgs**	

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
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- SG SPECIFIC GRAVITY
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GEOTECHNICAL BORING LOG LB-8

Project No.	11842.001	**Date Drilled**	11-7-17
Project	20137 & 20249 E. Walnut Dr. S	**Logged By**	JWJ
Drilling Co.	Martini Drilling Corporation	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	508'
Location	See Figure 2 - Boring Location Map	**Sampled By**	JWJ

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	35			S-6	21 40 50/2"					
470									Total Depth of Boring: 36.2 feet bgs Groundwater measured @34.2 feet bgs during drilling Groundwater measured @32.8 feet bgs after 22 minutes Boring backfilled with soil cuttings and tamped upon completion of drilling	
	40									
465										
	45									
460										
	50									
455										
	55									
450										
	60									
445										
	65									
440										
	70									

This Soil Description applies only to a location of the exploration at the time of sampling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:
- B BULK SAMPLE
- C CORE SAMPLE
- G GRAB SAMPLE
- R RING SAMPLE
- S SPLIT SPOON SAMPLE
- T TUBE SAMPLE

TYPE OF TESTS:
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CN CONSOLIDATION
- CO COLLAPSE
- CR CORROSION
- CU UNDRAINED TRIAXIAL
- DS DIRECT SHEAR
- EI EXPANSION INDEX
- H HYDROMETER
- MD MAXIMUM DENSITY
- PP POCKET PENETROMETER
- RV R VALUE
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- SG SPECIFIC GRAVITY
- UC UNCONFINED COMPRESSIVE STRENGTH

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APPENDIX B

LABORATORY TEST RESULTS (CURRENT STUDY)

Leighton

Boring No.	LB-7							
Sample No.	S-3-1							
Depth (ft.)	25.0							
Sample Type	SPT							
Soil Identification	Olive yellow poorly-graded sand with silt (SP-SM)							
Moisture Correction								
Wet Weight of Soil + Container (g)	0.00							
Dry Weight of Soil + Container (g)	0.00							
Weight of Container (g)	1.00							
Moisture Content (%)	0.00							
Sample Dry Weight Determination								
Weight of Sample + Container (g)	518.98							
Weight of Container (g)	206.35							
Weight of Dry Sample (g)	312.63							
Container No.:								
After Wash								
Method (A or B)	A							
Dry Weight of Sample + Cont. (g)	484.52							
Weight of Container (g)	206.35							
Dry Weight of Sample (g)	278.17							
% Passing No. 200 Sieve	**11.0**							
% Retained No. 200 Sieve	89.0							

Leighton

PERCENT PASSING
No. 200 SIEVE
ASTM D 1140

Project Name: East Walnut Drive South
Project No.: 11842.001
Client Name: National Community Renaissance
Tested By: R. Manning Date: 11/14/17

Leighton

EXPANSION INDEX of SOILS

ASTM D 4829

Project Name:	East Walnut Drive South	Tested By:	S. Felter	Date:	11/14/17
Project No.:	11842.001	Checked By:	J. Ward	Date:	11/21/17
Boring No.:	LB-6	Depth (ft.):	0-5		
Sample No.:	BB-1				
Soil Identification:	Dark olive sandy lean clay s(CL)				

Dry Wt. of Soil + Cont.	(g)	1000.00
Wt. of Container No.	(g)	0.00
Dry Wt. of Soil	(g)	1000.00
Weight Soil Retained on #4 Sieve		0.00
Percent Passing # 4		100.00

MOLDED SPECIMEN		Before Test	After Test
Specimen Diameter	(in.)	4.01	4.01
Specimen Height	(in.)	1.0000	1.0660
Wt. Comp. Soil + Mold	(g)	602.20	430.15
Wt. of Mold	(g)	208.70	0.00
Specific Gravity (Assumed)		2.70	2.70
Container No.		O	O
Wet Wt. of Soil + Cont.	(g)	778.10	638.85
Dry Wt. of Soil + Cont.	(g)	701.00	563.20
Wt. of Container	(g)	0.00	208.70
Moisture Content	(%)	11.00	21.34
Wet Density	(pcf)	118.7	121.7
Dry Density	(pcf)	106.9	100.3
Void Ratio		0.577	0.681
Total Porosity		0.366	0.405
Pore Volume	(cc)	75.7	89.4
Degree of Saturation (%) [S_{meas}]		**51.5**	84.7

SPECIMEN INUNDATION in distilled water for the period of 24 h or expansion rate < 0.0002 in./h

Date	Time	Pressure (psi)	Elapsed Time (min.)	Dial Readings (in.)
11/14/17	14:30	1.0	0	0.1560
11/14/17	14:40	1.0	10	0.1560
Add Distilled Water to the Specimen				
11/15/17	6:31	1.0	951	0.2220
11/15/17	7:54	1.0	1034	0.2220

Expansion Index (EI_{meas}) = ((Final Rdg - Initial Rdg) / Initial Thick.) x 1000	**66**

Leighton

ATTERBERG LIMITS

ASTM D 4318

Project Name:	East Walnut Drive South	Tested By:	R. Manning	Date:	11/17/17
Project No. :	11842.001	Input By:	J. Ward	Date:	11/21/17
Boring No.:	LB-6	Checked By:	J. Ward		
Sample No.:	BB-1	Depth (ft.)	0-5		
Soil Identification:	Dark olive sandy lean clay s(CL)				

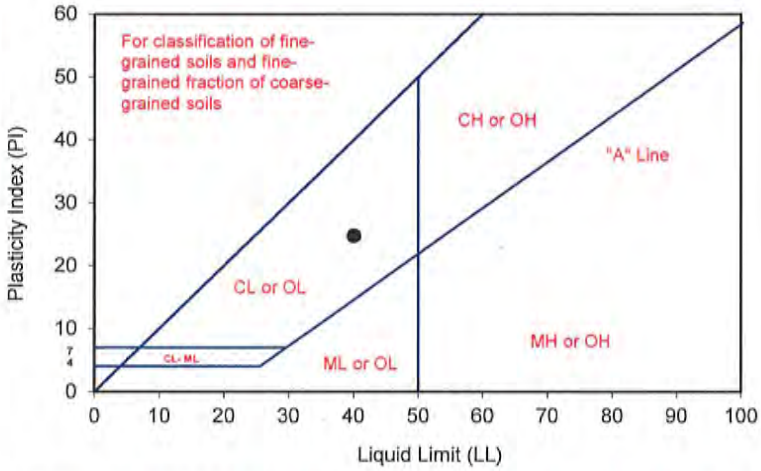
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			35	22	16	
Wet Wt. of Soil + Cont. (g)	13.49	13.36	25.30	23.12	25.14	
Dry Wt. of Soil + Cont. (g)	12.65	12.52	22.02	19.76	21.71	
Wt. of Container (g)	7.06	7.07	13.58	11.58	13.64	
Moisture Content (%) [Wn]	15.03	15.41	38.86	41.08	42.50	

Liquid Limit	**40**
Plastic Limit	**15**
Plasticity Index	**25**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 14.6

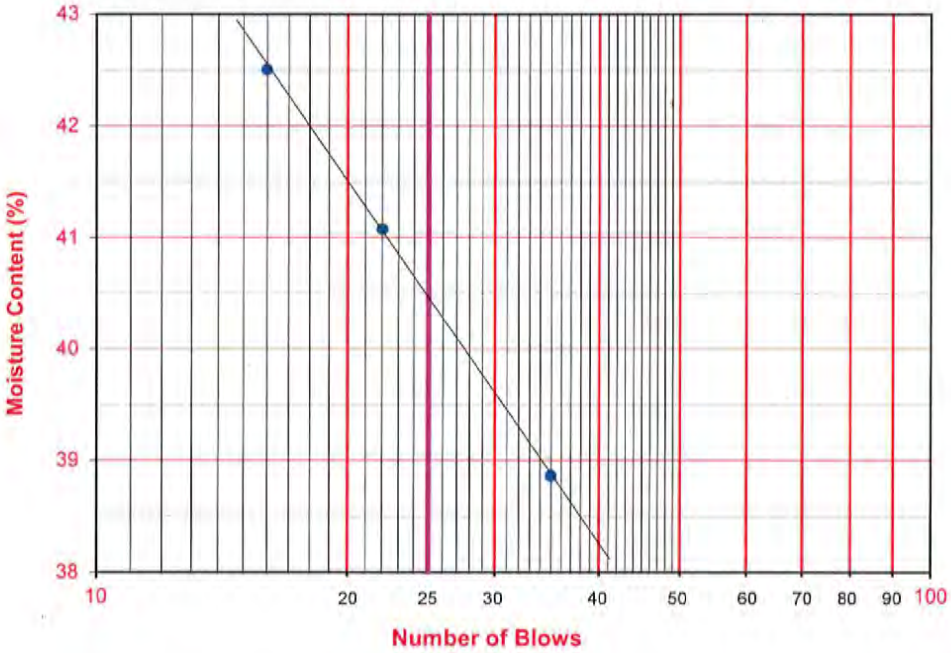
One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [x] Dry Preparation
  Multipoint - Dry
- [x] Procedure A
  Multipoint Test
- [ ] Procedure B
  One-point Test



Leighton

ATTERBERG LIMITS

ASTM D 4318

Project Name:	East Walnut Drive South	Tested By:	R. Manning	Date:	11/14/17
Project No. :	11842.001	Input By:	J. Ward	Date:	11/21/17
Boring No.:	LB-7	Checked By:	J. Ward		
Sample No.:	R-5	Depth (ft.)	15.0		
Soil Identification:	Dark brown clayey sand (SC)				

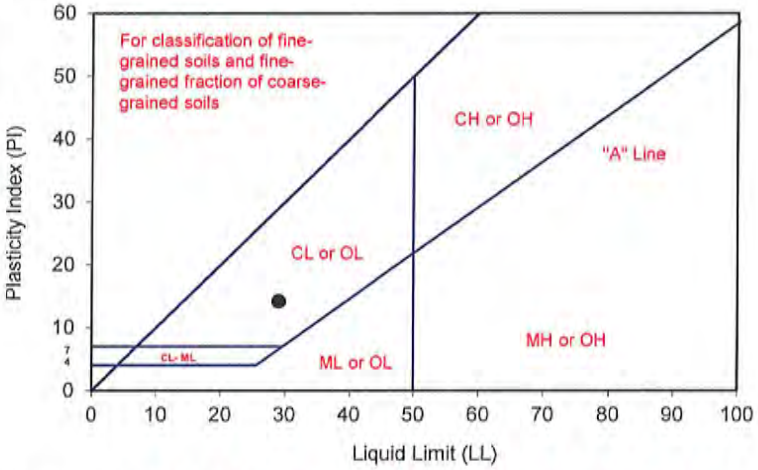
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			35	27	19	
Wet Wt. of Soil + Cont. (g)	15.95	15.32	26.33	25.12	26.52	
Dry Wt. of Soil + Cont. (g)	14.80	14.26	23.58	22.16	23.57	
Wt. of Container (g)	7.05	7.07	13.64	11.77	13.55	
Moisture Content (%) [Wn]	14.84	14.74	27.67	28.49	29.44	

Liquid Limit	**29**
Plastic Limit	**15**
Plasticity Index	**14**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 6.57

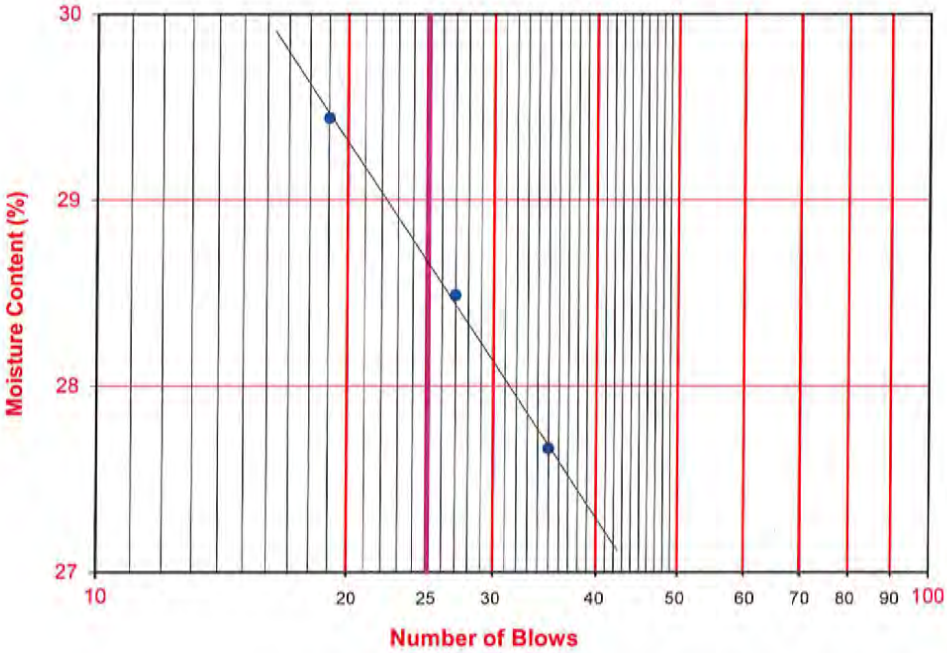
One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [x] Dry Preparation
  Multipoint - Dry
- [x] Procedure A
  Multipoint Test
- [ ] Procedure B
  One-point Test



Leighton

ATTERBERG LIMITS

ASTM D 4318

Project Name:	East Walnut Drive South	Tested By:	R. Manning	Date:	11/14/17
Project No. :	11842.001	Input By:	J. Ward	Date:	11/21/17
Boring No.:	LB-7	Checked By:	J. Ward		
Sample No.:	S-2	Depth (ft.)	20.0		

Soil Identification: Yellowish brown silty, clayey sand (SC-SM)

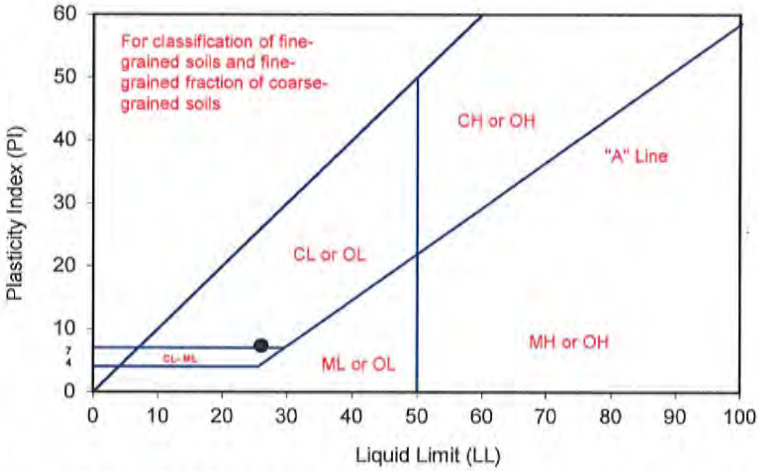
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			35	26	18	
Wet Wt. of Soil + Cont. (g)	13.42	13.94	27.42	26.32	27.84	
Dry Wt. of Soil + Cont. (g)	12.42	12.85	24.66	23.73	24.86	
Wt. of Container (g)	7.06	7.01	13.64	13.62	13.61	
Moisture Content (%) [Wn]	18.66	18.66	25.05	25.62	26.49	

Liquid Limit	**26**
Plastic Limit	**19**
Plasticity Index	**7**
Classification	**CL-ML**

PI at "A" - Line = 0.73(LL-20) 4.38

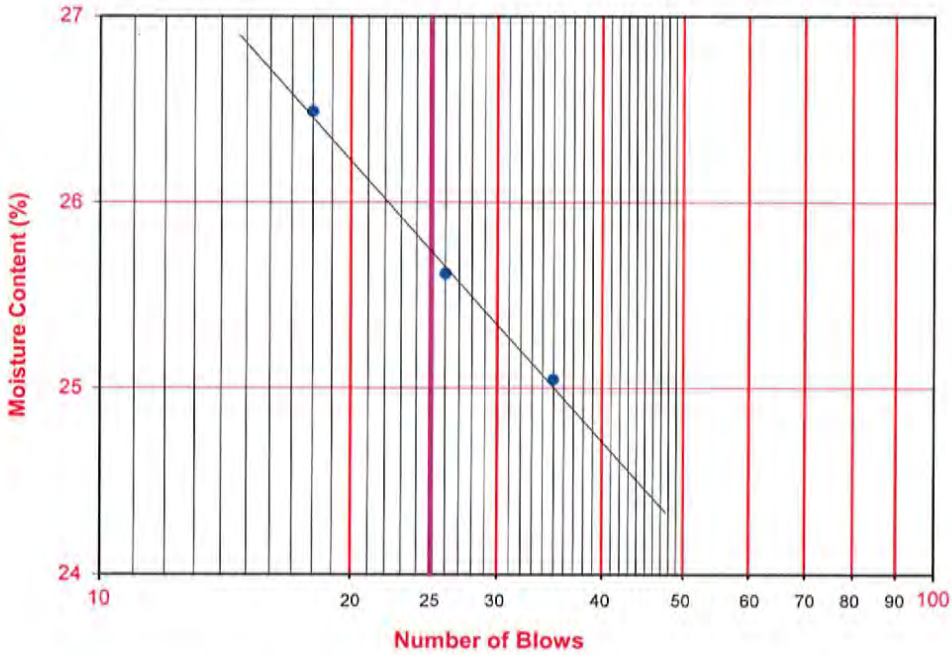
One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.121}$



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [x] Dry Preparation
  Multipoint - Dry
- [x] Procedure A
  Multipoint Test
- [ ] Procedure B
  One-point Test



Leighton

PARTICLE-SIZE ANALYSIS OF SOILS

ASTM D 422

Project Name:	East Walnut Drive South	Tested By:	A. Santos	Date:	11/16/17
Project No.:	11842.001	Data Input By:	J. Ward	Date:	11/21/17
Boring No.:	LB-6				
Sample No.:	BB-1	Depth (feet):	0-5		
Soil Identification:	Dark olive sandy lean clay s(CL)				

		Soil Type
% Gravel	0	s(CL)
% Sand	35	
% Fines	65	

			Moisture Content of Total Air-Dry Soil	Moisture Content of Air-Dry Soil Passing #10	After Hydrometer & Wet Sieve ret. in #200 Sieve
Specific Gravity (Assumed)	2.70	Wt.of Air-Dry Soil + Cont.(g)	0.00	51.69	
Correction for Specific Gravity	0.99	Dry Wt. of Soil + Cont. (g)	0.00	51.62	95.96
Wt.of Air-Dry Soil + Cont. (g)	960.98	Wt. of Container No.___ (g)	1.00	36.58	77.27
Wt. of Container	108.40	Moisture Content (%)	0.00	0.47	
Dry Wt. of Soil (g)	852.58	Wt. of Dry Soil (g)			18.69

Coarse Sieve

U.S. Sieve	Cumulative Wt. Of Dry Soil Retained (g)	% Passing
3"	0.00	100.0
1½"	0.00	100.0
3/4"	0.00	100.0
3/8"	0.00	100.0
No. 4	0.63	99.9
No. 10	3.02	99.6
Pan		

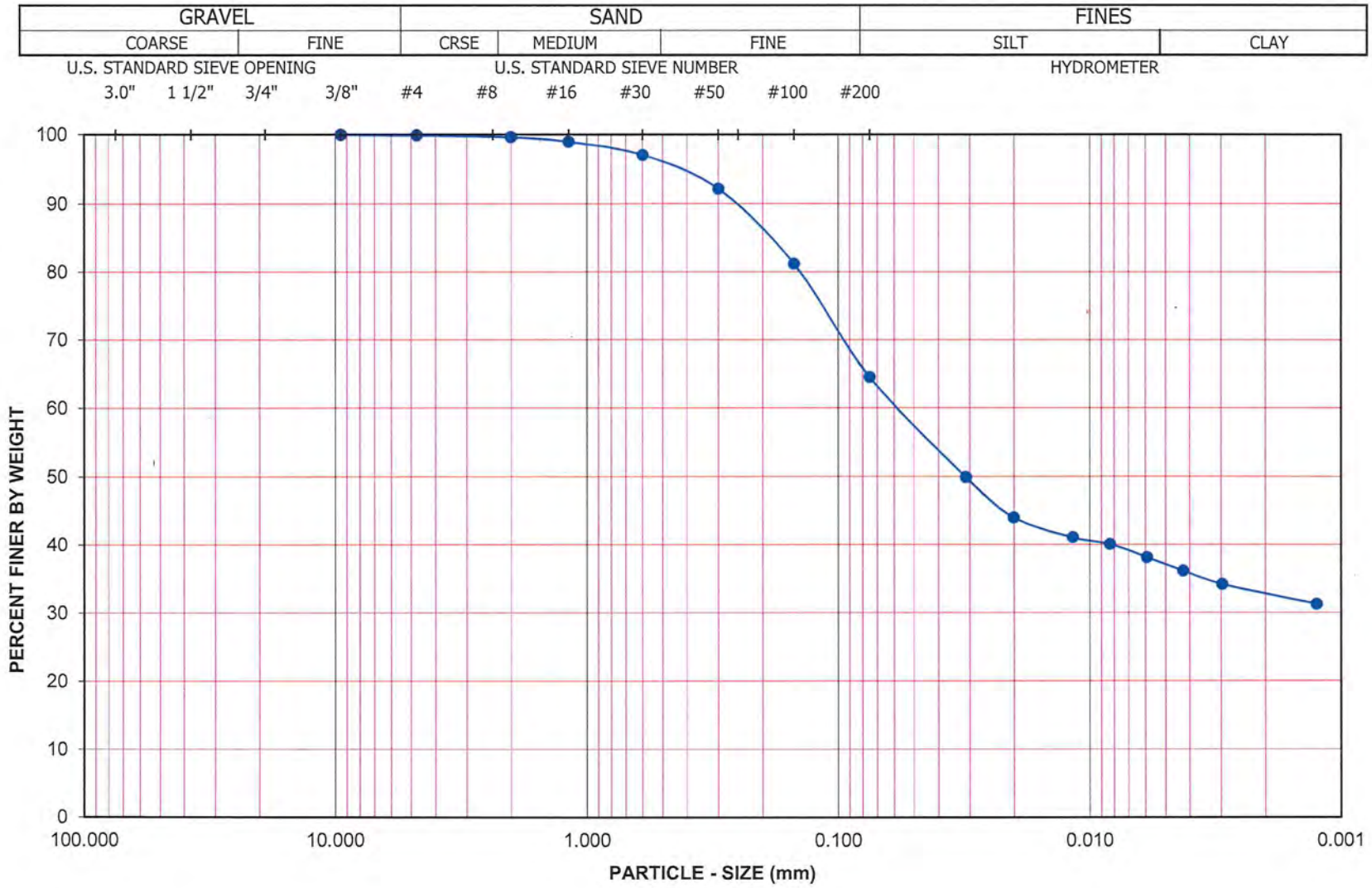
Sieve after Hydrometer & Wet Sieve

U.S. Sieve Size	Cumulative Wt. Of Dry Soil Retained (g)	% Passing	% Total Sample
No. 10	0.00	100.0	99.6
No. 16	0.34	99.3	99.0
No. 30	1.31	97.4	97.1
No. 50	3.78	92.5	92.2
No. 100	9.34	81.5	81.2
No. 200	17.79	64.8	64.5
Pan			

Hydrometer Wt. of Air-Dry Soil (g) 50.74 Wt. of Dry Soil (g) 50.50

Deflocculant 125 cc of 4% Solution

Date	Time	Elapsed Time (min)	Water Temperature (°C)	Composite Correction 152H	Actual Hydrometer Readings	% Total Sample (%)	Soil Particle Diameter (mm)
17-Nov-17	10:45	0		7.5			
	10:47	2	21.1	7.5	33.0	49.9	0.0310
	10:50	5	21.1	7.5	30.0	44.0	0.0201
	11:00	15	21.1	7.5	28.5	41.1	0.0117
	11:15	30	21.2	7.5	28.0	40.1	0.0083
	11:45	60	21.0	7.5	27.0	38.2	0.0059
	12:45	120	20.9	7.5	26.0	36.2	0.0043
	14:55	250	20.7	7.5	25.0	34.3	0.0030
18-Nov-17	10:45	1440	20.7	7.5	23.5	31.3	0.0013



Project Name: East Walnut Drive South

Project No.: 11842.001

Boring No.: LB-6 Sample No.: BB-1

Depth (feet): 0-5 Soil Type : s(CL)

Soil Identification: Dark olive sandy lean clay s(CL)

GR:SA:FI : (%) 0 : 35 : 65

Leighton

PARTICLE - SIZE DISTRIBUTION ASTM D 422

Nov-17

SA & Hyd LB-6, Bb-1 @ 0-5

Leighton

PARTICLE-SIZE ANALYSIS OF SOILS

ASTM D 422

Project Name: East Walnut Drive South
Project No.: 11842.001
Boring No.: LB-7
Sample No.: R-5
Soil Identification: Dark brown clayey sand (SC)

Tested By: A. Santos
Data Input By: J. Ward
Depth (feet): 15.0

Date: 11/16/17
Date: 11/21/17

% Gravel	0	Soil Type
% Sand	53	SC
% Fines	47	

			Moisture Content of Total Air-Dry Soil	Moisture Content of Air-Dry Soil Passing #10	After Hydrometer & Wet Sieve ret. in #200 Sieve
Specific Gravity (Assumed)	2.70	Wt.of Air-Dry Soil + Cont.(g)	0.00	221.19	
Correction for Specific Gravity	0.99	Dry Wt. of Soil + Cont. (g)	0.00	217.31	129.30
Wt.of Air-Dry Soil + Cont. (g)	689.98	Wt. of Container No.___ (g)	1.00	37.31	76.52
Wt. of Container	219.92	Moisture Content (%)	0.00	2.16	
Dry Wt. of Soil (g)	470.06	Wt. of Dry Soil (g)			52.78

Coarse Sieve

U.S. Sieve	Cumulative Wt. Of Dry Soil Retained (g)	% Passing
3"	0.00	100.0
1½"	0.00	100.0
3/4"	0.00	100.0
3/8"	0.00	100.0
No. 4	0.67	99.9
No. 10	2.80	99.4
Pan		

Sieve after Hydrometer & Wet Sieve

U.S. Sieve Size	Cumulative Wt. Of Dry Soil Retained (g)	% Passing	% Total Sample
No. 10	0.00	100.0	99.4
No. 16	0.63	99.4	98.8
No. 30	2.96	97.0	96.4
No. 50	9.43	90.4	89.8
No. 100	27.45	72.0	71.5
No. 200	51.68	47.2	47.0
Pan			

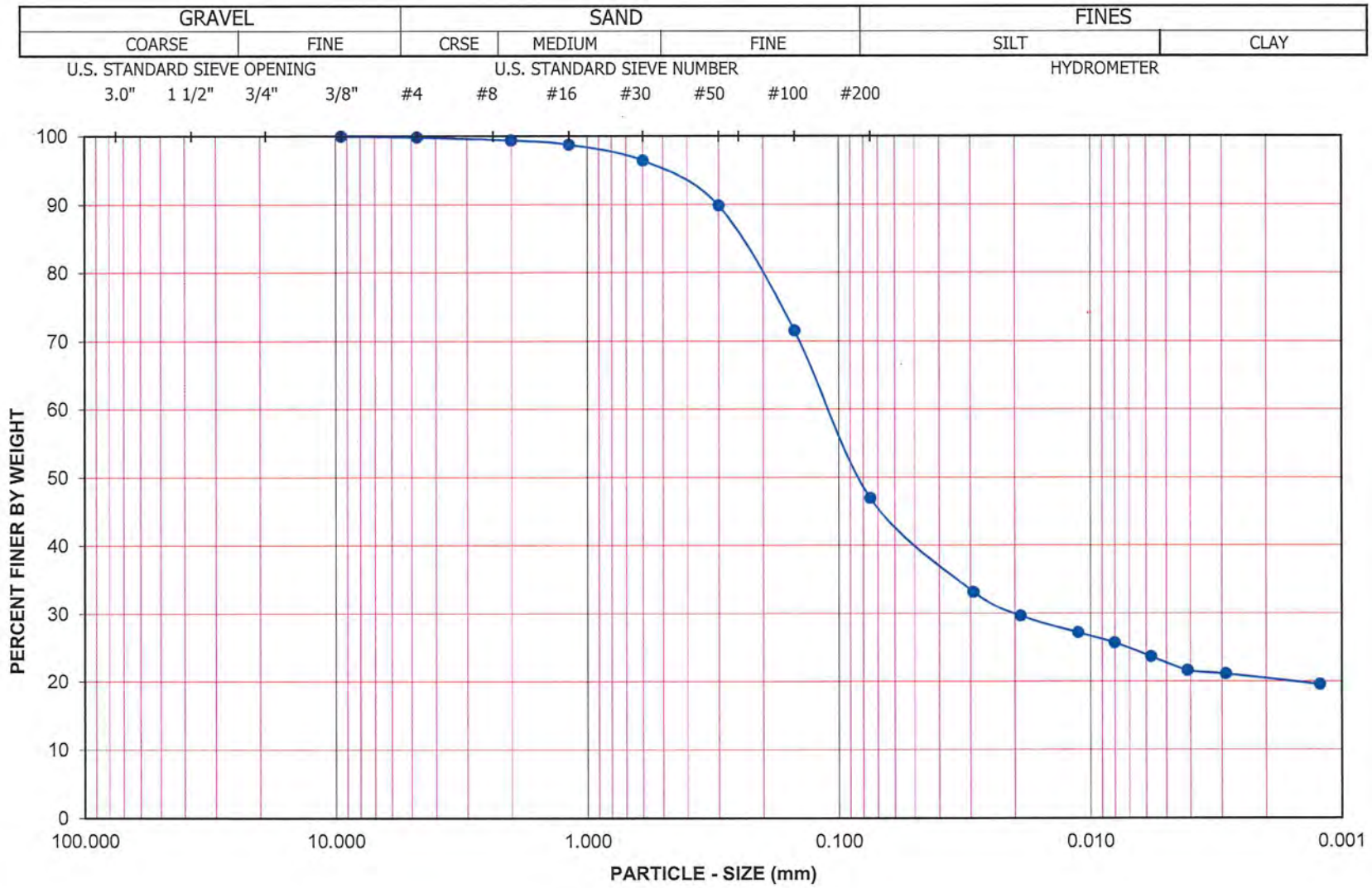
Hydrometer

Wt. of Air-Dry Soil (g): 100.06

Wt. of Dry Soil (g): 97.95

Deflocculant 125 cc of 4% Solution

Date	Time	Elapsed Time (min)	Water Temperature (°C)	Composite Correction 152H	Actual Hydrometer Readings	% Total Sample (%)	Soil Particle Diameter (mm)
17-Nov-17	10:49	0		7.5			
	10:51	2	21.5	7.5	40.5	33.2	0.0292
	10:54	5	21.5	7.5	37.0	29.7	0.0190
	11:04	15	21.4	7.5	34.5	27.2	0.0112
	11:19	30	21.4	7.5	33.0	25.7	0.0080
	11:49	60	21.2	7.5	31.0	23.7	0.0057
	12:49	120	21.0	7.5	29.0	21.6	0.0041
	14:59	250	20.8	7.5	28.5	21.1	0.0029
18-Nov-17	10:49	1440	20.7	7.5	27.0	19.6	0.0012



Project Name: East Walnut Drive South

Project No.: 11842.001

Boring No.: LB-7 Sample No.: R-5

Depth (feet): 15.0 Soil Type : SC

Soil Identification: Dark brown clayey sand (SC)

GR:SA:FI : (%) 0 : 53 : 47

Leighton

PARTICLE - SIZE DISTRIBUTION ASTM D 422

Nov-17

Leighton

PARTICLE-SIZE ANALYSIS OF SOILS

ASTM D 422

Project Name: East Walnut Drive South | Tested By: A. Santos | Date: 11/16/17

Project No.: 11842.001 | Data Input By: J. Ward | Date: 11/21/17

Boring No.: LB-7

Sample No.: S-2 | Depth (feet): 20.0

Soil Identification: Yellowish brown silty, clayey sand (SC-SM)

% Gravel	0	Soil Type
% Sand	68	SC-SM
% Fines	32	

			Moisture Content of Total Air-Dry Soil	Moisture Content of Air-Dry Soil Passing #10	After Hydrometer & Wet Sieve ret. in #200 Sieve
Specific Gravity (Assumed)	2.70	Wt.of Air-Dry Soil + Cont.(g)	0.00	215.56	
Correction for Specific Gravity	0.99	Dry Wt. of Soil + Cont. (g)	0.00	212.77	144.48
Wt.of Air-Dry Soil + Cont. (g)	371.65	Wt. of Container No.___ (g)	1.00	59.20	76.01
Wt. of Container	81.45	Moisture Content (%)	0.00	1.82	
Dry Wt. of Soil (g)	290.20	Wt. of Dry Soil (g)			68.47

Coarse Sieve

U.S. Sieve	Cumulative Wt. Of Dry Soil Retained (g)	% Passing
3"	0.00	100.0
1½"	0.00	100.0
3/4"	0.00	100.0
3/8"	0.00	100.0
No. 4	0.38	99.9
No. 10	3.18	98.9
Pan		

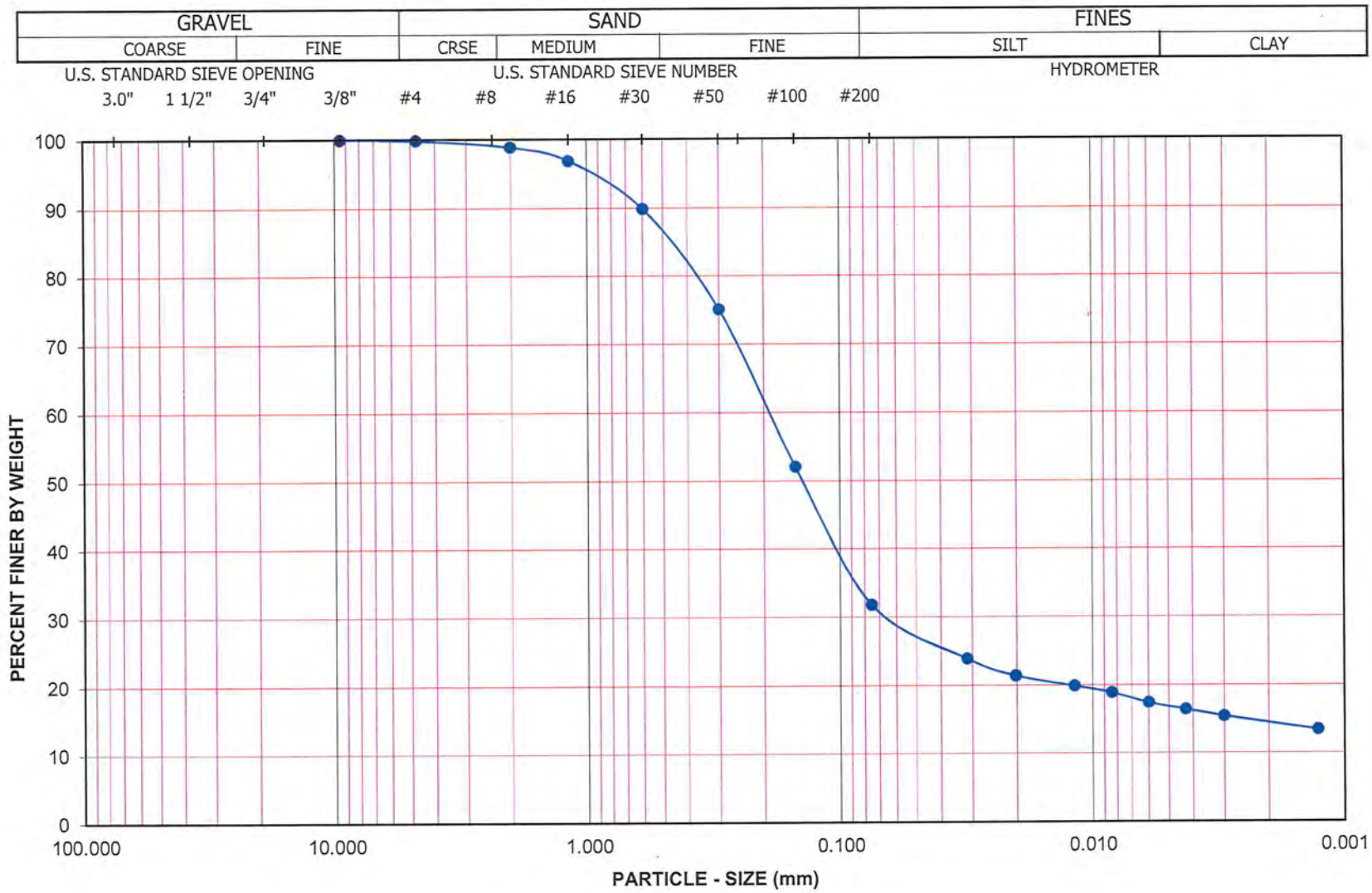
Sieve after Hydrometer & Wet Sieve

U.S. Sieve Size	Cumulative Wt. Of Dry Soil Retained (g)	% Passing	% Total Sample
No. 10	0.00	100.0	98.9
No. 16	1.98	98.0	96.9
No. 30	8.96	90.9	89.9
No. 50	23.66	75.9	75.1
No. 100	46.54	52.7	52.1
No. 200	66.73	32.2	31.8
Pan			

Hydrometer Wt. of Air-Dry Soil (g): 100.16 Wt. of Dry Soil (g): 98.37

Deflocculant 125 cc of 4% Solution

Date	Time	Elapsed Time (min)	Water Temperature (°C)	Composite Correction 152H	Actual Hydrometer Readings	% Total Sample (%)	Soil Particle Diameter (mm)
17-Nov-17	10:53	0		7.5			
	10:55	2	21.5	7.5	31.5	23.9	0.0314
	10:58	5	21.5	7.5	29.0	21.4	0.0201
	11:08	15	21.5	7.5	27.5	19.9	0.0118
	11:23	30	21.4	7.5	26.5	18.9	0.0084
	11:53	60	21.3	7.5	25.0	17.5	0.0060
	12:53	120	21.1	7.5	24.0	16.5	0.0043
	15:03	250	20.8	7.5	23.0	15.5	0.0030
18-Nov-17	10:53	1440	20.8	7.5	21.0	13.5	0.0013



Project Name: East Walnut Drive South

Project No.: 11842.001

Boring No.: LB-7 Sample No.: S-2

Depth (feet): 20.0 Soil Type : SC-SM

Soil Identification: Yellowish brown silty, clayey sand (SC-SM)

GR:SA:FI : (%) 0 : 68 : 32

Leighton

PARTICLE - SIZE DISTRIBUTION ASTM D 422

Nov-17

Leighton

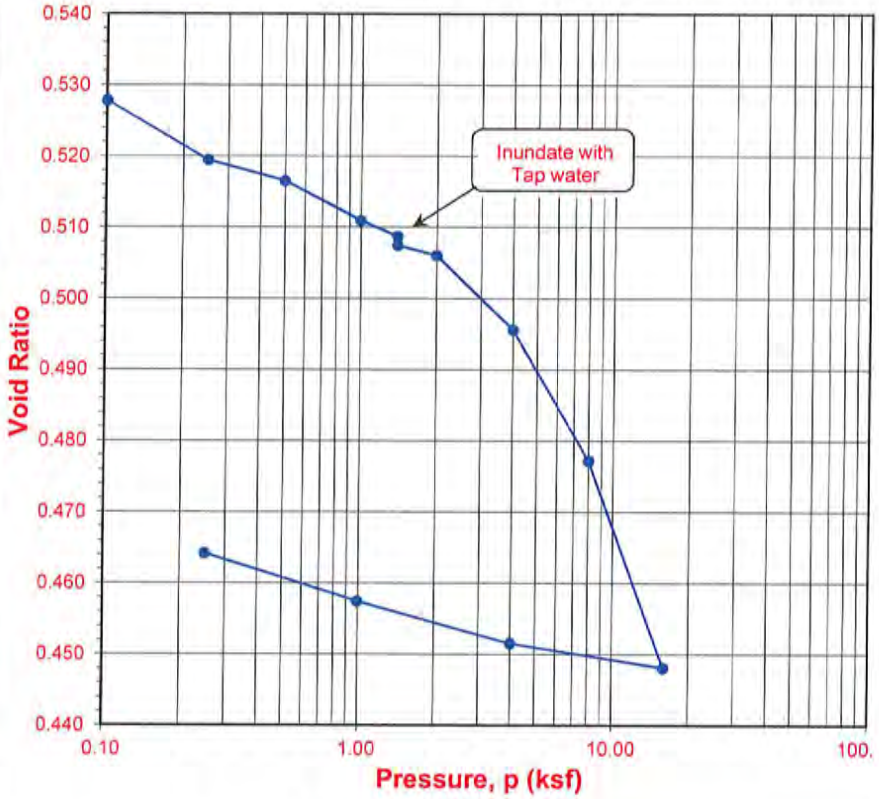
ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS

ASTM D 2435

Project Name: East Walnut Drive South
Project No.: 11842.001
Boring No.: LB-7
Sample No.: R-4
Soil Identification: Dark yellowish brown silty clay (CL-ML)

Tested By: G. Bathala Date: 11/09/17
Checked By: J. Ward Date: 11/21/17
Depth (ft.): 12.0
Sample Type: Ring

Sample Diameter (in.)	2.415
Sample Thickness (in.)	1.000
Wt. of Sample + Ring (g)	199.80
Weight of Ring (g)	43.71
Height after consol. (in.)	0.9552
Before Test	
Wt.Wet Sample+Cont. (g)	222.38
Wt.of Dry Sample+Cont. (g)	198.67
Weight of Container (g)	67.35
Initial Moisture Content (%)	18.1
Initial Dry Density (pcf)	110.0
Initial Saturation (%)	91
Initial Vertical Reading (in.)	0.2988
After Test	
Wt.of Wet Sample+Cont. (g)	267.24
Wt. of Dry Sample+Cont. (g)	245.65
Weight of Container (g)	70.33
Final Moisture Content (%)	16.40
Final Dry Density (pcf)	114.6
Final Saturation (%)	94
Final Vertical Reading (in.)	0.2506
Specific Gravity (assumed)	2.70
Water Density (pcf)	62.43

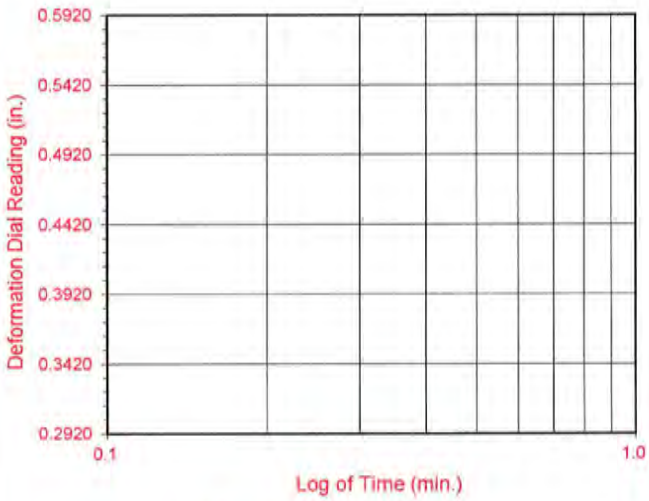


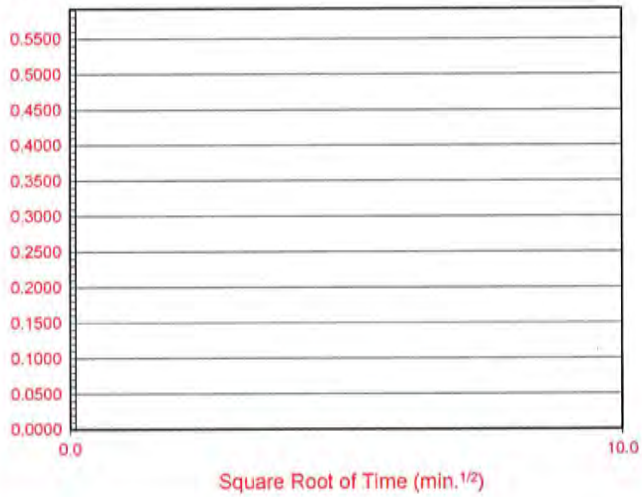
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deformation (%)
0.10	0.2954	0.9967	0.00	0.33	0.528	0.33
0.25	0.2897	0.9909	0.03	0.91	0.519	0.88
0.50	0.2874	0.9886	0.07	1.14	0.517	1.07
1.00	0.2827	0.9840	0.17	1.61	0.511	1.44
1.40	0.2808	0.9820	0.22	1.80	0.509	1.58
1.40	0.2800	0.9812	0.22	1.88	0.507	1.66
2.00	0.2782	0.9795	0.30	2.06	0.506	1.76
4.00	0.2699	0.9712	0.45	2.89	0.496	2.44
8.00	0.2558	0.9571	0.66	4.30	0.477	3.64
16.00	0.2342	0.9355	0.92	6.46	0.448	5.54
4.00	0.2394	0.9406	0.63	5.94	0.452	5.31
1.00	0.2452	0.9465	0.43	5.36	0.457	4.93
0.25	0.2506	0.9519	0.33	4.82	0.464	4.49

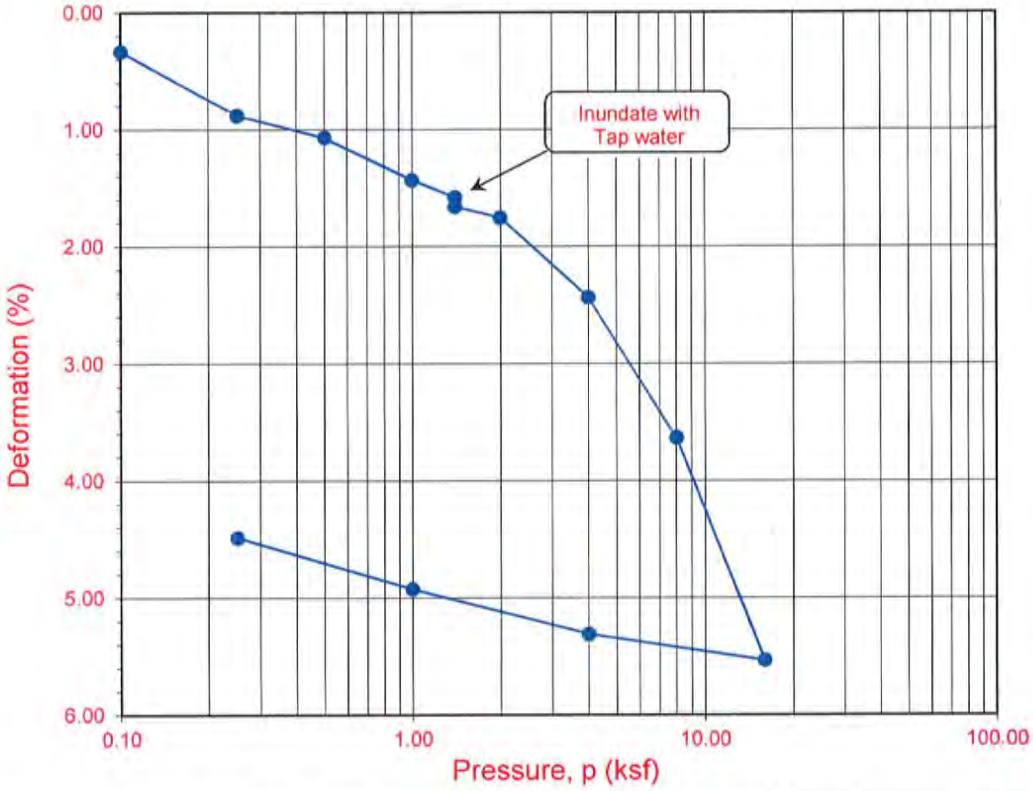
Time Readings

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)

Time Readings







Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
LB-7	**R-4**	**12.0**	**18.1**	**16.4**	**110.0**	**114.6**	**0.533**	**0.464**	**91**	**94**

Soil Identification: Dark yellowish brown silty clay (CL-ML)

Leighton

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 11842.001

East Walnut Drive South

11-17

Leighton

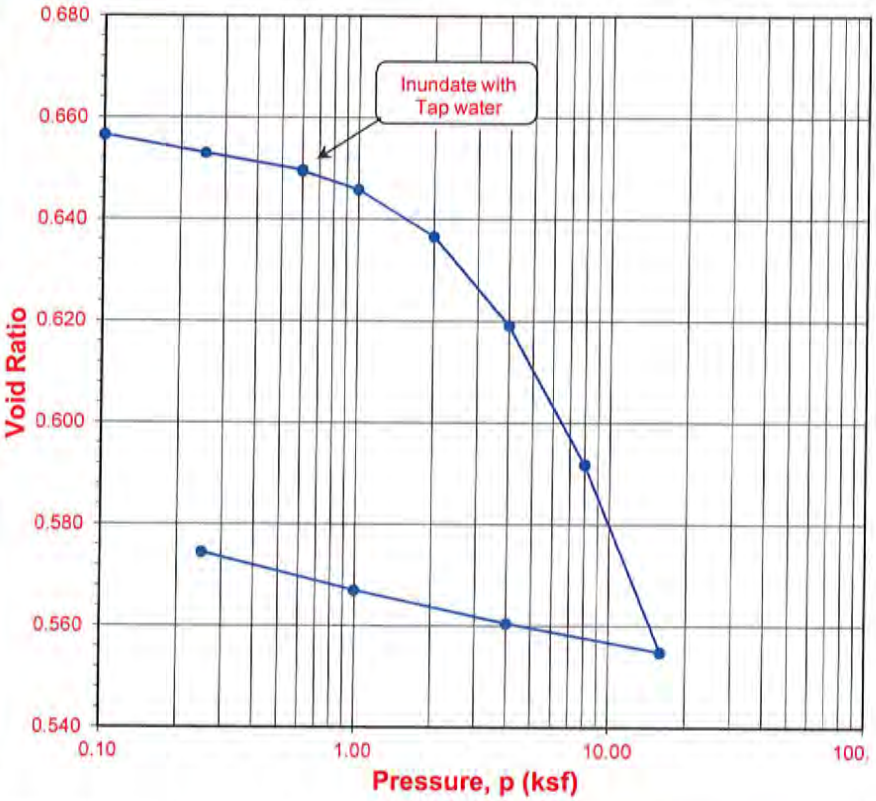
ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS

ASTM D 2435

Project Name: East Walnut Drive South
Project No.: 11842.001
Boring No.: LB-8
Sample No.: R-1
Soil Identification: Olive brown silty, clayey sand (SC-SM)

Tested By: G. Bathala Date: 11/09/17
Checked By: J. Ward Date: 11/21/17
Depth (ft.): 5.0
Sample Type: Ring

Sample Diameter (in.)	2.415
Sample Thickness (in.)	1.000
Wt. of Sample + Ring (g)	172.38
Weight of Ring (g)	41.80
Height after consol. (in.)	0.9507
Before Test	
Wt.Wet Sample+Cont. (g)	210.60
Wt.of Dry Sample+Cont. (g)	202.16
Weight of Container (g)	76.26
Initial Moisture Content (%)	6.7
Initial Dry Density (pcf)	101.8
Initial Saturation (%)	28
Initial Vertical Reading (in.)	0.2864
After Test	
Wt.of Wet Sample+Cont. (g)	223.90
Wt. of Dry Sample+Cont. (g)	202.86
Weight of Container (g)	39.05
Final Moisture Content (%)	17.24
Final Dry Density (pcf)	106.7
Final Saturation (%)	80
Final Vertical Reading (in.)	0.2345
Specific Gravity (assumed)	2.70
Water Density (pcf)	62.43

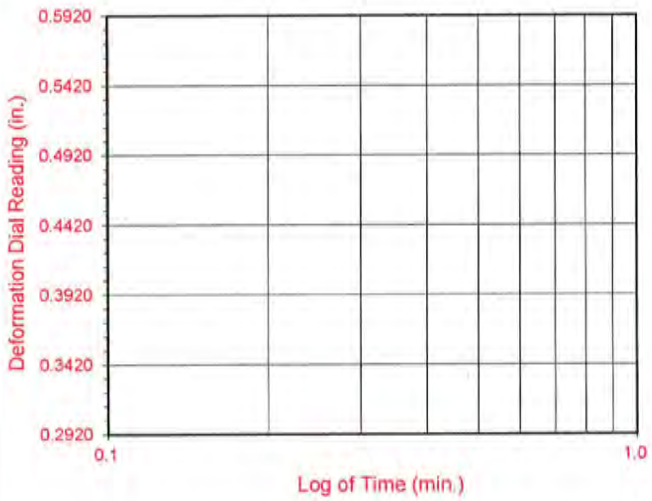


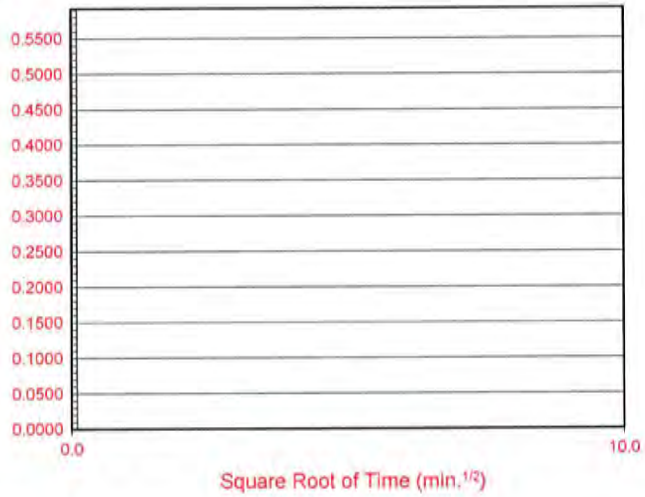
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deformation (%)
0.10	0.2866	1.0002	0.00	-0.02	0.657	-0.02
0.25	0.2841	0.9977	0.04	0.23	0.653	0.19
0.60	0.2809	0.9945	0.16	0.55	0.650	0.39
0.60	0.2807	0.9943	0.16	0.57	0.649	0.41
1.00	0.2777	0.9913	0.24	0.87	0.646	0.63
2.00	0.2712	0.9848	0.34	1.53	0.637	1.19
4.00	0.2595	0.9731	0.45	2.69	0.619	2.24
8.00	0.2414	0.9550	0.61	4.50	0.592	3.89
16.00	0.2174	0.9310	0.78	6.90	0.555	6.12
4.00	0.2230	0.9366	0.56	6.34	0.560	5.78
1.00	0.2285	0.9421	0.40	5.79	0.567	5.39
0.25	0.2345	0.9481	0.26	5.19	0.574	4.93

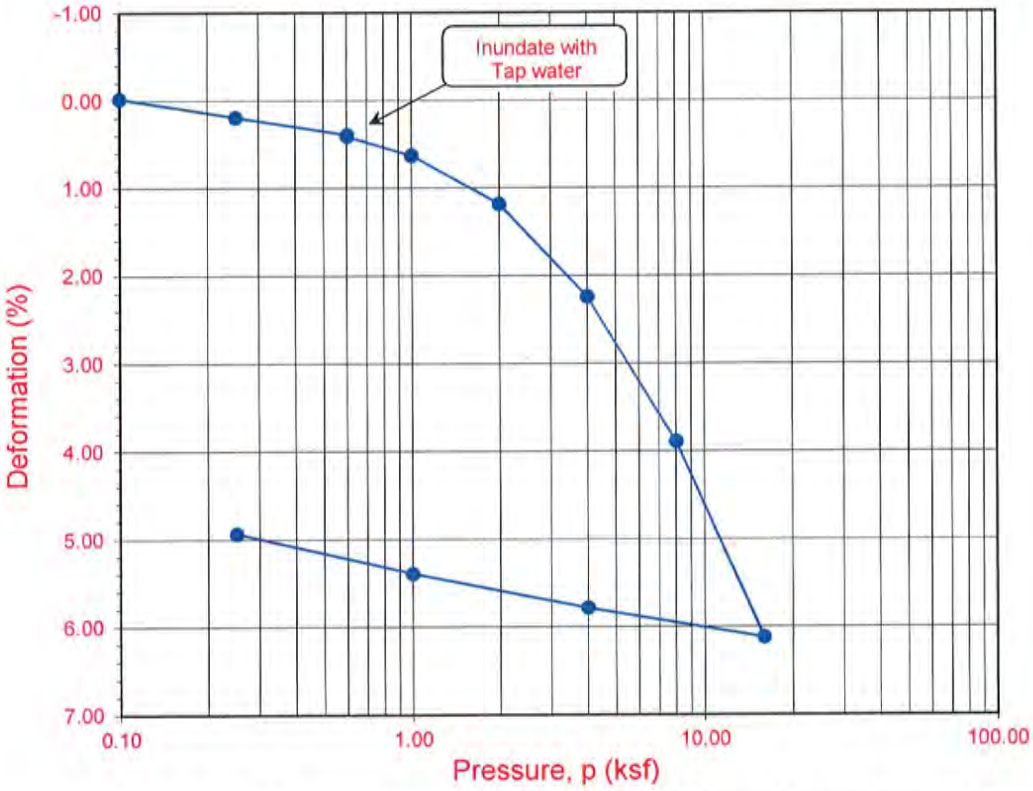
Time Readings

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)

Time Readings







Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
LB-8	**R-1**	**5.0**	**6.7**	**17.2**	**101.8**	**106.7**	**0.656**	**0.574**	**28**	**80**

Soil Identification: Olive brown silty, clayey sand (SC-SM)

Leighton

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 11842.001

East Walnut Drive South

Leighton

TESTS for SULFATE CONTENT
CHLORIDE CONTENT and pH of SOILS

Project Name: East Walnut Drive South
Project No. : 11842.001

Tested By : OHF/ACS Date: 11/15/17
Data Input By: J. Ward Date: 11/21/17

Boring No.	LB-6			
Sample No.	BB-1			
Sample Depth (ft)	0-5			
Soil Identification:	Dark olive s(CL)			
Wet Weight of Soil + Container (g)	131.23			
Dry Weight of Soil + Container (g)	130.94			
Weight of Container (g)	58.10			
Moisture Content (%)	0.40			
Weight of Soaked Soil (g)	100.50			

SULFATE CONTENT, DOT California Test 417, Part II

Beaker No.	92/90			
Crucible No.	16			
Furnace Temperature (°C)	860			
Time In / Time Out	8:45/9:30			
Duration of Combustion (min)	45			
Wt. of Crucible + Residue (g)	25.0952			
Wt. of Crucible (g)	25.0921			
Wt. of Residue (g) (A)	0.0031			
PPM of Sulfate (A) x 41150	127.56			
PPM of Sulfate, Dry Weight Basis	**128**			

CHLORIDE CONTENT, DOT California Test 422

ml of Extract For Titration (B)	30			
ml of AgNO3 Soln. Used in Titration (C)	0.7			
PPM of Chloride (C -0.2) * 100 * 30 / B	50			
PPM of Chloride, Dry Wt. Basis	**50**			

pH TEST, DOT California Test 643

pH Value	**7.36**			
Temperature °C	20.1			

Leighton

SOIL RESISTIVITY TEST

DOT CA TEST 643

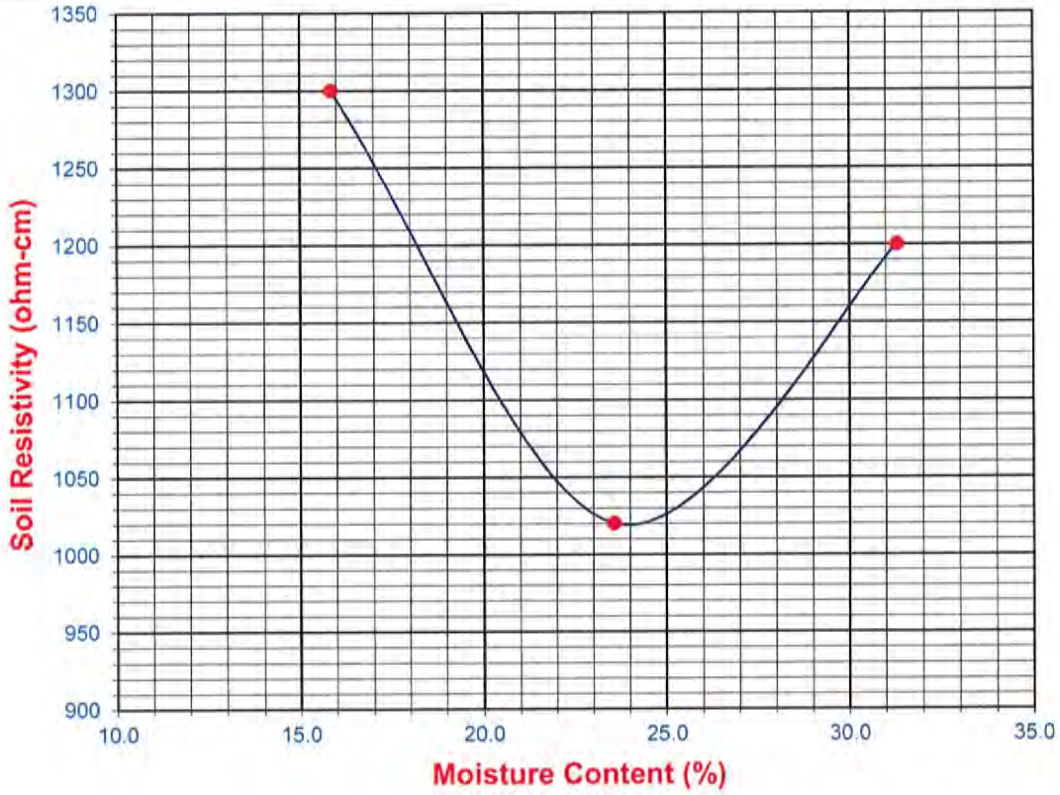
Project Name:	East Walnut Drive South	Tested By :	O. Figueroa	Date:	11/17/17
Project No. :	11842.001	Data Input By:	J. Ward	Date:	11/21/17
Boring No.:	LB-6	Depth (ft.) :	0-5		
Sample No. :	BB-1				
Soil Identification:*	Dark olive s(CL)				

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	20	15.84	1300	1300
2	30	23.57	1020	1020
3	40	31.29	1200	1200
4				
5				

Moisture Content (%) (MCi)	0.40
Wet Wt. of Soil + Cont. (g)	131.23
Dry Wt. of Soil + Cont. (g)	130.94
Wt. of Container (g)	58.10
Container No.	
Initial Soil Wt. (g) (Wt)	130.00
Box Constant	1.000
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 643	
1020	**23.9**	**128**	**50**	**7.36**	**20.1**



APPENDIX C

FIELD EXPLORATION LOGS
(LEIGHTON CONSULTING, INC., 2010)

Leighton

GEOTECHNICAL BORING LOG B-1

Project No.	602893-003	**Date Drilled**	8-19-10
Project	IUDA Walnut Drive	**Logged By**	MDH
Drilling Co.	2R Drilling, Inc.	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	Station 0+04, offset 15' northeast of proposed storm drain alignment	**Sampled By**	MDH

Elevation Feet	Depth Feet	Graphic Log (N–S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	0			B-1					@Surface: Toposil, **Alluvium (Qal)**	
				R-1	19 22 19	115	7	SM	@2': SILTY SAND, medium dense, brown, dry, fine sand, trace coarse gravel, roots	
	5			R-2	7 14 19	112	7	SM	@5': SILTY SAND, medium dense, brown, dry, fine sand	
	10			R-3	20 23 30	116	7	ML	@10': SANDY SILT, dense, brown to dark brown, dry, fine sand, medium dry strength	
	15			S-1	3 3 4		15	CL-ML	@15': CLAYEY SILT, medium stiff, brown, moist	
	20			R-4	5 7 9			CL	@20': LEAN CLAY, stiff, brown to dark brown, very moist, medium plasticity	CN
	25			S-2	3 3 3			CL	@25': SANDY LEAN CLAY, medium stiff, dark brown, very moist, fine sand, low to medium plasticity	
	30								**Total depth of boring 26.5 feet** **Groundwater not encountered** **Backfilled with cuttings 8/19/2010**	

SAMPLE TYPES:

- S SPLIT SPOON
- R RING SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE
- G GRAB SAMPLE
- C CORE SAMPLE

TYPE OF TESTS:

- DS DIRECT SHEAR
- MD MAXIMUM DENSITY
- CN CONSOLIDATION
- CR CORROSION
- UC UNCONFINED COMPRESSIVE STRENGTH
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- EI EXPANSION INDEX
- RV R VALUE
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CO COLLAPSE
- PP POCKET PENETROMETER

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG B-2

Project No.	602893-003	**Date Drilled**	8-19-10
Project	IUDA Walnut Drive	**Logged By**	MDH
Drilling Co.	2R Drilling, Inc.	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	Station 1+71, offset 5' southwest of proposed storm drain alignment	**Sampled By**	MDH

Elevation Feet	Depth Feet	Graphic Log (N–S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	0			B-1					@Surface: Topsoil, **Alluvium (Qal)**	
				R-1	6 9 14	109	6	SM	@2': SILTY SAND, medium dense, dark brown, dry, fine sand	CR, MD
	5			R-2	8 12 16	115	9	ML	@5': SANDY SILT, very stiff, brown to dark grayish brown, dry, medium dry strength	
	10			R-3	7 14 16	118	13	CL	@10': SANDY CLAY, very stiff, brown, moist, fine sand, medium plasticity	CR
	15			S-1	2 2 4		22	CL	@15': SANDY CLAY, medium stiff, reddish brown to olive gray, moist, portions of very highly weathered siltstone, LL = 39, PI = 20, 56% fines	AL, -200
									Puente formation (Tp)	
	20			R-4	14 50/5"				@20': Weathered SILTSTONE, very dense, gray, slightly moist, thin bands of oxidized sandstone	
	25			S-2	7 24 26				@25': Weathered SILTSTONE, very dense, gray, slightly moist, thin bands of oxidized sandstone	
	30								**Total depth of boring 26.5 feet** **Groundwater not encountered** **Backfilled with cuttings 8/19/2010**	

SAMPLE TYPES:

- S SPLIT SPOON
- R RING SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE
- G GRAB SAMPLE
- C CORE SAMPLE

TYPE OF TESTS:

- DS DIRECT SHEAR
- MD MAXIMUM DENSITY
- CN CONSOLIDATION
- CR CORROSION
- UC UNCONFINED COMPRESSIVE STRENGTH
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- EI EXPANSION INDEX
- RV R VALUE
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CO COLLAPSE
- PP POCKET PENETROMETER

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG B-3

Project No.	602893-003	**Date Drilled**	8-19-10
Project	IUDA Walnut Drive	**Logged By**	MDH
Drilling Co.	2R Drilling, Inc.	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	Station 4+50, offset 10' north of proposed storm drain alignment	**Sampled By**	MDH

Elevation Feet	Depth Feet	Graphic Log (N / S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION *The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.*	Type of Tests
	0			B-1					@Surface: Topsoil, **Alluvium (Qal)**	
				R-1	11 14 14	117	9	SM	@2': SILTY SAND, medium dense, grayish brown, dry, fine sand, roots	
	5			R-2	7 9 16	118	12	SM	@5': SILTY SAND, medium dense, brown, slightly moist, fine sand	
	10			R-3	10 15 20	118	13	CL	@10': SANDY CLAY, very stiff, brown, moist, fine sand, medium plasticity, SE = 10, LL = 29, PI = 14	SE, AL
	15			R-4	6 7 12			SC	@15': CLAYEY SAND, medium dense, brown to light brown, moist, fine sand, 41% fines	CN, -200
									Total depth of boring 16.5 feet **Groundwater not encountered** **Backfilled with cuttings 8/19/2010**	
	20									
	25									
	30									

SAMPLE TYPES:

S SPLIT SPOON
R RING SAMPLE
B BULK SAMPLE
T TUBE SAMPLE
G GRAB SAMPLE
C CORE SAMPLE

TYPE OF TESTS:

DS DIRECT SHEAR
MD MAXIMUM DENSITY
CN CONSOLIDATION
CR CORROSION
UC UNCONFINED COMPRESSIVE STRENGTH
SA SIEVE ANALYSIS
SE SAND EQUIVALENT
EI EXPANSION INDEX
RV R VALUE
-200 % FINES PASSING
AL ATTERBERG LIMITS
CO COLLAPSE
PP POCKET PENETROMETER

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

GEOTECHNICAL BORING LOG B-4

Project No.	602893-003	**Date Drilled**	8-19-10
Project	IUDA Walnut Drive	**Logged By**	MDH
Drilling Co.	2R Drilling, Inc.	**Hole Diameter**	8"
Drilling Method	Hollow Stem Auger - 140lb - Autohammer - 30" Drop	**Ground Elevation**	'
Location	Station 6+30, offset 10' north of proposed storm drain alignment	**Sampled By**	MDH

Elevation Feet	Depth Feet	Graphic Log (N S)	Attitudes	Sample No.	Blows Per 6 Inches	Dry Density pcf	Moisture Content, %	Soil Class. (U.S.C.S.)	SOIL DESCRIPTION	Type of Tests
	0			B-1					@Surface: Topsoil, **Alluvium (Qal)**	RV, EI
				R-1	5 9 11	117	12	SC	@2': CLAYEY SAND, medium dense, dark brown, slightly moist, fine sand, roots, R-value = 39, EI = 42	
	5			R-2	7 12 17	115	14	CL	@5': SANDY CLAY, very stiff, dark brown, moist, fine sand, low plasticity	
	10			R-3	11 20 23	120	14	CL	@10': SANDY CLAY, very stiff, brown, moist, fine sand, medium plasticity	
	15			S-1	3 5 7		16	CL	@15': CLAY, stiff, brown, moist, trace fine sand, medium plasticity	
									Puente formation (Tp)	
	20			R-4	11 43 50/4.5"				@20': Weathered SILTSTONE, very dense, brown to gray, slightly moist	
	25			S-2	12 15 21				@25': Highly weathered SILTSTONE, dense, gray, wet	
	30								**Total depth of boring 26.5 feet** **Groundwater encountered at 22.5 feet** **Backfilled with cuttings 8/19/2010**	

The Soil Description applies only to a location of the exploration at the time of drilling. Subsurface conditions may differ at other locations and may change with time. The description is a simplification of the actual conditions encountered. Transitions between soil types may be gradual.

SAMPLE TYPES:

- S SPLIT SPOON
- R RING SAMPLE
- B BULK SAMPLE
- T TUBE SAMPLE
- G GRAB SAMPLE
- C CORE SAMPLE

TYPE OF TESTS:

- DS DIRECT SHEAR
- MD MAXIMUM DENSITY
- CN CONSOLIDATION
- CR CORROSION
- UC UNCONFINED COMPRESSIVE STRENGTH
- SA SIEVE ANALYSIS
- SE SAND EQUIVALENT
- EI EXPANSION INDEX
- RV R VALUE
- -200 % FINES PASSING
- AL ATTERBERG LIMITS
- CO COLLAPSE
- PP POCKET PENETROMETER

*** This log is a part of a report by Leighton and should not be used as a stand-alone document. ***

APPENDIX D

LABORATORY TEST RESULTS (LEIGHTON CONSULTING, INC., 2010)

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ATTERBERG LIMITS

ASTM D 4318

Project Name:	IUDA Walnut Drive	Tested By:	V. Juliano	Date:	09/14/10
Project No. :	602893-003	Input By:	J. Ward	Date:	09/16/10
Boring No.:	B-2	Checked By:	J. Ward		
Sample No.:	S-1	Depth (ft.)	15.0		

Soil Identification: Yellowish brown sandy lean clay s(CL)

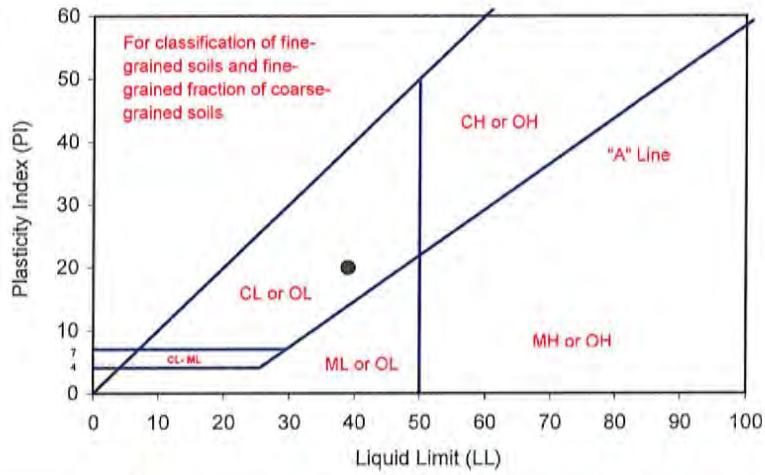
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			35	28	20	
Wet Wt. of Soil + Cont. (g)	21.40	21.39	12.05	11.49	13.65	
Dry Wt. of Soil + Cont. (g)	20.13	20.14	9.10	8.62	10.08	
Wt. of Container (g)	13.54	13.50	1.06	1.06	1.11	
Moisture Content (%) [Wn]	19.27	18.83	36.69	37.96	39.80	

Liquid Limit	**39**
Plastic Limit	**19**
Plasticity Index	**20**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 13.87

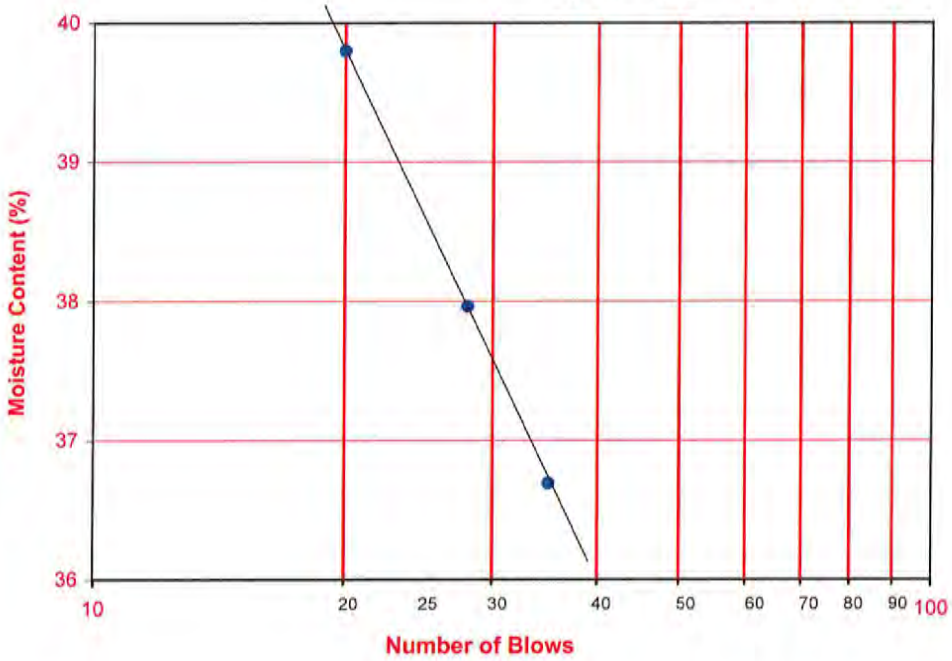
One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.12}$



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [x] Dry Preparation
  Multipoint - Dry
- [x] Procedure A
  Multipoint Test
- [ ] Procedure B
  One-point Test



Leighton

ATTERBERG LIMITS

ASTM D 4318

Project Name:	IUDA Walnut Drive	Tested By:	V. Juliano	Date:	09/14/10
Project No. :	602893-003	Input By:	J. Ward	Date:	09/16/10
Boring No.:	B-4	Checked By:	J. Ward		
Sample No.:	R-3	Depth (ft.)	10.0		
Soil Identification:	Brown sandy lean clay s(CL)				

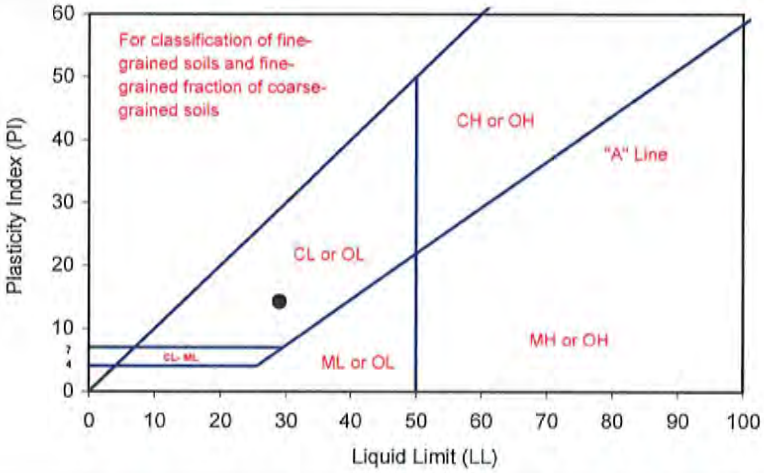
TEST	PLASTIC LIMIT		LIQUID LIMIT			
NO.	1	2	1	2	3	4
Number of Blows [N]			35	26	18	
Wet Wt. of Soil + Cont. (g)	9.27	9.09	14.20	13.99	14.28	
Dry Wt. of Soil + Cont. (g)	8.22	8.06	11.35	11.12	11.23	
Wt. of Container (g)	1.07	1.07	1.06	1.08	1.04	
Moisture Content (%) [Wn]	14.69	14.74	27.70	28.59	29.93	

Liquid Limit	**29**
Plastic Limit	**15**
Plasticity Index	**14**
Classification	**CL**

PI at "A" - Line = 0.73(LL-20) 6.57

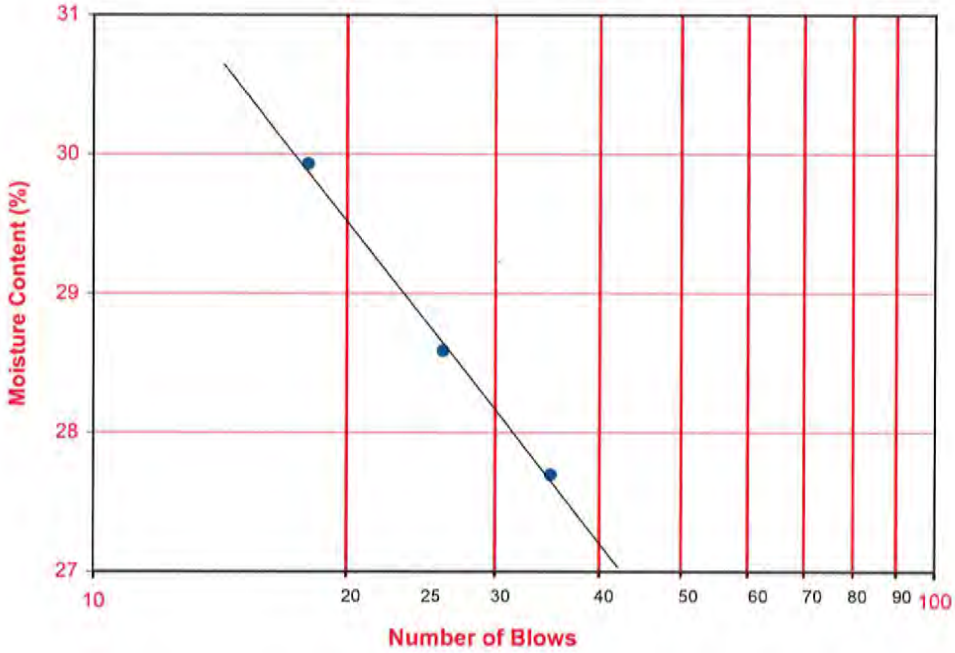
One - Point Liquid Limit Calculation

$LL = Wn(N/25)^{0.12}$



PROCEDURES USED

- [ ] Wet Preparation
  Multipoint - Wet
- [x] Dry Preparation
  Multipoint - Dry
- [x] Procedure A
  Multipoint Test
- [ ] Procedure B
  One-point Test



Boring No.	B-2	B-3						
Sample No.	S-1	R-4						
Depth (ft.)	15.0	15.0						
Sample Type	SPT	Drive						
Soil Identification	Yellowish brown sandy lean clay s(CL)	Olive brown clayey sand (SC)						
Moisture Correction								
Wet Weight of Soil + Container (g)	0.00	0.00						
Dry Weight of Soil + Container (g)	0.00	0.00						
Weight of Container (g)	1.00	1.00						
Moisture Content (%)	0.00	0.00						
Sample Dry Weight Determination								
Weight of Sample + Container (g)	755.90	673.60						
Weight of Container (g)	251.10	238.10						
Weight of Dry Sample (g)	504.80	435.50						
Container No.:								
After Wash								
Method (A or B)	B	B						
Dry Weight of Sample + Cont. (g)	473.70	495.50						
Weight of Container (g)	251.10	238.10						
Dry Weight of Sample (g)	222.60	257.40						
% Passing No. 200 Sieve	**55.9**	**40.9**						
% Retained No. 200 Sieve	44.1	59.1						

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PERCENT PASSING
No. 200 SIEVE
ASTM D 1140

Project Name: IUDA Walnut Drive
Project No.: 602893-003
Client Name: LCI/Rancho Cucamonga
Tested By: S. Felter Date: 09/09/10

-200 B-2, S-1 @ 15 and B-3, R-4 @ 15

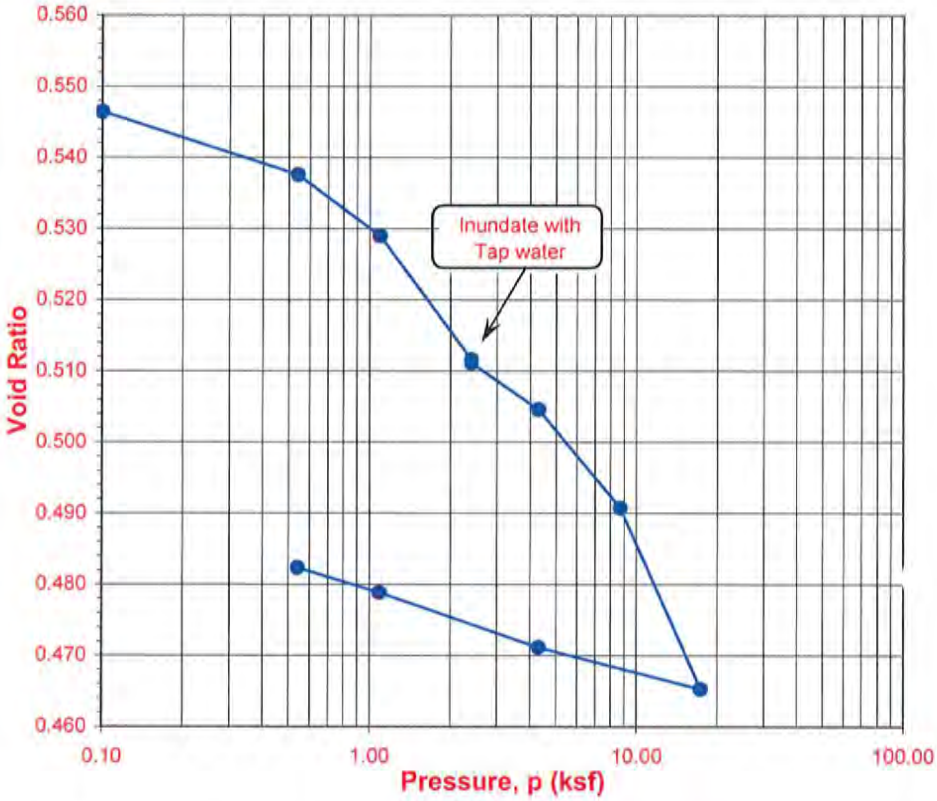
Leighton

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS

ASTM D 2435

Project Name:	IUDA Walnut Drive	Tested By:	G. Bathala	Date:	09/08/10
Project No.:	602893-003	Checked By:	J. Ward	Date:	09/17/10
Boring No.:	B-1	Depth (ft.):	20.0		
Sample No.:	R-4	Sample Type:	Drive		
Soil Identification:	Olive brown lean clay with sand (CL)s				

Sample Diameter (in.):	2.416
Sample Thickness (in.):	1.000
Weight of Sample + ring (g):	197.48
Weight of Ring (g):	43.42
Height after consol. (in.):	0.9526
Before Test	
Wt. of Wet Sample+Cont. (g):	201.51
Wt. of Dry Sample+Cont. (g):	176.40
Weight of Container (g):	38.29
Initial Moisture Content (%)	18.2
Initial Dry Density (pcf)	108.3
Initial Saturation (%):	88
Initial Vertical Reading (in.)	0.1160
After Test	
Wt. of Wet Sample+Cont. (g):	232.67
Wt. of Dry Sample+Cont. (g):	210.93
Weight of Container (g):	38.40
Final Moisture Content (%)	16.84
Final Dry Density (pcf):	112.6
Final Saturation (%):	92
Final Vertical Reading (in.)	0.1634
Specific Gravity (assumed):	2.70
Water Density (pcf):	62.43

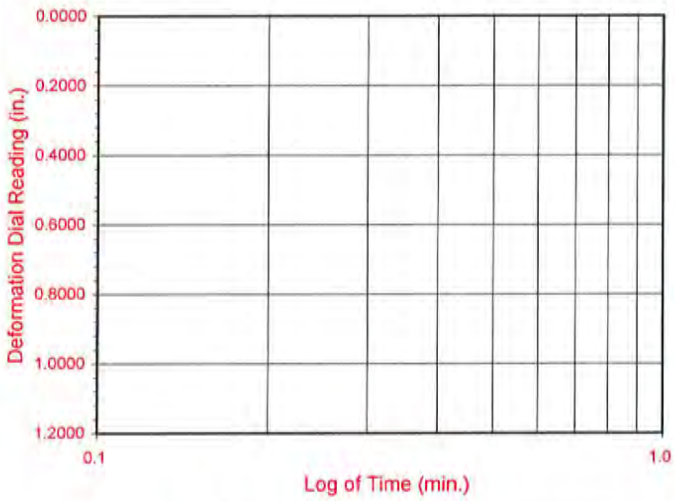


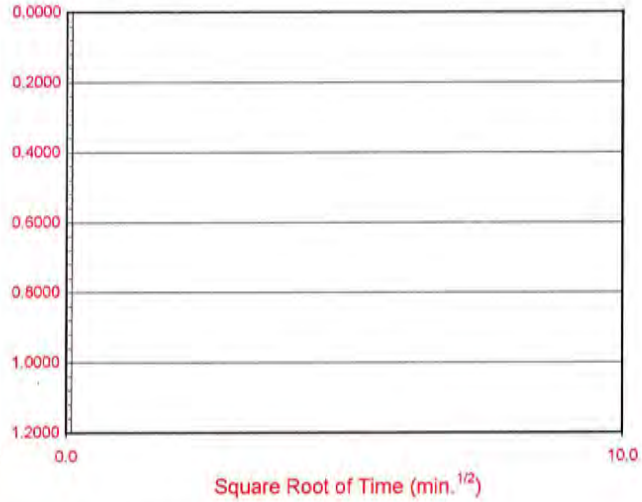
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deformation (%)
0.10	0.1222	0.9938	0.00	0.62	0.546	0.62
0.54	0.1279	0.9881	0.00	1.19	0.538	1.19
1.09	0.1334	0.9826	0.00	1.74	0.529	1.74
2.40	0.1446	0.9714	0.00	2.86	0.512	2.86
2.40	0.1449	0.9711	0.00	2.89	0.511	2.89
4.30	0.1491	0.9669	0.00	3.31	0.505	3.31
8.70	0.1580	0.9580	0.00	4.20	0.491	4.20
17.40	0.1744	0.9417	0.00	5.84	0.465	5.84
4.30	0.1706	0.9454	0.00	5.46	0.471	5.46
1.09	0.1657	0.9504	0.00	4.97	0.479	4.97
0.54	0.1634	0.9526	0.00	4.74	0.482	4.74

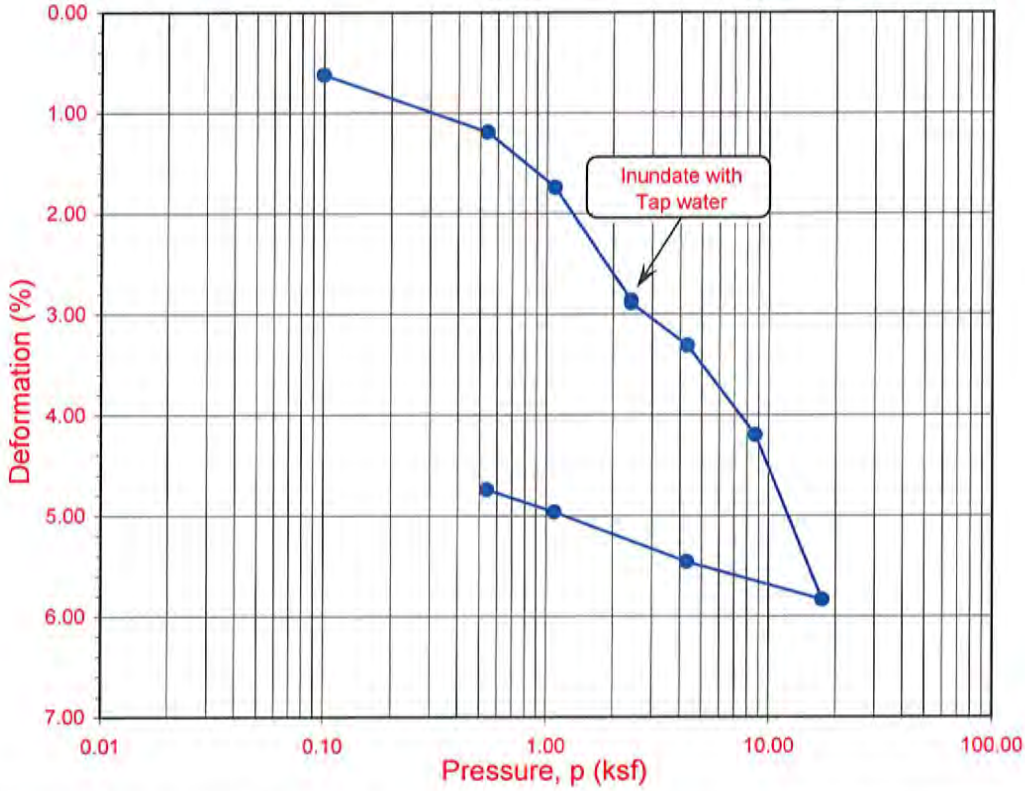
No Time Readings

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)

No Time Readings







Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
B-1	**R-4**	**20**	**18.2**	**16.8**	**108.3**	**112.6**	**0.556**	**0.482**	**88**	**92**

Soil Identification: Olive brown lean clay with sand (CL)s

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ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 602893-003

IUDA Walnut Drive

09-10

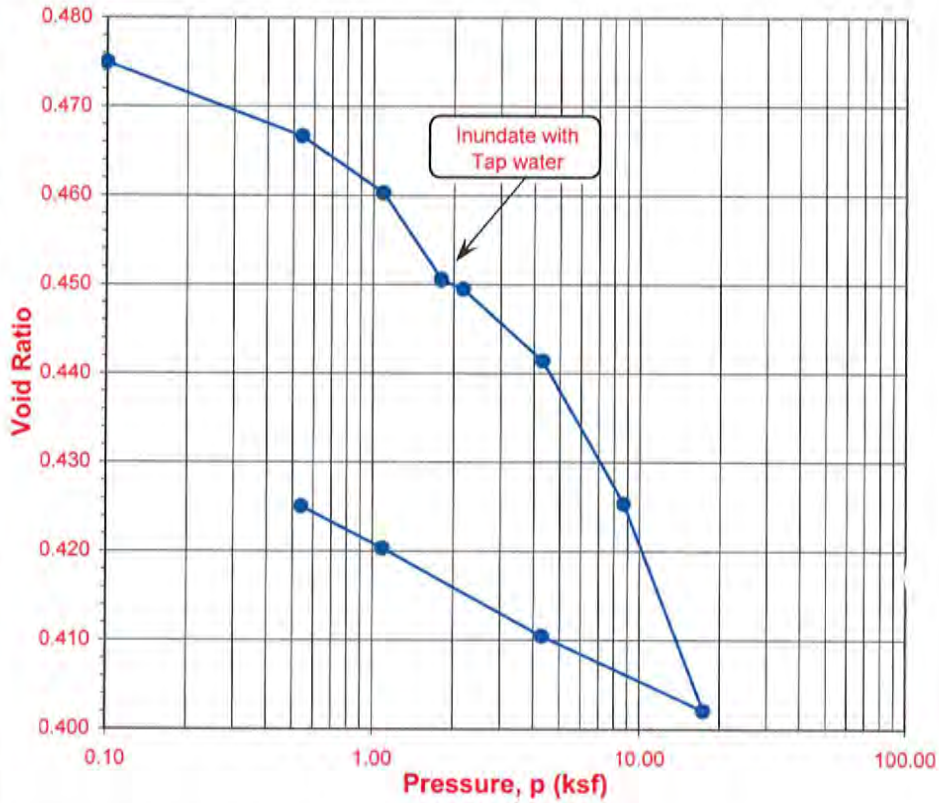
Leighton

ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS

ASTM D 2435

Project Name:	IUDA Walnut Drive	Tested By:	G. Bathala	Date:	09/08/10
Project No.:	602893-003	Checked By:	J. Ward	Date:	09/17/10
Boring No.:	B-3	Depth (ft.):	15.0		
Sample No.:	R-4	Sample Type:	Drive		
Soil Identification:	Olive brown clayey sand (SC)				

Sample Diameter (in.):	2.416
Sample Thickness (in.):	1.000
Weight of Sample + ring (g):	198.25
Weight of Ring (g):	40.93
Height after consol. (in.):	0.9624
Before Test	
Wt. of Wet Sample+Cont. (g):	738.20
Wt. of Dry Sample+Cont. (g):	673.58
Weight of Container (g):	238.07
Initial Moisture Content (%)	14.8
Initial Dry Density (pcf)	113.8
Initial Saturation (%):	83
Initial Vertical Reading (in.)	0.1141
After Test	
Wt. of Wet Sample+Cont. (g):	235.29
Wt. of Dry Sample+Cont. (g):	214.66
Weight of Container (g):	37.81
Final Moisture Content (%)	15.18
Final Dry Density (pcf):	117.4
Final Saturation (%):	94
Final Vertical Reading (in.)	0.1517
Specific Gravity (assumed):	2.70
Water Density (pcf):	62.43

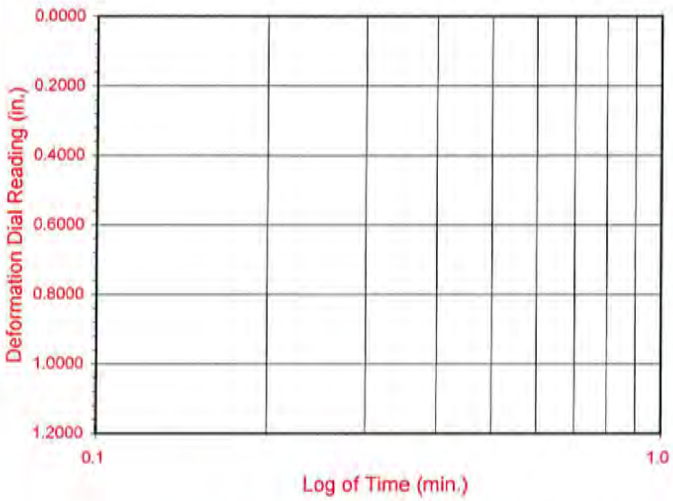


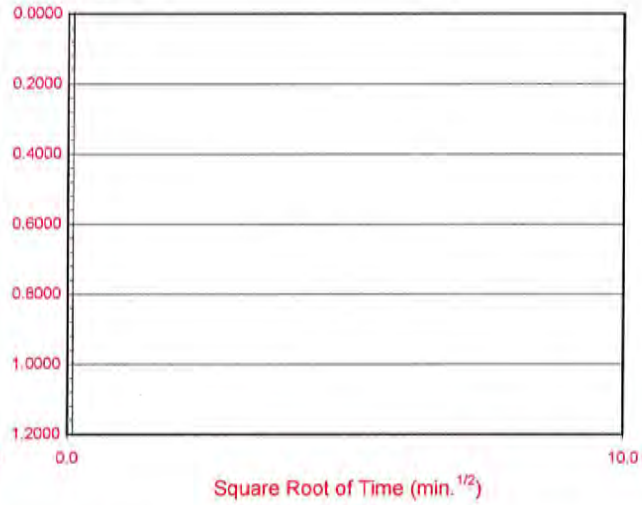
Pressure (p) (ksf)	Final Reading (in.)	Apparent Thickness (in.)	Load Compliance (%)	Deformation % of Sample Thickness	Void Ratio	Corrected Deformation (%)
0.10	0.1180	0.9961	0.00	0.39	0.475	0.39
0.54	0.1236	0.9905	0.00	0.95	0.467	0.95
1.09	0.1279	0.9862	0.00	1.38	0.460	1.38
1.80	0.1345	0.9797	0.00	2.04	0.451	2.04
1.80	0.1345	0.9796	0.00	2.04	0.451	2.04
2.17	0.1352	0.9789	0.00	2.11	0.449	2.11
4.30	0.1407	0.9735	0.00	2.66	0.441	2.66
8.70	0.1515	0.9626	0.00	3.74	0.425	3.74
17.40	0.1672	0.9469	0.00	5.31	0.402	5.31
4.30	0.1616	0.9526	0.00	4.75	0.410	4.75
1.09	0.1549	0.9592	0.00	4.08	0.420	4.08
0.54	0.1517	0.9624	0.00	3.76	0.425	3.76

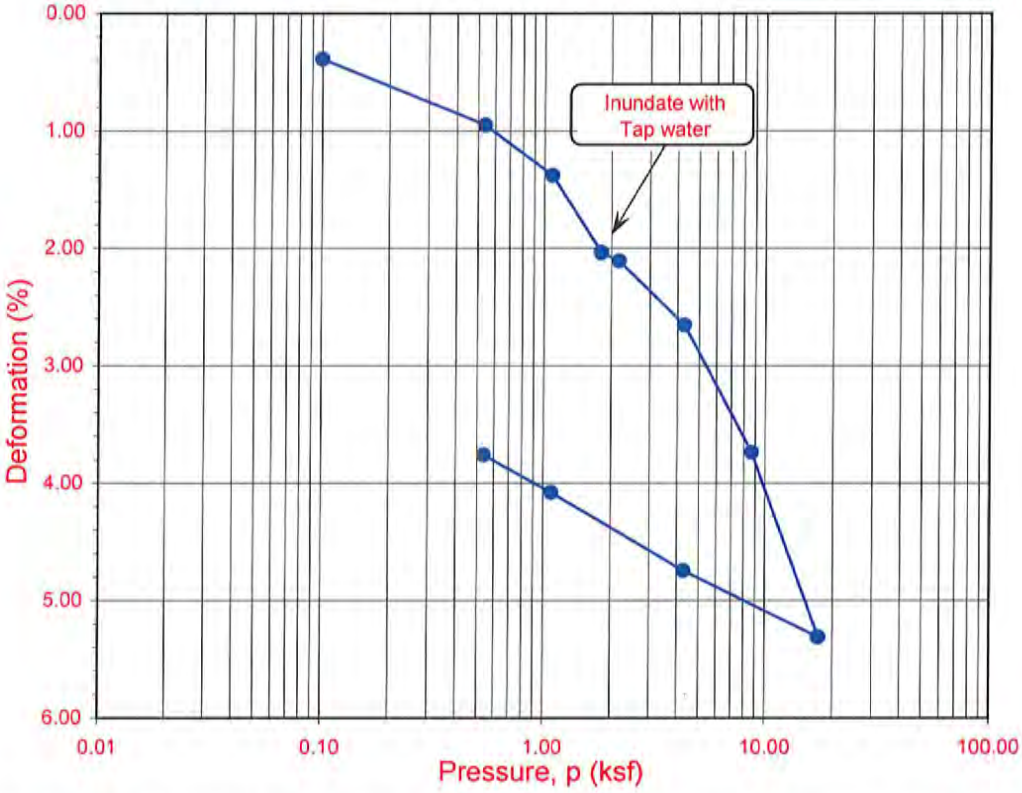
No Time Readings

Date	Time	Elapsed Time (min)	Square Root of Time	Dial Rdgs. (in.)

No Time Readings







Boring No.	Sample No.	Depth (ft.)	Moisture Content (%)		Dry Density (pcf)		Void Ratio		Degree of Saturation (%)	
			Initial	Final	Initial	Final	Initial	Final	Initial	Final
B-3	**R-4**	**15**	**14.8**	**15.2**	**113.8**	**117.4**	**0.481**	**0.425**	**83**	**94**

Soil Identification: Olive brown clayey sand (SC)

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ONE-DIMENSIONAL CONSOLIDATION PROPERTIES of SOILS
ASTM D 2435

Project No.: 602893-003

IUDA Walnut Drive

09-10

Leighton

MODIFIED PROCTOR COMPACTION TEST

ASTM D 1557

Project Name:	IUDA Walnut Drive	Tested By :	G. Berdy	Date:	09/09/10
Project No.:	602893-003	Input By :	J. Ward	Date:	09/16/10
Boring No.:	B-2	Depth (ft.)	0.0-5.0		
Sample No. :	B-1				
Soil Identification:	Very dark brown silty sand (SM), organic material noted				

Preparation Method: [X] Moist [ ] Dry

[X] Mechanical Ram [ ] Manual Ram

Mold Volume (ft³) 0.03330 *Ram Weight = 10 lb.; Drop = 18 in.*

TEST NO.	1	2	3	4	5	6
Wt. Compacted Soil + Mold (g)	3650.0	3774.0	3801.0	3732.0		
Weight of Mold (g)	1810.0	1810.0	1810.0	1810.0		
Net Weight of Soil (g)	1840.0	1964.0	1991.0	1922.0		
Wet Weight of Soil + Cont. (g)	437.20	452.60	484.20	532.60		
Dry Weight of Soil + Cont. (g)	408.38	414.72	434.67	467.41		
Weight of Container (g)	50.00	50.80	50.90	50.40		
Moisture Content (%)	8.04	10.41	12.91	15.63		
Wet Density (pcf)	121.8	130.0	131.8	127.2		
Dry Density (pcf)	112.7	117.8	116.7	110.0		

Maximum Dry Density (pcf) **118.0** **Optimum Moisture Content (%)** **11.0**

PROCEDURE USED

[X] **Procedure A**
Soil Passing No. 4 (4.75 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
May be used if +#4 is 20% or less

[ ] **Procedure B**
Soil Passing 3/8 in. (9.5 mm) Sieve
Mold : 4 in. (101.6 mm) diameter
Layers : 5 (Five)
Blows per layer : 25 (twenty-five)
Use if +#4 is >20% and +3/8 in. is 20% or less

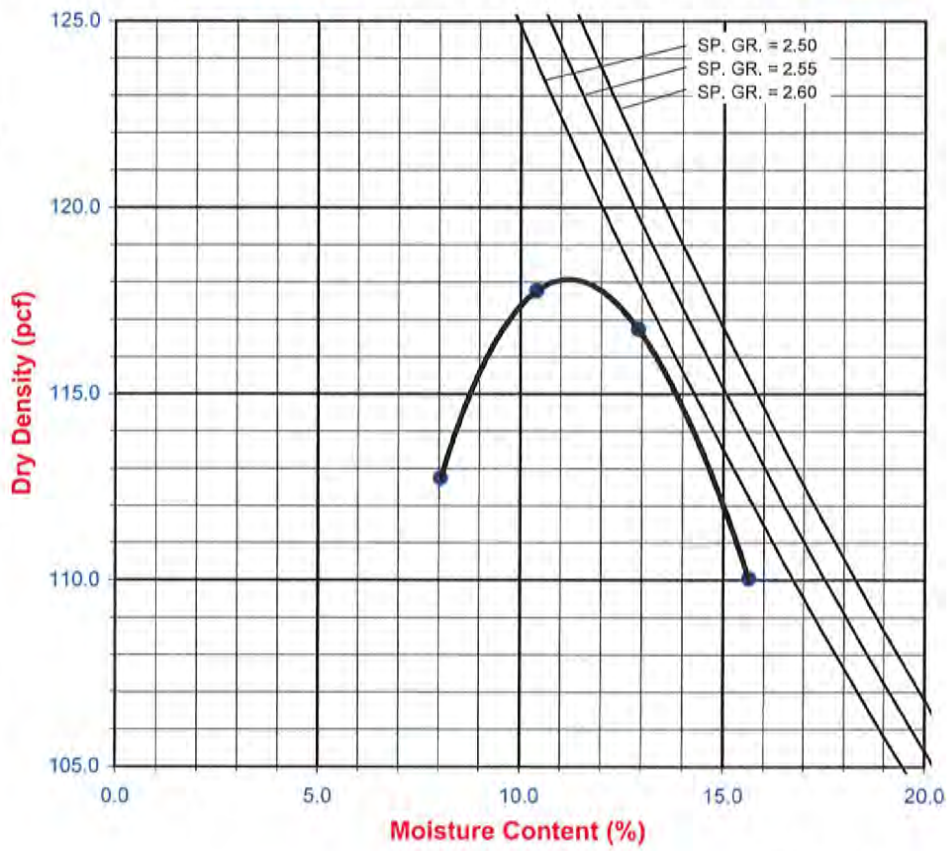
[ ] **Procedure C**
Soil Passing 3/4 in. (19.0 mm) Sieve
Mold : 6 in. (152.4 mm) diameter
Layers : 5 (Five)
Blows per layer : 56 (fifty-six)
Use if +3/8 in. is >20% and +¾ in. is <30%

Particle-Size Distribution:

GR:SA:FI

Atterberg Limits:

LL,PL,PI



MX B-2, B-1 @ 0-5

Leighton

SAND EQUIVALENT TEST

DOT CA Test 217

Project Name: IUDA Walnut Drive

Project No. : 602893-003

Tested By: G. Bathala Date: 09/14/10

Input By: J. Ward Date: 09/16/10

Boring No.	Sample No.	Depth (ft.)	Soil Type	T1	T2	T3	T4	R1	R2	SE	Average SE
B-3	R-3	10.0	Yellowish brown sandy silt s(ML)	09:40	09:50	09:52	10:12	13.2	1.2	10	**10**
				09:43	09:53	09:55	10:15	13.6	1.2	9	

T1 = Starting Time

T2 = (T1 + 10 min) Begin Agitation (131 cycles in 45 sec)

T3 = Settlement Starting Time

T4 = (T3 + 20 min) Take Clay Reading (R1) and Sand Reading (R2)

Sand Equivalent = R2 / R1 * 100

Record SE as Next Higher Integer

Leighton

EXPANSION INDEX of SOILS

ASTM D 4829

Project Name:	IUDA Walnut Drive	Tested By:	A. Santos	Date:	09/13/10
Project No. :	602893-003	Checked By:	J. Ward	Date:	09/16/10
Boring No.:	B-4	Depth (ft.)	0.0-5.0		
Sample No. :	B-1				
Soil Identification:	Grayish brown clayey sand (SC)				

Dry Wt. of Soil + Cont.	(g)	1000.00
Wt. of Container No.	(g)	0.00
Dry Wt. of Soil	(g)	1000.00
Weight Soil Retained on #4 Sieve		0.00
Percent Passing # 4		100.00

MOLDED SPECIMEN		Before Test	After Test
Specimen Diameter	(in.)	4.01	4.01
Specimen Height	(in.)	1.0000	1.0410
Wt. Comp. Soil + Mold	(g)	555.90	433.20
Wt. of Mold	(g)	166.50	0.00
Specific Gravity (Assumed)		2.70	2.70
Container No.		O	O
Wet Wt. of Soil + Cont.	(g)	780.40	599.70
Dry Wt. of Soil + Cont.	(g)	703.70	517.60
Wt. of Container	(g)	0.00	166.50
Moisture Content	(%)	10.90	23.38
Wet Density	(pcf)	117.5	125.5
Dry Density	(pcf)	105.9	101.7
Void Ratio		0.592	0.657
Total Porosity		0.372	0.397
Pore Volume	(cc)	76.9	85.4
Degree of Saturation (%) [S_{meas}]		**49.7**	96.1

SPECIMEN INUNDATION in distilled water for the period of 24 h or expansion rate < 0.0002 in./h

Date	Time	Pressure (psi)	Elapsed Time (min.)	Dial Readings (in.)
09/13/10	13:30	1.0	0	0.1800
09/13/10	13:40	1.0	10	0.1790
Add Distilled Water to the Specimen				
09/13/10	13:45	1.0	5	0.2070
09/14/10	7:30	1.0	1070	0.2210
09/14/10	8:34	1.0	1134	0.2210

Expansion Index (EI_{meas}) = ((Final Rdg - Initial Rdg) / Initial Thick.) x 1000	**42**

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R-VALUE TEST RESULTS

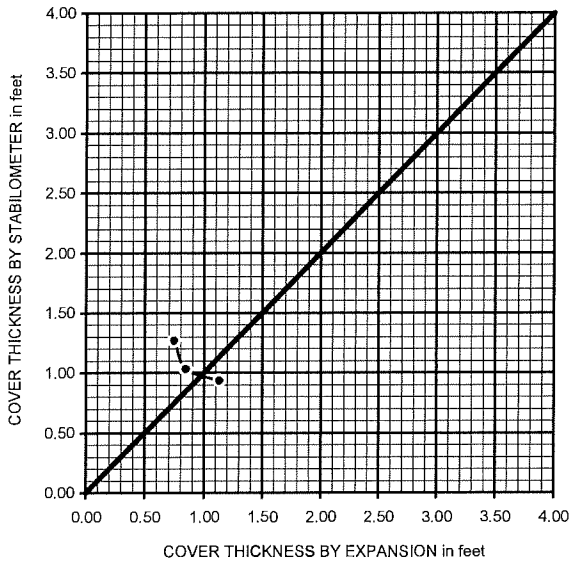
DOT CA 301

PROJECT NAME:	IUDA Walnut Drive	PROJECT NUMBER:	602893-003
BORING NUMBER:	B-4	DEPTH (FT.):	0.0-5.0
SAMPLE NUMBER:	B-1	TECHNICIAN:	S. Felter
SAMPLE DESCRIPTION:	Grayish brown clayey sand (SC)	DATE COMPLETED:	9/13/2010

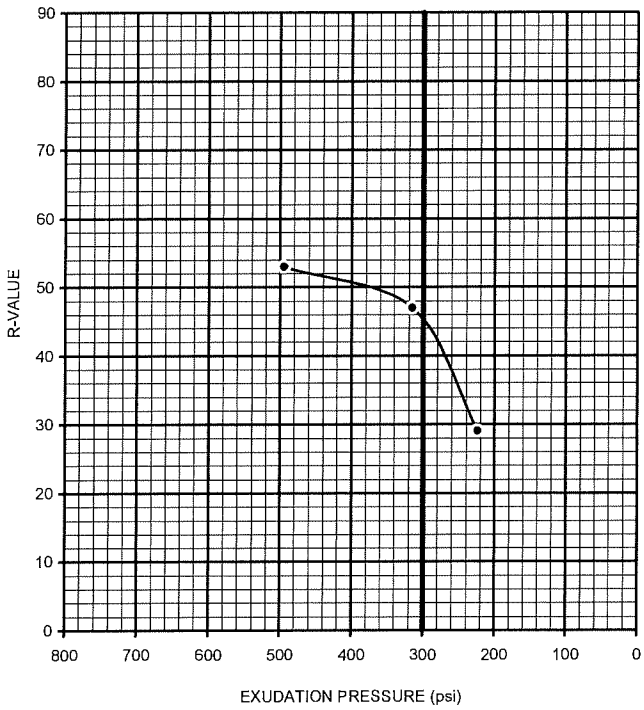
TEST SPECIMEN	a	b	c
MOISTURE AT COMPACTION %	14.0	14.9	15.2
HEIGHT OF SAMPLE, Inches	2.49	2.51	2.56
DRY DENSITY, pcf	117.8	116.3	115.2
COMPACTOR PRESSURE, psi	125	75	50
EXUDATION PRESSURE, psi	494	314	224
EXPANSION, Inches x 10exp-4	38	31	28
STABILITY Ph 2,000 lbs (160 psi)	66	73	106
TURNS DISPLACEMENT	3.18	3.30	3.32
R-VALUE UNCORRECTED	53	47	28
R-VALUE CORRECTED	53	47	29

DESIGN CALCULATION DATA	a	b	c
GRAVEL EQUIVALENT FACTOR	1.0	1.0	1.0
TRAFFIC INDEX	5.0	5.0	5.0
STABILOMETER THICKNESS, ft.	0.75	0.85	1.14
EXPANSION PRESSURE THICKNESS, ft.	1.27	1.03	0.93

EXPANSION PRESSURE CHART



EXUDATION PRESSURE CHART



R-VALUE BY EXPANSION:	39
R-VALUE BY EXUDATION:	45
EQUILIBRIUM R-VALUE:	39

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TESTS for SULFATE CONTENT
CHLORIDE CONTENT and pH of SOILS

Project Name: IUDA Walnut Drive | Tested By : V. Juliano | Date: 09/10/10

Project No. : 602893-003 | Data Input By: J. Ward | Date: 09/16/10

Boring No.	B-2	B-2		
Sample No.	B-1	R-3		
Sample Depth (ft)	0.0-5.0	10.0		
Soil Identification:	Very dark brown (SM), organic material noted	Brown (SC)		
Wet Weight of Soil + Container (g)	206.80	235.70		
Dry Weight of Soil + Container (g)	194.70	215.70		
Weight of Container (g)	35.90	62.00		
Moisture Content (%)	7.62	13.01		
Weight of Soaked Soil (g)	100.40	100.40		

SULFATE CONTENT, DOT California Test 417, Part II

Beaker No.	6	9		
Crucible No.	31	32		
Furnace Temperature (°C)	830	830		
Time In / Time Out	7:25/8:10	7:25/8:10		
Duration of Combustion (min)	45	45		
Wt. of Crucible + Residue (g)	18.9827	19.1691		
Wt. of Crucible (g)	18.9801	19.1673		
Wt. of Residue (g) (A)	0.0026	0.0018		
PPM of Sulfate (A) x 41150	106.99	74.07		
PPM of Sulfate, Dry Weight Basis	**116**	**85**		

CHLORIDE CONTENT, DOT California Test 422

ml of Chloride Soln. For Titration (B)	30	30		
ml of AgNO3 Soln. Used in Titration (C)	0.6	0.7		
PPM of Chloride (C -0.2) * 100 * 30 / B	40	50		
PPM of Chloride, Dry Wt. Basis	**43**	**57**		

pH TEST, DOT California Test 532/643

pH Value	**6.19**	**6.68**		
Temperature °C	20.9	21.1		

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SOIL RESISTIVITY TEST

DOT CA TEST 532 / 643

Project Name:	IUDA Walnut Drive	Tested By :	V. Juliano	Date:	09/13/10
Project No. :	602893-003	Data Input By:	J. Ward	Date:	09/16/10
Boring No.:	B-2	Depth (ft.) :	0.0-5.0		
Sample No. :	B-1				

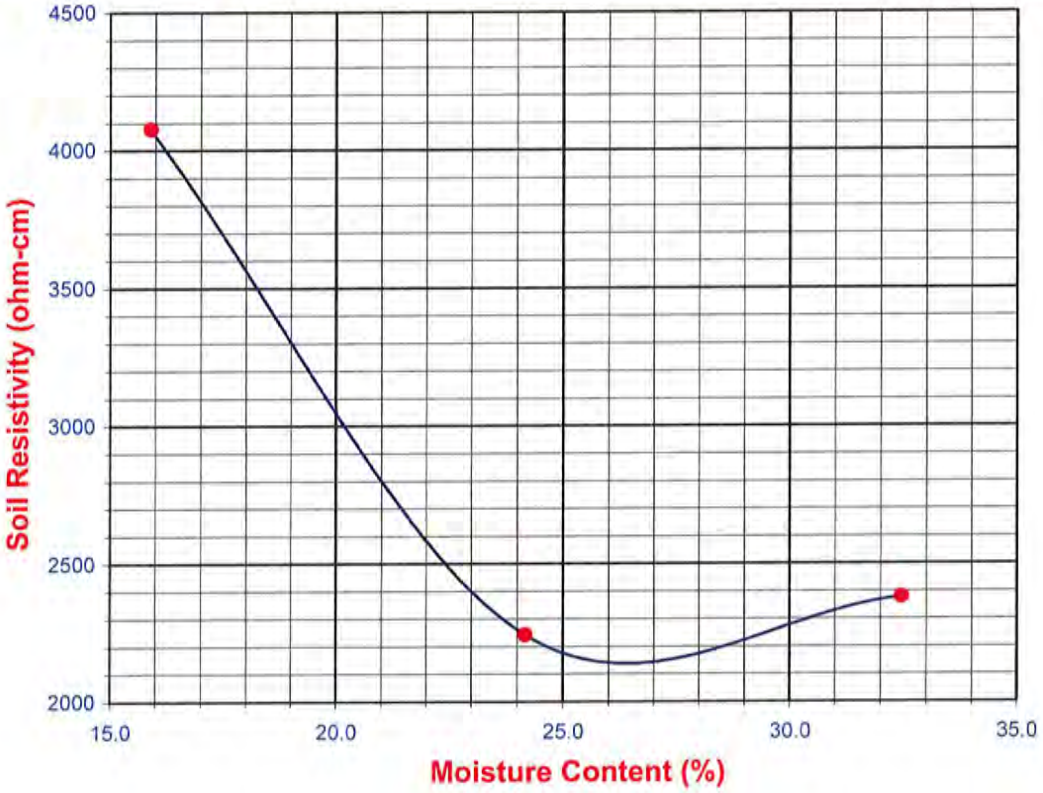
Soil Identification:* Very dark brown (SM), organic material noted

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	100	15.90	600	4077
2	200	24.18	330	2242
3	300	32.45	350	2378
4				
5				

Moisture Content (%) (MCi)	7.62
Wet Wt. of Soil + Cont. (g)	206.80
Dry Wt. of Soil + Cont. (g)	194.70
Wt. of Container (g)	35.90
Container No.	
Initial Soil Wt. (g) (Wt)	1300.00
Box Constant	6.795
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 532 / 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 532 / 643	
2140	**26.4**	**116**	**43**	**6.19**	**20.9**



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SOIL RESISTIVITY TEST

DOT CA TEST 532 / 643

Project Name:	IUDA Walnut Drive	Tested By :	V. Juliano	Date:	09/13/10
Project No. :	602893-003	Data Input By:	J. Ward	Date:	09/16/10
Boring No.:	B-2	Depth (ft.) :	10.0		
Sample No. :	R-3				

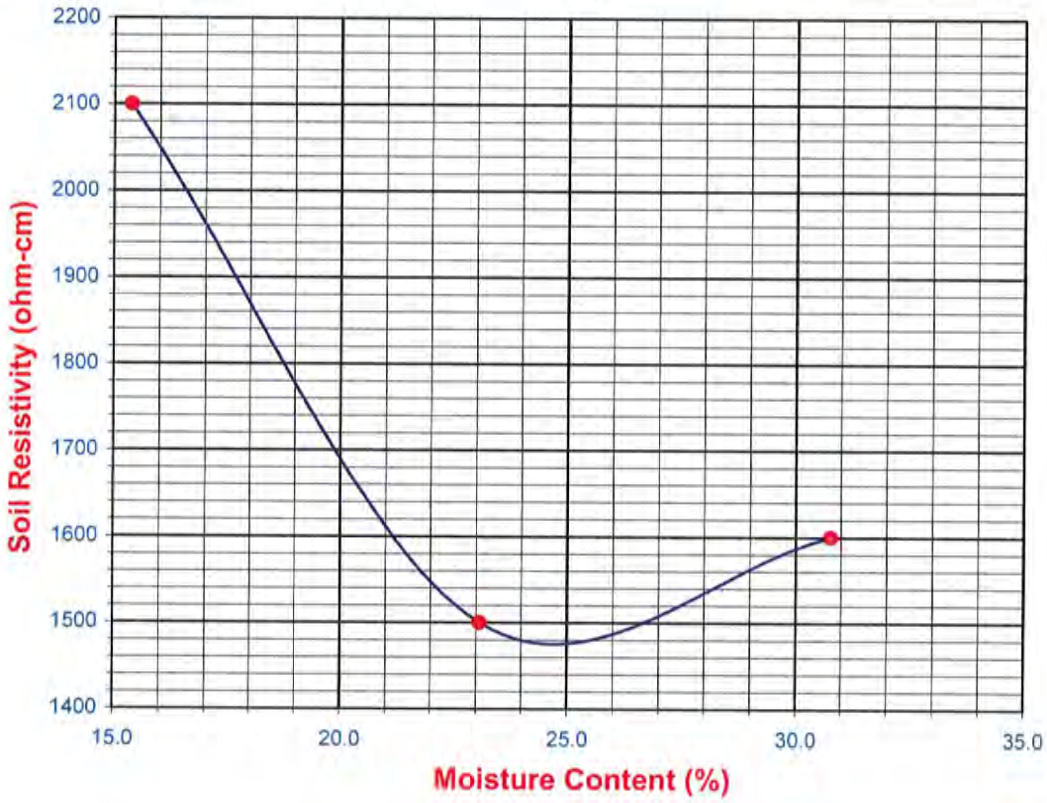
Soil Identification:* Brown (SC)

*California Test 643 requires soil specimens to consist only of portions of samples passing through the No. 8 US Standard Sieve before resistivity testing. Therefore, this test method may not be representative for coarser materials.

Specimen No.	Water Added (ml) (Wa)	Adjusted Moisture Content (MC)	Resistance Reading (ohm)	Soil Resistivity (ohm-cm)
1	20	15.38	2100	2100
2	30	23.08	1500	1500
3	40	30.77	1600	1600
4				
5				

Moisture Content (%) (MCi)	0.00
Wet Wt. of Soil + Cont. (g)	0.00
Dry Wt. of Soil + Cont. (g)	0.00
Wt. of Container (g)	1.00
Container No.	
Initial Soil Wt. (g) (Wt)	130.00
Box Constant	1.000
MC =(((1+Mci/100)x(Wa/Wt+1))-1)x100	

Min. Resistivity (ohm-cm)	Moisture Content (%)	Sulfate Content (ppm)	Chloride Content (ppm)	Soil pH	
				pH	Temp. (°C)
DOT CA Test 532 / 643		DOT CA Test 417 Part II	DOT CA Test 422	DOT CA Test 532 / 643	
1475	**24.7**	**85**	**57**	**6.68**	**21.1**



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PARTICLE-SIZE ANALYSIS OF SOILS

ASTM D 422

Project Name: IUDA Walnut Drive
Project No. : 602893-003
Exploration No.: B-4
Sample No.: R-3
Soil Identification: Brown sandy lean clay s(CL)

Tested By : A. Santos — Date: 09/14/10
Data Input By: J. Ward — Date: 09/17/10
Depth (feet) : 10.0

% Gravel	0	Soil Type
% Sand	49	s(CL)
% Fines	51	

			Moisture Content of Total Air-Dry Soil	Moisture Content of Air-Dry Soil Passing #10	After Hydrometer & Wet Sieve ret. in #200 Sieve
Specific Gravity (Assumed)	2.70	Wt.of Air-Dry Soil + Cont.(g)	0.00	0.00	
Correction for Specific Gravity	0.99	Dry Wt. of Soil + Cont. (g)	0.00	0.00	109.31
Wt.of Air-Dry Soil + Cont. (g)	493.10	Wt. of Container No.___ (g)	1.00	1.00	78.47
Wt. of Container	38.86	Moisture Content (%)	0.00	0.00	
Dry Wt. of Soil (g)	454.24	Wt. of Dry Soil (g)			30.84

Coarse Sieve

U.S. Sieve	Cumulative Wt. Of Dry Soil Retained (g)	% Passing
3"	0.00	100.0
1½"	0.00	100.0
3/4"	0.00	100.0
3/8"	0.00	100.0
No. 4	0.00	100.0
No. 10	0.56	99.9
Pan		

Sieve after Hydrometer & Wet Sieve

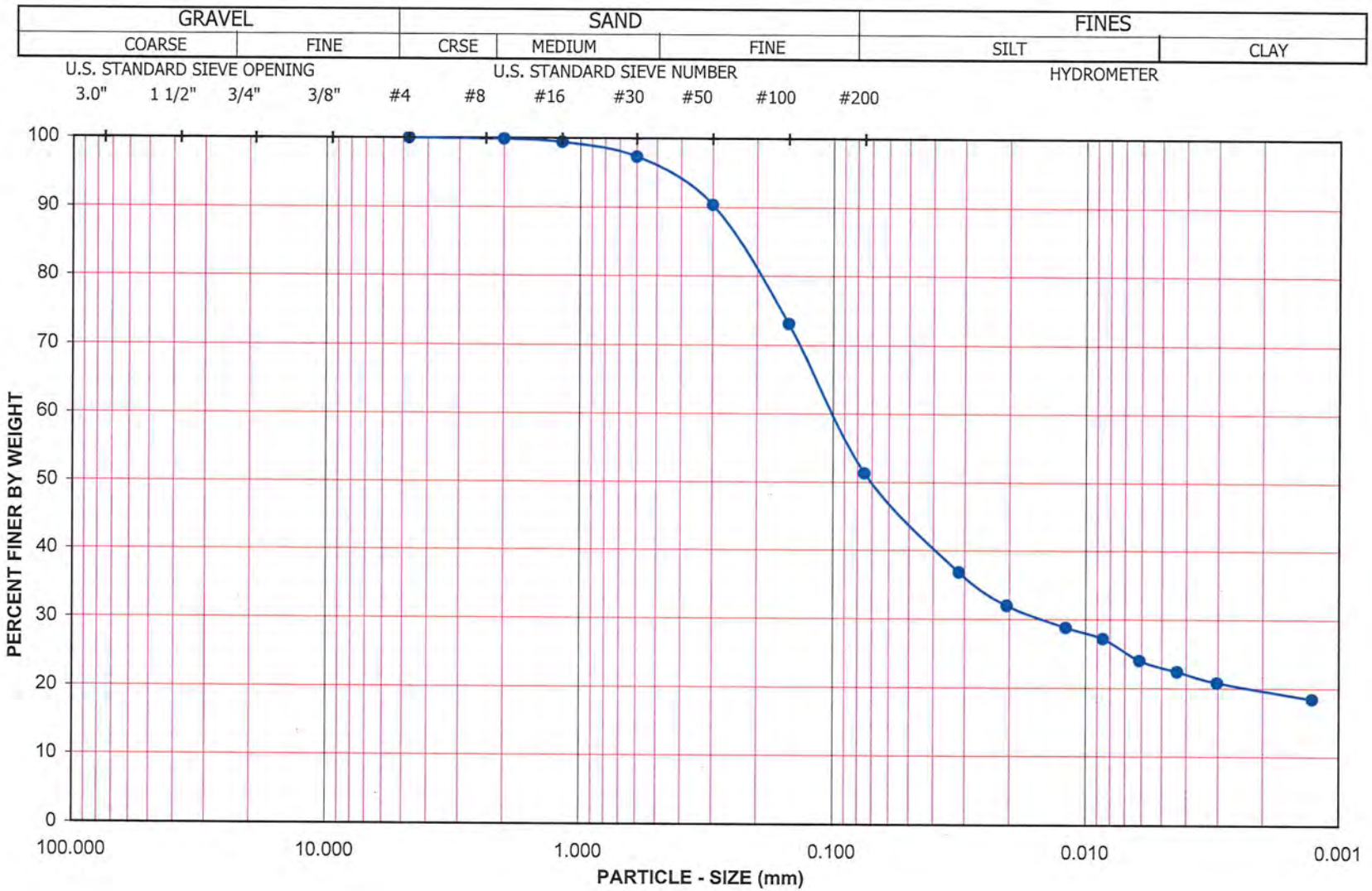
U.S. Sieve Size	Cumulative Wt. Of Dry Soil Retained (g)	% Passing	% Total Sample
No. 10	0.00	100.0	99.9
No. 16	0.27	99.6	99.4
No. 30	1.59	97.4	97.3
No. 50	5.89	90.5	90.4
No. 100	16.60	73.2	73.1
No. 200	30.10	51.4	51.3
Pan			

Hydrometer

Wt. of Air-Dry Soil (g): 61.88 — Wt. of Dry Soil (g): 61.88

Deflocculant 125 cc of 4% Solution

Date	Time	Elapsed Time (min)	Water Temperature (°C)	Composite Correction 152H	Actual Hydrometer Readings	% Total Sample (%)	Soil Particle Diameter (mm)
15-Sep-10	9:19	0		7.0			
	9:21	2	21.2	7.0	30.0	36.8	0.0317
	9:24	5	21.2	7.0	27.0	32.0	0.0205
	9:34	15	21.3	7.0	25.0	28.8	0.0120
	9:49	30	21.3	7.0	24.0	27.2	0.0085
	10:19	60	21.4	7.0	22.0	24.0	0.0061
	11:19	120	21.4	7.0	21.0	22.4	0.0044
	13:29	250	21.5	7.0	20.0	20.8	0.0030
16-Sep-10	9:19	1440	21.4	7.0	18.5	18.4	0.0013



Project Name: IUDA Walnut Drive

Project No.: 602893-003

Exploration No.: B-4 Sample No.: R-3

Depth (feet) : 10.0 Soil Type : s(CL)

Soil Identification: Brown sandy lean clay s(CL)

GR:SA:FI : (%) 0 : 49 : 51

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PARTICLE - SIZE DISTRIBUTION ASTM D 422

Sep-10

APPENDIX E

SEISMICITY DATA

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USGS Design Maps Detailed Report

ASCE 7-10 Standard (33.9969°N, 117.8624°W)

Site Class D – "Stiff Soil", Risk Category I/II/III

Section 11.4.1 — Mapped Acceleration Parameters

Note: Ground motion values provided below are for the direction of maximum horizontal spectral response acceleration. They have been converted from corresponding geometric mean ground motions computed by the USGS by applying factors of 1.1 (to obtain S_S) and 1.3 (to obtain S_1). Maps in the 2010 ASCE-7 Standard are provided for Site Class B. Adjustments for other Site Classes are made, as needed, in Section 11.4.3.

From Figure 22-1 [1] $S_S = 2.146$ g

From Figure 22-2 [2] $S_1 = 0.759$ g

Section 11.4.2 — Site Class

The authority having jurisdiction (not the USGS), site-specific geotechnical data, and/or the default has classified the site as Site Class D, based on the site soil properties in accordance with Chapter 20.

Table 20.3–1 Site Classification

Site Class	$\bar{v}_s$	$\bar{N}$ or $\bar{N}_{ch}$	$\bar{s}_u$
A. Hard Rock	>5,000 ft/s	N/A	N/A
B. Rock	2,500 to 5,000 ft/s	N/A	N/A
C. Very dense soil and soft rock	1,200 to 2,500 ft/s	>50	>2,000 psf
D. Stiff Soil	600 to 1,200 ft/s	15 to 50	1,000 to 2,000 psf
E. Soft clay soil	<600 ft/s	<15	<1,000 psf
	Any profile with more than 10 ft of soil having the characteristics: • Plasticity index $PI > 20$, • Moisture content $w \geq 40\%$, and • Undrained shear strength $\bar{s}_u < 500$ psf		
F. Soils requiring site response analysis in accordance with Section 21.1	See Section 20.3.1		

For SI: 1ft/s = 0.3048 m/s 1lb/ft² = 0.0479 kN/m²

Section 11.4.3 — Site Coefficients and Risk-Targeted Maximum Considered Earthquake (MCE_R) Spectral Response Acceleration Parameters

Table 11.4-1: Site Coefficient F_a

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at Short Period				
	$S_S \leq 0.25$	$S_S = 0.50$	$S_S = 0.75$	$S_S = 1.00$	$S_S \geq 1.25$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of S_S

For Site Class = D and S_S = 2.146 g, F_a = 1.000

Table 11.4-2: Site Coefficient F_v

Site Class	Mapped MCE_R Spectral Response Acceleration Parameter at 1-s Period				
	$S_1 \leq 0.10$	$S_1 = 0.20$	$S_1 = 0.30$	$S_1 = 0.40$	$S_1 \geq 0.50$
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.7	1.6	1.5	1.4	1.3
D	2.4	2.0	1.8	1.6	1.5
E	3.5	3.2	2.8	2.4	2.4
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of S_1

For Site Class = D and S_1 = 0.759 g, F_v = 1.500

Equation (11.4-1): $S_{MS} = F_a S_S = 1.000 \times 2.146 = 2.146$ g

Equation (11.4-2): $S_{M1} = F_v S_1 = 1.500 \times 0.759 = 1.138$ g

Section 11.4.4 — Design Spectral Acceleration Parameters

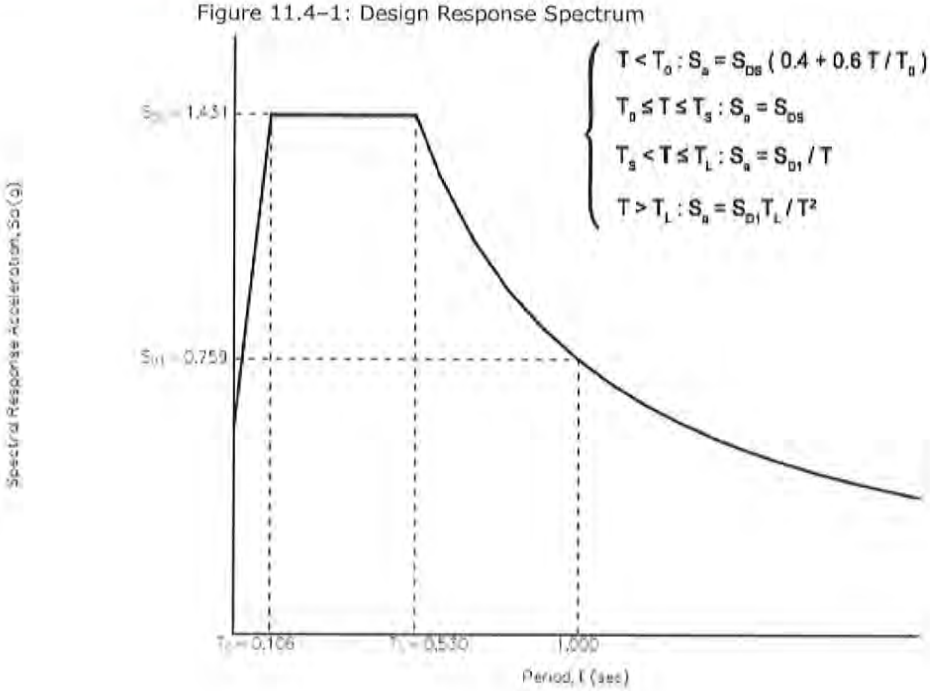
Equation (11.4-3): $S_{DS} = ⅔\, S_{MS} = ⅔ \times 2.146 = 1.431$ g

Equation (11.4-4): $S_{D1} = ⅔\, S_{M1} = ⅔ \times 1.138 = 0.759$ g

Section 11.4.5 — Design Response Spectrum

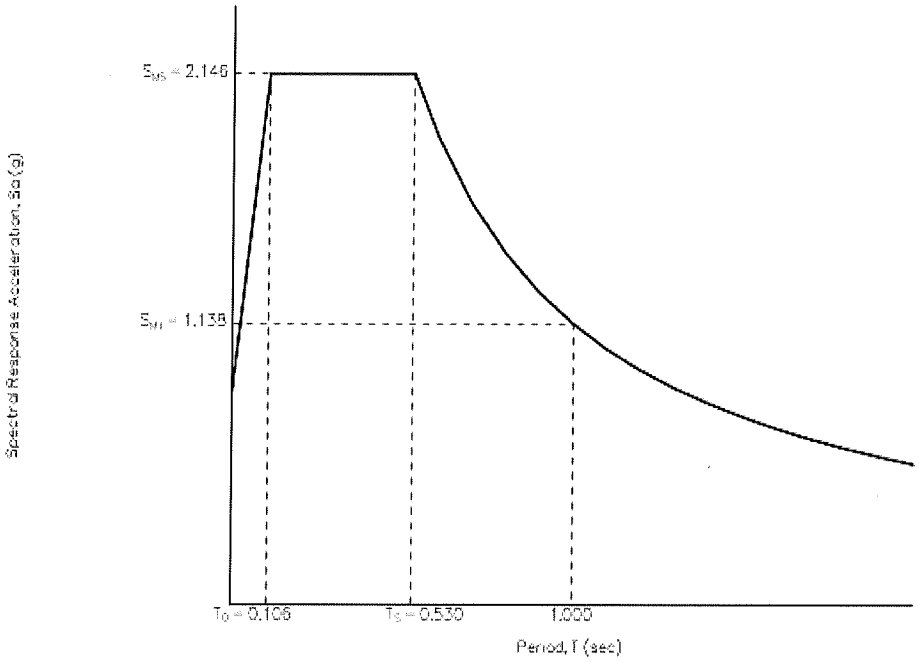
From Figure 22-12 [3] $T_L = 8$ seconds

Figure 11.4-1: Design Response Spectrum



Section 11.4.6 — Risk-Targeted Maximum Considered Earthquake (MCE_R) Response Spectrum

The MCE_R Response Spectrum is determined by multiplying the design response spectrum above by 1.5.



Section 11.8.3 — Additional Geotechnical Investigation Report Requirements for Seismic Design Categories D through F

From Figure 22-7 [4] PGA = 0.780

Equation (11.8-1): $PGA_M = F_{PGA}PGA = 1.000 \times 0.780 = 0.78$ g

Table 11.8-1: Site Coefficient F_{PGA}

Site Class	Mapped MCE Geometric Mean Peak Ground Acceleration, PGA				
	PGA ≤ 0.10	PGA = 0.20	PGA = 0.30	PGA = 0.40	PGA ≥ 0.50
A	0.8	0.8	0.8	0.8	0.8
B	1.0	1.0	1.0	1.0	1.0
C	1.2	1.2	1.1	1.0	1.0
D	1.6	1.4	1.2	1.1	1.0
E	2.5	1.7	1.2	0.9	0.9
F	See Section 11.4.7 of ASCE 7				

Note: Use straight-line interpolation for intermediate values of PGA

For Site Class = D and PGA = 0.780 g, F_{PGA} = 1.000

Section 21.2.1.1 — Method 1 (from Chapter 21 - Site-Specific Ground Motion Procedures for Seismic Design)

From Figure 22-17 [5] C_{RS} = 0.984

From Figure 22-18 [6] C_{R1} = 1.002

Section 11.6 — Seismic Design Category

Table 11.6-1 Seismic Design Category Based on Short Period Response Acceleration Parameter

VALUE OF S_{DS}	RISK CATEGORY		
	I or II	III	IV
$S_{DS} < 0.167g$	A	A	A
$0.167g \leq S_{DS} < 0.33g$	B	B	C
$0.33g \leq S_{DS} < 0.50g$	C	C	D
$0.50g \leq S_{DS}$	D	D	D

For Risk Category = I and S_{DS} = 1.431 g, Seismic Design Category = D

Table 11.6-2 Seismic Design Category Based on 1-S Period Response Acceleration Parameter

VALUE OF S_{D1}	RISK CATEGORY		
	I or II	III	IV
$S_{D1} < 0.067g$	A	A	A
$0.067g \leq S_{D1} < 0.133g$	B	B	C
$0.133g \leq S_{D1} < 0.20g$	C	C	D
$0.20g \leq S_{D1}$	D	D	D

For Risk Category = I and S_{D1} = 0.759 g, Seismic Design Category = D

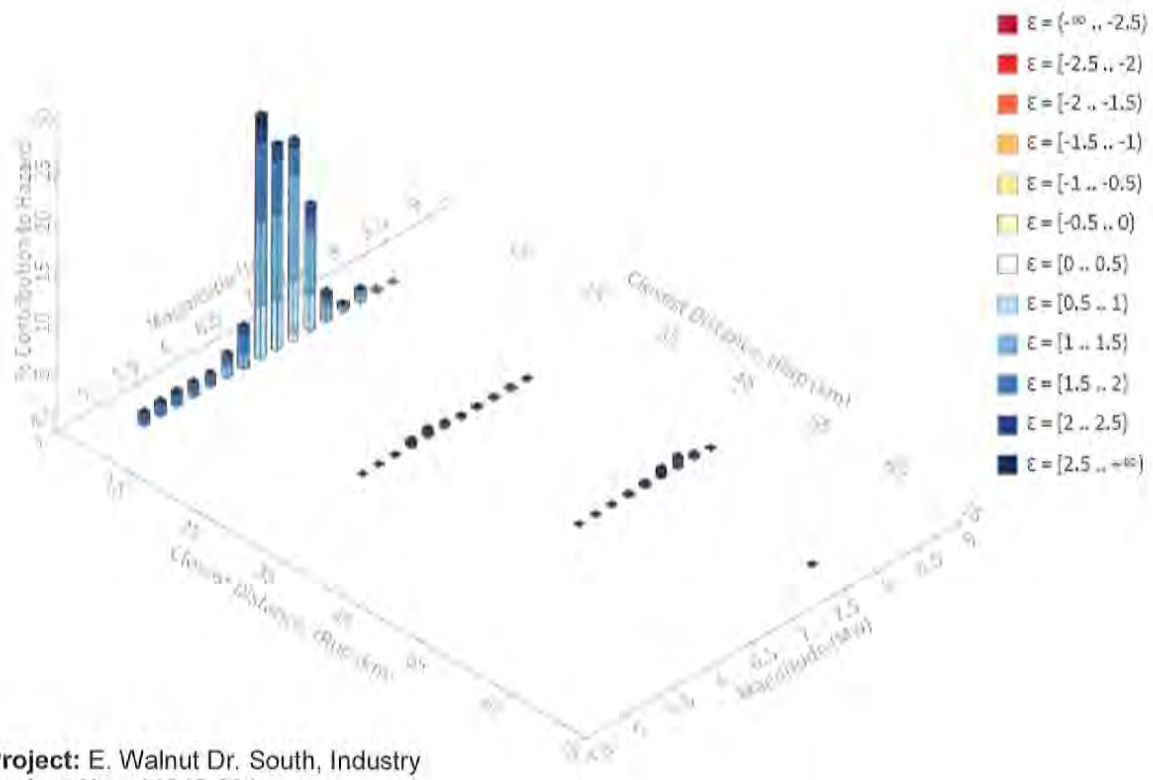
Note: When S_1 is greater than or equal to 0.75g, the Seismic Design Category is **E** for buildings in Risk Categories I, II, and III, and **F** for those in Risk Category IV, irrespective of the above.

Seismic Design Category ≡ "the more severe design category in accordance with Table 11.6-1 or 11.6-2" = E

Note: See Section 11.6 for alternative approaches to calculating Seismic Design Category.

References

1. *Figure 22-1*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-1.pdf
2. *Figure 22-2*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-2.pdf
3. *Figure 22-12*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-12.pdf
4. *Figure 22-7*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-7.pdf
5. *Figure 22-17*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-17.pdf
6. *Figure 22-18*: https://earthquake.usgs.gov/hazards/designmaps/downloads/pdfs/2010_ASCE-7_Figure_22-18.pdf



Project: E. Walnut Dr. South, Industry
Project No.: 11842.001
Latitude: 33.9969
Longitude: -117.8624
Edition: Dynamic, Conterminous U.S. 2008 (v3.3.1)
Site Class: D, 259 m/s

Summary Statistics for, Deaggregation: Total
Deaggregation targets
Return period: 2475 yrs
Exceedance rate: 0.0004040404 yr^{-1}
Exceedance IML: 0.75796308 g

Recovered targets
Return period: 2873.8594 yrs
Exceedance rate: 0.00034796413 yr^{-1}

Totals
Binned: 100 %
Residual: 0 %
Trace: 0.05 %

Mean (for all sources)
r: 9.81 km
m: 6.71
ε_0: 1.46 σ

Mode (largest r-m bin)
r: 8.61 km
m: 6.51
ε_0: 1.46 σ
Contribution: 23.89 %

Mode (largest ε_0 bin)
r: 6.8 km
m: 6.91
ε_0: 1.25 σ
Contribution: 10.17 %

Discretization
r: min = 0.0, max = 1000.0, Δ = 20.0 km
m: min = 4.4, max = 9.4, Δ = 0.2
ε: min = -3.0, max = 3.0, Δ = 0.5 σ

Epsilon keys
ε0: [-∞ · · -2.5)
ε1: [-2.5 · · -2.0)
ε2: [-2.0 · · -1.5)
ε3: [-1.5 · · -1.0)
ε4: [-1.0 · · -0.5)
ε5: [-0.5 · · 0.0)
ε6: [0.0 · · 0.5)
ε7: [0.5 · · 1.0)
ε8: [1.0 · · 1.5)
ε9: [1.5 · · 2.0)
ε10: [2.0 · · 2.5)
ε11: [2.5 · · +∞]

APPENDIX F

LIQUEFACTION ANALYSIS

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Liquefaction Susceptibility Analysis: SPT Method

Based on Youd and Idriss (2001), Martin and Lew (1999).

Project: E. Walnut Dr South, Industry
Project No.: 11842.001
Nov 2017

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General Boring Information:

Boring No.	Existing GW Depth (ft)	Design GW Depth (ft)	Design Fill Height (ft)	Ground Surface Elev (ft)
LB-5	17	10		521
LB-6	19	10		518
LB-7	18	10		517
LB-8	32	10		508

General Parameters:		
a_{max} = 0.78g		MCE
M_W = 6.5		
MSF eq: 1		(Idriss, 2001)
MSF = 1.44		
Hammer Efficiency = 84		%
C_E = 1.38		
C_B = 1		
$C_{S(SPT)}$ = 1.2		
$C_{S(ring)}$ = 1		
Rod Stickup (feet) = 3		
Ring sample correction = 0.65		

Summary of Liquefaction Susceptibility Analysis: SPT Method

Liquefaction Method: Youd and Idriss (2001). Seismic Settlement Method: Tokimatsu and Seed (1987) and Martin and Lew (1999).

Project: E. Walnut Dr South, Industry

Project No.: 11842.001

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Boring No.	Approx. Layer Depth (ft)	SPT Depth (ft)	Approx Layer Thick-ness (ft)	Plasticity ("n"=non susc. to liq.)	Estimated Fines Cont (%)	γ (pcf)	N_m or B (blows/ft)	Sampler Type (enter 2 if mod CA Ring)	Cs	N_m (corrected for Cs and ring->SPT) (blows/ft)	Exist σ_{vo}' (psf)	$(N_1)_{60}$	$(N_1)_{60CS}$	$CRR_{7.5}$	Design σ_{vo}' (psf)	$CSR_{7.5}$	CSR_M	Liquefaction Factor of Safety	$(N_1)_{60CS}$ (for Settlement) (blows/ft)	Dry Sand Strain (%) (Tokl Seed 87) (%)	Sat Sand Strain (%) (Tokl Seed 87) (%)	Seismic Sett. of Layer (in.)	Cummulative Seismic Settlement (in.)
LB-5	0 to 6	5	6			120	31	2	1	20.2	600	35.5	35.5	>Range	600	0.50	0.35	NonLiq	35.5	0.23		0.16	0.2
LB-5	6 to 9	7	3			120	68	2	1	44.2	840	76.9	76.9	>Range	840	0.50	0.35	NonLiq	76.9	0.01		0.00	0.0
LB-5	9 to 11	10	3			120	100	2	1	65.0	1200	100.6	100.6	>Range	1200	0.50	0.34	NonLiq	100.6			0.00	0.0
LB-5	11 to 14	12	3			120	100	2	1	65.0	1440	91.8	91.8	>Range	1315.2	0.54	0.37	NonLiq	91.8			0.00	0.0
LB-5	14 to 17	15	3			120	100	2	1	65.0	1800	82.1	82.1	>Range	1488	0.59	0.41	NonLiq	82.1			0.00	0.0
LB-5	17 to 19	18	3			120	50	1	1.2	60.0	2098	78.5	78.5	>Range	1660.8	0.63	0.44	NonLiq	78.5			0.00	0.0
LB-5	19 to 22	20	3			120	73	1	1.2	87.6	2213	111.6	111.6	>Range	1776	0.65	0.45	NonLiq	111.6			0.00	0.0
LB-6	0 to 6	5	6			120	42	2	1	27.3	600	48.0	48.0	>Range	600	0.50	0.35	NonLiq	48.0	0.05		0.03	0.1
LB-6	6 to 9	7	3			120	30	2	1	19.5	840	33.9	33.9	>Range	840	0.50	0.35	NonLiq	33.9	0.11		0.03	0.0
LB-6	9 to 11	10	3			120	49	2	1	31.9	1200	49.3	49.3	>Range	1200	0.50	0.34	NonLiq	49.3			0.00	0.0
LB-6	11 to 14	12	3			120	90	2	1	58.5	1440	82.6	82.6	>Range	1315.2	0.54	0.37	NonLiq	82.6			0.00	0.0
LB-6	14 to 17	15	3			120	100	2	1	65.0	1800	82.1	82.1	>Range	1488	0.59	0.41	NonLiq	82.1			0.00	0.0
LB-6	17 to 19	18	3			120	100	1	1.2	120.0	2160	154.7	154.7	>Range	1660.8	0.63	0.44	NonLiq	154.7			0.00	0.0
LB-6	19 to 23	20	4			120	100	1	1.2	120.0	2338	148.7	148.7	>Range	1776	0.65	0.45	NonLiq	148.7			0.00	0.0
LB-6	23 to 28	25	5			120	100	1	1.2	120.0	2626	140.3	140.3	>Range	2064	0.69	0.48	NonLiq	140.3			0.00	0.0
LB-6	28 to 32	30	5			120	100	1	1.2	120.0	2914	140.2	140.2	>Range	2352	0.72	0.50	NonLiq	140.2			0.00	0.0
LB-7	0 to 6	5	6		50	120	18	2	1	11.7	600	20.6	29.7	0.448	600	0.50	0.35	NonLiq	29.7	0.46		0.33	2.7
LB-7	6 to 9	7	3		30	120	25	2	1	16.3	840	28.3	37.4	>Range	840	0.50	0.35	NonLiq	37.4	0.10		0.03	2.4
LB-7	9 to 11	10	3		50	120	24	2	1	15.6	1200	24.1	34.0	>Range	1200	0.50	0.34	NonLiq	34.0			0.00	2.3
LB-7	11 to 14	12	3	n	50	120	12	2	1	7.8	1440	11.0	18.2	>Range	1315.2	0.54	0.37	NonLiq	18.2			0.00	2.3
LB-7	14 to 17	15	3	n	50	120	10	2	1	6.5	1800	8.2	14.9	>Range	1488	0.59	0.41	NonLiq	14.9			0.00	2.3
LB-7	17 to 19	18	3	n	50	120	7	1	1.2	8.4	2160	10.8	18.0	>Range	1660.8	0.63	0.44	NonLiq	18.0			0.00	2.3
LB-7	19 to 23	20	4	n	50	120	5	1	1.2	6.0	2275	7.5	14.0	>Range	1776	0.65	0.45	NonLiq	14.0			0.00	2.3
LB-7	23 to 28	25	5		20	120	3	1	1.2	3.6	2563	4.3	8.2	0.098	2064	0.69	0.48	0.20	5.3		3.87	2.32	2.3
LB-7	28 to 31	30	4		30	120	16	1	1.2	19.2	2851	22.7	30.9	>Range	2352	0.72	0.50	NonLiq	30.9			0.00	0.0
LB-7	31 to 34	32	3			120	31	1	1.2	37.2	2966	43.1	43.1	>Range	2467.2	0.72	0.50	NonLiq	43.1			0.00	0.0
LB-7	34 to 38	35	4			120	52	1	1.2	62.4	3139	70.2	70.2	>Range	2640	0.72	0.50	NonLiq	70.2			0.00	0.0
LB-7	38 to 42	40	5			120	100	1	1.2	120.0	3427	129.3	129.3	>Range	2928	0.71	0.49	NonLiq	129.3			0.00	0.0
LB-8	0 to 6	5	6		30	120	16	2	1	10.4	600	18.3	25.8	0.309	600	0.50	0.35	NonLiq	25.8	0.53		0.38	0.4
LB-8	6 to 9	7	3		50	120	29	2	1	18.9	840	32.8	44.4	>Range	840	0.50	0.35	NonLiq	44.4	0.03		0.01	0.0
LB-8	9 to 11	10	3		50	120	21	2	1	13.7	1200	21.1	30.3	>Range	1200	0.50	0.34	NonLiq	30.3			0.00	0.0
LB-8	11 to 14	12	3	n	50	120	21	2	1	13.7	1440	19.3	28.1	>Range	1315.2	0.54	0.37	NonLiq	28.1			0.00	0.0
LB-8	14 to 17	15	3	n	50	120	17	2	1	11.1	1800	14.0	21.8	>Range	1488	0.59	0.41	NonLiq	21.8			0.00	0.0
LB-8	17 to 19	18	3	n	50	120	9	1	1.2	10.8	2160	13.9	21.7	>Range	1660.8	0.63	0.44	NonLiq	21.7			0.00	0.0
LB-8	19 to 21	20	2	n	50	120	9	1	1.2	10.8	2400	13.2	20.8	>Range	1776	0.65	0.45	NonLiq	20.8			0.00	0.0
LB-8	21 to 24	22	3	N		120	19	1	1.2	22.8	2640	26.6	26.6	>Range	1891.2	0.67	0.47	NonLiq	26.6			0.00	0.0

Plasticity and Liquefaction Susceptibility (based on Bray and Sancio, 2006)

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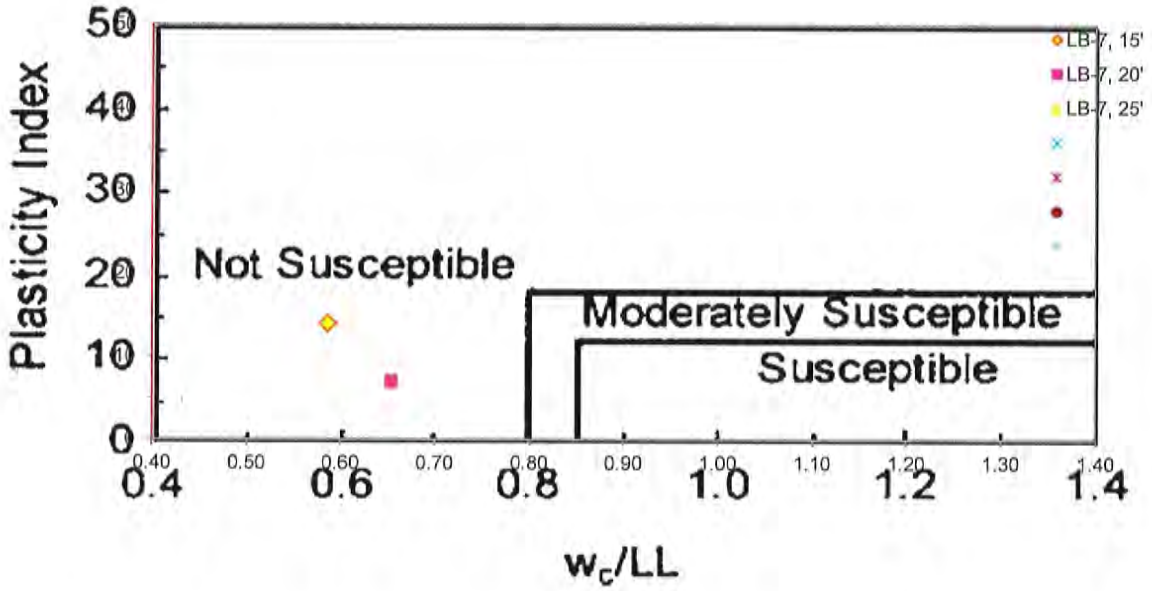
Nov 2017

Boring, depth	USCS	Fines Content	Moisture content, Wc (%)	Liquid Limit, LL	Plasticity Index, PI	wc/LL	Preliminary Susceptibility (considering only plasticity, not consistency)
LB-7, 15'			17	29	14	0.59	Not Susceptible
LB-7, 20'			17	26	7	0.653846	Not Susceptible
LB-7, 25'	Non Plastic						



Reference:
Bray, J.D., and Sancio, R.B., 2006, Assessment of the Liquefaction Susceptibility of Fine-Grained Soils, Journal of Geotechnical and Geoenvironmental Engineering, American Society of Civil Engineers, Vol. 132, No. 9, dated September 1, 2006, pp. 1165-1177.

Surface Manifestations of Liquefaction and Liquefaction Bearing Capacity Analysis

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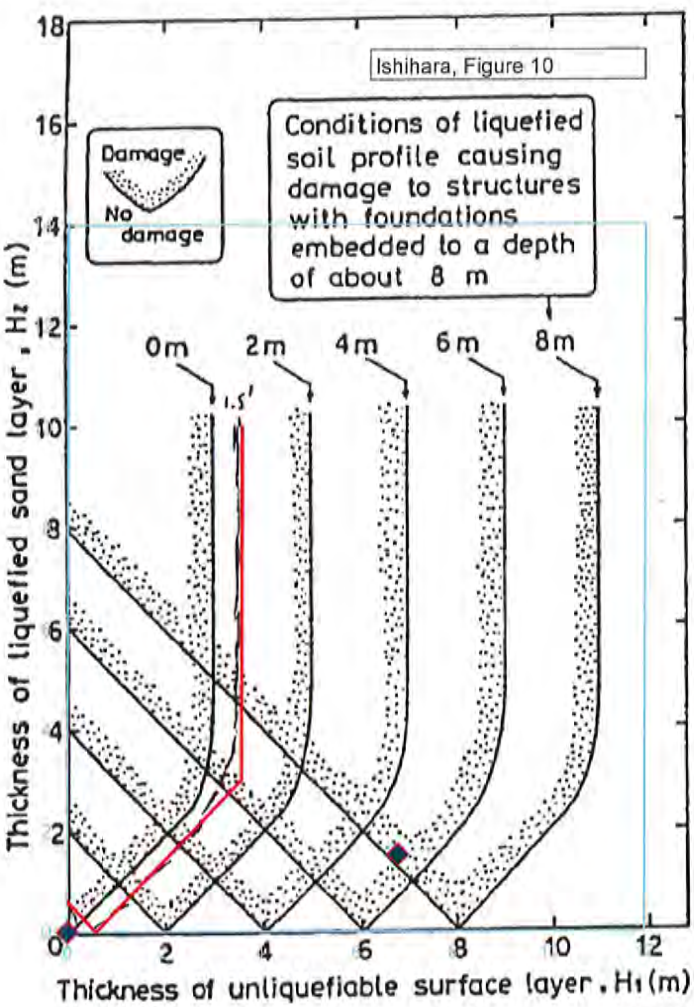
			Ishihara, 1995, Surface Manifestisations of Liquefaction Analysis:									
Boring No.	New Fill (raise grade) (ft)	Footing Depth (ft)	Bot. Depth of Nonliq and Liq Layers Z1 (non) (ft)	Za (liq) (ft)	Zb (non) (ft)	Zc (liq) (ft)	Thickness H1 (ft)	H2 (ft)	Thickness H1 (m)	H2 (m)	Struct Damage/ Surface Manifestations? (Ishihara, 1995)	Amount of New Fill needed to mitigate (ft)
LB-5	0	2	22	0	0	0	22.0		6.7		no	0
LB-6	0	2	0	0	0	0					no	0
LB-7	0	2	22.5	27.5	0	0	22.5	5.0	6.9	1.5	no	0
LB-8	0	2	37	0	0	0	37.0		11.3		no	0
			0	0	0	0						
			0	0	0	0						
			0	0	0	0						
			0	0	0	0						
			0	0	0	0						
			0	0	0	0						



References:

Ishihara, K., 1995, Effects of At-Depth Liquefaction on Embedded Foundations During Earthquakes, Proceedings of 11th Asian Regional Conference on Soil Mechanics and Foundation Engineering, Vol. 2, 1995.

Iwasaki, T., Arakawa, T., and Tokida, K., 1982, Simplifed Procedures for Assessing Soil Liquefaction During Earthquakes Proc. Conference on Soil Dynamics and Earthquake Engineering. Southampton, 925-939

Juang, C.H, Yang, S.H, Yuan, H., and Fang, S.Y., 2005, Liquefaction in the Chi-Chi earthquake – effect of fines and capping non-liquefiable layers Journal of the Japanese Geotechnical Society of Soils and Foundations, Vol. 45 No. 6 pp 89-101

Karamitros, Bouckovalas, Chaloulos, and Andrianopoulos, 2013, Numerical analysis of liquefaction-induced bearing capacity degradation of shallow foundations on a two-layered soil profile, Soil Dynamics and Earthquake Engineering, Vol 44.

Tonkin & Taylor Ltd, 2013, Liquefaction Vulnerability Study, Earthquake Commission, T&T Ref 52020.0200/v1.0, February, 2013

APPENDIX G

GENERAL EARTHWORK AND GRADING RECOMMENDATIONS

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APPENDIX G
LEIGHTON AND ASSOCIATES, INC.
GENERAL EARTHWORK AND GRADING SPECIFICATIONS FOR ROUGH GRADING

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LEIGHTON AND ASSOCIATES, INC.

GENERAL EARTHWORK AND GRADING SPECIFICATIONS FOR ROUGH GRADING

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1.0 GENERAL

1.1 Intent

These General Earthwork and Grading Specifications are for the grading and earthwork shown on the approved grading plan(s) and/or indicated in the geotechnical report(s). These Specifications are a part of the recommendations contained in the geotechnical report(s). In case of conflict, the specific recommendations in the geotechnical report shall supersede these more general Specifications. Observations of the earthwork by the project Geotechnical Consultant during the course of grading may result in new or revised recommendations that could supersede these specifications or the recommendations in the geotechnical report(s).

1.2 The Geotechnical Consultant of Record

Prior to commencement of work, the owner shall employ the Geotechnical Consultant of Record (Geotechnical Consultant). The Geotechnical Consultants shall be responsible for reviewing the approved geotechnical report(s) and accepting the adequacy of the preliminary geotechnical findings, conclusions, and recommendations prior to the commencement of the grading.

Prior to commencement of grading, the Geotechnical Consultant shall review the "work plan" prepared by the Earthwork Contractor (Contractor) and schedule sufficient personnel to perform the appropriate level of observation, mapping, and compaction testing.

During the grading and earthwork operations, the Geotechnical Consultant shall observe, map, and document the subsurface exposures to verify the geotechnical design assumptions. If the observed conditions are found to be significantly different than the interpreted assumptions during the design phase, the Geotechnical Consultant shall inform the owner, recommend appropriate changes in design to accommodate the observed conditions, and notify the review agency where required. Subsurface areas to be geotechnically observed, mapped, elevations recorded, and/or tested include natural ground after it has been cleared for receiving fill but before fill is placed, bottoms of all "remedial removal" areas, all key bottoms, and benches made on sloping ground to receive fill.

The Geotechnical Consultant shall observe the moisture-conditioning and processing of the subgrade and fill materials and perform relative compaction testing of fill to determine the attained level of compaction.

The Geotechnical Consultant shall provide the test results to the owner and the Contractor on a routine and frequent basis.

1.3 The Earthwork Contractor

The Earthwork Contractor (Contractor) shall be qualified, experienced, and knowledgeable in earthwork logistics, preparation and processing of ground to receive fill, moisture-conditioning and processing of fill, and compacting fill. The Contractor shall review and accept the plans, geotechnical report(s), and these Specifications prior to commencement of grading. The Contractor shall be solely responsible for performing the grading in accordance with the plans and specifications.

The Contractor shall prepare and submit to the owner and the Geotechnical Consultant a work plan that indicates the sequence of earthwork grading, the number of "spreads" of work and the estimated quantities of daily earthwork contemplated for the site prior to commencement of grading. The Contractor shall inform the owner and the Geotechnical Consultant of changes in work schedules and updates to the work plan at least 24 hours in advance of such changes so that appropriate observations and tests can be planned and accomplished. The Contractor shall not assume that the Geotechnical Consultant is aware of all grading operations.

The Contractor shall have the sole responsibility to provide adequate equipment and methods to accomplish the earthwork in accordance with the applicable grading codes and agency ordinances, these Specifications, and the recommendations in the approved geotechnical report(s) and grading plan(s). If, in the opinion of the Geotechnical Consultant, unsatisfactory conditions, such as unsuitable soil, improper moisture condition, inadequate compaction, insufficient buttress key size, adverse weather, etc., are resulting in a quality of work less than required in these specifications, the Geotechnical Consultant shall reject the work and may recommend to the owner that construction be stopped until the conditions are rectified.

2.0 PREPARATION OF AREAS TO BE FILLED

2.1 Clearing and Grubbing

Vegetation, such as brush, grass, roots, and other deleterious material shall be sufficiently removed and properly disposed of in a method acceptable to the owner, governing agencies, and the Geotechnical Consultant.

The Geotechnical Consultant shall evaluate the extent of these removals depending on specific site conditions. Earth fill material shall not contain more than 1 percent of organic materials (by volume). No fill lift shall contain more than 5 percent of organic matter. Nesting of the organic materials shall not be allowed.

If potentially hazardous materials are encountered, the Contractor shall stop work in the affected area, and a hazardous material specialist shall be informed immediately for proper evaluation and handling of these materials prior to continuing to work in that area.

As presently defined by the State of California, most refined petroleum products (gasoline, diesel fuel, motor oil, grease, coolant, etc.) have chemical constituents that are considered to be hazardous waste. As such, the indiscriminate dumping or spillage of these fluids onto the ground may constitute a misdemeanor, punishable by fines and/or imprisonment, and shall not be allowed.

2.2 Processing

Existing ground that has been declared satisfactory for support of fill by the Geotechnical Consultant shall be scarified to a minimum depth of 6 inches. Existing ground that is not satisfactory shall be overexcavated as specified in the following section. Scarification shall continue until soils are broken down and free of large clay lumps or clods and the working surface is reasonably uniform, flat, and free of uneven features that would inhibit uniform compaction.

2.3 Overexcavation

In addition to removals and overexcavations recommended in the approved geotechnical report(s) and the grading plan, soft, loose, dry, saturated, spongy, organic-rich, highly fractured or otherwise unsuitable ground shall be overexcavated to competent ground as evaluated by the Geotechnical Consultant during grading.

2.4 Benching

Where fills are to be placed on ground with slopes steeper than 5:1 (horizontal to vertical units), the ground shall be stepped or benched. Please see the Standard Details for a graphic illustration. The lowest bench or key shall be a minimum of 15 feet wide and at least 2 feet deep, into competent material as evaluated by the Geotechnical Consultant. Other benches shall be excavated a minimum height of 4 feet into competent material or as otherwise recommended by the Geotechnical

Consultant. Fill placed on ground sloping flatter than 5:1 shall also be benched or otherwise overexcavated to provide a flat subgrade for the fill.

2.5 Evaluation/Acceptance of Fill Areas

All areas to receive fill, including removal and processed areas, key bottoms, and benches, shall be observed, mapped, elevations recorded, and/or tested prior to being accepted by the Geotechnical Consultant as suitable to receive fill. The Contractor shall obtain a written acceptance from the Geotechnical Consultant prior to fill placement. A licensed surveyor shall provide the survey control for determining elevations of processed areas, keys, and benches.

3.0 FILL MATERIAL

3.1 General

Material to be used as fill shall be essentially free of organic matter and other deleterious substances evaluated and accepted by the Geotechnical Consultant prior to placement. Soils of poor quality, such as those with unacceptable gradation, high expansion potential, or low strength shall be placed in areas acceptable to the Geotechnical Consultant or mixed with other soils to achieve satisfactory fill material.

3.2 Oversize

Oversize material defined as rock, or other irreducible material with a maximum dimension greater than 8 inches, shall not be buried or placed in fill unless location, materials, and placement methods are specifically accepted by the Geotechnical Consultant. Placement operations shall be such that nesting of oversized material does not occur and such that oversize material is completely surrounded by compacted or densified fill. Oversize material shall not be placed within 10 vertical feet of finish grade or within 2 feet of future utilities or underground construction.

3.3 Import

If importing of fill material is required for grading, proposed import material shall meet the requirements of Section 3.1. The potential import source shall be given to the Geotechnical Consultant at least 48 hours (2 working days) before importing begins so that its suitability can be determined and appropriate tests performed.

4.0 FILL PLACEMENT AND COMPACTION

4.1 Fill Layers

Approved fill material shall be placed in areas prepared to receive fill (per Section 3.0) in near-horizontal layers not exceeding 8 inches in loose thickness. The Geotechnical Consultant may accept thicker layers if testing indicates the grading procedures can adequately compact the thicker layers. Each layer shall be spread evenly and mixed thoroughly to attain relative uniformity of material and moisture throughout.

4.2 Fill Moisture Conditioning

Fill soils shall be watered, dried back, blended, and/or mixed, as necessary to attain a relatively uniform moisture content at or slightly over optimum. Maximum density and optimum soil moisture content tests shall be performed in accordance with the American Society of Testing and Materials (ASTM Test Method D1557).

4.3 Compaction of Fill

After each layer has been moisture-conditioned, mixed, and evenly spread, it shall be uniformly compacted to not less than 90 percent of maximum dry density (ASTM Test Method D1557). Compaction equipment shall be adequately sized and be either specifically designed for soil compaction or of proven reliability to efficiently achieve the specified level of compaction with uniformity.

4.4 Compaction of Fill Slopes

In addition to normal compaction procedures specified above, compaction of slopes shall be accomplished by backrolling of slopes with sheepsfoot rollers at increments of 3 to 4 feet in fill elevation, or by other methods producing satisfactory results acceptable to the Geotechnical Consultant. Upon completion of grading, relative compaction of the fill, out to the slope face, shall be at least 90 percent of maximum density per ASTM Test Method D1557.

4.5 Compaction Testing

Field-tests for moisture content and relative compaction of the fill soils shall be performed by the Geotechnical Consultant. Location and frequency of tests shall be at the Consultant's discretion based on field conditions encountered. Compaction test locations will not necessarily be selected on a random basis. Test locations shall be selected to verify

adequacy of compaction levels in areas that are judged to be prone to inadequate compaction (such as close to slope faces and at the fill/bedrock benches).

4.6 Frequency of Compaction Testing

Tests shall be taken at intervals not exceeding 2 feet in vertical rise and/or 1,000 cubic yards of compacted fill soils embankment. In addition, as a guideline, at least one test shall be taken on slope faces for each 5,000 square feet of slope face and/or each 10 feet of vertical height of slope. The Contractor shall assure that fill construction is such that the testing schedule can be accomplished by the Geotechnical Consultant. The Contractor shall stop or slow down the earthwork construction if these minimum standards are not met.

4.7 Compaction Test Locations

The Geotechnical Consultant shall document the approximate elevation and horizontal coordinates of each test location. The Contractor shall coordinate with the project surveyor to assure that sufficient grade stakes are established so that the Geotechnical Consultant can determine the test locations with sufficient accuracy. At a minimum, two grade stakes within a horizontal distance of 100 feet and vertically less than 5 feet apart from potential test locations shall be provided.

5.0 SUBDRAIN INSTALLATION

Subdrain systems shall be installed in accordance with the approved geotechnical report(s), the grading plan, and the Standard Details. The Geotechnical Consultant may recommend additional subdrains and/or changes in subdrain extent, location, grade, or material depending on conditions encountered during grading. All subdrains shall be surveyed by a land surveyor/civil engineer for line and grade after installation and prior to burial. Sufficient time should be allowed by the Contractor for these surveys.

6.0 EXCAVATION

Excavations, as well as over-excavation for remedial purposes, shall be evaluated by the Geotechnical Consultant during grading. Remedial removal depths shown on geotechnical plans are estimates only. The actual extent of removal shall be determined by the Geotechnical Consultant based on the field evaluation of exposed conditions during grading. Where fill-over-cut slopes are to be graded, the cut portion of the slope shall be made, evaluated, and accepted by the Geotechnical Consultant prior to placement of materials for construction of

the fill portion of the slope, unless otherwise recommended by the Geotechnical Consultant.

7.0 TRENCH BACKFILLS

7.1 Safety

The Contractor shall follow all OSHA and Cal/OSHA requirements for safety of trench excavations.

7.2 Bedding and Backfill

All bedding and backfill of utility trenches shall be performed in accordance with the applicable provisions of Standard Specifications of Public Works Construction. Bedding material shall have a Sand Equivalent greater than 30 (SE>30). The bedding shall be placed to 1 foot over the top of the conduit and densified by jetting. Backfill shall be placed and densified to a minimum of 90 percent of relative compaction from 1 foot above the top of the conduit to the surface.

The Geotechnical Consultant shall test the trench backfill for relative compaction. At least one test should be made for every 300 feet of trench and 2 feet of fill.

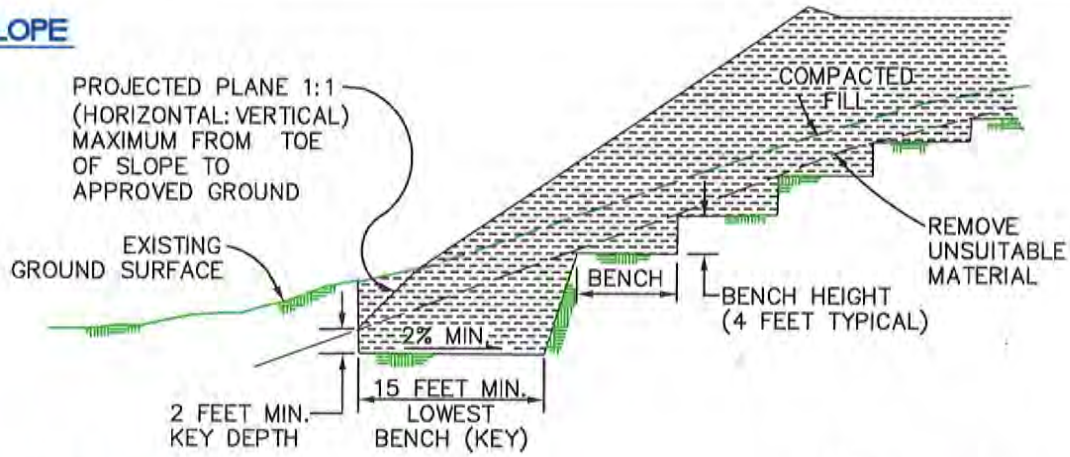
7.3 Lift Thickness

Lift thickness of trench backfill shall not exceed those allowed in the Standard Specifications of Public Works Construction unless the Contractor can demonstrate to the Geotechnical Consultant that the fill lift can be compacted to the minimum relative compaction by his alternative equipment and method.

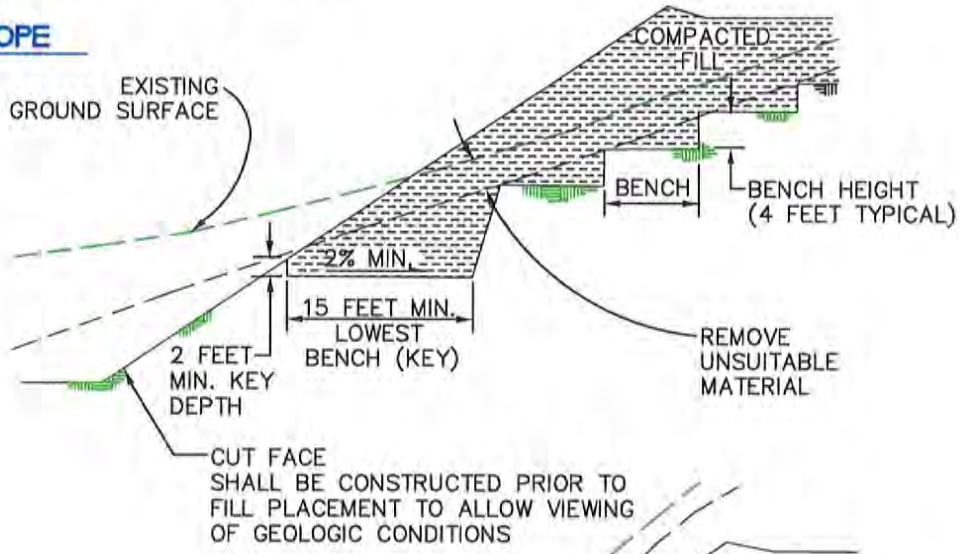
7.4 Observation and Testing

The jetting of the bedding around the conduits shall be observed by the Geotechnical Consultant.

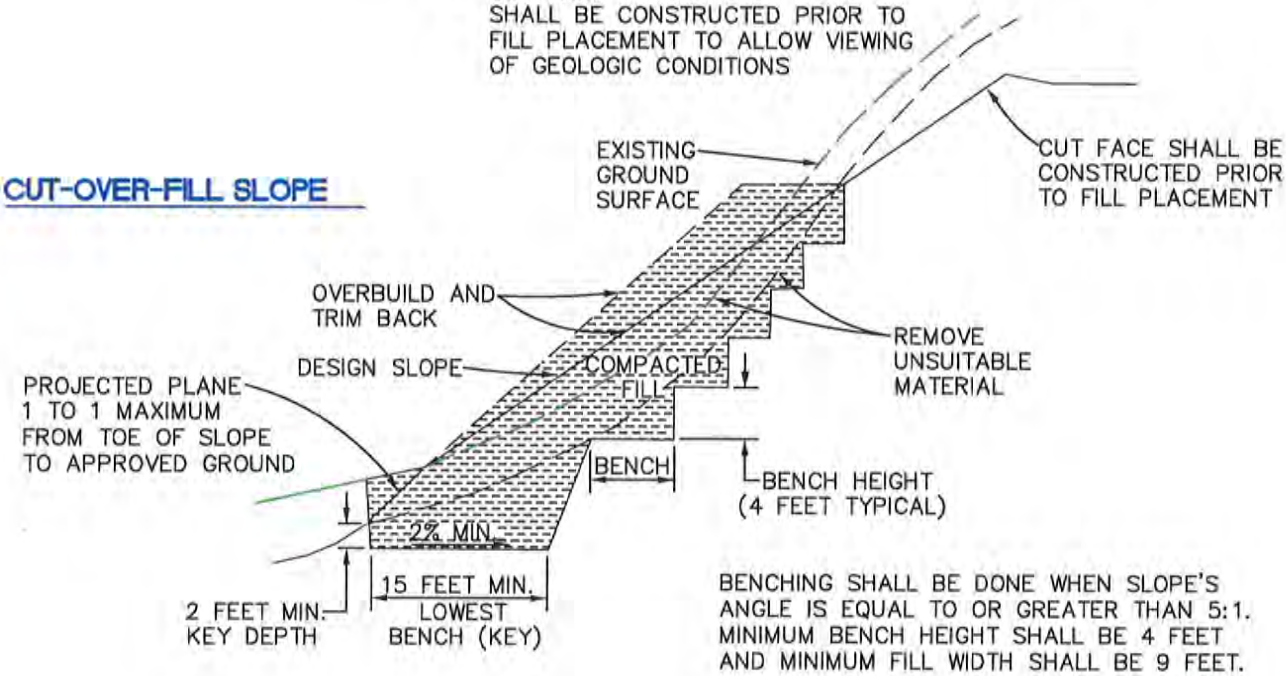
FILL SLOPE



FILL-OVER-CUT SLOPE

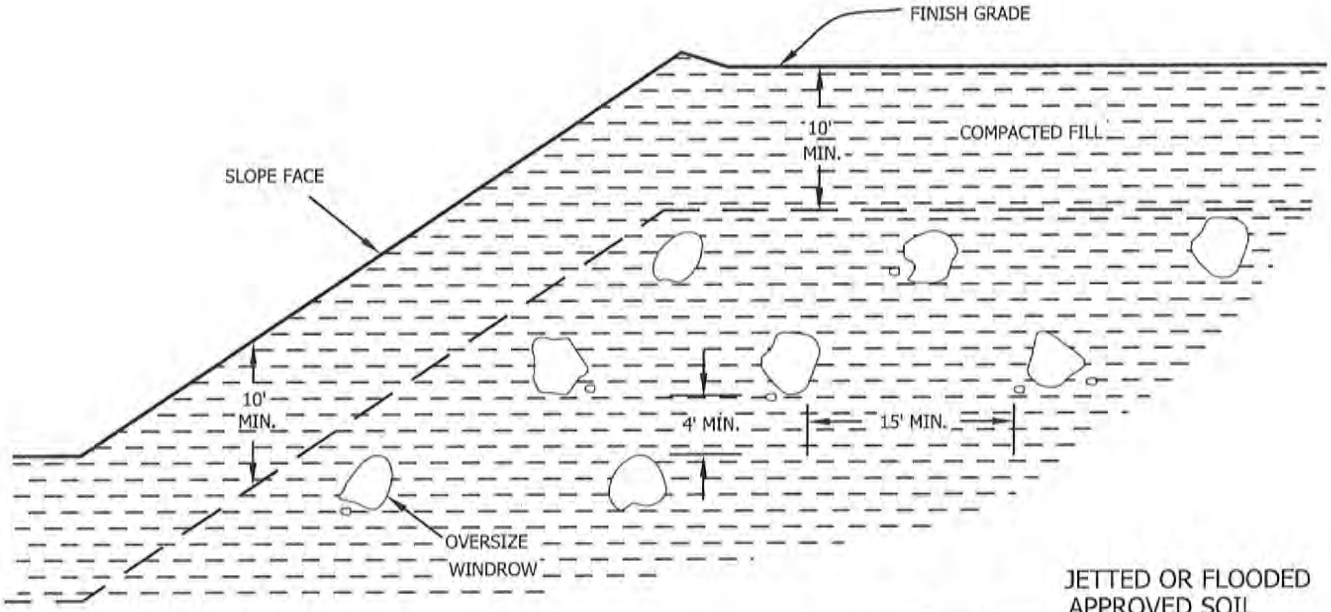


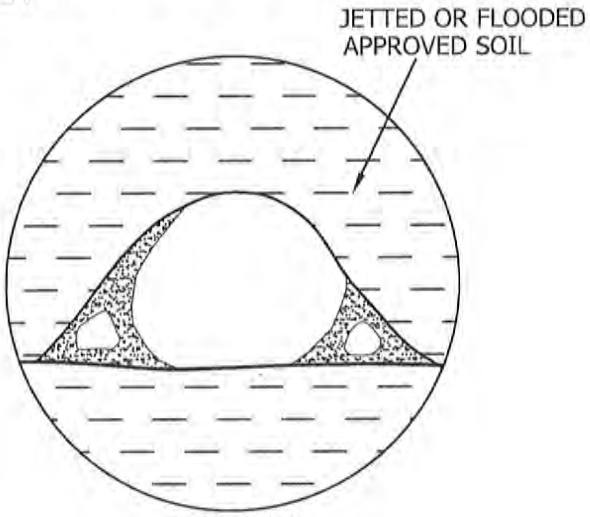
CUT-OVER-FILL SLOPE



BENCHING SHALL BE DONE WHEN SLOPE'S ANGLE IS EQUAL TO OR GREATER THAN 5:1. MINIMUM BENCH HEIGHT SHALL BE 4 FEET AND MINIMUM FILL WIDTH SHALL BE 9 FEET.

KEYING AND BENCHING	GENERAL EARTHWORK AND GRADING SPECIFICATIONS STANDARD DETAILS A	Leighton

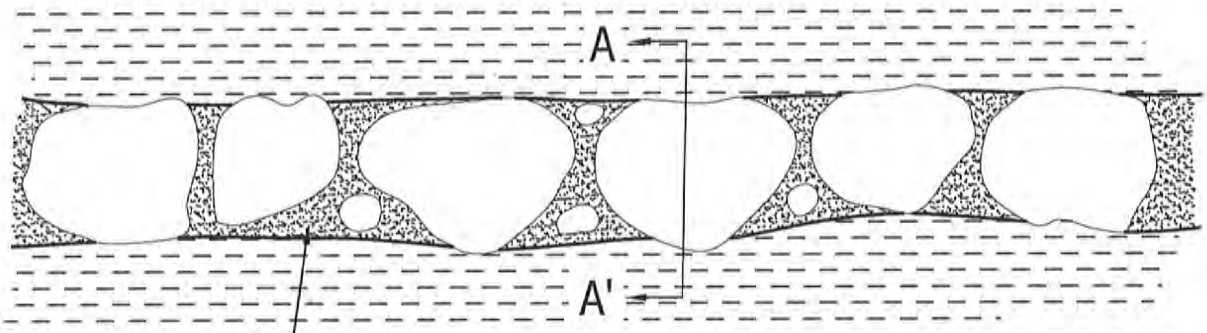




SECTION A-A'

- Oversize rock is larger than 8 inches in largest dimension.
- Backfill with approved soil jetted or flooded in place to fill all the voids.
- Do not bury rock within 10 feet of finish grade.
- Windrow of buried rock shall be parallel to the finished slope face.

PROFILE ALONG WINDROW



JETTED OR FLOODED APPROVED SOIL

OVERSIZE ROCK DISPOSAL	GENERAL EARTHWORK AND GRADING SPECIFICATIONS STANDARD DETAILS B	Leighton

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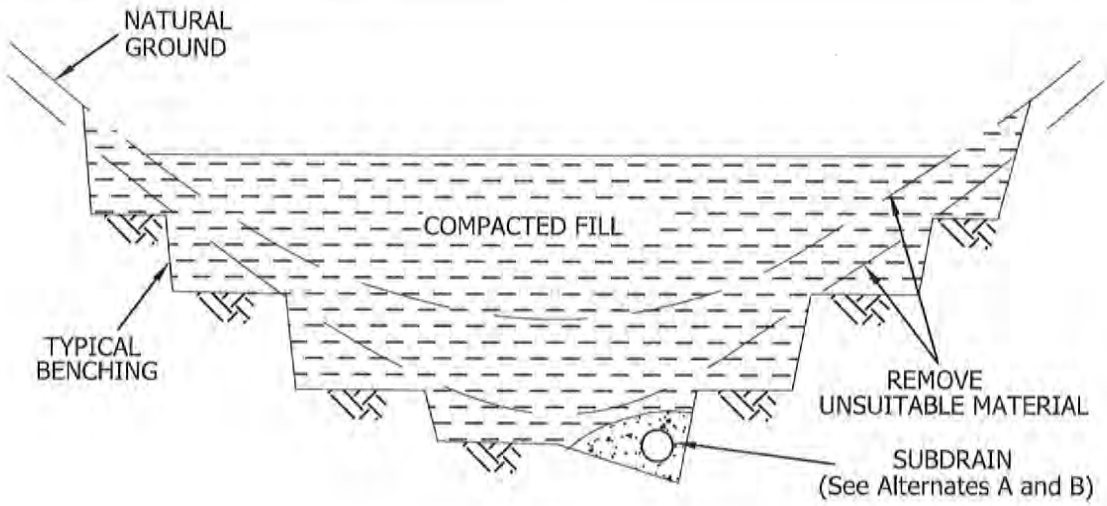
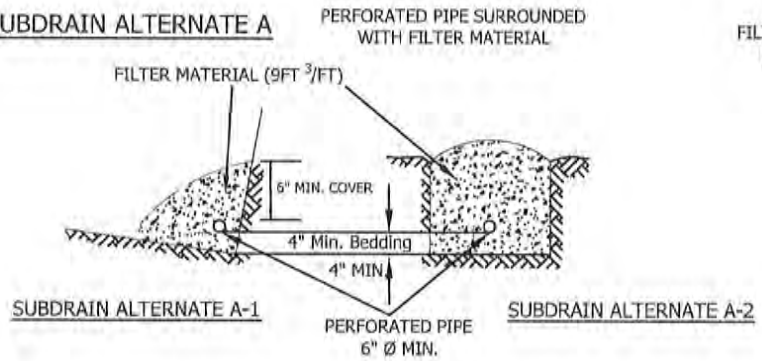


SUBDRAIN ALTERNATE A

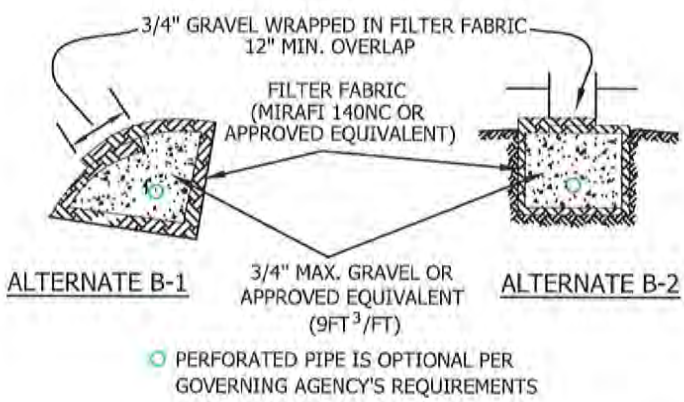


FILTER MATERIAL

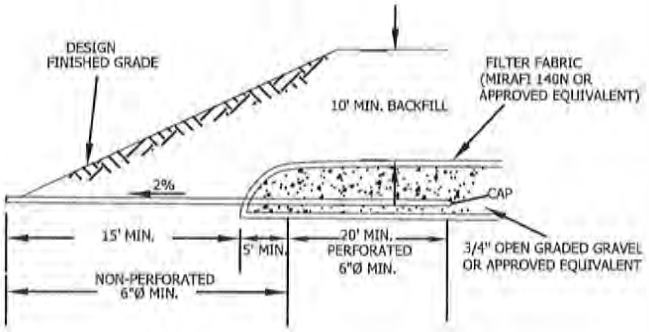
FILTER MATERIAL SHALL BE CLASS 2 PERMEABLE MATERIAL PER STATE OF CALIFORNIA STANDARD SPECIFICATION, OR APPROVED ALTERNATE. CLASS 2 GRADING AS FOLLOWS:

Sieve Size	Percent Passing
1"	100
3/4"	90-100
3/8"	40-100
No. 4	25-40
No. 8	18-33
No. 30	5-15
No. 50	0-7
No. 200	0-3

SUBDRAIN ALTERNATE B



DETAIL OF CANYON SUBDRAIN TERMINAL



CANYON SUBDRAIN	GENERAL EARTHWORK AND GRADING SPECIFICATIONS STANDARD DETAILS C	Leighton

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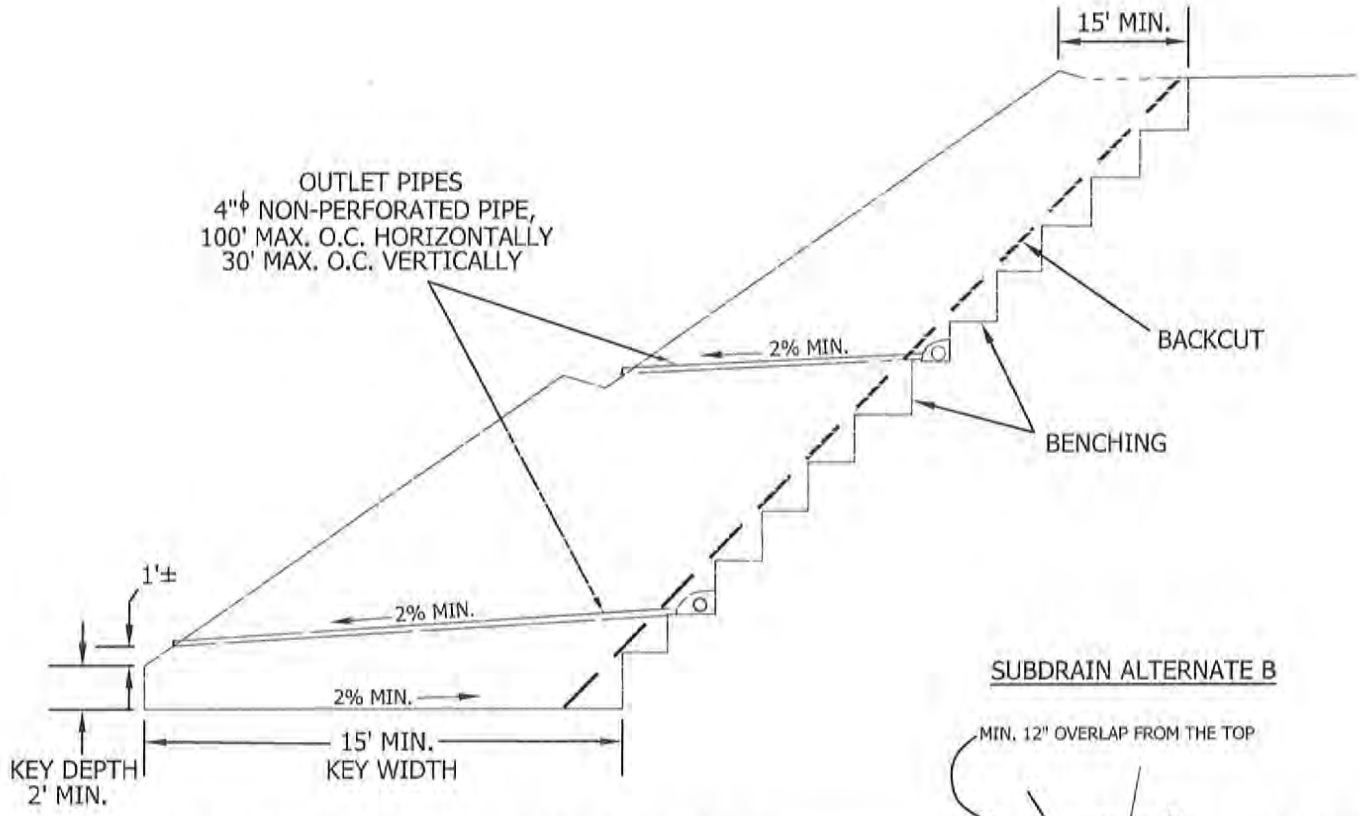
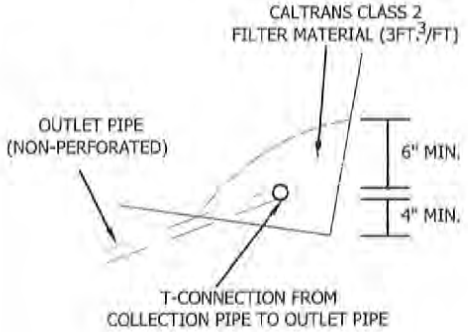
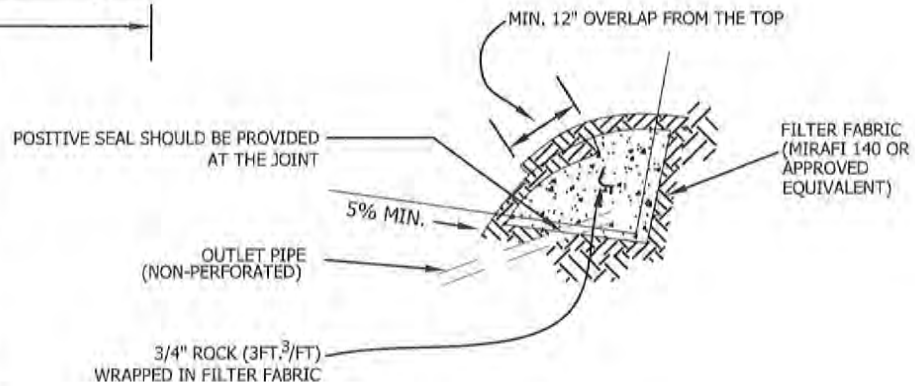


SUBDRAIN ALTERNATE A



SUBDRAIN ALTERNATE B



- SUBDRAIN INSTALLATION - Subdrain collector pipe shall be installed with perforations down or, unless otherwise designated by the geotechnical consultant. Outlet pipes shall be non-perforated pipe. The subdrain pipe shall have at least 8 perforations uniformly spaced per foot. Perforation shall be 1/4" to 1/2" if drilled holes are used. All subdrain pipes shall have a gradient at least 2% towards the outlet.
- SUBDRAIN PIPE - Subdrain pipe shall be ASTM D2751, ASTM D1527 (Schedule 40) or SDR 23.5 ABS pipe or ASTM D3034 (Schedule 40) or SDR 23.5 PVC pipe.
- All outlet pipe shall be placed in a trench and, after fill is placed above it, rodded to verify integrity.

BUTTRESS OR REPLACEMENT FILL SUBDRAINS	GENERAL EARTHWORK AND GRADING SPECIFICATIONS STANDARD DETAILS D	Leighton

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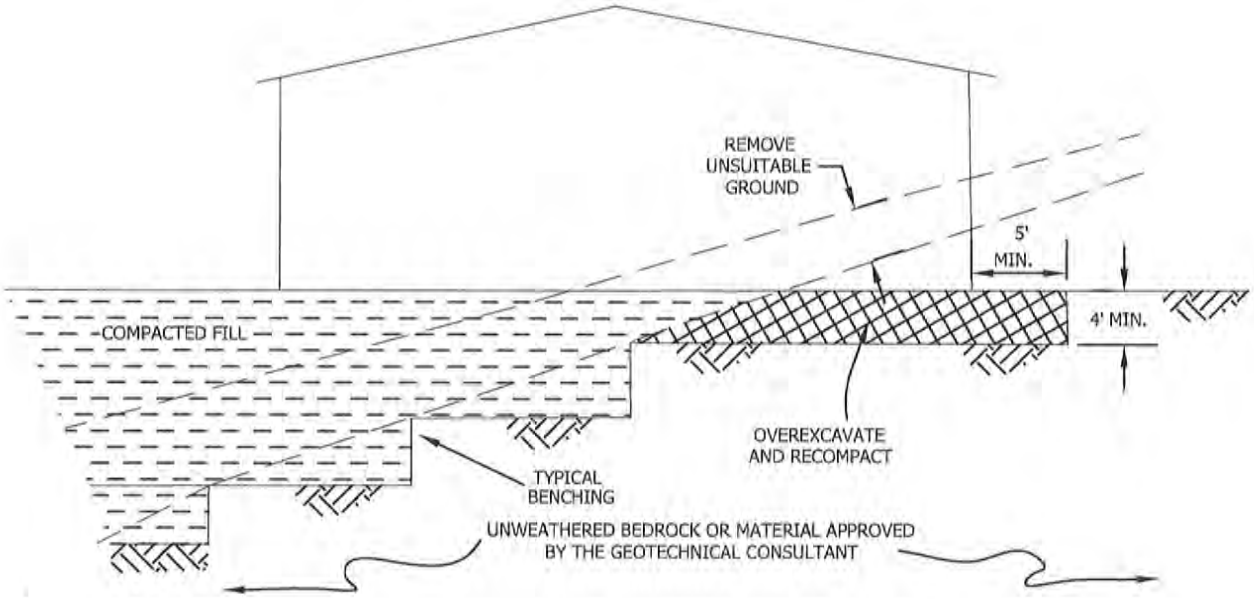
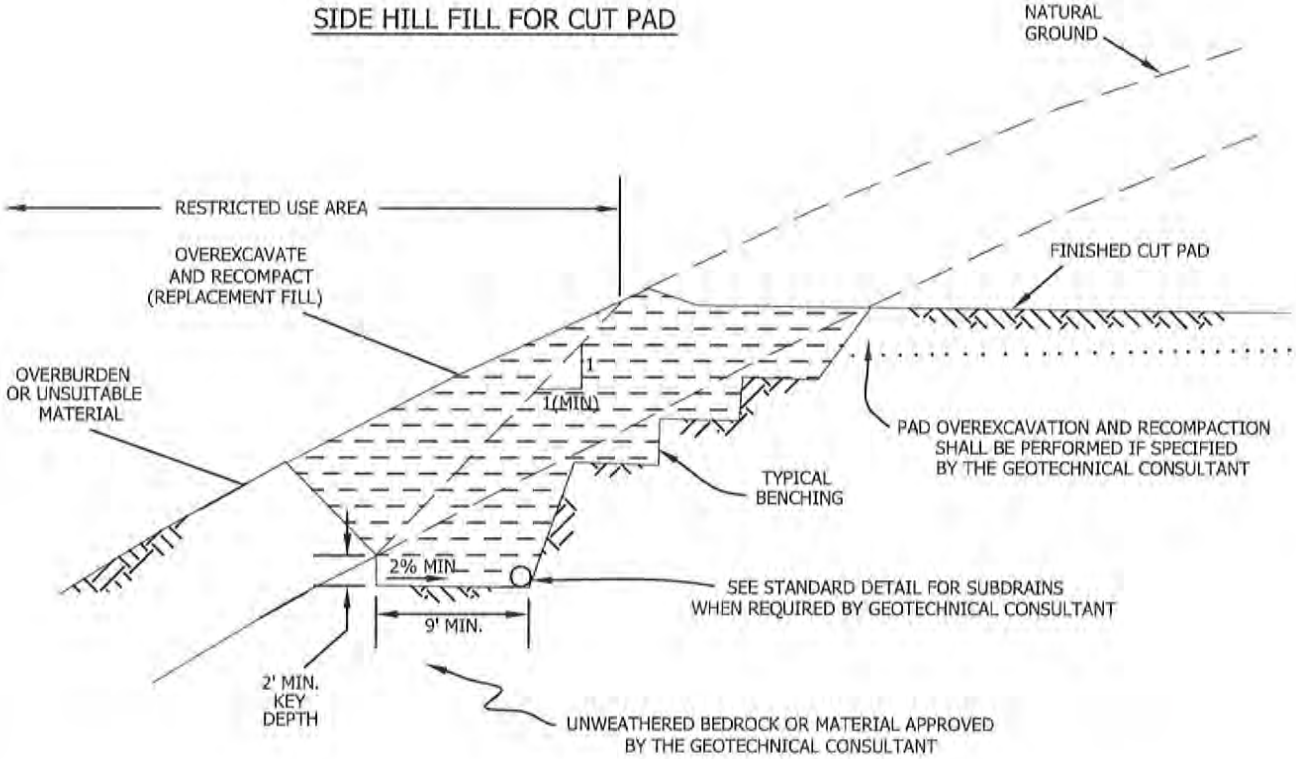
CUT-FILL TRANSITION LOT OVEREXCAVATION



SIDE HILL FILL FOR CUT PAD



TRANSITION LOT FILLS AND SIDE HILL FILLS	GENERAL EARTHWORK AND GRADING SPECIFICATIONS STANDARD DETAILS E	Leighton

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Industry Workforce Housing Community

GREENHOUSE GAS ANALYSIS

CITY OF INDUSTRY

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DECEMBER 12, 2017

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LIST OF ABBREVIATED TERMS

(1)	Reference
ARB	California Air Resources Board
CAA	Federal Clean Air Act
CalEEMod	California Emissions Estimator Model
CalEPA	California Environmental Protection Agency
CAPCOA	California Air Pollution Control Officers Association
CARB	California Air Resource Board
CAT	Climate Action Team
CBSC	California Building Standards Commission
CEC	California Energy Commission
CCR	California Code of Regulations
CEQA	California Environmental Quality Act
CFC	Chlorofluorocarbons
CFR	Code of Federal Regulations
CH4	Methane
CO	Carbon Monoxide
CO2	Carbon Dioxide
CO2e	Carbon Dioxide Equivalent
CPUC	California Public Utilities Commission
EPA	Environmental Protection Agency
EPS	Emission Performance Standard
GCC	Global Climate Change
GHGA	Greenhouse Gas Analysis
GWP	Global Warming Potential
HFC	Hydrofluorocarbons
LCA	Life-Cycle Analysis
MMs	Mitigation Measures
MMTCO2e	Million Metric Ton of Carbon Dioxide Equivalent
MTCO2e	Metric Ton of Carbon Dioxide Equivalent
N20	Nitrogen Dioxide
NIOSH	National Institute for Occupational Safety and Health
NOx	Oxides of Nitrogen
PFC	Perfluorocarbons
PM10	Particulate Matter 10 microns in diameter or less
PM2.5	Particulate Matter 2.5 microns in diameter or less
PPM	Parts Per Million

Project	Industry Workforce Housing Community
RTP	Regional Transportation Plan
SB	Senate Bill
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
UNFCCC	United Nations' Framework Convention on Climate Change
VOC	Volatile Organic Compounds

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EXECUTIVE SUMMARY

The City of Industry (City) has not adopted its own numeric threshold of significance for determining impacts with respect to greenhouse gas (GHG) emissions.

However, as an interim threshold based on guidance provided in the California Air Pollution Control Officers Association (CAPCOA) CEQA and Climate Change handbook, the City has opted to use a non-zero threshold approach based on Approach 2 of the handbook (1). Threshold 2.5 (Unit-Based Thresholds Based on Market Capture) establishes a numerical threshold based on capture of approximately 90 percent of emissions from future development. The latest threshold developed by SCAQMD using this method is 3,000 metric tons carbon dioxide equivalent (MTCO2E) per year for residential projects (2). This approach has been adopted by the South Coast Air Quality Management (SCAQMD) for residential projects where it is the lead agency. This approach is also widely used by the City of Industry and various other cities in the South Coast Air Basin (SCAB) where the SCAQMD is the lead agency (3). As such, this threshold will be utilized herein to determine if emissions of greenhouse gases from this project will be significant.

As shown on Table ES-1, the Project will result in approximately 524.04 metric tons of carbon dioxide equivalents (MTCO2e) per year; the proposed project would not exceed the SCAQMD's interim threshold of 3,000 MTCO2e per year. Therefore, a less than significant impact will occur and no further analysis is required. This finding is does not conflict with the significant and unavoidable impact finding with respect to GHG emissions that was made in the City of Industry General Plan Update EIR. The overall GHG impacts of the proposed Project would be less than what was disclosed in the General Plan Update EIR.

TABLE ES-1: TOTAL PROJECT GREENHOUSE GAS EMISSIONS (ANNUAL)

Emission Source	Emissions (metric tons per year)			
	CO_2	CH_4	N_2O	Total CO_2E
Annual construction-related emissions amortized over 30 years	21.36	0.01	--	21.50
Area	8.18	8.33E-03	1.80E-04	8.44
Energy	102.04	3.40E-03	1.23E-03	102.49
Mobile Sources	363.64	0.02	--	364.13
Waste	5.99	0.35	--	14.85
Water Usage	10.91	0.05	1.34E-03	12.65
Total CO_2E (All Sources)	**524.04**			
SCAQMD Threshold	**10,000**			
Significant?	**NO**			

Source: CalEEMod™ model output, See Appendix 3.1 for detailed model outputs.
Note: Totals obtained from CalEEMod™ and may not total 100% due to rounding.
Table results include scientific notation. *e* is used to represent *times ten raised to the power of* (which would be written as x $10^{b''}$) and is followed by the value of the exponent
-- Negligible amount of emissions (CalEEMod does not report any emissions for these pollutants)

1 INTRODUCTION

This report presents the results of the greenhouse gas analysis (GHGA) prepared by Urban Crossroads, Inc., for the proposed Industry Workforce Housing Community (referred to as "Project").

The purpose of this GHGA is to evaluate Project-related construction and operational emissions and determine the level of greenhouse gas (GHG) impacts as a result of constructing and operating the proposed Project.

1.1 SITE LOCATION

The proposed Industry Workforce Housing Community site is located at 20137 and 20249 East Walnut Drive in City of Industry, as shown on Exhibit 1-A. The Project site is currently occupied by a residential home and two billboard signs. It is bound to the north by State Route 60 (SR-60), to the south and west by existing residential homes, and to the east by an existing parking lot.

1.2 PROJECT DESCRIPTION

The Project is proposed to consist of up to 25 single-family detached residential dwelling units and approximately 4,500 square feet of community recreational space, as shown on Exhibit 1-B.

1.3 OTHER REQUIREMENTS

The Project would be required to comply with regulations imposed by the State of California and the South Coast Air Quality Management District aimed at the reduction of air pollutant emissions. Those that are directly and indirectly applicable to the Project and that would assist in the reduction of greenhouse gas emissions include:

- Global Warming Solutions Act of 2006 (AB32) (4). AB 32 is applicable to the Project because, as a development Project, the Industry Workforce Housing Community will need to meet 2020 GHG reduction goals set forth in AB 32. AB 32 requires the California Air Resources Board (CARB or ARB) to develop regulations and market mechanisms to reduce California's greenhouse gas emissions to 1990 levels by the year of 2020. Many of the GHG reduction measures outlined in AB 32 (e.g., Low Carbon Fuel Standard, Advanced Clean Car standards, and Cap-and-Trade) have been adopted over the last five years and implementation activities are ongoing.
- Pavley Fuel Efficiency Standards (AB1493). Establishes fuel efficiency ratings for new vehicles (5). AB 149(4)3 (Pavley) establishes fuel efficiency rating for model year 2009-2016 passenger cars and light trucks. AB 1493 is applicable to the Project because model year 2009-2016 passenger cars and light duty truck vehicles traveling to and from the Project site are required by the State of California to implement GHG emission reduction standards related to fuel efficiency. The CARB anticipates that implementation of the Pavley regulations will reduce GHG emissions from California passenger vehicles by about 30 percent in 2016 compared to emissions that occurred prior to 2009 when AB 1492 was enacted.

EXHIBIT 1-A: LOCATION MAP

EXHIBIT 1-B: SITE PLAN

- Title 24 California Code of Regulations (California Building Code). Establishes energy efficiency requirements for new construction (6). The Title 24 energy standards address the energy efficiency of new (and altered) homes and commercial buildings. Because energy efficiency reduces energy costs, increases reliability and availability of electricity, improves building occupant comfort, and reduces impacts to the environment, standards are important and necessary for California's energy future. Therefore, a new development such as the Industry Workforce Housing Community is required to comply with Title 24 Code of Regulations and would therefore increase the Project's energy efficiency and reduce its environmental impact.
- Title 17 California Code of Regulations (Low Carbon Fuel Standard). Requires carbon content of fuel sold in California to be 10% less by 2020 (7). Because the LCFS applies to any transportation fuel that is sold, supplied, or offered for sale in California, and to any person who, as a regulated party, is responsible for a transportation fuel in a calendar year, all vehicles accessing the site will be required to comply with LCFS. Implementation of such a standard will reduce greenhouse gas emissions by reducing the full fuel-cycle, carbon intensity of the transportation fuel pool used in California.
- California Water Conservation in Landscaping Act of 2006 (AB1881). Requires local agencies to adopt the Department of Water Resources updated Water Efficient Landscape Ordinance or equivalent by January 1, 2010 to ensure efficient landscapes in new development and reduced water waste in existing landscapes (8). As new development project within the State of California, the Industry Workforce Housing Community is required to comply with the City of Industry's adopted water efficient landscape requirements and would therefore be consistent with the requirements of AB1881 in order to help conserve California's water resources and to promote efficient water use.
- Senate Bill 32 (SB 32). Requires the state to reduce statewide greenhouse gas emissions to 40% below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15 (9) (10).

1.4 Construction and Operational -Source Mitigation Measures

As previously noted, the Project would not result in a significant impact with respect to GHG emissions. Therefore, no mitigation measures are required.

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2 BACKGROUND

2.1 INTRODUCTION TO GLOBAL CLIMATE CHANGE

Global Climate Change (GCC) is defined as the change in average meteorological conditions on the earth with respect to temperature, precipitation, and storms. GCC is currently one of the most controversial environmental issues in the United States, and much debate exists within the scientific community about whether or not GCC is occurring naturally or as a result of human activity. Some data suggests that GCC has occurred in the past over the course of thousands or millions of years. These historical changes to the Earth's climate have occurred naturally without human influence, as in the case of an ice age. However, many scientists believe that the climate shift taking place since the industrial revolution (1900) is occurring at a quicker rate and magnitude than in the past. Scientific evidence suggests that GCC is the result of increased concentrations of greenhouse gases in the earth's atmosphere, including carbon dioxide, methane, nitrous oxide, and fluorinated gases. Many scientists believe that this increased rate of climate change is the result of greenhouse gases resulting from human activity and industrialization over the past 200 years.

An individual project like the Project evaluated in this GHGA cannot generate enough greenhouse gas emissions to effect a discernible change in global climate. However, the Project may participate in the potential for GCC by its incremental contribution of greenhouse gasses combined with the cumulative increase of all other sources of greenhouse gases, which when taken together constitute potential influences on GCC. Because these changes may have serious environmental consequences, Section 3.0 evaluates the potential for the Project to have a significant effect upon the environment as a result of its potential contribution to the greenhouse effect.

2.2 GREENHOUSE GAS EMISSIONS INVENTORIES

Global

Worldwide anthropogenic (human) GHG emissions are tracked by the Intergovernmental Panel on Climate Change for industrialized nations (referred to as Annex I) and developing nations (referred to as Non-Annex I). Human GHG emissions data for Annex I nations are available through 2015. For the Year 2015, the sum of these emissions totaled approximately 28,872,564 Gg CO2e[1] (11) (12). The GHG emissions in more recent years may differ from the inventories presented in Table 2-1; however, the data is representative of currently available inventory data.

1 The global emissions are the sum of Annex I and non-Annex I countries, without counting Land-Use, Land-Use Change and Forestry (LULUCF). For countries without 2005 data, the UNFCCC data for the most recent year were used. United Nations Framework Convention on Climate Change, "Annex I Parties – GHG total without LULUCF,"

United States

As noted in Table 2-1, the United States, as a single country, was the number one producer of GHG emissions in 2015. The primary greenhouse gas emitted by human activities in the United States was CO2, representing approximately 83 percent of total greenhouse gas emissions (13). Carbon dioxide from fossil fuel combustion, the largest source of US greenhouse gas emissions, accounted for approximately 78 percent of the GHG emissions.

TABLE 2-1: TOP GHG PRODUCER COUNTRIES AND THE EUROPEAN UNION[2]

Emitting Countries	GHG Emissions (Gg CO2e)
China	11,895,765
United States	6,586,655
European Union (27 member countries)	4,315,773
India	2,650,954
Russian Federation	2,100,849
Japan	1,322,568
Total	**28,872,564**

State of California

CARB compiles GHG inventories for the State of California. Based upon the 2017 GHG inventory data (i.e., the latest year for which data are available) for the 2000-2015 greenhouse gas emissions inventory, California emitted 440.4 MMTCO2e including emissions resulting from imported electrical power in 2015 (14). Based on the CARB inventory data and GHG inventories compiled by the World Resources Institute, California's total statewide GHG emissions rank second in the United States (Texas is number one) with emissions of 417 MMTCO2e excluding emissions related to imported power (15).

2.3 GLOBAL CLIMATE CHANGE DEFINED

Global Climate Change refers to the change in average meteorological conditions on the earth with respect to temperature, wind patterns, precipitation and storms. Global temperatures are regulated by naturally occurring atmospheric gases such as water vapor, CO2 (Carbon Dioxide), N2O (Nitrous Oxide), CH4 (Methane), hydrofluorocarbons, perfluorocarbons and sulfur hexafluoride. These particular gases are important due to their residence time (duration they stay) in the atmosphere, which ranges from 10 years to more than 100 years. These gases allow solar radiation into the Earth's atmosphere, but prevent radioactive heat from escaping, thus warming the Earth's atmosphere. GCC can occur naturally as it has in the past with the previous ice ages. According to the California Air Resources Board (CARB), the climate change since the industrial revolution differs from previous climate changes in both rate and magnitude (16).

2 Used http://unfccc.int data for Annex I countries. Consulted the CAIT Climate Data Explorer http://www.wri.org site to reference Non-Annex I countries such as China and India.

Gases that trap heat in the atmosphere are often referred to as greenhouse gases. Greenhouse gases are released into the atmosphere by both natural and anthropogenic (human) activity. Without the natural greenhouse gas effect, the Earth's average temperature would be approximately 61° Fahrenheit (F) cooler than it is currently. The cumulative accumulation of these gases in the earth's atmosphere is considered to be the cause for the observed increase in the earth's temperature.

Although California's rate of growth of greenhouse gas emissions is slowing, the state is still a substantial contributor to the U.S. emissions inventory total. In 2004, California is estimated to have produced 492 million gross metric tons of carbon dioxide equivalent (CO2e) greenhouse gas emissions. Despite a population increase of 16 percent between 1990 and 2004, California has significantly slowed the rate of growth of greenhouse gas emissions due to the implementation of energy efficiency programs as well as adoption of strict emission controls (17).

2.4 GREENHOUSE GASES

For the purposes of this analysis, emissions of carbon dioxide, methane, and nitrous oxide were evaluated because these gasses are the primary contributors to GCC from development projects. Although other substances such as fluorinated gases also contribute to GCC, sources of fluorinated gases are not well-defined and no accepted emissions factors or methodology exist to accurately calculate these gases.

Greenhouse gases have varying global warming potential values; Global Warming Potential (GWP) values represent the potential of a gas to trap heat in the atmosphere. Carbon dioxide is utilized as the reference gas for GWP, and thus has a GWP of 1.

The atmospheric lifetime and GWP of selected greenhouse gases are summarized at Table 2-2. As shown in the table below, GWP for the SAR range from 1 for carbon dioxide to 23,900 for sulfur hexafluoride and GWP for the AR4 range from 1 for carbon dioxide to 22,800 for sulfur hexafluoride.

TABLE 2-2: GLOBAL WARMING POTENTIAL AND ATMOSPHERIC LIFETIME OF SELECT GHGS

Gas	Atmospheric Lifetime (years)	Global Warming Potential (100 year time horizon)	
		Second Assessment Report (SAR)	4th Assessment Report (AR4)
Carbon Dioxide	50-200	1	1
Methane	12 ± 3	21	25
Nitrous Oxide	120	310	298
HFC-23	264	11,700	14,800
HFC-134a	14.6	1,300	1,430
HFC-152a	1.5	140	124
Sulfur Hexafluoride (SF6)	3,200	23,900	22,800

Source: Table 2.14 of the IPCC Fourth Assessment Report, 2007

Water Vapor: Water vapor (H20) is the most abundant, important, and variable greenhouse gas in the atmosphere. Water vapor is not considered a pollutant; in the atmosphere it maintains a climate necessary for life. Changes in its concentration are primarily considered to be a result of climate feedbacks related to the warming of the atmosphere rather than a direct result of industrialization. A climate feedback is an indirect, or secondary, change, either positive or negative, that occurs within the climate system in response to a forcing mechanism. The feedback loop in which water is involved is critically important to projecting future climate change.

As the temperature of the atmosphere rises, more water is evaporated from ground storage (rivers, oceans, reservoirs, soil). Because the air is warmer, the relative humidity can be higher (in essence, the air is able to 'hold' more water when it is warmer), leading to more water vapor in the atmosphere. As a GHG, the higher concentration of water vapor is then able to absorb more thermal indirect energy radiated from the Earth, thus further warming the atmosphere. The warmer atmosphere can then hold more water vapor and so on and so on. This is referred to as a "positive feedback loop." The extent to which this positive feedback loop would continue is unknown as there are also dynamics that hold the positive feedback loop in check.

As an example, when water vapor increases in the atmosphere, more of it would eventually also condense into clouds, which are abler to reflect incoming solar radiation (thus allowing less energy to reach the Earth's surface and heat it up). There are no human health effects from water vapor itself; however, when some pollutants come in contact with water vapor, they can dissolve and the water vapor can then act as a pollutant-carrying agent. The main source of water vapor is evaporation from the oceans (approximately 85 percent). Other sources include: evaporation from other water bodies, sublimation (change from solid to gas) from sea ice and snow, and transpiration from plant leaves.

Carbon Dioxide: Carbon dioxide (CO2) is an odorless and colorless GHG. Outdoor levels of carbon dioxide are not high enough to result in negative health effects. Carbon dioxide is emitted from natural and manmade sources. Natural sources include: the decomposition of dead organic matter; respiration of bacteria, plants, animals and fungus; evaporation from oceans; and volcanic outgassing. Anthropogenic sources include: the burning of coal, oil, natural gas, and wood. Carbon dioxide is naturally removed from the air by photosynthesis, dissolution into ocean water, transfer to soils and ice caps, and chemical weathering of carbonate rocks (18).

Since the industrial revolution began in the mid-1700s, the sort of human activity that increases GHG emissions has increased dramatically in scale and distribution. Data from the past 50 years suggests a corollary increase in levels and concentrations. As an example, prior to the industrial revolution, CO2 concentrations were fairly stable at 280 parts per million (ppm). Today, they are around 370 ppm, an increase of more than 30 percent. Left unchecked, the concentration of carbon dioxide in the atmosphere is projected to increase to a minimum of 540 ppm by 2100 as a direct result of anthropogenic sources (19).

Methane: Methane (CH4) is an extremely effective absorber of radiation, though its atmospheric concentration is less than carbon dioxide and its lifetime in the atmosphere is brief (10-12 years), compared to other GHGs. No health effects are known to occur from exposure to methane.

Methane has both natural and anthropogenic sources. It is released as part of the biological processes in low oxygen environments, such as in swamplands or in rice production (at the roots of the plants). Over the last 50 years, human activities such as growing rice, raising cattle, using natural gas, and mining coal have added to the atmospheric concentration of methane. Other anthropocentric sources include fossil-fuel combustion and biomass burning.

Nitrous Oxide: Nitrous oxide (N2O), also known as laughing gas, is a colorless greenhouse gas. Nitrous oxide can cause dizziness, euphoria, and sometimes slight hallucinations. In small doses, it is considered harmless. However, in some cases, heavy and extended use can cause Olney's Lesions (brain damage) (20).

Concentrations of nitrous oxide also began to rise at the beginning of the industrial revolution. In 1998, the global concentration was 314 parts per billion (ppb). Nitrous oxide is produced by microbial processes in soil and water, including those reactions which occur in fertilizer containing nitrogen. In addition to agricultural sources, some industrial processes (fossil fuel-fired power plants, nylon production, nitric acid production, and vehicle emissions) also contribute to its atmospheric load. It is used as an aerosol spray propellant, i.e., in whipped cream bottles. It is also used in potato chip bags to keep chips fresh. It is used in rocket engines and in race cars. Nitrous oxide can be transported into the stratosphere, be deposited on the Earth's surface, and be converted to other compounds by chemical reaction

Chlorofluorocarbons: Chlorofluorocarbons (CFCs) are gases formed synthetically by replacing all hydrogen atoms in methane or ethane (C2H6) with chlorine and/or fluorine atoms. CFCs are nontoxic, nonflammable, insoluble and chemically unreactive in the troposphere (the level of air at the Earth's surface). CFCs are no longer being used; therefore, it is not likely that health effects would be experienced. Nonetheless, in confined indoor locations, working with CFC-113 or other

CFCs is thought to result in death by cardiac arrhythmia (heart frequency too high or too low) or asphyxiation.

CFCs have no natural source, but were first synthesized in 1928. They were used for refrigerants, aerosol propellants and cleaning solvents. Due to the discovery that they are able to destroy stratospheric ozone, a global effort to halt their production was undertaken and was extremely successful, so much so that levels of the major CFCs are now remaining steady or declining. However, their long atmospheric lifetimes mean that some of the CFCs would remain in the atmosphere for over 100 years.

Hydrofluorocarbons: Hydrofluorocarbons (HFCs) are synthetic, man-made chemicals that are used as a substitute for CFCs. Out of all the greenhouse gases, they are one of three groups with the highest global warming potential. The HFCs with the largest measured atmospheric abundances are (in order), HFC-23 (CHF3), HFC-134a (CF3CH2F), and HFC-152a (CH3CHF2). Prior to 1990, the only significant emissions were of HFC-23. HFC-134a emissions are increasing due to its use as a refrigerant. The U.S. EPA estimates that concentrations of HFC-23 and HFC-134a are now about 10 parts per trillion (ppt) each; and that concentrations of HFC-152a are about 1 ppt (21). No health effects are known to result from exposure to HFCs, which are manmade for applications such as automobile air conditioners and refrigerants.

Perfluorocarbons: Perfluorocarbons (PFCs) have stable molecular structures and do not break down through chemical processes in the lower atmosphere. High-energy ultraviolet rays, which occur about 60 kilometers above Earth's surface, are able to destroy the compounds. Because of this, PFCs have very long lifetimes, between 10,000 and 50,000 years. Two common PFCs are tetrafluoromethane (CF4) and hexafluoroethane (C2F6). The U.S. EPA estimates that concentrations of CF4 in the atmosphere are over 70 ppt.

No health effects are known to result from exposure to PFCs. The two main sources of PFCs are primary aluminum production and semiconductor manufacture.

Sulfur Hexafluoride: Sulfur hexafluoride (SF6) is an inorganic, odorless, colorless, nontoxic, nonflammable gas. It also has the highest GWP of any gas evaluated (23,900). The U.S. EPA indicates that concentrations in the 1990s were about 4 ppt. In high concentrations in confined areas, the gas presents the hazard of suffocation because it displaces the oxygen needed for breathing.

Sulfur hexafluoride is used for insulation in electric power transmission and distribution equipment, in the magnesium industry, in semiconductor manufacturing, and as a tracer gas for leak detection.

2.5 Effects of Climate Change in California

The California Environmental Protection Agency (CalEPA) published a report titled "Scenarios of Climate Change in California: An Overview" (Climate Scenarios report) in February 2006 (California Climate Change Center 2006), that while not adequate for a CEQA project-specific or cumulative analysis, is generally instructive about the statewide impacts of global warming.

The Climate Scenarios report uses a range of emissions scenarios developed by the Intergovernmental Panel on Climate Change (IPCC) to project a series of potential warming ranges (i.e., temperature increases) that may occur in California during the 21st century: lower warming range (3.0-5.5°F); medium warming range (5.5-8.0°F); and higher warming range (8.0-10.5°F). The Climate Scenarios report then presents an analysis of future climate in California under each warming range, that while uncertain, present a picture of the impacts of global climate change trends in California.

In addition, most recently on August 5, 2009, the State's Natural Resources Agency released a public review draft of its "California Climate Adaptation Strategy" report that details many vulnerabilities arising from climate change with respect to matters such as temperature extremes, sea level rise, wildfires, floods and droughts and precipitation changes. This report responds to the Governor's Executive Order S-13-2008 that called on state agencies to develop California's strategy to identify and prepare for expected climate impacts

According to the reports, substantial temperature increases arising from increased GHG emissions potentially could result in a variety of impacts to the people, economy, and environment of California associated with a projected increase in extreme conditions, with the severity of the impacts depending upon actual future emissions of GHGs and associated warming. Under the emissions scenarios of the Climate Scenarios report, the impacts of global warming in California have the potential to include, but are not limited to, the following areas:

Air Quality/General Thermal Effects

According to Cal EPA, higher temperatures may increase the frequency, duration, and intensity of conditions conducive to air pollution formation. For example, days with weather conducive to ozone formation could increase from 25 to 35 percent under the lower warming range to 75 to 85 percent under the medium warming range. In addition, if global background ozone levels increase as predicted in some scenarios, it may become difficult to meet local air quality standards. Air quality could be further compromised by increases in wildfires, which emit fine particulate matter that can travel long distances, depending on wind conditions. The Climate Scenarios report indicates that large wildfires could become more frequent if GHG emissions are not significantly reduced.

In addition, under the higher warming range scenario, there could be up to 100 more days per year with temperatures above 90°F in Los Angeles and 95°F in Sacramento by 2100. This is a large increase over historical patterns and approximately twice the increase projected if temperatures remain within or below the lower warming range. Rising temperatures could increase the risk of death from dehydration, heat stroke/exhaustion, heart attack, stroke, and respiratory distress caused by extreme heat.

Water Resources

A vast network of man-made reservoirs and aqueducts captures and transports water throughout the state from northern California rivers and the Colorado River. The current distribution system relies on Sierra Nevada snowpack to supply water during the dry spring and summer months. Rising temperatures, potentially compounded by decreases in precipitation, could severely reduce spring snowpack, increasing the risk of summer water shortages.

If temperatures continue to increase, more precipitation could fall as rain instead of snow, and the snow that does fall could melt earlier, reducing the Sierra Nevada spring snowpack by as much as 70 to 90 percent. Under the lower warming range scenario, snowpack losses could be only half as large as those possible if temperatures were to rise to the higher warming range. How much snowpack could be lost depends in part on future precipitation patterns, the projections for which remain uncertain. However, even under the wetter climate projections, the loss of snowpack could pose challenges to water managers and hamper hydropower generation. It could also adversely affect winter tourism. Under the lower warming range, the ski season at lower elevations could be reduced by as much as a month. If temperatures reach the higher warming range and precipitation declines, there might be many years with insufficient snow for skiing and snowboarding.

The State's water supplies are also at risk from rising sea levels. An influx of saltwater could degrade California's estuaries, wetlands, and groundwater aquifers. Saltwater intrusion caused by rising sea levels is a major threat to the quality and reliability of water within the southern edge of the Sacramento/San Joaquin River Delta – a major fresh water supply.

Agriculture

Increased temperatures could cause widespread changes to the agriculture industry reducing the quantity and quality of agricultural products statewide. First, California farmers could possibly lose as much as 25 percent of the water supply they need. Although higher CO2 levels can stimulate plant production and increase plant water-use efficiency, California's farmers could face greater water demand for crops and a less reliable water supply as temperatures rise. Crop growth and development could change, as could the intensity and frequency of pest and disease outbreaks. Rising temperatures could aggravate O3 pollution, which makes plants more susceptible to disease and pests and interferes with plant growth.

Plant growth tends to be slow at low temperatures, increasing with rising temperatures up to a threshold. However, faster growth can result in less-than-optimal development for many crops, so rising temperatures could worsen the quantity and quality of yield for a number of California's agricultural products. Products likely to be most affected include wine grapes, fruits and nuts.

In addition, continued global climate change could shift the ranges of existing invasive plants and weeds and alter competition patterns with native plants. Range expansion could occur in many species while range contractions may be less likely in rapidly evolving species with significant populations already established. Should range contractions occur, new or different weed species could fill the emerging gaps. Continued global climate change could alter the abundance and types of many pests, lengthen pests' breeding season, and increase pathogen growth rates.

Forests and Landscapes

Global climate change has the potential to intensify the current threat to forests and landscapes by increasing the risk of wildfire and altering the distribution and character of natural vegetation. If temperatures rise into the medium warming range, the risk of large wildfires in California could increase by as much as 55 percent, which is almost twice the increase expected if temperatures stay in the lower warming range. However, since wildfire risk is determined by a combination of factors, including precipitation, winds, temperature, and landscape and vegetation conditions, future risks will not be uniform throughout the state. In contrast, wildfires in northern California could increase by up to 90 percent due to decreased precipitation.

Moreover, continued global climate change has the potential to alter natural ecosystems and biological diversity within the state. For example, alpine and subalpine ecosystems could decline by as much as 60 to 80 percent by the end of the century as a result of increasing temperatures. The productivity of the state's forests has the potential to decrease as a result of global climate change.

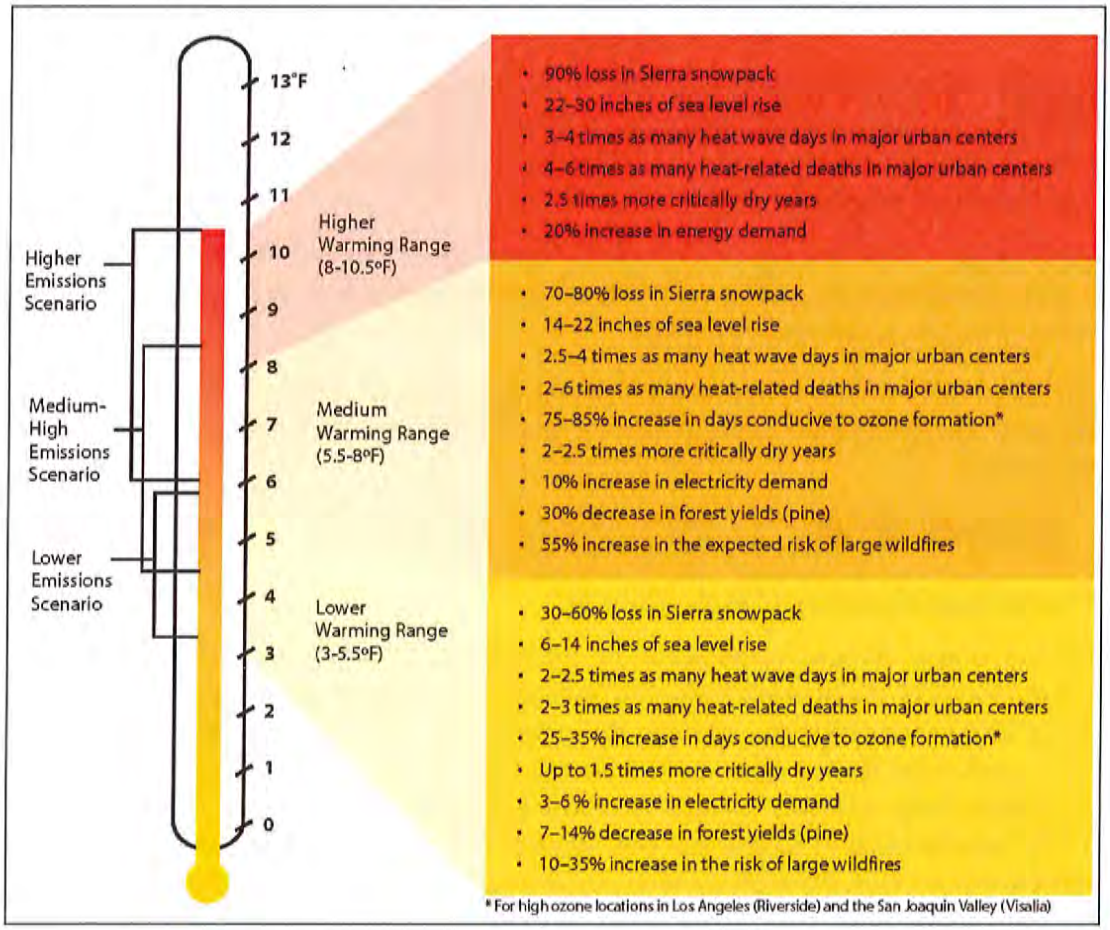
Rising Sea Levels

Rising sea levels, more intense coastal storms, and warmer water temperatures could increasingly threaten the state's coastal regions. Under the higher warming range scenario, sea level is anticipated to rise 22 to 35 inches by 2100. Elevations of this magnitude would inundate low-lying coastal areas with salt water, accelerate coastal erosion, threaten vital levees and inland water systems, and disrupt wetlands and natural habitats. Under the lower warming range scenario, sea level could rise 12-14 inches.

2.6 HUMAN HEALTH EFFECTS

The potential health effects related directly to the emissions of carbon dioxide, methane, and nitrous oxide as they relate to development projects such as the Project are still being debated in the scientific community. Their cumulative effects to global climate change have the potential to cause adverse effects to human health. Increases in Earth's ambient temperatures would result in more intense heat waves, causing more heat-related deaths. Scientists also purport that higher ambient temperatures would increase disease survival rates and result in more widespread disease. Climate change would likely cause shifts in weather patterns, potentially resulting in devastating droughts and food shortages in some areas (22). Exhibit 2-A presents the potential impacts of global warming.

EXHIBIT 2-A: SUMMARY OF PROJECTED GLOBAL WARMING IMPACT, 2070-2099 (AS COMPARED WITH 1961-1990)



Water Vapor: There are no known direct health effects related to water vapor at this time. It should be noted however that when some pollutants react with water vapor, the reaction forms a transport mechanism for some of these pollutants to enter the human body through water vapor.

Carbon Dioxide: According to the National Institute for Occupational Safety and Health (NIOSH) high concentrations of carbon dioxide can result in health effects such as: headaches, dizziness, restlessness, difficulty breathing, sweating, increased heart rate, increased cardiac output, increased blood pressure, coma, asphyxia, and/or convulsions. It should be noted that current concentrations of carbon dioxide in the earth's atmosphere are estimated to be approximately 370 parts per million (ppm), the actual reference exposure level (level at which adverse health effects typically occur) is at exposure levels of 5,000 ppm averaged over 10 hours in a 40-hour workweek and short-term reference exposure levels of 30,000 ppm averaged over a 15 minute period (23).

Specific health effects associated with directly emitted GHG emissions are as follows:

Methane: Methane is extremely reactive with oxidizers, halogens, and other halogen-containing compounds. Methane is also an asphyxiant and may displace oxygen in an enclosed space (24).

Nitrous Oxide: Nitrous Oxide is often referred to as laughing gas; it is a colorless greenhouse gas. The health effects associated with exposure to elevated concentrations of nitrous oxide include dizziness, euphoria, slight hallucinations, and in extreme cases of elevated concentrations nitrous oxide can also cause brain damage (24).

Fluorinated Gases: High concentrations of fluorinated gases can also result in adverse health effects such as asphyxiation, dizziness, headache, cardiovascular disease, cardiac disorders, and in extreme cases, increased mortality (23).

Aerosols: The health effects of aerosols are similar to that of other fine particulate matter. Thus aerosols can cause elevated respiratory and cardiovascular diseases as well as increased mortality (25).

2.7 REGULATORY SETTING

International Regulation and the Kyoto Protocol:

In 1988, the United Nations established the Intergovernmental Panel on Climate Change to evaluate the impacts of global warming and to develop strategies that nations could implement to curtail global climate change. In 1992, the United States joined other countries around the world in signing the United Nations' Framework Convention on Climate Change (UNFCCC) agreement with the goal of controlling greenhouse gas emissions. As a result, the Climate Change Action Plan was developed to address the reduction of GHGs in the United States. The Plan currently consists of more than 50 voluntary programs for member nations to adopt.

The Kyoto protocol is a treaty made under the UNFCCC and was the first international agreement to regulate GHG emissions. Some have estimated that if the commitments outlined in the Kyoto protocol are met, global GHG emissions could be reduced an estimated five percent from 1990 levels during the first commitment period of 2008-2012. Notably, while the United States is a signatory to the Kyoto protocol, Congress has not ratified the Protocol and the United States is not bound by the Protocol's commitments. In December 2009, international leaders from 192 nations met in Copenhagen to address the future of international climate change commitments post-Kyoto.

2015 United Nations Paris Climate Change Conference

On December 12, 2015, which marks the 11th meeting of the Parties to the Kyoto Protocol, 195 nations, including the United States and China, agreed upon a strategy for combatting global climate change to be in effect in 2020. This historic meeting, known as the 21st annual Conference of the Parties (COP21), focused on five key elements: mitigation, a transparency system and global stock-take, adaptation, loss and damage, and support.

In mitigating global climate change, COP 21 participating nations agreed upon a universal long-term goal of keeping the global temperature to well below 2°C or 3.6°F well above pre-industrial levels. The agreement also encouraged participating nations to limit temperature increases even further to 1.5°C or 2.7°F above pre-industrial levels. In addition to that, nations agreed to peak their GHG emissions as soon as possible, with the recognition that developing countries may take longer than developed countries. Thereafter, nations are to undergo rapid reductions in accordance to best available technological advances. The nations are to submit national climate action plans that detail future objectives to address climate change.

In supporting a transparency system and global stock-take, the participating nations agreed to meet every 5 years to set more ambitious targets on global climate change as technologically feasible. The nations are to report to each other and to the public on their progress towards implementing targets and goals through a transparency and accountability system.

In adaptation, participating nations are to strengthen the ability of nations to deal with climate impacts and provide continued international support for adaptation to developing countries.

In supporting loss and damage, participating nations understand the importance of minimizing and addressing the loss and damage associated with adverse effects of global climate change. These nations acknowledge the need to corporate with each other and support each other through safeguards, such as early warning systems, emergency preparedness, and risk insurance.

Participating nations are to support each other in their efforts to fight against global climate change. Developed countries within the COP21 are to continue their existing collective goal of utilizing 100 billion per year in support of the poorest and most vulnerable participating nations, known as climate finance, until 2025, when a new collective goal will be set. (26) (27)

Federal Regulation and the Clean Air Act:

Coinciding 2009 meeting in Copenhagen, on December 7, 2009, the U.S. Environmental Protection Agency issued an Endangerment Finding under Section 202(a) of the Clean Air Act, opening the door to federal regulation of GHGs. The Endangerment Finding notes that GHGs threaten public health and welfare and are subject to regulation under the Clean Air Act. To date, the EPA has not promulgated regulations on GHG emissions, but it has already begun to develop them.

Previously the EPA had not regulated GHGs under the Clean Air Act (28) because it asserted that the Act did not authorize it to issue mandatory regulations to address global climate change and that such regulation would be unwise without an unequivocally established causal link between GHGs and the increase in global surface air temperatures. In Massachusetts v. Environmental Protection Agency et al. (127 S. Ct. 1438 (2007), however, the U.S. Supreme Court held that GHGs are pollutants under the Clean Air Act and directed the EPA to decide whether the gases endangered public health or welfare. The EPA had also not moved aggressively to regulate GHGs because it expected Congress to make progress on GHG legislation, primarily from the standpoint of a cap-and-trade system. However, proposals circulated in both the House of Representative and Senate have been controversial and it may be some time before the U.S. Congress adopts

major climate change legislation. The EPA's Endangerment Finding paves the way for federal regulation of GHGs with or without Congress.

Although global climate change did not become an international concern until the 1980s, efforts to reduce energy consumption began in California in response to the oil crisis in the 1970s, resulting in the unintended reduction of greenhouse gas emissions. In order to manage the state's energy needs and promote energy efficiency, AB 1575 created the California Energy Commission (CEC) in 1975.

Title 24 Energy Standards:

California Code of Regulations Title 24 Part 6: California's Energy Efficiency Standards for Residential and Nonresidential Buildings, was first adopted in 1978 in response to a legislative mandate to reduce California's energy consumption. The standards are updated periodically to allow consideration and possible incorporation of new energy efficient technologies and methods. Energy efficient buildings require less electricity; therefore, increased energy efficiency reduces fossil fuel consumption and decreases GHG emissions. The newest version of Title 24 was adopted by the California Energy Commission (CEC) on May 31, 2012, and became effective on July 1, 2014.

The CEC indicates that the 2016 Title 24 standards will reduce energy consumption by 5 percent for nonresidential buildings above that achieved by the 2013 Title 24 (CEC 2015).

California Code of Regulations, Title 24, Part 11: California Green Building Standards Code (CALGreen) is a comprehensive and uniform regulatory code for all residential, commercial, and school buildings that went in effect on January 1, 2011, and is administered by the California Building Standards Commission. CALGreen is updated on a regular basis, with the most recent update consisting of the 2016 California Green Building Code Standards that became effective January 1, 2017. Local jurisdictions are permitted to adopt more stringent requirements, as state law provides methods for local enhancements. CALGreen recognizes that many jurisdictions have developed existing construction and demolition ordinances, and defers to them as the ruling guidance provided they establish a minimum 50 percent diversion requirement. The code also provides exemptions for areas not served by construction and demolition recycling infrastructure. The State Building Code provides the minimum standard that buildings must meet in order to be certified for occupancy, which is generally enforced by the local building official. CALGreen requires:

- Short-term bicycle parking. If a commercial project is anticipated to generate visitor traffic, provide permanently anchored bicycle racks within 200 feet of the visitors' entrance, readily visible to passers-by, for 5 percent of visitor motorized vehicle parking capacity, with a minimum of one two-bike capacity rack (5.106.4.1.1).
- Long-term bicycle parking. For new buildings with 10 or more tenant-occupants, provide secure bicycle parking for 5 percent of tenant-occupied motorized vehicle parking capacity, with a minimum of one space (5.106.4.1.2).
- Designated parking. Provide designated parking in commercial projects for any combination of low-emitting, fuel-efficient and carpool/van pool vehicles as shown in Table 5.106.5.2 (5.106.5.2).

- 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 (5.410.1).
- Construction waste. A minimum 65 percent diversion of construction and demolition waste from landfills, increasing voluntarily to 80 percent for new homes and commercial projects (5.408.1, A5.408.3.1 [nonresidential], A5.408.3.1 [residential]). All (100 percent) of trees, stumps, rocks and associated vegetation and soils resulting from land clearing shall be reused or recycled (5.408.3).
- Wastewater reduction. Each building shall reduce the generation of wastewater by one of the following methods:
    - The installation of water-conserving fixtures (5.303.3) or
    - Using nonpotable water systems (5.303.4).
- Water use savings. 20 percent mandatory reduction of indoor water use with voluntary goal standards for 30, 35 and 40 percent reductions (5.303.2, A5303.2.3 [nonresidential]).
- 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 (5.303.1).
- Irrigation efficiency. Moisture-sensing irrigation systems for larger landscaped areas (5.304.3).
- Materials pollution control. Low-pollutant emitting interior finish materials such as paints, carpet, vinyl flooring, and particleboard (5.404).

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 (5.410.2)

Vehicle Standards

Other regulations have been adopted to address vehicle standards including United States Environmental Protection Agency (USEPA) and National Highway Traffic Safety Administration (NHTSA) joint rulemaking for vehicle standards:

- On March 30, 2009, the NHTSA issued a final rule for model year 2011 (29).
- On May 7, 2010, the USEPA and NHTSA issued a Supplemental Notice of Intent announcing plans to propose stringent, coordinated federal greenhouse gas and fuel economy standards for model year 2017-2025 light-duty vehicles (30)
- On August 9, 2011 USEPA and NHTSA issued a Supplemental Notice of Intent announcing plans to propose stringent, coordinated federal greenhouse has and fuel economy standards for model year 2017-2025 light-duty vehicles (31)
- The NHSTA intends to set standards for model years 2022-2025 in a future rulemaking (32)
- In addition to the regulations applicable to cars and light-duty trucks, on August 9, 2011, the USEPA and the NHTSA announced fuel economy and GHG standards for medium- and heavy-duty trucks, which applies to vehicles from model year 2014–2018 (33)

Energy Independence and Security Act

On December 19, 2007, the Energy Independence and Security Act of 2007 (EISA) was signed into law (34). Among other key measures, the Act would do the following, which would aid in the reduction of national GHG emissions, both mobile and non-mobile.

Council on Environmental Quality (CEQ) National Environmental Policy Act (NEPA) Guidelines on GHG

On February 18, 2010, the White House Council on Environmental Quality published draft guidance on the consideration of greenhouse gases and climate change for NEPA analyses (35). It recommends that proposed federal actions that are reasonably expected to directly emit 25,000 metric tons of CO2e/year should prepare a quantitative and qualitative NEPA analysis of direct and indirect greenhouse gas emissions.

The draft guidance provides reporting tools and instructions on how to assess the effects of climate change. The draft guidance does not apply to land and resource management actions, nor does it propose to regulate greenhouse gases. Although CEQ has not yet issued final guidance, various NEPA documents are beginning to incorporate the approach recommended in the draft guidance (36)

Other Applicable Regulations and Policies

In addition to the federal regulations and programs described above, there are still more policies and programs to address climate change. A database compiled by the International Energy Agency lists more than 300 policies and measures addressing climate change in the United States (37).

The Western Regional Climate Action Initiative (WCI)

The Western Regional Climate Action Initiative (WCI) is a partnership among seven states, including California, and four Canadian provinces to implement a regional, economy-wide cap-and-trade system to reduce global warming pollution. The WCI will cap GHG emissions from the region's electricity, industrial, and transportation sectors with the goal to reduce the heat trapping emissions that cause global warming to 15% below 2005 levels by 2020. When the WCI adopted this goal in 2007, it estimated that this would require 2007 levels to be reduced worldwide between 50% and 85% by 2050. California is working closely with the other states and provinces to design a regional GHG reduction program that includes a cap-and-trade approach. Air Resource Board's (ARB) planned cap and-trade program, discussed below, is also intended to link California and the other member states and provinces.

California Assembly Bill No. 1493 (AB 1493):

AB 1493 requires CARB to develop and adopt the nation's first greenhouse gas emission standards for automobiles. The Legislature declared in AB 1493 that global warming was a matter of increasing concern for public health and environment in California (38). Further, the legislature stated that technological solutions to reduce greenhouse gas emissions would stimulate the California economy and provide jobs.

To meet the requirements of AB 1493, ARB approved amendments to the California Code of Regulations (CCR) adding GHG emission standards to California's existing motor vehicle emission standards in 2004. Amendments to CCR Title 13 Sections 1900 (CCR 13 1900) and 1961 (CCR 13 1961) and adoption of Section 1961.1 (CCR 13 1961.1) require automobile manufacturers to meet fleet average GHG emission limits for all passenger cars, light-duty trucks within various weight criteria, and medium-duty passenger vehicle weight classes beginning with the 2009 model year. Emission limits are further reduced each model year through 2016.

In December 2004 a group of car dealerships, automobile manufacturers, and trade groups representing automobile manufacturers filed suit against ARB to prevent enforcement of CCR 13 1900 and CCR 13 1961 as amended by AB 1493 and CCR 13 1961.1 (Central Valley Chrysler-Jeep et al. v. Catherine E. Witherspoon, in her official capacity as Executive Director of the California Air Resources Board, et al.). The suit, heard in the U.S. District Court for the Eastern District of California, contended that California's implementation of regulations that in effect regulate vehicle fuel economy violates various federal laws, regulations, and policies. In January 2007, the judge hearing the case accepted a request from the State Attorney General's office that the trial be postponed until a decision is reached by the U.S. Supreme Court on a separate case addressing GHGs. In the Supreme Court Case, Massachusetts vs. EPA, the primary issue in question is whether the Federal Clean Air Act (CAA) provides authority for USEPA to regulate CO2 emissions. In April 2007, the U.S. Supreme Court ruled in Massachusetts' favor, holding that GHGs are air pollutants under the CAA. On December 11, 2007, the judge in the Central Valley Chrysler-Jeep case rejected each plaintiff's arguments and ruled in California's favor. On December 19, 2007, the USEPA denied California's waiver request. California filed a petition with the Ninth Circuit Court of Appeals challenging USEPA's denial on January 2, 2008.

The Obama administration subsequently directed the USEPA to re-examine their decision. On May 19, 2009, challenging parties, automakers, the State of California, and the federal government reached an agreement on a series of actions that would resolve these current and potential future disputes over the standards through model year 2016. In summary, the USEPA and the U.S. Department of Transportation agreed to adopt a federal program to reduce GHGs and improve fuel economy, respectively, from passenger vehicles in order to achieve equivalent or greater greenhouse gas benefits as the AB 1493 regulations for the 2012–2016 model years. Manufacturers agreed to ultimately drop current and forego similar future legal challenges, including challenging a waiver grant, which occurred on June 30, 2009. The State of California committed to (1) revise its standards to allow manufacturers to demonstrate compliance with the fleet-average GHG emission standard by "pooling" California and specified State vehicle sales; (2) revise its standards for 2012–2016 model year vehicles so that compliance with USEPA-adopted GHG standards would also comply with California's standards; and (3) revise its standards, as necessary, to allow manufacturers to use emissions data from the federal CAFE program to demonstrate compliance with the AB 1493 regulations (39). Both of these programs are aimed at light-duty auto and light-duty trucks.

Executive Order S-3-05:

Executive Order S-3-05, which was signed by Governor Schwarzenegger in 2005, proclaims that California is vulnerable to the impacts of climate change (40). It declares that increased

temperatures could reduce the Sierra's snowpack, further exacerbate California's air quality problems, and potentially cause a rise in sea levels. To combat those concerns, the Executive Order established total greenhouse gas emission targets. Specifically, emissions are to be reduced to the 1990 level by 2020, and to 80% below the 1990 level by 2050. The Executive Order directed the Secretary of the California Environmental Protection Agency to coordinate a multi-agency effort to reduce greenhouse gas emissions to the target levels. The Secretary also is required to submit biannual reports to the Governor and state Legislature describing: (1) progress made toward reaching the emission targets; (2) impacts of global warming on California's resources; and (3) mitigation and adaptation plans to combat these impacts. To comply with the Executive Order, the Secretary of the CalEPA created a Climate Action Team (CAT) made up of members from various state agencies and commission. CAT released its first report in March 2006. The report proposed to achieve the targets by building on voluntary actions of California businesses, local government and community actions, as well as through state incentive and regulatory programs.

California Assembly Bill 32 (AB 32):

In September 2006, Governor Arnold Schwarzenegger signed AB 32, the California Climate Solutions Act of 2006. AB 32 requires that statewide GHG emissions be reduced to 1990 levels by the year 2020 (4). This reduction will be accomplished through an enforceable 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 that CARB adopt a quantified cap on GHG emissions representing 1990 emissions levels and disclose how it arrives at the cap; institute a schedule to meet the emissions cap; and develop tracking, reporting, and enforcement mechanisms to ensure that the state achieves reductions in GHG emissions necessary to meet the cap. AB 32 also includes guidance to institute emissions reductions in an economically efficient manner and conditions to ensure that businesses and consumers are not unfairly affected by the reductions.

In November 2007, CARB completed its estimates of 1990 GHG levels. Net emission 1990 levels were estimated at 427 MMTs (emission sources by sector were: transportation – 35 percent; electricity generation – 26 percent; industrial – 24 percent; residential – 7 percent; agriculture – 5 percent; and commercial – 3 percent) [3]. Accordingly, 427 MMTs of CO2 equivalent was established as the emissions limit for 2020. For comparison, CARB's estimate for baseline GHG emissions was 473 MMT for 2000 and 532 MMT for 2010. "Business as usual" conditions (without the 28.4 percent reduction to be implemented by CARB regulations) for 2020 were projected to be 596 MMTs.

[3] On a national level, the EPA's Endangerment Finding stated that electricity generation is the largest emitting sector (34%), followed by the transportation (28%), and industry (19%)

In December 2007, CARB approved a regulation for mandatory reporting and verification of GHG emissions for major sources. This regulation covered major stationary sources such as cement plants, oil refineries, electric generating facilities/providers, and co-generation facilities, which comprise 94 percent of the point source CO2 emissions in the State.

On December 11, 2008, CARB adopted a scoping plan to reduce GHG emissions to 1990 levels. The Scoping Plan's recommendations for reducing GHG emissions to 1990 levels by 2020 include emission reduction measures, including a cap-and-trade program linked to Western Climate Initiative partner jurisdictions, green building strategies, recycling and waste-related measures, as well as Voluntary Early Actions and Reductions. Implementation of individual measures must begin no later than January 1, 2012, so that the emissions reduction target can be fully achieved by 2020.

Table 2-3 summarizes estimated GHG emissions reduction realized from implementation of regulations and programs outlined in the CARB Scoping Plan. While local government operations were not accounted for in achieving the 2020 emissions reduction, local land use changes are estimated to result in a reduction of 5 MMTons of CO2e, which is approximately 3 percent of the 2020 GHG emissions reduction goal. In recognition of the critical role local governments would play in successful implementation of AB 32, CARB is recommending GHG reduction goals of 15 percent of 2006 levels by 2020 to ensure that municipal and community-wide emissions match the state's reduction target. According to the Measure Documentation Supplement to the Scoping Plan, local government actions and targets are anticipated to reduce vehicle miles by approximately 2 percent through land use planning, resulting in a potential GHG reduction of 2 MMTons tons of CO2e (or approximately 1.2 percent of the GHG reduction target).

TABLE 2-3: CARB SCOPING PLAN GHG MEASURES AND ESTIMATED GHG EMISSIONS REDUCTIONS

Recommended Scoping Plan Measures	*Reductions Counted toward 2020 Target of 169 MMT CO2e*	*Percentage of Statewide 2020 Target*
Cap and Trade Program and Associated Measures		
California Light-Duty Vehicle GHG Standards	31.7	19%
Energy Efficiency	26.3	16%
Renewable Portfolio Standard (33 percent by 2020)	21.3	13%
Low Carbon Fuel Standard	15	9%
Regional Transportation-Related GHG Targets[1]	5	3%
Vehicle Efficiency Measures	4.5	3%
Goods Movement	3.7	2%
Million Solar Roofs	2.1	1%
Medium/Heavy Duty Vehicles	1.4	1%
High Speed Rail	1.0	1%
Industrial Measures	0.3	0%
Additional Reduction Necessary to Achieve Cap	34.4	20%
Total Cap and Trade Program Reductions	146.7	87%
Uncapped Sources/Sectors Measures		
High Global Warming Potential Gas Measures	20.2	12%
Sustainable Forests	5	3%

Industrial Measures (for sources not covered under cap and trade program)	1.1	1%
Recycling and Waste (landfill methane capture)	1	1%
Total Uncapped Sources/Sectors Reductions	27.3	16%
Total Reductions Counted toward 2020 Target	174	100%
Other Recommended Measures – Not Counted toward 2020 Target		
State Government Operations	1.0 to 2.0	1%
Local Government Operations	To Be Determined[2]	NA
Green Buildings	26	15%
Recycling and Waste	9	5%
Water Sector Measures	4.8	3%
Methane Capture at Large Dairies	1	1%
Total Other Recommended Measures – Not Counted toward 2020 Target	42.8	NA

Source: CARB. 2008, MMTons CO2e: million metric tons of CO2e

[1]Reductions represent an estimate of what may be achieved from local land use changes. It is not the SB 375 regional target.

[2]According to the Measure Documentation Supplement to the Scoping Plan, local government actions and targets are anticipated to reduce vehicle miles by approximately 2 percent through land use planning, resulting in a potential GHG reduction of 2 million metric tons of CO2e (or approximately 1.2 percent of the GHG reduction target). However, these reductions were not included in the Scoping Plan reductions to achieve the 2020 Target

2017 Climate Change Scoping Plan Update

On January 20, 2017, ARB released the proposed Second Update to the Scoping Plan, which identifies the State's post-2020 reduction strategy. The Second Update would reflect the 2030 target of a 40 percent reduction below 1990 levels, set by Executive Order B-30-15 and codified by Senate Bill 32 (SB 32). Key programs that the proposed Second Update builds upon include the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, and much cleaner cars, trucks and freight movement, utilizing cleaner, renewable energy, and strategies to reduce methane emissions from agricultural and other wastes. It should be noted the proposed Second Update is undergoing a review period and has not yet been adopted although adoption hearings are expected to occur in the summer of 2017.

The 2017 Draft Scoping Plan establishes a new emissions limit of 260 MMTCO2e for the year 2030, which corresponds to a 40 percent decrease in 1990 levels by 2030.

California's climate strategy will require contributions from all sectors of the economy, including the land base, and will include enhanced focus on zero- and near-zero-emission (ZE/NZE) vehicle technologies; continued investment in renewables, including solar roofs, wind, and other distributed generation; greater use of low carbon fuels; integrated land conservation and development strategies; coordinated efforts to reduce emissions of short-lived climate pollutants (methane, black carbon, and fluorinated gases); and an increased focus on integrated land use planning to support livable, transit-connected communities and conservation of agricultural and other lands. Requirements for direct GHG reductions at refineries will further support air quality co-benefits in neighborhoods, including in disadvantaged communities historically located adjacent to these large stationary sources, as well as efforts with California's local air pollution

control and air quality management districts (air districts) to tighten emission limits on a broad spectrum of industrial sources. Major elements of the 2017 Scoping Plan framework include:

- Implementing and/or increasing the standards of the Mobile Source Strategy, which include increasing ZEV buses and trucks.
- Low Carbon Fuel Standard (LCFS), with an increased stringency (18 percent by 2030).
- Implementing SB 350, which expands the Renewables Portfolio Standard (RPS) to 50 percent RPS and doubles energy efficiency savings by 2030.
- California Sustainable Freight Action Plan, which improves freight system efficiency, utilizes near-zero emissions technology, and deployment of ZEV trucks.
- Implementing the proposed Short-Lived Climate Pollutant Strategy (SLPS), which focuses on reducing methane and hydroflurocarbon emissions by 40 percent and anthropogenic black carbon emissions by 50 percent by year 2030.
- Continued implementation of SB 375.
- Post-2020 Cap-and-Trade Program that includes declining caps.
- 20 percent reduction in GHG emissions from refineries by 2030.
- Development of a Natural and Working Lands Action Plan to secure California's land base as a net carbon sink.

In addition to the statewide strategies listed above, the 2017 Draft Scoping Plan also identifies local governments as essential partners in achieving the State's long-term GHG reduction goals and identifies local actions to reduce GHG emissions. As part of the recommended actions, CARB recommends that local governments achieve a community-wide goal to achieve emissions of no more than 6 MTCO2e or less per capita by 2030 and 2 MTCO2e or less per capita by 2050. For CEQA projects, CARB states that lead agencies may develop evidenced-based bright-line numeric thresholds—consistent with the Scoping Plan and the State's long-term GHG goals—and projects with emissions over that amount may be required to incorporate on-site design features and mitigation measures that avoid or minimize project emissions to the degree feasible; or, a performance-based metric using a climate action plan or other plan to reduce GHG emissions is appropriate.

According to research conducted by the Lawrence Berkeley National Laboratory and supported by ARB, California, under its existing and proposed GHG reduction policies, is on track to meet the 2020 reduction targets under AB 32 and could achieve the 2030 goals under SB 32. The research utilized a new, validated model known as the California LBNL GHG Analysis of Policies Spreadsheet (CALGAPS), which simulates GHG and criteria pollutant emissions in California from 2010 to 2050 in accordance to existing and future GHG-reducing policies. The CALGAPS model showed that GHG emissions through 2020 could range from 317 to 415 MTCO2e per year, "indicating that existing State policies will likely allow California to meet its target [of 2020 levels under AB 32]." CALGAPS also showed that by 2030, emissions could range from 211 to 428 MTCO2e per year, indicating that "even if all modeled policies are not implemented, reductions could be sufficient to reduce emissions 40 percent below the 1990 level [of SB 32]." CALGAPS analyzed emissions through 2050 even though it did not generally account for policies that might be put in place after 2030. Though the research indicated that the emissions would not meet the

State's 80 percent reduction goal by 2050, various combinations of policies could allow California's cumulative emissions to remain very low through 2050 (41) (42).

On October 27, 2017, ARB released the Revised Drat 2017 Climate Change Scoping Plan, which identifies the State's post-2020 reduction strategy. The Second Update would reflect the 2030 target of a 40 percent reduction below 1990 levels, set by Executive Order B-30-15 and codified by SB 32. Key programs that the proposed Second Update builds upon include the Cap-and-Trade Regulation, the Low Carbon Fuel Standard, and much cleaner cars, trucks and freight movement, utilizing cleaner, renewable energy, and strategies to reduce methane emissions from agricultural and other wastes. It should be noted the proposed Second Update is undergoing a review period and has not yet been adopted.

Senate Bill 32

On September 8, 2016, Governor Jerry Brown signed the Senate Bill (SB) 32 and its companion bill, Assembly Bill (AB) 197. SB 32 requires the State to reduce statewide greenhouse gas emissions to 40 percent below 1990 levels by 2030, a reduction target that was first introduced in Executive Order B-30-15. The new legislation builds upon the AB 32 goal of 1990 levels by 2020 and provides an intermediate goal to achieving S-3-05, which sets a statewide greenhouse gas reduction target of 80 percent below 1990 levels by 2050. AB 197 creates a legislative committee to oversee regulators to ensure that ARB is not only respond to the Governor, but also the Legislature (9) (10).

California Senate Bill No. 1368 (SB 1368):

In 2006, the State Legislature adopted Senate Bill 1368 ("SB 1368"), which was subsequently signed into law by the Governor (43). SB 1368 directs the California Public Utilities Commission ("CPUC") to adopt a greenhouse gas emission performance standard ("EPS") for the future power purchases of California utilities. SB 1368 seeks to limit carbon emissions associated with electrical energy consumed in California by forbidding procurement arrangements for energy longer than five years from resources that exceed the emissions of a relatively clean, combined cycle natural gas power plant. Due to the carbon content of its fuel source, a coal-fired plant cannot meet this standard because such plants emit roughly twice as much carbon as natural gas, combined cycle plants.

Accordingly, the new law would effectively prevent California's utilities from investing in, otherwise financially supporting, or purchasing power from new coal plants located in or out of the State. Thus, SB 1368 would lead to dramatically lower greenhouse gas emissions associated with California energy demand, as SB 1368 would effectively prohibit California utilities from purchasing power from out of state producers that cannot satisfy the EPS standard required by SB 1368.

CEQA Guidelines

CEQA Guideline § 15064.4(a)"A lead agency shall have discretion to determine, in the context of a particular project, whether to: 1. Use a model or methodology to quantify greenhouse gas

emissions resulting from a project, and which model or methodology to use . . .; or 2. Rely on a qualitative analysis or performance based standards."

Also amended were CEQA Guidelines Sections 15126.4 and 15130, which address mitigation measures and cumulative impacts respectively. Greenhouse gas mitigation measures are referenced in general terms, but no specific measures are championed. The revision to the cumulative impact discussion requirement (Section 15130) simply directs agencies to analyze greenhouse gas emissions in an EIR when a Project's incremental contribution of emissions may be cumulatively considerable, however it does not answer the question of when emission are cumulatively considerable.

Section 15183.5 permits programmatic greenhouse gas analysis and later project-specific tiering, as well as the preparation of Greenhouse Gas Reduction Plans. Compliance with such plans can support determination that a Project's cumulative effect is not cumulatively considerable, according to proposed Section 15183.5(b).

CEQA emphasizes that the effects of greenhouse gas emissions are cumulative, and should be analyzed in the context of CEQA's requirements for cumulative impacts analysis. (See CEQA Guidelines Section 15130(f)).

Section 15064.4(b) of the CEQA Guidelines provides direction for lead agencies for assessing the significance of impacts of greenhouse gas emissions:

1. The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting;
2. Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project; or
3. The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. Such regulations or requirements must be adopted by the relevant public agency through a public review process and must include specific requirements that reduce or mitigate the project's incremental contribution of greenhouse gas emissions. If there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding compliance with the adopted regulations or requirements, an EIR must be prepared for the project.

The CEQA Guidelines do not identify a threshold of significance for greenhouse gas emissions, nor do they prescribe assessment methodologies or specific mitigation measures. Instead, they call for a "good-faith effort, based on available information, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project." The Guidelines encourage lead agencies to consider many factors in performing a CEQA analysis and preserve lead agencies' discretion to make their own determinations based upon substantial evidence. The Guidelines also encourage public agencies to make use of programmatic mitigation plans and programs from which to tier when they perform individual project analyses. Specific GHG language incorporated in the Guidelines' suggested Environmental Checklist (Guidelines Appendix G) is as follows:

VII. GREENHOUSE GAS EMISSIONS

Would the project:

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

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

Executive Order S-01-07:

On January 18, 2007 California Governor Arnold Schwarzenegger, through Executive Order S-01-07, mandated a statewide goal to reduce the carbon intensity of California's transportation fuel by at least ten percent by 2020 (44). The order also requires that a California specific Low Carbon Fuel Standard be established for transportation fuels.

Senate Bills 1078 and 107 and Executive Order S-14-08:

SB 1078 (Chapter 516, Statutes of 2002) requires retail sellers of electricity, including investor-owned utilities and community choice aggregators, to provide at least 20% of their supply from renewable sources by 2017 (45). SB 107 (Chapter 464, Statutes of 2006) changed the target date to 2010 (44). In November 2008 Governor Schwarzenegger signed Executive Order S-14-08, which expands the state's Renewable Energy Standard to 33% renewable power by 2020 (46).

Executive Order B-30-15:

In January 2015, Governor Brown, in his inaugural address and annual report to the Legislature, established supplementary goals which would further reduce GHG emissions over the next 15 years. These goals include an increase in California's renewable energy portfolio from 33% to 50%, a reduction in vehicle petroleum use for cars and trucks by up to 50% measures to double the efficiency of existing buildings, and decreasing emissions associated with heating fuels.

On April 29, 2015 California Governor Jerry Brown, through Executive Order B-30-15 ("BEO") states a new statewide policy goal to reduce GHG emissions 40 percent below their 1990 levels by 2030.

The BEO sets an ambitious new Statewide GHG emissions reduction target of 40% below 1990 levels by 2030 as a "mid-term" benchmark needed to achieve the 80% below 1990 levels by 2050. It should be noted however that this target has not been formally enacted by the Legislature or even CARB. As such, the BEO does not appear to constitute a new regulation or requirement adopted to implement a statewide, regional or local plan for the reduction of GHG emissions within the context of CEQA.

The Project reduces its GHG emissions to the maximum extent feasible as discussed in this document. At this time, no further analysis is necessary or required by CEQA as it pertains to Executive Order B-30-15.

Additionally, as described previously, the project applicant would not actively interfere with any future City-mandated, state-mandated, or federally-mandated retrofit obligations enacted or promulgated to legally require development City-wide, state-wide, or nation-wide to assist in meeting state-adopted greenhouse gas emissions reduction targets, including that established under Executive Order S-3-05 or Executive Order B-30-15.

Based on the foregoing, the Project does not interfere with the state's implementation of (i) Executive Order B-30-15's target of reducing statewide GHG emissions to 40% below 1990 levels by 2030 or (ii) Executive Order S-3-05's target of reducing statewide GHG emissions to 80% below 1990 levels by 2050 because it does not interfere with the state's implementation of GHG reduction plans described in the CARB's Updated Scoping Plan, including the state providing for 12,000 MW of renewable distributed generation by 2020, the California Building Commission mandating net zero energy homes in the building code after 2020, or existing building retrofits under AB 758. Therefore, the project's impacts on greenhouse gas emissions in the 2030 and 2050 horizon years are less than significant.

Senate Bill 375:

SB 375, signed in September 2008 (Chapter 728, Statutes of 2008), aligns regional transportation planning efforts, regional GHG reduction targets, and land use and housing allocation. SB 375 requires metropolitan planning organizations (MPOs) to adopt a sustainable communities strategy (SCS) or alternative planning strategy (APS) that would prescribe land use allocation in that MPO's regional transportation plan. ARB, in consultation with MPOs, would provide each affected region with reduction targets for GHGs emitted by passenger cars and light trucks in the region for the years 2020 and 2035.

These reduction targets would be updated every 8 years but can be updated every 4 years if advancements in emissions technologies affect the reduction strategies to achieve the targets. ARB is also charged with reviewing each MPO's SCS or APS for consistency with its assigned targets. If MPOs do not meet the GHG reduction targets, transportation projects would not be eligible for funding programmed after January 1, 2012.

This law also extends the minimum time period for the regional housing needs allocation cycle from 5 years to 8 years for local governments located within an MPO that meets certain requirements. City or county land use policies (including general plans) are not required to be consistent with the regional transportation plan (and associated SCS or APS). However, new provisions of CEQA would incentivize (through streamlining and other provisions) qualified projects that are consistent with an approved SCS or APS, categorized as "transit priority projects."

The Southern California Association of Governments (SCAG) is required by law to update the Southern California Regional Transportation Plan (RTP) every four years. The 2012 draft plan has been released; this draft plan differs from past plans because it includes development of a SCS. The RTP/SCS incorporates land use and housing policies to meet the greenhouse gas emissions targets established by the California Air Resource Board for 2020 (8% reduction) and 2035 (13%

reduction). On April 4, 2012, the Regional Council of SCAG adopted the 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS): Towards a Sustainable Future.

CARB's Preliminary Draft Staff Proposal for Interim Significance Thresholds:

Separate from its Scoping Plan approved in December of 2008 (47), CARB issued a Staff Proposal in October 2008, as its first step toward developing recommended statewide interim thresholds of significance for GHGs that may be adopted by local agencies for their own use. CARB staff's objective in this proposal is to develop a threshold of significance that would result in the vast majority (approximately 90 percent statewide) of GHG emissions from new industrial projects being subject to CEQA's requirement to impose feasible mitigation. The proposal does not attempt to address every type of project that may be subject to CEQA, but instead focuses on common project types that, collectively, are responsible for substantial GHG emissions – specifically, industrial, residential, and commercial projects. CARB is developing these thresholds in these sectors to advance climate objectives, streamline project review, and encourage consistency and uniformity in the CEQA analysis of GHG emissions throughout the state. These draft thresholds are under revision in response to comments. There is currently no timetable for finalized thresholds at this time.

As currently proposed by CARB, a quantitative threshold of 7,000 metric tons (MT) of CO2e per year for operational emissions (excluding transportation), and performance standards yet to be defined for construction and transportation emissions are under consideration. However, CARB's proposal is not yet final, and thus cannot be applied to the Project.

South Coast Air Quality Management District Recommendations for Significance Thresholds:

In April 2008, the South Coast Air Quality Management District (SCAQMD), in order to provide guidance to local lead agencies on determining the significance of GHG emissions identified in CEQA documents, convened a "GHG CEQA Significance Threshold Working Group." The goal of the working group is to develop and reach consensus on an acceptable CEQA significance threshold for GHG emissions that would be utilized on an interim basis until CARB (or some other state agency) develops statewide guidance on assessing the significance of GHG emissions under CEQA.

Initially, SCAQMD staff presented the working group with a significance threshold that could be applied to various types of projects—residential; non-residential; industrial; etc (48). However, the threshold is still under development. In December 2008, staff presented the SCAQMD Governing Board with a significance threshold for stationary source projects where it is the lead agency. This threshold uses a tiered approach to determine a project's significance, with 10,000 metric tons of carbon dioxide equivalent (MTCO2e) as a screening numerical threshold for stationary sources. More importantly it should be noted that when setting the 10,000 MTCO2e threshold, the SCAQMD did not consider mobile sources (vehicular travel), rather the threshold is based mainly on stationary source generators such as boilers, refineries, power plants, etc. Therefore it would be misleading to apply a threshold that was developed without consideration for mobile sources to a Project where the majority of emissions are related to mobile sources. Thus there is no SCAQMD threshold that can be applied to this Project.

In September 2010 (3), the Working Group released additional revisions that consist of the following recommended tiered approach:

- Tier 1 consists of evaluating whether or not the Project qualifies for applicable CEQA exemptions.
- Tier 2 consists of determining whether or not a Project is consistent with a greenhouse gas reduction plan. If a Project is consistent with a greenhouse gas reduction plan, it would not have a significant impact.
- Tier 3 consists of screening values at the discretion of the lead agency; however they should be consistent for all projects within its jurisdiction. Project-related construction emissions should be amortized over 30 years and should be added back the Project's operational emissions. The following thresholds are proposed for consideration:
    - 3,000 MTCO2e per year for all land use types

      or
    - 3,500 MTCO2e per year for residential; 1,400 MTCO2e per year for commercial; or 3,000 MTCO2e per year for mixed-use projects
- Tier 4 has the following options:
    - Option 1: Reduce emissions from business as usual by a certain percentage (currently undefined)
    - Option 2: Early implementation of applicable AB 32 Scoping Plan measures
    - Option 3: A project-level efficiency target of 4.8 MTCO2e per service population as a 2020 target and 3.0 MTCO2e per service population as a 2035 target. The recommended plan-level target for 2020 is 6.6 MTCO2e and the plan level target for 2035 is 4.1 MTCO2e
- Tier 5 involves mitigation offsets to achieve target significance thresholds

The SCAQMD has also adopted Rules 2700, 2701, and 2702 that address GHG reductions. However, these rules address boilers and process heater, forestry, and manure management projects, none of which are required by the Project.

2.8 NEWHALL RANCH DECISION

In its recent decision, Center for Biological Diversity v. Department of Fish and Wildlife, S217763 (Newhall) (49), the Court evaluated the California Department of Fish and Wildlife's (DFW) analysis of potential GHG emissions as contained in the EIR for the proposed land development called Newhall Ranch. In the EIR, the DFW analyzed GHG emissions under AB 32, using the business-as-usual (BAU) comparison as its sole significance determination criteria.

In Newhall, the California Supreme Court concluded that a finding of consistency with meeting statewide emission reduction goals is a legally permissible criterion of significance when analyzing potential impacts of GHG emissions under CEQA. However, the Court found that the EIR's conclusion that the project's emissions would be less than significant under that criterion was not supported by substantial evidence, and remanded back to the appellate court the narrow issue of whether substantial evidence supported the application of AB 32 statewide GHG reduction goal of approximately 28.5% to new land use projects.

The Court then identified "potential options" for lead agencies evaluating cumulative significance of a proposed land use development's GHG emissions in future CEQA documents:

1. Business As Usual (BAU) Model: While the Court cautioned that the Scoping Plan may not be appropriate at the project-level, the BAU model might be used to determine what level of reduction from BAU a new land use development at the proposed location must contribute in order to comply with statewide goals pursuant to AB 32.

2. Compliance With Regulatory Programs Designed To Reduce Greenhouse Gas Emissions: The Court suggests that a lead agency could rely on a showing of compliance with regulatory programs designed to reduce greenhouse gas emissions. The Court clarifies that a significance analysis based on compliance with such statewide regulations only goes to impact within the area governed by the regulations.

3. Local Climate Action Plan Or Other "Geographically Specific Greenhouse Gas Emission Reduction Plans": The Court points out that these plans may provide a basis for the tiering or streamlining of project-level CEQA analysis, so long as the plan is "sufficiently detailed and adequately supported."

4. Regional Sustainable Community Strategy (SCS): The Court also articulates that a lead agency need not additionally analyze greenhouse gas emissions from cars and light trucks in CEQA documents for certain residential, mixed use and transit priority projects that are consistent with an applicable SCS adopted pursuant to SB 375.

5. Numerical GHG Significance Thresholds: Although noting that use of such thresholds are not required, the Court favorably cited to the BAAQMD GHG significance thresholds, which are based on compliance with AB 32, and use a "service population" GHG ratio threshold for land use projects and a 10,000 ton annual GHG emission threshold for industrial projects. The Court remanded for further consideration the application of the 28.5% overall Scoping Plan metric, which is used by several Air Districts and, like the favorably-cited BAAQMD metric, is based on AB 32.

6. Executive Order Nos. S-3-05 and B-30-15: Citing to Executive Order Nos. S-3-05 and B- 30-15, the Court cautioned that those EIRs taking a goal-consistency approach to CEQA significance may in the future need to consider the project's effects on meeting emissions reduction targets beyond 2020.

2.9 Discussion on Establishment of Significance Thresholds

The City of Industry has not established local CEQA (California Environmental Quality Act) significance thresholds for greenhouse gas (GHG) emissions, as described in Section 15064.7 of the CEQA guidelines. According to the Final Statement of Reasons (FSOR) for Regulatory Action, the revised Section 15064.7 gives lead agencies the discretion to determine their methodology for quantifying GHG emissions (50). As such, the City has selected the South Coast Air Quality Management District's numeric significance threshold.

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3 PROJECT GREENHOUSE GAS IMPACT

3.1 CALIFORNIA EMISSIONS ESTIMATOR MODEL™ (CALEEMOD™) EMPLOYED TO ESTIMATE GHG EMISSIONS

CEQA Guidelines 15064.4 (b) (1) states that a lead agency may use a model or methodology to quantify greenhouse gas emissions associated with a project (51).

On October 17, 2017, the SCAQMD in conjunction with the California Air Pollution Control Officers Association (CAPCOA) and other California air districts, released the latest version of the California Emissions Estimator Model™ (CalEEMod™) v2016.3.2. The purpose of this model is to calculate construction-source and operational-source criteria pollutant (NOx, VOC, PM10, PM2.5, SOx, and CO) and greenhouse gas (GHG) emissions from direct and indirect sources; and quantify applicable air quality and GHG reductions achieved from mitigation measures (52). Accordingly, the latest version of CalEEMod™ has been used for this Project to determine construction and operational air quality emissions. Output from the model runs for both construction and operational activity are provided in Appendices 3.1.

3.2 CONSTRUCTION AND OPERATIONAL LIFE-CYCLE ANALYSIS NOT REQUIRED

A full life-cycle analysis (LCA) for construction and operational activity is not included in this analysis due to the lack of consensus guidance on LCA methodology at this time (53). Life-cycle analysis (i.e., assessing economy-wide GHG emissions from the processes in manufacturing and transporting all raw materials used in the project development, infrastructure and on-going operations) depends on emission factors or econometric factors that are not well established for all processes. At this time a LCA would be extremely speculative and thus has not been prepared.

Additionally, the SCAQMD recommends analyzing direct and indirect project GHG emissions generated within California and not life-cycle emissions because the life-cycle effects from a project could occur outside of California, might not be very well understood or documented, and would be challenging to mitigate (54). Additionally, the science to calculate life cycle emissions is not yet established or well defined, therefore SCAQMD has not recommended, and is not requiring, life-cycle emissions analysis.

3.3 EXISTING PROJECT SITE GREENHOUSE GAS EMISSIONS

The Project site is generally level and currently vacant. Thus, the site is currently not generating a quantifiable amount of GHG emissions.

3.4 PROJECT RELATED GREENHOUSE GAS EMISSIONS

3.4.1 CONSTRUCTION EMISSIONS

Construction activities associated with the Project would result in emissions of CO2 and CH4 from construction activities. The report Industry Workforce Housing Community Air Quality Impact

Analysis Report, Urban Crossroads, Inc. (2017) contains detailed information regarding construction activity (55).

For construction phase Project emissions, GHGs are quantified and amortized over the life of the Project. To amortize the emissions over the life of the Project, the SCAQMD recommends calculating the total greenhouse gas emissions for the construction activities, dividing it by a 30 year project life then adding that number to the annual operational phase GHG emissions (56). As such, construction emissions were amortized over a 30 year period and added to the annual operational phase GHG emissions.

3.5 Operational Emissions

Operational activities associated with the proposed Project will result in emissions of CO2, CH4, and N2O from the following primary sources:

- Building Energy Use (combustion emissions associated with natural gas and electricity)
- Water Supply, Treatment and Distribution
- Solid Waste
- Mobile Source Emissions

3.5.1 Building Energy Use

GHGs are emitted from buildings as a result of activities for which electricity and natural gas are typically used as energy sources. Combustion of any type of fuel emits CO2 and other GHGs directly into the atmosphere; these emissions are considered direct emissions associated with a building. GHGs are also emitted during the generation of electricity from fossil fuels; these emissions are considered to be indirect emissions. Unless otherwise noted, CalEEMod default parameters were used.

3.5.2 Water Supply, Treatment and Distribution

Indirect GHG emissions result from the production of electricity used to convey, treat and distribute water and wastewater. The amount of electricity required to convey, treat and distribute water depends on the volume of water as well as the sources of the water. Unless otherwise noted, CalEEMod default parameters were used.

3.5.3 Solid Waste

Retail Commercial land uses would result in the generation and disposal of solid waste. A large percentage of this waste would be diverted from landfills by a variety of means, such as reducing the amount of waste generated, recycling, and/or composting. The remainder of the waste not diverted would be disposed of at a landfill. GHG emissions from landfills are associated with the anaerobic breakdown of material. GHG emissions associated with the disposal of solid waste associated with the Project were calculated using CalEEMod default parameters.

3.5.4 Mobile Source Emissions

GHG emissions will also result from mobile sources associated with the Project. These mobile source emissions will result from the typical daily operation of motor vehicles by visitors, employees, and customers.

Project-related operational air quality impacts derive primarily from vehicle trips generated by the Project. Trip characteristics based on CalEEMod defaults were used in the analysis.

Fugitive Dust Related to Vehicular Travel

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

3.6 Emissions Summary

The annual GHG emissions associated with the operation of the proposed Project are estimated to be 524.04 MTCO2e per year as summarized in Table 3-1. The Project net total GHG emissions would not exceed the SCAQMD/City's screening threshold of 3,000 MTCO2e per year (57). As shown, the proposed Project would result in a less than significant impact with respect to GHG emissions.

TABLE 3-1: TOTAL PROJECT GREENHOUSE GAS EMISSIONS (ANNUAL)

Emission Source	Emissions (metric tons per year)			
	CO_2	CH_4	N_2O	Total CO_2E
Annual construction-related emissions amortized over 30 years	21.36	0.01	--	21.50
Area	8.18	8.33E-03	1.80E-04	8.44
Energy	102.04	3.40E-03	1.23E-03	102.49
Mobile Sources	363.64	0.02	--	364.13
Waste	5.99	0.35	--	14.85
Water Usage	10.91	0.05	1.34E-03	12.65
Total CO_2E (All Sources)	**524.04**			
SCAQMD Threshold	**10,000**			
Significant?	**NO**			

Source: CalEEMod™ model output, See Appendix 3.1 for detailed model outputs.
Note: Totals obtained from CalEEMod™ and may not total 100% due to rounding.
Table results include scientific notation. *e* is used to represent *times ten raised to the power of* (which would be written as x $10^{b''}$) and is followed by the value of the exponent
-- Negligible amount of emissions (CalEEMod does not report any emissions for these pollutants)

Incremental Project GHG Emissions are Not Cumulatively Considerable

The Project will result in approximately 524.04 MTCO2e per year from construction, area, energy, waste, water usage, and mobile sources if the assumption is made that all of the vehicle trips to

and from the Project are "new" trips resulting from the development of the Project. Notwithstanding, an individual project cannot generate enough GHG emissions to influence global climate change. The project participates in this potential impact by its incremental contribution combined with the cumulative increase of all other sources of GHGs, which when taken together may have a significant impact on global climate change. As substantiated herein, the proposed Project would be in concert with AB 32 and international efforts to address global climate change and would reflect specific local requirements that would substantially lessen cumulative GHG emissions impacts. The proposed Project would therefore also fulfill the description of mitigation found in *CEQA Guidelines* §15130(a)(3) and §15183.5. The Project's incremental contribution to GHG emissions impacts would therefore not be cumulatively considerable.

4 SUMMARY OF FINDINGS

4.1 SUMMARY AND CONCLUSIONS

A screening threshold of 3,000 MTCO2e per year to determine if additional analysis is required is an acceptable approach for small projects. This approach is a widely accepted screening threshold used numerous cities in the South Coast Air Basin and is based on the SCAQMD staff's proposed GHG screening threshold for stationary source emissions for non-industrial projects, as described in the SCAQMD's *Interim CEQA GHG Significance Threshold for Stationary Sources, Rules and Plans* ("SCAQMD Interim GHG Threshold"). The SCAQMD Interim GHG Threshold identifies a screening threshold to determine whether additional analysis is required (58).

As shown on Table 4-1, the Project net total GHG emissions would result in approximately 524.04 MTCO2e per year; the proposed Project would not exceed the SCAQMD/City's screening threshold of 3,000 MTCO2e per year. Thus, project-related emissions would not have a significant direct or indirect impact on GHG and climate change and no mitigation or further analysis is required.

TABLE 4-1: SUMMARY OF NET PROJECT GHG EMISSIONS

Emission Source	Emissions (metric tons per year)			
	CO_2	CH_4	N_2O	Total CO_2E
Annual construction-related emissions amortized over 30 years	21.36	0.01	--	21.50
Area	8.18	8.33E-03	1.80E-04	8.44
Energy	102.04	3.40E-03	1.23E-03	102.49
Mobile Sources	363.64	0.02	--	364.13
Waste	5.99	0.35	--	14.85
Water Usage	10.91	0.05	1.34E-03	12.65
Total CO_2E (All Sources)	**524.04**			
SCAQMD Threshold	**10,000**			
Significant?	**NO**			

Source: CalEEMod™ model output, See Appendix 3.1 for detailed model outputs.
Note: Totals obtained from CalEEMod™ and may not total 100% due to rounding.
Table results include scientific notation. *e* is used to represent *times ten raised to the power of* (which would be written as x 10^{b}") and is followed by the value of the exponent
-- Negligible amount of emissions (CalEEMod does not report any emissions for these pollutants)

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6 CERTIFICATION

The contents of this greenhouse gas study report represent an accurate depiction of the greenhouse gas impacts associated with the proposed Industry Workforce Housing Community Project. The information contained in this greenhouse gas report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5987.

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Master of Science in Environmental Studies
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AEP – Association of Environmental Planners
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PROFESSIONAL CERTIFICATIONS

Planned Communities and Urban Infill – Urban Land Institute • June, 2011
Indoor Air Quality and Industrial Hygiene – EMSL Analytical • April, 2008
Principles of Ambient Air Monitoring – California Air Resources Board • August, 2007
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APPENDIX 3.1:

CALEEMOD EMISSIONS MODEL OUTPUTS

E. Walnut Street Residential (Mitigated)

South Coast AQMD Air District, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	25.00	Dwelling Unit	3.86	45,000.00	72

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	31
Climate Zone	9			**Operational Year**	2019
Utility Company	Southern California Edison				
CO2 Intensity (lb/MWhr)	702.44	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - Lot acreage from Tentative Tract Map. Average home size conservatively based on the largest floor plan of 1,800 SF.

Construction Phase - Construction schedule adjusted to reflect information provided by Client and project Opening Year.

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

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes. Hours are based on an 8-hour workday.

Off-road Equipment -

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

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

Off-road Equipment - Crawler Tractors used in lieu of Tractors/Loaders/Backhoes.

Trips and VMT -

Demolition -

Grading -

Construction Off-road Equipment Mitigation - Increase watering to 4 times per day.

Table Name	Column Name	Default Value	New Value
tblConstDustMitigation	WaterExposedAreaPM10PercentReduction	61	74
tblConstDustMitigation	WaterExposedAreaPM25PercentReduction	61	74
tblConstructionPhase	NumDays	8.00	21.00
tblGrading	MaterialImported	0.00	12,000.00
tblLandUse	LotAcreage	8.12	3.86
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	0.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	7.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00
tblOffRoadEquipment	UsageHours	6.00	8.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.5153	5.7458	2.6037	6.2300e-003	0.1668	0.2554	0.4221	0.0707	0.2383	0.3090	0.0000	564.2414	564.2414	0.1386	0.0000	567.7071
2019	0.2076	0.6885	0.4348	8.7000e-004	3.9400e-003	0.0334	0.0373	1.0500e-003	0.0312	0.0322	0.0000	76.6818	76.6818	0.0200	0.0000	77.1824
Maximum	**0.5153**	**5.7458**	**2.6037**	**6.2300e-003**	**0.1668**	**0.2554**	**0.4221**	**0.0707**	**0.2383**	**0.3090**	**0.0000**	**564.2414**	**564.2414**	**0.1386**	**0.0000**	**567.7071**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2018	0.5153	5.7457	2.6037	6.2300e-003	0.0648	0.2554	0.3201	0.0242	0.2383	0.2624	0.0000	564.2408	564.2408	0.1386	0.0000	567.7065
2019	0.2076	0.6885	0.4348	8.7000e-004	3.9400e-003	0.0334	0.0373	1.0500e-003	0.0312	0.0322	0.0000	76.6817	76.6817	0.0200	0.0000	77.1823
Maximum	**0.5153**	**5.7457**	**2.6037**	**6.2300e-003**	**0.0648**	**0.2554**	**0.3201**	**0.0242**	**0.2383**	**0.2624**	**0.0000**	**564.2408**	**564.2408**	**0.1386**	**0.0000**	**567.7065**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**59.76**	**0.00**	**22.20**	**64.83**	**0.00**	**13.63**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	2-1-2018	4-30-2018	2.1070	2.1070
2	5-1-2018	7-31-2018	1.5537	1.5537
3	8-1-2018	10-31-2018	1.5538	1.5538
4	11-1-2018	1-31-2019	1.5148	1.5148
5	2-1-2019	4-30-2019	0.4082	0.4082
		Highest	2.1070	2.1070

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2665	9.4800e-003	0.4180	4.2000e-004		0.0253	0.0253		0.0253	0.0253	2.6555	5.5241	8.1795	8.3300e-003	1.8000e-004	8.4416
Energy	3.7000e-003	0.0317	0.0135	2.0000e-004		2.5600e-003	2.5600e-003		2.5600e-003	2.5600e-003	0.0000	102.0372	102.0372	3.4000e-003	1.2300e-003	102.4889
Mobile	0.0889	0.4962	1.2192	3.9500e-003	0.3067	4.5700e-003	0.3112	0.0822	4.3000e-003	0.0865	0.0000	363.6378	363.6378	0.0195	0.0000	364.1252
Waste						0.0000	0.0000		0.0000	0.0000	5.9923	0.0000	5.9923	0.3541	0.0000	14.8457
Water						0.0000	0.0000		0.0000	0.0000	0.5168	10.3928	10.9095	0.0535	1.3400e-003	12.6471
Total	**0.3591**	**0.5373**	**1.6507**	**4.5700e-003**	**0.3067**	**0.0324**	**0.3391**	**0.0822**	**0.0322**	**0.1143**	**9.1645**	**481.5918**	**490.7564**	**0.4389**	**2.7500e-003**	**502.5484**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.2665	9.4800e-003	0.4180	4.2000e-004		0.0253	0.0253		0.0253	0.0253	2.6555	5.5241	8.1795	8.3300e-003	1.8000e-004	8.4416
Energy	3.7000e-003	0.0317	0.0135	2.0000e-004		2.5600e-003	2.5600e-003		2.5600e-003	2.5600e-003	0.0000	102.0372	102.0372	3.4000e-003	1.2300e-003	102.4889
Mobile	0.0889	0.4962	1.2192	3.9500e-003	0.3067	4.5700e-003	0.3112	0.0822	4.3000e-003	0.0865	0.0000	363.6378	363.6378	0.0195	0.0000	364.1252
Waste						0.0000	0.0000		0.0000	0.0000	5.9923	0.0000	5.9923	0.3541	0.0000	14.8457
Water						0.0000	0.0000		0.0000	0.0000	0.5168	10.3928	10.9095	0.0535	1.3400e-003	12.6471
Total	**0.3591**	**0.5373**	**1.6507**	**4.5700e-003**	**0.3067**	**0.0324**	**0.3391**	**0.0822**	**0.0322**	**0.1143**	**9.1645**	**481.5918**	**490.7564**	**0.4389**	**2.7500e-003**	**502.5484**

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

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	2/1/2018	2/28/2018	5	20	
2	Site Preparation	Site Preparation	3/1/2018	3/7/2018	5	5	
3	Grading	Grading	3/8/2018	4/5/2018	5	21	
4	Building Construction	Building Construction	3/20/2018	2/4/2019	5	230	
5	Paving	Paving	2/5/2019	2/28/2019	5	18	
6	Architectural Coating	Architectural Coating	3/1/2019	3/26/2019	5	18	

Acres of Grading (Site Preparation Phase): 10

Acres of Grading (Grading Phase): 42

Acres of Paving: 0

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

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Excavators	3	8.00	158	0.38
Demolition	Rubber Tired Dozers	2	8.00	247	0.40
Site Preparation	Crawler Tractors	4	8.00	212	0.43
Site Preparation	Rubber Tired Dozers	3	8.00	247	0.40
Site Preparation	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Grading	Crawler Tractors	3	8.00	212	0.43
Grading	Excavators	1	8.00	158	0.38
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Crawler Tractors	3	8.00	212	0.43
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	0	8.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	8.00	9	0.56
Paving	Pavers	2	8.00	130	0.42
Paving	Paving Equipment	2	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	8.00	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	11.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	7	18.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Grading	6	15.00	0.00	1,500.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	9	9.00	3.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Paving	9	23.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	2.00	0.00	0.00	14.70	6.90	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

3.2 Demolition - 2018

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					1.1800e-003	0.0000	1.1800e-003	1.8000e-004	0.0000	1.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0372	0.3832	0.2230	3.9000e-004		0.0194	0.0194		0.0181	0.0181	0.0000	35.1241	35.1241	9.6800e-003	0.0000	35.3660
Total	**0.0372**	**0.3832**	**0.2230**	**3.9000e-004**	**1.1800e-003**	**0.0194**	**0.0206**	**1.8000e-004**	**0.0181**	**0.0182**	**0.0000**	**35.1241**	**35.1241**	**9.6800e-003**	**0.0000**	**35.3660**

3.2 Demolition - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	1.7500e-003	3.3000e-004	0.0000	9.0000e-005	1.0000e-005	1.0000e-004	3.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.4243	0.4243	3.0000e-005	0.0000	0.4250
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-004	6.5000e-004	7.0000e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5788	1.5788	5.0000e-005	0.0000	1.5801
Total	**8.5000e-004**	**2.4000e-003**	**7.3300e-003**	**2.0000e-005**	**1.7400e-003**	**2.0000e-005**	**1.7600e-003**	**4.7000e-004**	**2.0000e-005**	**4.8000e-004**	**0.0000**	**2.0030**	**2.0030**	**8.0000e-005**	**0.0000**	**2.0051**

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					3.1000e-004	0.0000	3.1000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0372	0.3832	0.2230	3.9000e-004		0.0194	0.0194		0.0181	0.0181	0.0000	35.1240	35.1240	9.6800e-003	0.0000	35.3660
Total	**0.0372**	**0.3832**	**0.2230**	**3.9000e-004**	**3.1000e-004**	**0.0194**	**0.0197**	**5.0000e-005**	**0.0181**	**0.0181**	**0.0000**	**35.1240**	**35.1240**	**9.6800e-003**	**0.0000**	**35.3660**

3.2 Demolition - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	5.0000e-005	1.7500e-003	3.3000e-004	0.0000	9.0000e-005	1.0000e-005	1.0000e-004	3.0000e-005	1.0000e-005	3.0000e-005	0.0000	0.4243	0.4243	3.0000e-005	0.0000	0.4250
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.0000e-004	6.5000e-004	7.0000e-003	2.0000e-005	1.6500e-003	1.0000e-005	1.6600e-003	4.4000e-004	1.0000e-005	4.5000e-004	0.0000	1.5788	1.5788	5.0000e-005	0.0000	1.5801
Total	**8.5000e-004**	**2.4000e-003**	**7.3300e-003**	**2.0000e-005**	**1.7400e-003**	**2.0000e-005**	**1.7600e-003**	**4.7000e-004**	**2.0000e-005**	**4.8000e-004**	**0.0000**	**2.0030**	**2.0030**	**8.0000e-005**	**0.0000**	**2.0051**

3.3 Site Preparation - 2018

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					0.0505	0.0000	0.0505	0.0254	0.0000	0.0254	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0152	0.1792	0.0594	1.4000e-004		7.8000e-003	7.8000e-003		7.1700e-003	7.1700e-003	0.0000	13.0229	13.0229	4.0500e-003	0.0000	13.1243
Total	**0.0152**	**0.1792**	**0.0594**	**1.4000e-004**	**0.0505**	**7.8000e-003**	**0.0583**	**0.0254**	**7.1700e-003**	**0.0326**	**0.0000**	**13.0229**	**13.0229**	**4.0500e-003**	**0.0000**	**13.1243**

3.3 Site Preparation - 2018

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	2.4000e-004	2.0000e-004	2.1000e-003	1.0000e-005	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4736	0.4736	2.0000e-005	0.0000	0.4740
Total	**2.4000e-004**	**2.0000e-004**	**2.1000e-003**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4736**	**0.4736**	**2.0000e-005**	**0.0000**	**0.4740**

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					0.0131	0.0000	0.0131	6.6000e-003	0.0000	6.6000e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0152	0.1792	0.0594	1.4000e-004		7.8000e-003	7.8000e-003		7.1700e-003	7.1700e-003	0.0000	13.0229	13.0229	4.0500e-003	0.0000	13.1242
Total	**0.0152**	**0.1792**	**0.0594**	**1.4000e-004**	**0.0131**	**7.8000e-003**	**0.0209**	**6.6000e-003**	**7.1700e-003**	**0.0138**	**0.0000**	**13.0229**	**13.0229**	**4.0500e-003**	**0.0000**	**13.1242**

3.3 Site Preparation - 2018

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	2.4000e-004	2.0000e-004	2.1000e-003	1.0000e-005	4.9000e-004	0.0000	5.0000e-004	1.3000e-004	0.0000	1.3000e-004	0.0000	0.4736	0.4736	2.0000e-005	0.0000	0.4740
Total	**2.4000e-004**	**2.0000e-004**	**2.1000e-003**	**1.0000e-005**	**4.9000e-004**	**0.0000**	**5.0000e-004**	**1.3000e-004**	**0.0000**	**1.3000e-004**	**0.0000**	**0.4736**	**0.4736**	**2.0000e-005**	**0.0000**	**0.4740**

3.4 Grading - 2018

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					0.0862	0.0000	0.0862	0.0373	0.0000	0.0373	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0409	0.5071	0.1842	4.6000e-004		0.0206	0.0206		0.0189	0.0189	0.0000	42.1109	42.1109	0.0131	0.0000	42.4386
Total	**0.0409**	**0.5071**	**0.1842**	**4.6000e-004**	**0.0862**	**0.0206**	**0.1067**	**0.0373**	**0.0189**	**0.0562**	**0.0000**	**42.1109**	**42.1109**	**0.0131**	**0.0000**	**42.4386**

3.4 Grading - 2018

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	6.5800e-003	0.2384	0.0443	5.9000e-004	0.0129	9.0000e-004	0.0138	3.5400e-003	8.6000e-004	4.4000e-003	0.0000	57.8556	57.8556	4.0700e-003	0.0000	57.9573
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.4000e-004	6.8000e-004	7.3500e-003	2.0000e-005	1.7300e-003	1.0000e-005	1.7400e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.6577	1.6577	6.0000e-005	0.0000	1.6591
Total	**7.4200e-003**	**0.2391**	**0.0517**	**6.1000e-004**	**0.0146**	**9.1000e-004**	**0.0155**	**4.0000e-003**	**8.7000e-004**	**4.8700e-003**	**0.0000**	**59.5133**	**59.5133**	**4.1300e-003**	**0.0000**	**59.6164**

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					0.0224	0.0000	0.0224	9.6900e-003	0.0000	9.6900e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0409	0.5071	0.1842	4.6000e-004		0.0206	0.0206		0.0189	0.0189	0.0000	42.1109	42.1109	0.0131	0.0000	42.4386
Total	**0.0409**	**0.5071**	**0.1842**	**4.6000e-004**	**0.0224**	**0.0206**	**0.0430**	**9.6900e-003**	**0.0189**	**0.0286**	**0.0000**	**42.1109**	**42.1109**	**0.0131**	**0.0000**	**42.4386**

3.4 Grading - 2018

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	6.5800e-003	0.2384	0.0443	5.9000e-004	0.0129	9.0000e-004	0.0138	3.5400e-003	8.6000e-004	4.4000e-003	0.0000	57.8556	57.8556	4.0700e-003	0.0000	57.9573
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	8.4000e-004	6.8000e-004	7.3500e-003	2.0000e-005	1.7300e-003	1.0000e-005	1.7400e-003	4.6000e-004	1.0000e-005	4.7000e-004	0.0000	1.6577	1.6577	6.0000e-005	0.0000	1.6591
Total	**7.4200e-003**	**0.2391**	**0.0517**	**6.1000e-004**	**0.0146**	**9.1000e-004**	**0.0155**	**4.0000e-003**	**8.7000e-004**	**4.8700e-003**	**0.0000**	**59.5133**	**59.5133**	**4.1300e-003**	**0.0000**	**59.6164**

3.5 Building Construction - 2018

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	0.4073	4.3925	2.0231	4.4100e-003		0.2063	0.2063		0.1929	0.1929	0.0000	394.6034	394.6034	0.1067	0.0000	397.2705
Total	**0.4073**	**4.3925**	**2.0231**	**4.4100e-003**		**0.2063**	**0.2063**		**0.1929**	**0.1929**	**0.0000**	**394.6034**	**394.6034**	**0.1067**	**0.0000**	**397.2705**

3.5 Building Construction - 2018

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3300e-003	0.0380	9.8000e-003	8.0000e-005	1.9400e-003	2.7000e-004	2.2100e-003	5.6000e-004	2.6000e-004	8.2000e-004	0.0000	7.6809	7.6809	5.5000e-004	0.0000	7.6945
Worker	4.9000e-003	4.0100e-003	0.0431	1.1000e-004	0.0101	8.0000e-005	0.0102	2.6900e-003	8.0000e-005	2.7600e-003	0.0000	9.7093	9.7093	3.3000e-004	0.0000	9.7176
Total	**6.2300e-003**	**0.0420**	**0.0529**	**1.9000e-004**	**0.0121**	**3.5000e-004**	**0.0124**	**3.2500e-003**	**3.4000e-004**	**3.5800e-003**	**0.0000**	**17.3902**	**17.3902**	**8.8000e-004**	**0.0000**	**17.4121**

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	0.4073	4.3925	2.0231	4.4100e-003		0.2063	0.2063		0.1929	0.1929	0.0000	394.6030	394.6030	0.1067	0.0000	397.2701
Total	**0.4073**	**4.3925**	**2.0231**	**4.4100e-003**		**0.2063**	**0.2063**		**0.1929**	**0.1929**	**0.0000**	**394.6030**	**394.6030**	**0.1067**	**0.0000**	**397.2701**

3.5 Building Construction - 2018

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.3300e-003	0.0380	9.8000e-003	8.0000e-005	1.9400e-003	2.7000e-004	2.2100e-003	5.6000e-004	2.6000e-004	8.2000e-004	0.0000	7.6809	7.6809	5.5000e-004	0.0000	7.6945
Worker	4.9000e-003	4.0100e-003	0.0431	1.1000e-004	0.0101	8.0000e-005	0.0102	2.6900e-003	8.0000e-005	2.7600e-003	0.0000	9.7093	9.7093	3.3000e-004	0.0000	9.7176
Total	**6.2300e-003**	**0.0420**	**0.0529**	**1.9000e-004**	**0.0121**	**3.5000e-004**	**0.0124**	**3.2500e-003**	**3.4000e-004**	**3.5800e-003**	**0.0000**	**17.3902**	**17.3902**	**8.8000e-004**	**0.0000**	**17.4121**

3.5 Building Construction - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0456	0.4960	0.2393	5.4000e-004		0.0227	0.0227		0.0212	0.0212	0.0000	47.4858	47.4858	0.0129	0.0000	47.8080
Total	**0.0456**	**0.4960**	**0.2393**	**5.4000e-004**		**0.0227**	**0.0227**		**0.0212**	**0.0212**	**0.0000**	**47.4858**	**47.4858**	**0.0129**	**0.0000**	**47.8080**

3.5 Building Construction - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5000e-004	4.3700e-003	1.1000e-003	1.0000e-005	2.4000e-004	3.0000e-005	2.6000e-004	7.0000e-005	3.0000e-005	1.0000e-004	0.0000	0.9284	0.9284	6.0000e-005	0.0000	0.9300
Worker	5.4000e-004	4.3000e-004	4.6900e-003	1.0000e-005	1.2300e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	1.1467	1.1467	4.0000e-005	0.0000	1.1476
Total	**6.9000e-004**	**4.8000e-003**	**5.7900e-003**	**2.0000e-005**	**1.4700e-003**	**4.0000e-005**	**1.5000e-003**	**4.0000e-004**	**4.0000e-005**	**4.4000e-004**	**0.0000**	**2.0751**	**2.0751**	**1.0000e-004**	**0.0000**	**2.0776**

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	0.0456	0.4960	0.2393	5.4000e-004		0.0227	0.0227		0.0212	0.0212	0.0000	47.4858	47.4858	0.0129	0.0000	47.8079
Total	**0.0456**	**0.4960**	**0.2393**	**5.4000e-004**		**0.0227**	**0.0227**		**0.0212**	**0.0212**	**0.0000**	**47.4858**	**47.4858**	**0.0129**	**0.0000**	**47.8079**

3.5 Building Construction - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	1.5000e-004	4.3700e-003	1.1000e-003	1.0000e-005	2.4000e-004	3.0000e-005	2.6000e-004	7.0000e-005	3.0000e-005	1.0000e-004	0.0000	0.9284	0.9284	6.0000e-005	0.0000	0.9300
Worker	5.4000e-004	4.3000e-004	4.6900e-003	1.0000e-005	1.2300e-003	1.0000e-005	1.2400e-003	3.3000e-004	1.0000e-005	3.4000e-004	0.0000	1.1467	1.1467	4.0000e-005	0.0000	1.1476
Total	**6.9000e-004**	**4.8000e-003**	**5.7900e-003**	**2.0000e-005**	**1.4700e-003**	**4.0000e-005**	**1.5000e-003**	**4.0000e-004**	**4.0000e-005**	**4.4000e-004**	**0.0000**	**2.0751**	**2.0751**	**1.0000e-004**	**0.0000**	**2.0776**

3.6 Paving - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0162	0.1649	0.1583	2.5000e-004		9.0800e-003	9.0800e-003		8.3800e-003	8.3800e-003	0.0000	21.7635	21.7635	6.7100e-003	0.0000	21.9313
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0162**	**0.1649**	**0.1583**	**2.5000e-004**		**9.0800e-003**	**9.0800e-003**		**8.3800e-003**	**8.3800e-003**	**0.0000**	**21.7635**	**21.7635**	**6.7100e-003**	**0.0000**	**21.9313**

3.6 Paving - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-003	7.9000e-004	8.6300e-003	2.0000e-005	2.2700e-003	2.0000e-005	2.2900e-003	6.0000e-004	2.0000e-005	6.2000e-004	0.0000	2.1099	2.1099	7.0000e-005	0.0000	2.1116
Total	**1.0000e-003**	**7.9000e-004**	**8.6300e-003**	**2.0000e-005**	**2.2700e-003**	**2.0000e-005**	**2.2900e-003**	**6.0000e-004**	**2.0000e-005**	**6.2000e-004**	**0.0000**	**2.1099**	**2.1099**	**7.0000e-005**	**0.0000**	**2.1116**

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	0.0162	0.1649	0.1583	2.5000e-004		9.0800e-003	9.0800e-003		8.3800e-003	8.3800e-003	0.0000	21.7635	21.7635	6.7100e-003	0.0000	21.9313
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0162**	**0.1649**	**0.1583**	**2.5000e-004**		**9.0800e-003**	**9.0800e-003**		**8.3800e-003**	**8.3800e-003**	**0.0000**	**21.7635**	**21.7635**	**6.7100e-003**	**0.0000**	**21.9313**

3.6 Paving - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	1.0000e-003	7.9000e-004	8.6300e-003	2.0000e-005	2.2700e-003	2.0000e-005	2.2900e-003	6.0000e-004	2.0000e-005	6.2000e-004	0.0000	2.1099	2.1099	7.0000e-005	0.0000	2.1116
Total	**1.0000e-003**	**7.9000e-004**	**8.6300e-003**	**2.0000e-005**	**2.2700e-003**	**2.0000e-005**	**2.2900e-003**	**6.0000e-004**	**2.0000e-005**	**6.2000e-004**	**0.0000**	**2.1099**	**2.1099**	**7.0000e-005**	**0.0000**	**2.1116**

3.7 Architectural Coating - 2019

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1408					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2000e-003	0.0220	0.0221	4.0000e-005		1.5500e-003	1.5500e-003		1.5500e-003	1.5500e-003	0.0000	3.0639	3.0639	2.6000e-004	0.0000	3.0704
Total	**0.1440**	**0.0220**	**0.0221**	**4.0000e-005**		**1.5500e-003**	**1.5500e-003**		**1.5500e-003**	**1.5500e-003**	**0.0000**	**3.0639**	**3.0639**	**2.6000e-004**	**0.0000**	**3.0704**

3.7 Architectural Coating - 2019

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	7.0000e-005	7.5000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1835	0.1835	1.0000e-005	0.0000	0.1836
Total	**9.0000e-005**	**7.0000e-005**	**7.5000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1835**	**0.1835**	**1.0000e-005**	**0.0000**	**0.1836**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	0.1408					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.2000e-003	0.0220	0.0221	4.0000e-005		1.5500e-003	1.5500e-003		1.5500e-003	1.5500e-003	0.0000	3.0639	3.0639	2.6000e-004	0.0000	3.0704
Total	**0.1440**	**0.0220**	**0.0221**	**4.0000e-005**		**1.5500e-003**	**1.5500e-003**		**1.5500e-003**	**1.5500e-003**	**0.0000**	**3.0639**	**3.0639**	**2.6000e-004**	**0.0000**	**3.0704**

3.7 Architectural Coating - 2019

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	9.0000e-005	7.0000e-005	7.5000e-004	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.1835	0.1835	1.0000e-005	0.0000	0.1836
Total	**9.0000e-005**	**7.0000e-005**	**7.5000e-004**	**0.0000**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.1835**	**0.1835**	**1.0000e-005**	**0.0000**	**0.1836**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0889	0.4962	1.2192	3.9500e-003	0.3067	4.5700e-003	0.3112	0.0822	4.3000e-003	0.0865	0.0000	363.6378	363.6378	0.0195	0.0000	364.1252
Unmitigated	0.0889	0.4962	1.2192	3.9500e-003	0.3067	4.5700e-003	0.3112	0.0822	4.3000e-003	0.0865	0.0000	363.6378	363.6378	0.0195	0.0000	364.1252

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	238.00	247.75	215.50	807,058	807,058
Total	238.00	247.75	215.50	807,058	807,058

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	14.70	5.90	8.70	40.20	19.20	40.60	86	11	3

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Single Family Housing	0.546418	0.044132	0.199182	0.124467	0.017484	0.005870	0.020172	0.031831	0.001999	0.002027	0.004724	0.000704	0.000991

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	65.3834	65.3834	2.7000e-003	5.6000e-004	65.6173
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	65.3834	65.3834	2.7000e-003	5.6000e-004	65.6173
NaturalGas Mitigated	3.7000e-003	0.0317	0.0135	2.0000e-004		2.5600e-003	2.5600e-003		2.5600e-003	2.5600e-003	0.0000	36.6537	36.6537	7.0000e-004	6.7000e-004	36.8715
NaturalGas Unmitigated	3.7000e-003	0.0317	0.0135	2.0000e-004		2.5600e-003	2.5600e-003		2.5600e-003	2.5600e-003	0.0000	36.6537	36.6537	7.0000e-004	6.7000e-004	36.8715

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Single Family Housing	686865	3.7000e-003	0.0317	0.0135	2.0000e-004		2.5600e-003	2.5600e-003		2.5600e-003	2.5600e-003	0.0000	36.6537	36.6537	7.0000e-004	6.7000e-004	36.8715
Total		**3.7000e-003**	**0.0317**	**0.0135**	**2.0000e-004**		**2.5600e-003**	**2.5600e-003**		**2.5600e-003**	**2.5600e-003**	**0.0000**	**36.6537**	**36.6537**	**7.0000e-004**	**6.7000e-004**	**36.8715**

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					
Single Family Housing	686865	3.7000e-003	0.0317	0.0135	2.0000e-004		2.5600e-003	2.5600e-003		2.5600e-003	2.5600e-003	0.0000	36.6537	36.6537	7.0000e-004	6.7000e-004	36.8715
Total		**3.7000e-003**	**0.0317**	**0.0135**	**2.0000e-004**		**2.5600e-003**	**2.5600e-003**		**2.5600e-003**	**2.5600e-003**	**0.0000**	**36.6537**	**36.6537**	**7.0000e-004**	**6.7000e-004**	**36.8715**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	205207	65.3834	2.7000e-003	5.6000e-004	65.6173
Total		**65.3834**	**2.7000e-003**	**5.6000e-004**	**65.6173**

5.3 Energy by Land Use - Electricity

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	205207	65.3834	2.7000e-003	5.6000e-004	65.6173
Total		**65.3834**	**2.7000e-003**	**5.6000e-004**	**65.6173**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.2665	9.4800e-003	0.4180	4.2000e-004		0.0253	0.0253		0.0253	0.0253	2.6555	5.5241	8.1795	8.3300e-003	1.8000e-004	8.4416
Unmitigated	0.2665	9.4800e-003	0.4180	4.2000e-004		0.0253	0.0253		0.0253	0.0253	2.6555	5.5241	8.1795	8.3300e-003	1.8000e-004	8.4416

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0141					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1626					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0819	6.4800e-003	0.1589	4.1000e-004		0.0239	0.0239		0.0239	0.0239	2.6555	5.1029	7.7584	7.9200e-003	1.8000e-004	8.0101
Landscaping	7.9300e-003	3.0000e-003	0.2591	1.0000e-005		1.4200e-003	1.4200e-003		1.4200e-003	1.4200e-003	0.0000	0.4211	0.4211	4.1000e-004	0.0000	0.4315
Total	**0.2665**	**9.4800e-003**	**0.4180**	**4.2000e-004**		**0.0253**	**0.0253**		**0.0253**	**0.0253**	**2.6555**	**5.5241**	**8.1795**	**8.3300e-003**	**1.8000e-004**	**8.4416**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0141					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.1626					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0819	6.4800e-003	0.1589	4.1000e-004		0.0239	0.0239		0.0239	0.0239	2.6555	5.1029	7.7584	7.9200e-003	1.8000e-004	8.0101
Landscaping	7.9300e-003	3.0000e-003	0.2591	1.0000e-005		1.4200e-003	1.4200e-003		1.4200e-003	1.4200e-003	0.0000	0.4211	0.4211	4.1000e-004	0.0000	0.4315
Total	**0.2665**	**9.4800e-003**	**0.4180**	**4.2000e-004**		**0.0253**	**0.0253**		**0.0253**	**0.0253**	**2.6555**	**5.5241**	**8.1795**	**8.3300e-003**	**1.8000e-004**	**8.4416**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	10.9095	0.0535	1.3400e-003	12.6471
Unmitigated	10.9095	0.0535	1.3400e-003	12.6471

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.62885 / 1.02688	10.9095	0.0535	1.3400e-003	12.6471
Total		**10.9095**	**0.0535**	**1.3400e-003**	**12.6471**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	1.62885 / 1.02688	10.9095	0.0535	1.3400e-003	12.6471
Total		**10.9095**	**0.0535**	**1.3400e-003**	**12.6471**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

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

8.2 Waste by Land Use

Unmitigated

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

Mitigated

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

9.0 Operational Offroad

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

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

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

Boilers

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

User Defined Equipment

Equipment Type	Number

11.0 Vegetation

Industry Workforce Housing Community

Noise Impact Analysis

City of Industry

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LIST OF ABBREVIATED TERMS

(1)	Reference
ADT	Average Daily Traffic
Calveno	California Vehicle Noise
CEQA	California Environmental Quality Act
CNEL	Community Noise Equivalent Level
dBA	A-weighted decibels
EPA	Environmental Protection Agency
FHWA	Federal Highway Administration
FTA	Federal Transit Administration
Hz	Hertz
INCE	Institute of Noise Control Engineering
L_{eq}	Equivalent continuous (average) sound level
L_{max}	Maximum level measured over the time interval
L_{min}	Minimum level measured over the time interval
mph	Miles per hour
OPR	Office of Planning and Research
PPV	Peak particle velocity
Project	Industry Workforce Housing Community
REMEL	Reference Energy Mean Emission Level
RMS	Root-mean-square
SR-60	State Route 60
VdB	Vibration Decibels

EXECUTIVE SUMMARY

Urban Crossroads, Inc. has prepared this noise study to determine the noise exposure and the necessary noise mitigation measures for the proposed Industry Workforce Housing Community development ("Project"). The proposed Industry Workforce Housing Community site is located at 20137 and 20249 East Walnut Drive in City of Industry. The Project is proposed to consist of up to 25 single-family detached residential dwelling units and approximately 4,500 square feet of community recreational space. This noise impact analysis was prepared to satisfy the City of Industry and adjacent City of Diamond Bar noise level standards and significance criteria based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA). (1)

ON-SITE TRAFFIC NOISE ANALYSIS

An on-site exterior noise impact analysis has been completed to determine the traffic noise exposure and to identify potential necessary noise abatement measures for the proposed Industry Workforce Housing Community Project. It is expected that the primary source of noise impacts to the Project site will be traffic noise from State Route 60 (SR-60) and Walnut Drive.

EXTERIOR NOISE LEVELS

To satisfy the City of Industry 75 dBA CNEL exterior noise level criteria for *normally unacceptable* residential and *conditionally acceptable* playground/neighborhood park land uses, the construction of an 8-foot high noise barrier is required at the western Project site boundary to prevent flanking noise levels around the existing 12-foot high noise barrier at the Project's community garden and playground uses. With the existing and recommended noise barriers shown on Exhibit ES-A, the mitigated future exterior noise levels will range from 70.4 to 72.2 dBA CNEL. This noise analysis shows that the recommended noise barriers will satisfy the City of Industry 75 dBA CNEL exterior noise level criteria for *normally unacceptable* residential and *conditionally acceptable* park land uses. The effective noise barrier height recommendations represent the minimum wall and/or berm combination height required to satisfy the City of Industry exterior noise level standards. As a requirement of *normally unacceptable* residential land use, with exterior noise levels between 70 to 75 dBA CNEL, an interior noise analysis is provided in this noise study to demonstrate compliance with the interior noise level standards of the California Code of Regulations, Title 24, Building Standards Administrative Code for residential uses.

The recommended noise control barriers shall be constructed so that the top of each wall and /or berm combination extends to the planned height above the pad elevation of the lot it is shielding. When the road is elevated above the pad elevation, the barrier shall extend to the recommended height above the highest point between the residential home and the road. The barrier shall provide a weight of at least 4 pounds per square foot of face area with no decorative cutouts or line-of-sight openings between shielded areas and the roadways, or a minimum transmission loss of 20 dBA. (2) The noise barrier shall be constructed using the following materials:

- Masonry block;
- Stucco veneer over wood framing (or foam core), or 1-inch-thick tongue and groove wood of sufficient weight per square foot;
- Glass (1/4-inch-thick), or other transparent material with sufficient weight per square foot capable of providing a minimum transmission loss of 20 dBA;
- Earthen berm;
- Any combination of these construction materials.

The barrier shall consist of a solid face from top to bottom. Unnecessary openings or decorative cutouts shall not be made. All gaps (except for weep holes) should be filled with grout or caulking.

INTERIOR NOISE ANALYSIS

To satisfy the California Code of Regulations, Title 24, Building Standards Administrative Code 45 dBA CNEL interior noise level standard, lots adjacent to SR-60 and Walnut Drive will require a Noise Reduction (NR) of up to 34.6 dBA and a windows-closed condition requiring a means of mechanical ventilation (e.g. air conditioning). To meet the City of Industry 45 dBA CNEL interior noise standards for residential land use the Project shall provide the following or equivalent noise mitigation measures:

- Windows/Sliding Glass Doors:
  - Northeastern lots, closest to SR-60, require minimum second-floor STC ratings of 38, and minimum first-floor STC ratings of 36;
  - All other lots require minimum STC ratings of 36 for first and second-floors, and window/sliding glass door assemblies shall be well-fitted and well-weather-stripped.
- Doors (Non-Glass): All exterior doors shall be well weather-stripped and have minimum STC ratings of 25. Well-sealed perimeter gaps around the doors are essential to achieve the optimal STC rating. (3)
- Walls: At any penetrations of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits shall be caulked or filled with mortar to form an airtight seal.
- Roof: Roof sheathing of wood construction shall be per manufacturer's specification or caulked plywood of at least one-half inch thick. Ceilings shall be per manufacturer's specification or well-sealed gypsum board of at least one-half inch thick. Insulation with at least a rating of R-19 shall be used in the attic space.
- Ventilation: Arrangements for any habitable room shall be such that any exterior door or window can be kept closed when the room is in use and still receive circulated air. A forced air circulation system (e.g. air conditioning) or active ventilation system (e.g. fresh air supply) shall be provided which satisfies the requirements of the Uniform Building Code.

A final noise study shall be prepared prior to obtaining building permits for the project. This report would finalize the interior noise mitigation measures described in this study using the precise grading plans and actual building design specifications, and may include additional mitigation, if necessary, to meet the California Code of Regulations, Title 24, Building Standards Administrative Code 45 dBA CNEL interior noise level standard. Further, while not required, this

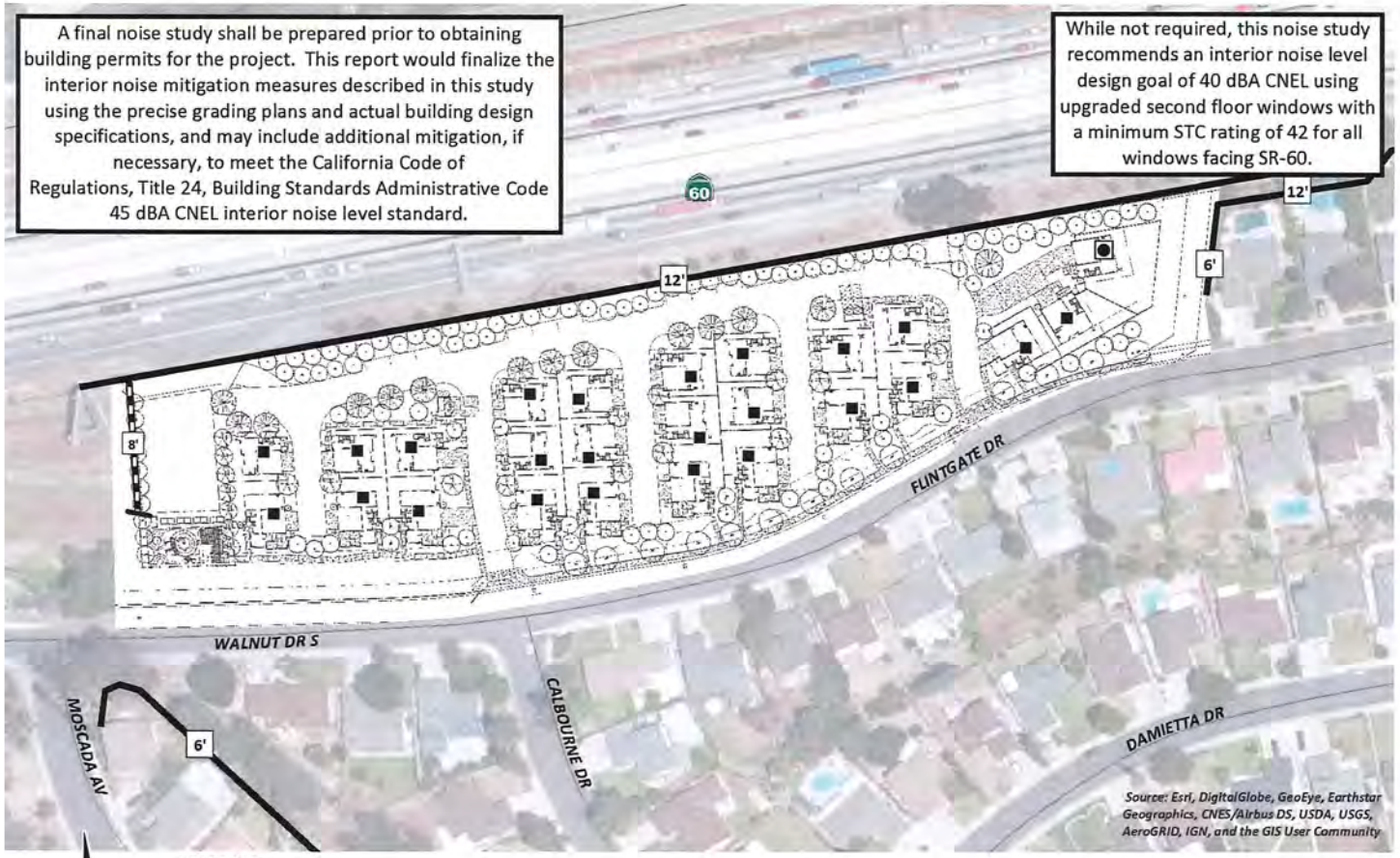
noise study recommends an interior noise level design goal of 40 dBA CNEL using upgraded second floor windows with STC ratings of 42 for all lots with windows facing SR-60.

PROJECT SITE DESIGN FEATURES

The Project includes design features incorporated into the site layout to reduce traffic noise levels from SR-60 at future on-site residential homes. In combination with the mitigation measures recommended by this noise study, as shown on Exhibit ES-A, these Project Design Features act as traffic noise abatement measures. The Project Design Features are outlined below:

- The residential buildings closest to SR-60 are set back at distances of at roughly 30 feet from the northern Project site boundary;
- A planned on-site road with available parking spaces is located between Project residential buildings and the Project's northern property line adjacent to SR-60;
- Linear park trail uses adjacent to Walnut Drive are shielded by the residential buildings to provide additional noise barrier attenuation.

ES-A: Summary of Recommendations



N

LEGEND:

- 12' Barrier Height (in feet)
- Existing Barrier
- Recommended Noise Barrier
- ■ All windows require minimum STC ratings of 36.
- ◉ Lots requiring first-floor windows with a minimum STC rating of 36, and second-floor windows with minimum STC ratings of 38.

OPERATIONAL NOISE ANALYSIS

Using reference noise levels to represent the expected noise sources from the Industry Workforce Housing Community site, this analysis estimates the Project-related stationary-source noise levels at nearby sensitive receiver locations. The normal activities associated with the proposed Industry Workforce Housing Community are anticipated to include playground activities. The operational noise analysis shows that the Project-related stationary-source noise levels are expected to range from 11.0 to 29.1 dBA L_{50}. at the nearby sensitive receiver locations will satisfy the adjacent City of Diamond Bar Municipal Code daytime 50 dBA L_{50} and nighttime 45 dBA L_{50} exterior noise level standards at all receiver locations. Further, this analysis demonstrates that the Project will contribute a *less than significant* operational noise level contribution to the existing ambient noise environment at all the nearby sensitive receiver locations. Therefore, the operational noise level impacts associated with the proposed Project activities, such as the playground activities will be *less than significant*.

CONSTRUCTION NOISE AND VIBRATION ANALYSIS

Construction noise represents a short-term increase on the ambient noise levels. Construction-related noise impacts are expected to create temporary and intermittent high-level noise conditions at receivers surrounding the Project site when certain activities occur at the closest point to the nearby receiver locations from the center of Project construction activity. Using sample reference noise levels to represent the planned construction activities of the Industry Workforce Housing Community site, this analysis estimates the Project-related construction noise levels at nearby sensitive receiver locations. The results of the construction noise analysis show that the unmitigated construction noise levels will exceed the City of Diamond Bar Municipal Code construction noise level standards of 75 dBA L_{max} for mobile equipment, and 60 dBA L_{max} for stationary equipment at three of four nearby sensitive receiver locations. Therefore, the construction of the Project will result in a *potentially significant* noise impact at receiver locations R2 to R4.

Therefore, construction noise mitigation is required to reduce the short-term noise levels at receiver locations R2 to R4. With the 100-foot buffer for large construction equipment and temporary noise barrier mitigation measures identified in this noise study, all nearby sensitive receiver locations will experience *less than significant* impacts due to temporary Project construction noise levels. The construction noise analysis presents a conservative approach with the highest noise-level-producing equipment for each stage of Project construction operating at the closest point from primary construction activity to the nearby sensitive receiver locations. This scenario is unlikely to occur during typical construction activities and likely overstates the construction noise levels which will be experienced at each receiver location.

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. At distances ranging from 40 to 350 feet from the Project construction activities, construction vibration velocity levels are expected to range from 0.003 0.031 in/sec

RMS. As such, the Project-related vibration impacts will exceed the City of Diamond Bar 0.01 in/sec RMS threshold, and impacts are considered *potentially significant* during the construction activities at the Project site.

Therefore, the 100-foot buffer zone for large construction equipment (e.g. dozers, graders, scrapers, etc.), as detailed in the construction noise and vibration mitigation measures of this report, is required to reduce construction vibration levels at nearby sensitive receiver locations R2 and R4. The mitigated vibration levels at nearby sensitive receiver locations will approach 0.008 in/sec RMS and will remain below the City of Diamond Bar 0.01 in/sec RMS threshold, thereby resulting in *less than significant* vibration impacts with mitigation.

CONSTRUCTION NOISE AND VIBRATION MITIGATION MEASURES

Though construction noise is temporary, intermittent and of short duration, and will not present any long-term impacts, the following mitigation measures are required to reduce noise and vibration levels produced by the construction equipment to the nearby sensitive residential land uses.

- Install minimum 9-foot high temporary construction noise barriers at the Project's site boundaries adjacent to sensitive receivers on Walnut Drive, as shown on Exhibit 10-A, for the duration of Project construction. The noise control barriers must have a solid face from top to bottom. The noise control barriers must meet the minimum height and be constructed as follows:
    - The temporary noise barriers shall provide a minimum transmission loss of 20 dBA (Federal Highway Administration, Noise Barrier Design Handbook). The noise barrier shall be constructed using an acoustical blanket (e.g. vinyl acoustic curtains or quilted blankets) attached to the construction site perimeter fence or equivalent temporary fence posts;
    - The noise barrier must be maintained, and any damage promptly repaired. Gaps, holes, or weaknesses in the barrier or openings between the barrier and the ground shall be promptly repaired;
    - The noise control barrier and associated elements shall be completely removed, and the site appropriately restored upon the conclusion of the construction activity.
- The use of large construction equipment (e.g., dozers, graders, scrapers) capable of generating noise levels in excess of 78 dBA L_{max} at 50 feet shall be prohibited within 100 feet of nearby occupied sensitive residential homes to reduce the noise and vibration levels for the entire duration of Project construction. If the contractor can demonstrate that specific pieces of large construction equipment can demonstrate compliance with the 78 dBA L_{max} at 50 feet criteria, then they shall be allowed to operate within the buffer zone shown on Exhibit 10-A.
- During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site.

- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receivers nearest the Project site during all Project construction (i.e., to the northern center).

SUMMARY OF SIGNIFICANCE FINDINGS

The results of this Industry Workforce Housing Community Noise Impact Analysis are summarized below based on the significance criteria in Section 4 of this report. Table ES-1 shows the findings of significance for each potential noise and/or vibration impact before and after any required mitigation measures.

TABLE ES-1: SUMMARY OF SIGNIFICANCE FINDINGS

Analysis	Report Section	Significance Findings	
		Unmitigated	Mitigated
On-Site Traffic Noise Levels	7	*Potentially Significant*	*Less Than Significant*
Operational Noise Levels	9	*Less Than Significant*	*n/a*
Construction Noise Levels	10	*Potentially Significant*	*Less Than Significant*
Construction Vibration Levels		*Potentially Significant*	*Less Than Significant*

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1 INTRODUCTION

This noise analysis has been completed to determine the noise impacts associated with the development of the proposed Industry Workforce Housing Community ("Project"). This noise study briefly describes the proposed Project, provides information regarding noise fundamentals, describes the local regulatory setting, provides the study methods and procedures for traffic noise analysis, and evaluates the future exterior noise environment. In addition, this study includes an analysis of the potential Project-related long-term operational and short-term construction noise impacts.

1.1 SITE LOCATION

The proposed Industry Workforce Housing Community site is located at 20137 and 20249 East Walnut Drive in City of Industry, as shown on Exhibit 1-A. The Project site is currently occupied by a residential home and two billboard signs. It is bound to the north by State Route 60 (SR-60), to the south and west by existing residential homes, and to the east by an existing parking lot.

1.2 PROJECT DESCRIPTION

The Project is proposed to consist of up to 25 single-family detached residential dwelling units and approximately 4,500 square feet of community recreational space, as shown on Exhibit 1-B. The on-site Project-related noise sources are expected to include: playground activities.

EXHIBIT 1-A: LOCATION MAP

EXHIBIT 1-B: SITE PLAN

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2 FUNDAMENTALS

Noise has been simply defined as "unwanted sound." Sound becomes unwanted when it interferes with normal activities, when it causes actual physical harm or when it has adverse effects on health. Noise is measured on a logarithmic scale of sound pressure level known as a decibel (dB). A-weighted decibels (dBA) approximate the subjective response of the human ear to broad frequency noise source by discriminating against very low and very high frequencies of the audible spectrum. They are adjusted to reflect only those frequencies which are audible to the human ear. Exhibit 2-A presents a summary of the typical noise levels and their subjective loudness and effects that are described in more detail below.

EXHIBIT 2-A: TYPICAL NOISE LEVELS

COMMON OUTDOOR ACTIVITIES	COMMON INDOOR ACTIVITIES	A - WEIGHTED SOUND LEVEL dBA	SUBJECTIVE LOUDNESS	EFFECTS OF NOISE
THRESHOLD OF PAIN		140	INTOLERABLE OR DEAFENING	HEARING LOSS
NEAR JET ENGINE		130		
		120		
JET FLY-OVER AT 300m (1000 ft)	ROCK BAND	110		
LOUD AUTO HORN		100	VERY NOISY	
GAS LAWN MOWER AT 1m (3 ft)		90		
DIESEL TRUCK AT 15m (50 ft), at 80 km/hr (50 mph)	FOOD BLENDER AT 1m (3 ft)	80		SPEECH INTERFERENCE
NOISY URBAN AREA, DAYTIME	VACUUM CLEANER AT 3m (10 ft)	70	LOUD	
HEAVY TRAFFIC AT 90m (300 ft)	NORMAL SPEECH AT 1m (3 ft)	60		
QUIET URBAN DAYTIME	LARGE BUSINESS OFFICE	50	MODERATE	
QUIET URBAN NIGHTTIME	THEATER, LARGE CONFERENCE ROOM (BACKGROUND)	40		SLEEP DISTURBANCE
QUIET SUBURBAN NIGHTTIME	LIBRARY	30	FAINT	NO EFFECT
QUIET RURAL NIGHTTIME	BEDROOM AT NIGHT, CONCERT HALL (BACKGROUND)	20		
	BROADCAST/RECORDING STUDIO	10	VERY FAINT	
LOWEST THRESHOLD OF HUMAN HEARING	LOWEST THRESHOLD OF HUMAN HEARING	0		

Source: Environmental Protection Agency Office of Noise Abatement and Control, Information on Levels of Environmental Noise Requisite to Protect Public Health and Welfare with an Adequate Margin of Safety (EPA/ONAC 550/9-74-004) March 1974.

2.1 RANGE OF NOISE

Since the range of intensities that the human ear can detect is so large, the scale frequently used to measure intensity is a scale based on multiples of 10, the logarithmic scale. The scale for measuring intensity is the decibel scale. Each interval of 10 decibels indicates a sound energy ten times greater than before, which is perceived by the human ear as being roughly twice as loud. (4) The most common sounds vary between 40 dBA (very quiet) to 100 dBA (very loud). Normal conversation at three feet is roughly at 60 dBA, while loud jet engine noises equate to 110 dBA

at approximately 100 feet, which can cause serious discomfort. (5) Another important aspect of noise is the duration of the sound and the way it is described and distributed in time.

2.2 NOISE DESCRIPTORS

Environmental noise descriptors are generally based on averages, rather than instantaneous, noise levels. The most commonly used figure is the equivalent level (L_{eq}). Equivalent sound levels are not measured directly but are calculated from sound pressure levels typically measured in A-weighted decibels (dBA). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period and is commonly used to describe the "average" noise levels within the environment.

Peak hour or average noise levels, while useful, do not completely describe a given noise environment. Noise levels lower than peak hour may be disturbing if they occur during times when quiet is most desirable, namely evening and nighttime (sleeping) hours. To account for this, the Community Noise Equivalent Level (CNEL), representing a composite 24-hour noise level is utilized. The CNEL is the weighted average of the intensity of a sound, with corrections for time of day, and averaged over 24 hours. The time of day corrections require the addition of 5 decibels to dBA L_{eq} sound levels in the evening from 7:00 p.m. to 10:00 p.m., and the addition of 10 decibels to dBA L_{eq} sound levels at night between 10:00 p.m. and 7:00 a.m. These additions are made to account for the noise sensitive time periods during the evening and night hours when sound appears louder. CNEL does not represent the actual sound level heard at any time, but rather represents the total sound exposure. The City of Industry relies on the 24-hour CNEL level to assess land use compatibility with transportation related noise sources.

2.3 SOUND PROPAGATION

When sound propagates over a distance, it changes in level and frequency content. The way noise reduces with distance depends on the following factors.

2.3.1 GEOMETRIC SPREADING

Sound from a localized source (i.e., a stationary point source) propagates uniformly outward in a spherical pattern. The sound level attenuates (or decreases) at a rate of 6 dB for each doubling of distance from a point source. Highways consist of several localized noise sources on a defined path and hence can be treated as a line source, which approximates the effect of several point sources. Noise from a line source propagates outward in a cylindrical pattern, often referred to as cylindrical spreading. Sound levels attenuate at a rate of 3 dB for each doubling of distance from a line source. (4)

2.3.2 GROUND ABSORPTION

The propagation path of noise from a highway to a receptor is usually very close to the ground. Noise attenuation from ground absorption and reflective wave canceling adds to the attenuation associated with geometric spreading. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is usually

sufficiently accurate for distances of less than 200 ft. For acoustically hard sites (i.e., sites with a reflective surface between the source and the receptor, such as a parking lot or body of water), no excess ground attenuation is assumed. For acoustically absorptive or soft sites (i.e., those sites with an absorptive ground surface between the source and the receptor such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dB per doubling of distance is normally assumed. When added to the cylindrical spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dB per doubling of distance from a line source. (6)

2.3.3 Atmospheric Effects

Receptors located downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas locations upwind can have lowered noise levels. Sound levels can be increased at large distances (e.g., more than 500 feet) due to atmospheric temperature inversion (i.e., increasing temperature with elevation). Other factors such as air temperature, humidity, and turbulence can also have significant effects. (4)

2.3.4 Shielding

A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by shielding depends on the size of the object and the frequency content of the noise source. Shielding by trees and other such vegetation typically only has an "out of sight, out of mind" effect. That is, the perception of noise impact tends to decrease when vegetation blocks the line-of-sight to nearby resident. However, for vegetation to provide a substantial, or even noticeable, noise reduction, the vegetation area must be at least 15 feet in height, 100 feet wide and dense enough to completely obstruct the line-of sight between the source and the receiver. This size of vegetation may provide up to 5 dBA of noise reduction. The FHWA does not consider the planting of vegetation to be a noise abatement measure. (6)

2.4 Noise Control

Noise control is the process of obtaining an acceptable noise environment for an observation point or receptor by controlling the noise source, transmission path, receptor, or all three. This concept is known as the source-path-receptor concept. In general, noise control measures can be applied to these three elements.

2.5 Noise Barrier Attenuation

Effective noise barriers can reduce noise levels by 10 to 15 dBA, cutting the loudness of traffic noise in half. A noise barrier is most effective when placed close to the noise source or receptor. Noise barriers, however, do have limitations. For a noise barrier to work, it must be high enough and long enough to block the path of the noise source. (6)

2.6 LAND USE COMPATIBILITY WITH NOISE

Some land uses are more tolerant of noise than others. For example, schools, hospitals, churches, and residences are more sensitive to noise intrusion than are commercial or industrial developments and related activities. As ambient noise levels affect the perceived amenity or livability of a development, so too can the mismanagement of noise impacts impair the economic health and growth potential of a community by reducing the area's desirability as a place to live, shop and work. For this reason, land use compatibility with the noise environment is an important consideration in the planning and design process. The FHWA encourages State and Local government to regulate land development in such a way that noise-sensitive land uses are either prohibited from being located adjacent to a highway, or that the developments are planned, designed, and constructed in such a way that noise impacts are minimized. (7)

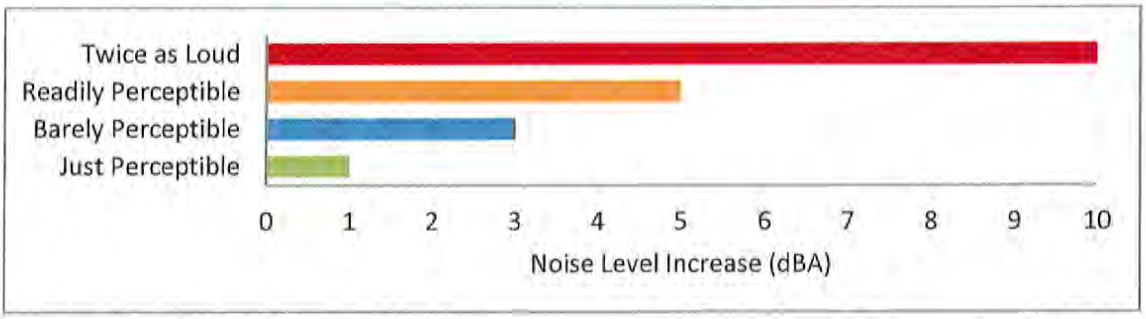
2.7 COMMUNITY RESPONSE TO NOISE

Community responses to noise may range from registering a complaint by telephone or letter, to initiating court action, depending upon everyone's susceptibility to noise and personal attitudes about noise. Several factors are related to the level of community annoyance including:

- Fear associated with noise producing activities;
- Socio-economic status and educational level;
- Perception that those affected are being unfairly treated;
- Attitudes regarding the usefulness of the noise-producing activity;
- Belief that the noise source can be controlled.

Approximately ten percent of the population has a very low tolerance for noise and will object to any noise not of their making. Consequently, even in the quietest environment, some complaints will occur. Another twenty-five percent of the population will not complain even in very severe noise environments. Thus, a variety of reactions can be expected from people exposed to any given noise environment. (8) Surveys have shown that about ten percent of the people exposed to traffic noise of 60 dBA will report being highly annoyed with the noise, and each increase of one dBA is associated with approximately two percent more people being highly annoyed. When traffic noise exceeds 60 dBA or aircraft noise exceeds 55 dBA, people may begin to complain. (8) Despite this variability in behavior on an individual level, the population can be expected to exhibit the following responses to changes in noise levels as shown on Exhibit 2-B. An increase or decrease of 1 dBA cannot be perceived except in carefully controlled laboratory experiments, a change of 3 dBA are considered *barely perceptible*, and changes of 5 dBA are considered *readily perceptible*. (6)

EXHIBIT 2-B: NOISE LEVEL INCREASE PERCEPTION



2.8 EXPOSURE TO HIGH NOISE LEVELS

The Occupational Safety and Health Administration (OSHA) sets legal limits on noise exposure in the workplace. The permissible exposure limit (PEL) for a worker over an eight-hour day is 90 dBA. The OSHA standard uses a 5 dBA exchange rate. This means that when the noise level is increased by 5 dBA, the amount of time a person can be exposed to a certain noise level to receive the same dose is cut in half. The National Institute for Occupational Safety and Health (NIOSH) has recommended that all worker exposures to noise should be controlled below a level equivalent to 85 dBA for eight hours to minimize occupational noise induced hearing loss. NIOSH also recommends a 3 dBA exchange rate so that every increase by 3 dBA doubles the amount of the noise and halves the recommended amount of exposure time. (9)

OSHA has implemented requirements to protect all workers in general industry (e.g. the manufacturing and the service sectors) for employers to implement a Hearing Conservation Program where workers are exposed to a time weighted average noise level of 85 dBA or higher over an eight-hour work shift. Hearing Conservation Programs require employers to measure noise levels, provide free annual hearing exams and free hearing protection, provide training, and conduct evaluations of the adequacy of the hearing protectors in use unless changes to tools, equipment and schedules are made so that they are less noisy and worker exposure to noise is less than the 85 dBA. This noise study does not evaluate the noise exposure of workers within a project or construction site based on CEQA requirements, and instead, evaluates Project-related operational and construction noise levels at the nearby sensitive receiver locations in the Project study area. Further, periodic exposure to high noise levels in short duration, such as Project construction, is typically considered an annoyance and not impactful to human health. It would take several years of exposure to high noise levels to result in hearing impairment. (10)

2.9 VIBRATION

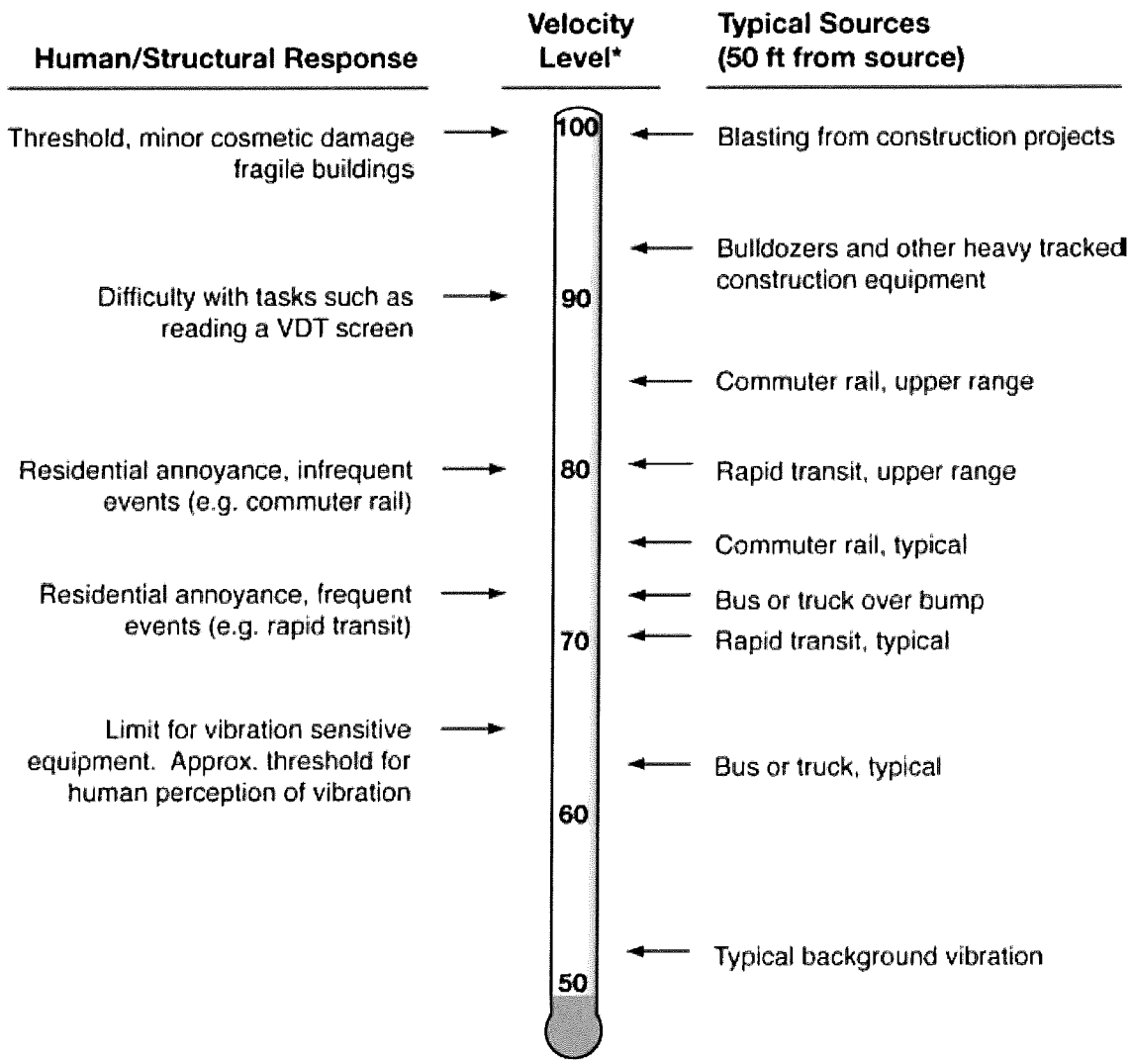
Per the Federal Transit Administration (FTA) *Transit Noise Impact and Vibration Assessment* (11), vibration is the periodic oscillation of a medium or object. The rumbling sound caused by the vibration of room surfaces is called structure-borne noise. Sources of ground-borne vibrations include natural phenomena (e.g., earthquakes, volcanic eruptions, sea waves, landslides) or human-made causes (e.g., explosions, machinery, traffic, trains, construction equipment). Vibration sources may be continuous, such as factory machinery, or transient, such as explosions.

As is the case with airborne sound, ground-borne vibrations may be described by amplitude and frequency.

There are several different methods that are used to quantify vibration. The peak particle velocity (PPV) is defined as the maximum instantaneous peak of the vibration signal. The PPV is most frequently used to describe vibration impacts to buildings, but is not always suitable for evaluating human response (annoyance) because it takes some time for the human body to respond to vibration signals. Instead, the human body responds to average vibration amplitude often described as the root mean square (RMS). The RMS amplitude is defined as the average of the squared amplitude of the signal, and is most frequently used to describe the effect of vibration on the human body. Decibel notation (VdB) is commonly used to measure RMS. Decibel notation (VdB) serves to reduce the range of numbers used to describe human response to vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receivers for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration-sensitive equipment.

The background vibration-velocity level in residential areas is generally 50 VdB. Ground-borne vibration is normally perceptible to humans at approximately 65 VdB. For most people, a vibration-velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels. Typical outdoor sources of perceptible ground-borne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the ground-borne vibration is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration-velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Exhibit 2-C illustrates common vibration sources and the human and structural response to ground-borne vibration.

EXHIBIT 2-C: TYPICAL LEVELS OF GROUND-BORNE VIBRATION



** RMS Vibration Velocity Level in VdB relative to 10^{-6} inches/second*

Source: Federal Transit Administration (FTA) Transit Noise Impact and Vibration Assessment.

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3 REGULATORY SETTING

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, various county governments, and most municipalities in the state have established standards and ordinances to control noise. In most areas, automobile and truck traffic is the major source of environmental noise. Traffic activity generally produces an average sound level that remains constant with time. Air and rail traffic, and commercial and industrial activities are also major sources of noise in some areas. Federal, state, and local agencies regulate different aspects of environmental noise. Federal and state agencies generally set noise standards for mobile sources such as aircraft and motor vehicles, while regulation of stationary sources is left to local agencies.

3.1 STATE OF CALIFORNIA NOISE REQUIREMENTS

The State of California regulates freeway noise, sets standards for sound transmission, provides occupational noise control criteria, identifies noise standards, and provides guidance for local land use compatibility. State law requires that each county and city adopt a General Plan that includes a Noise Element which is to be prepared per guidelines adopted by the Governor's Office of Planning and Research (OPR). (12) The purpose of the Noise Element is to *limit the exposure of the community to excessive noise levels.*

3.2 STATE OF CALIFORNIA BUILDING CODE

The State of California's noise insulation standards are codified in the California Code of Regulations, Title 24, Building Standards Administrative Code, Part 2, and the California Building Code. These noise standards are applied to new construction in California for controlling interior noise levels resulting from exterior noise sources. The regulations specify that acoustical studies must be prepared when noise-sensitive structures, such as residential buildings, schools, or hospitals, are developed near major transportation noise sources, and where such noise sources create an exterior noise level of 60 dBA CNEL or higher. Acoustical studies that accompany building plans for noise-sensitive land uses must demonstrate that the structure has been designed to limit interior noise in habitable rooms to acceptable noise levels. For new residential buildings, schools, and hospitals, the acceptable interior noise limit for new construction is 45 dBA CNEL.

3.3 CITY OF INDUSTRY GENERAL PLAN

The City of Industry has adopted Section 4.2.6 *Noise and Land Use Compatibility* of the General Plan Safety Element. (13) The Safety Element identifies the following goal and policies related to noise in the City of Industry:

Goal S6	*An environment where noise does not adversely affect sensitive land uses.*
Policy S6-1	*Coordinate with Caltrans, San Gabriel Valley Council of Governments, Southern California Associate of Governments, neighboring jurisdictions, and other transportation providers in the preparation and maintenance of transportation*

and land use plans to minimize noise impacts and provide appropriate mitigation measures.

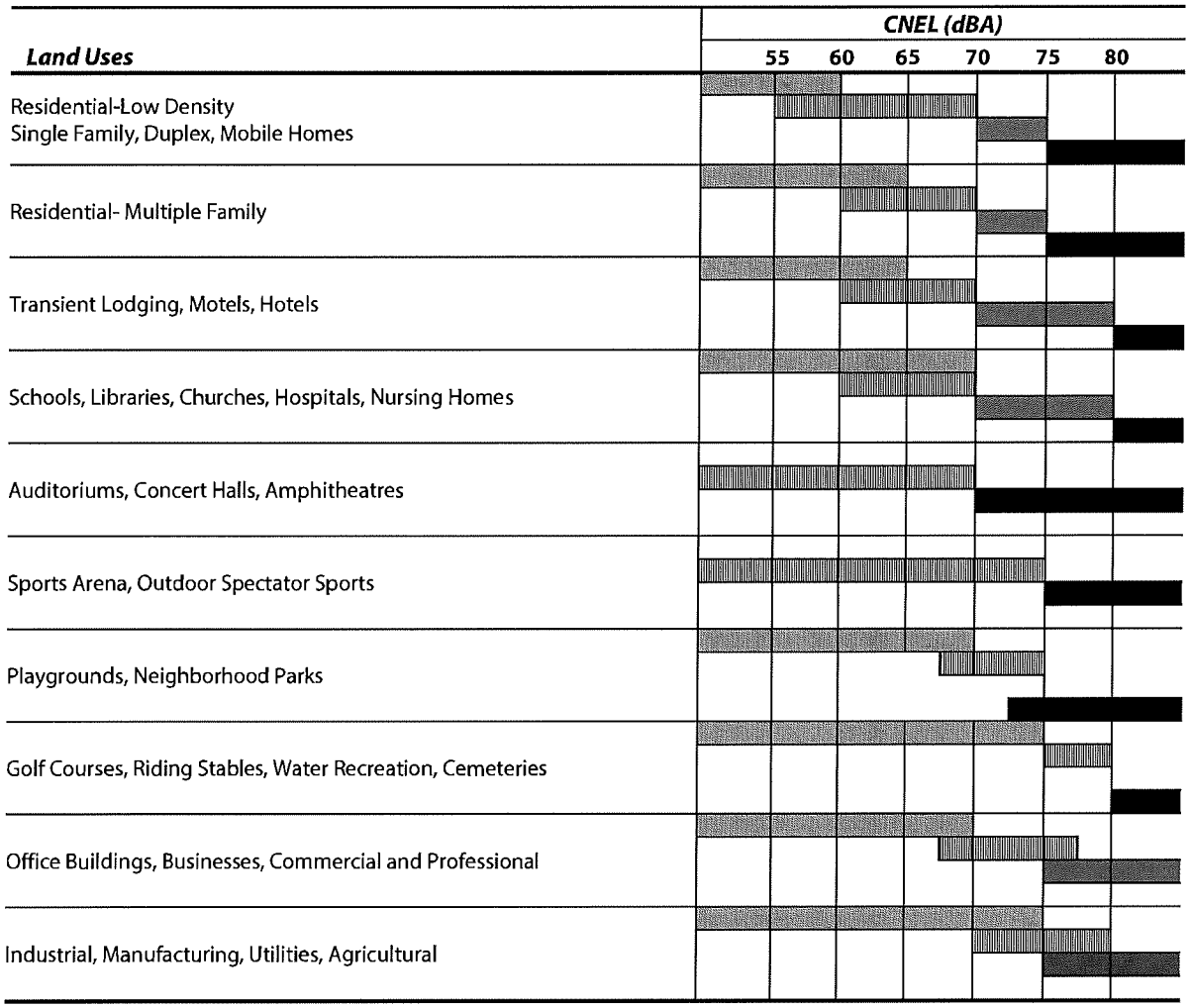
Policy S6-2 *Address noise impacts through the effective enforcement of the noise ordinance, project and environmental review, and compliance with state and federal noise standards.*

Policy S6-3 *Consider the noise levels likely to be produced by any new businesses or substantially expanded business activities locating near existing noise-sensitive uses such as schools, community facilities, and residences, as well as adjacent to established businesses involving vibration-sensitive activities.*

The noise criteria identified in the City of Industry Safety Element are guidelines to evaluate the land use compatibility of transportation-related noise. The compatibility criteria, shown on Exhibit 3-A, provides the City with a planning tool to gauge the compatibility of land uses relative to existing and future exterior noise levels.

The *Land Use Compatibility for Community Noise Exposure* (Table 4) in the City of Industry General Plan provides guidelines to evaluate the acceptability of transportation-related noise levels. Single-family residential uses within the Project site are considered *normally acceptable* with exterior noise levels below 60 dBA CNEL, and *conditionally acceptable* with exterior noise levels below 70 dBA CNEL. Exterior noise levels between 70 dBA CNEL and 75 dBA CNEL at single-family residential uses are considered *normally unacceptable*, and *new construction or development should generally be discouraged. If new construction does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.* Playgrounds and neighborhood parks, such as those proposed within the Project site, are considered *normally acceptable* with exterior noise levels below 70 dBA CNEL, and *conditionally acceptable* with noise levels below 75 dBA CNEL. (13)

EXHIBIT 3-A: LAND USE COMPATIBILITY FOR COMMUNITY NOISE ENVIRONMENTS



Normally Acceptable:
Specified land use is satisfactory based upon the assumption that any buildings involved are of normal conventional construction, without any special noise insulation requirements.

Conditionally Acceptable:
New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and the needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

Normally Unacceptable:
New construction or development should generally be discouraged. If new construction does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

Clearly Unacceptable:
New construction or development generally should not be undertaken.

Source: OPR 2003. Adapted from the US EPA Office of Noise Abatement Control, Washington D.C. Community Noise. Prepared by Wyle Laboratories. December 1971.

3.4 OPERATIONAL NOISE STANDARDS

To analyze noise impacts originating from a designated fixed location or private property such as the Industry Workforce Housing Community Project, stationary-source (operational) noise such as playground activities are typically evaluated against standards established under the Municipal Code.

3.4.1 CITY OF INDUSTRY OPERATIONAL NOISE STANDARDS

Although the Project site is located within the City of Industry, several sensitive receivers are in the adjacent City of Diamond Bar. Further, the City of Industry General Plan and Municipal Code do not identify stationary-source noise level limits that are applicable to the Project site, or to nearby sensitive residential uses. Therefore, this analysis presents the City of Diamond Bar Municipal Code operational noise standards discussed below for nearby sensitive receiver locations.

3.4.2 CITY OF DIAMOND BAR OPERATIONAL NOISE STANDARDS

Section 22.28.080 of the City of Diamond Bar Municipal Code identifies the sound level limits by receiving land use as shown on Table 3-1. For noise-sensitive residential properties (Noise Zone II), the Municipal Code identifies operational noise level limits for the daytime (7:00 a.m. to 10:00 p.m.) hours of 50 dBA L_{50} and 45 dBA L_{50} during the nighttime (10:00 p.m. to 7:00 a.m.) hours. These standards shall apply for a cumulative period of 30 minutes in any hour, as well as plus 5 dBA cannot be exceeded for a cumulative period of more than 15 minutes in any hour, or the standard plus 10 dBA for a cumulative period of more than 5 minutes in any hour, or the standard plus 15 dBA for a cumulative period of more than 1 minute in any hour, or the standard plus 20 dBA for any period of time. (14)

TABLE 3-1: OPERATIONAL NOISE STANDARDS

Jurisdiction	Land Use	Time Period	Exterior Noise Level Standards (dBA)[3]				
			L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (Anytime)
City of Industry[1]	n/a	Daytime	-	-	-	-	-
		Nighttime	-	-	-	-	-
City of Diamond Bar[2]	Residential (Noise Zone II)	Daytime	50	55	60	65	70
		Nighttime	45	50	55	60	65

[1] The City of Industry does not identify operational noise standards related to Project operational noise.
[2] Source: City of Diamond Bar Municipal Code, Section 22.28.080 (Appendix 3.1).
[3] The percent noise level is the level exceeded "n" percent of the time during the measurement period. L25 is the noise level exceeded 25% of the time.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

3.5 CONSTRUCTION NOISE STANDARDS

To analyze noise impacts originating from the construction of the Industry Workforce Housing Community Project, noise from construction activities are typically limited to the hours of operation established under the Municipal Code. The Municipal Code noise standards for construction are described below for the City of Industry and the City of Diamond Bar to determine the potential noise impacts at receiver locations within each jurisdiction. The construction-related noise standards are summarized in Tables 3-2 and 3-3.

3.5.1 CITY OF INDUSTRY CONSTRUCTION NOISE STANDARDS

The City of Industry General Plan and Municipal Code do not identify construction noise level standards for the Project site, or for noise levels received at nearby sensitive residential uses. Therefore, this analysis presents the City of Diamond Bar Municipal Code construction noise standards discussed below for nearby sensitive receiver locations.

3.5.2 CITY OF DIAMOND BAR CONSTRUCTION NOISE STANDARDS

The City of Diamond Bar has established maximum noise levels for mobile and stationary equipment. Section 22.28.120 (1) of the Municipal Code identifies limits on noise from construction activities to the noise levels shown on Table 3-2 and 3-3 for mobile and stationary equipment, respectively. The nearest noise-sensitive receivers to the Project site consist of existing single-family residential developments. For single-family residential development, mobile equipment noise levels may not exceed 75 dBA L_{max} and stationary equipment noise levels may not exceed 60 dBA L_{max} during the daytime hours. (14) The City of Diamond Bar Municipal Code is included in Appendix 3.1.

TABLE 3-2: MOBILE EQUIPMENT NOISE LEVEL LIMITS

Receiving Land Use Category	Time Period	Maximum Noise Levels (dBA L_{max})[1]
Single-Family Residential	Daytime (7:00 a.m. - 8:00 p.m.)	75
	Nighttime (8:00 p.m. - 7:00 a.m.)	60
Multi-Family Residential	Daytime (7:00 a.m. - 8:00 p.m.)	80
	Nighttime (8:00 p.m. - 7:00 a.m.)	64
Commercial	Daytime (7:00 a.m. - 8:00 p.m.)	85
	Nighttime (8:00 p.m. - 7:00 a.m.)	70

[1] Maximum noise levels for mobile equipment, City of Diamond Bar Municipal Code, 22.28.120 (1) (Appendix 3.1).

TABLE 3-3: STATIONARY EQUIPMENT NOISE LEVEL LIMITS

Receiving Land Use Category	Time Period	Maximum Noise Levels (dBA L_{max})[1]
Single-Family Residential	Daytime (7:00 a.m. - 8:00 p.m.)	60
	Nighttime (8:00 p.m. - 7:00 a.m.)	50
Multi-Family Residential	Daytime (7:00 a.m. - 8:00 p.m.)	65
	Nighttime (8:00 p.m. - 7:00 a.m.)	55
Commercial	Daytime (7:00 a.m. - 8:00 p.m.)	70
	Nighttime (8:00 p.m. - 7:00 a.m.)	60

[1] Maximum noise levels for stationary equipment, City of Diamond Bar Municipal Code, 22.28.120 (1) (Appendix 3.1).

3.6 CONSTRUCTION VIBRATION STANDARDS

To analyze the vibration impacts originating from the construction of the Project, vibration from construction activities are typically evaluated against standards established under the Municipal Code. The Municipal Code vibration standards for construction are described below for the City of Industry and City of Diamond Bar to determine the potential vibration impacts at receivers within each jurisdiction. The construction-related vibration standards for each jurisdiction are summarized in Table 3-4.

3.6.1 CITY OF INDUSTRY CONSTRUCTION VIBRATION STANDARDS

Neither the City of Industry General Plan or Municipal Code identifies a vibration standard for temporary construction. Therefore, since the nearest sensitive receiver locations are located within the City of Diamond Bar, the City of Diamond Bar vibration standards are used to evaluate the potential impacts at nearby sensitive receiver locations.

3.6.2 CITY OF DIAMOND BAR CONSTRUCTION VIBRATION STANDARDS

The City of Diamond Bar Municipal Code, Section 22.28.120 (m), states that *operating or permitting the operation of any device that creates a vibration that is above the vibration perception threshold of an individual at or beyond the property boundary of the source if on private property or at one hundred fifty feet from the source if on public space or public right-of-way* is prohibited. The Municipal Code defines the vibration perception threshold to be a motion velocity of 0.01 in/sec over the range of one to 100 Hz. (14)

3.6.3 HUMAN PERCEPTION OF VIBRATION

Typically, the human response at the perception threshold for vibration includes annoyance in residential areas as previously shown on Exhibit 2-B, when vibration levels expressed in vibration decibels (VdB) approach 75 VdB. The City of Diamond Bar, however, identifies a vibration perception threshold of 0.01 in/sec. For vibration levels expressed in velocity, the human body responds to the average vibration amplitude often described as the root-mean-square (RMS). The RMS of a signal is the average of the squared amplitude of the signal, typically calculated over a one-second period. As with airborne sound, the RMS velocity is often expressed in decibel notation as vibration decibels (VdB), which serves to reduce the range of numbers used to describe human response to vibration. Therefore, the City of Diamond Bar vibration standard of 0.01 in/sec in RMS velocity levels is used in this analysis to assess the human perception of vibration levels due to Project-related construction activities.

TABLE 3-4: CONSTRUCTION VIBRATION STANDARDS

Jurisdiction	Root-Mean-Square Velocity Standard (in/sec)
City of Industry	n/a
City of Diamond Bar[1]	0.01

[1] Source: City of Diamond Bar Municipal Code, Section 22.28.120 (m) (Appendix 3.1).
"n/a" = The City of Industry Municipal Code does not identify vibration standards for the residential land uses adjacent to the Project site.

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4 SIGNIFICANCE CRITERIA

The following significance criteria are based on guidance provided by Appendix G of the California Environmental Quality Act (CEQA) Guidelines. (1) For the purposes of this report, impacts would be potentially significant if the Project results in or causes:

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;

B. Exposure of persons to or generation of excessive ground-borne vibration or ground-borne noise levels.

C. A substantial permanent increase in ambient noise levels in the Project vicinity above existing levels without the proposed Project; or

D. A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above noise levels existing without the proposed Project.

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, expose people residing or working in the Project area to excessive noise levels.

F. For a project within the vicinity of a private airstrip, expose people residing or working in the Project area to excessive noise levels.

While the CEQA Guidelines and the City of Industry General Plan Guidelines provide direction on noise compatibility and establish noise standards by land use type that are sufficient to assess the significance of noise impacts under CEQA Guideline A, they do not define the levels at which increases are considered substantial for use under Guidelines B, C, and D. CEQA Guidelines E and F apply to nearby public and private airports, if any, and the Project's land use compatibility.

The Project site is not located within two miles of a public airport for consideration under CEQA Guidelines E and F, with Brackett Field Airport being the closest at roughly eight miles northeast of the Project site. Further, there are no private airstrips in the vicinity of the Project site. As such, the Project would not be exposed to substantial noise from aircraft overflights and people at the Project site would not be exposed to excessive noise levels from nearby airport operations. Therefore, impacts are considered less than significant, and no further noise analysis is conducted in relation to Guidelines E and F.

4.1 NOISE-SENSITIVE RECEIVERS

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines described above at the closest sensitive receiver locations. Under CEQA, consideration must be given to the magnitude of the increase, the existing ambient noise levels, and the location of noise-sensitive receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders the noise impact significant.* (15)

Unfortunately, there is no completely satisfactory way to measure the subjective effects of noise or of the corresponding human reactions of annoyance and dissatisfaction. This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment.

In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. The Federal Interagency Committee on Noise (FICON) (16) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (i.e., CNEL), logarithmic average (L_{eq}), or median noise level (L_{50}).

For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, FICON identifies a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the noise criteria for a given land use is exceeded. Per FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance. Table 4-1 below provides a summary of the potential noise impact significance criteria, based on guidance from FICON.

TABLE 4-1: SIGNIFICANCE OF NOISE IMPACTS AT NOISE-SENSITIVE RECEIVERS

Without Project Noise Level	Potential Significant Impact
< 60 dBA	5 dBA or more
60 - 65 dBA	3 dBA or more
> 65 dBA	1.5 dBA or more

Federal Interagency Committee on Noise (FICON), 1992.

4.2 SIGNIFICANCE CRITERIA

Noise impacts shall be considered significant if any of the following occur as a direct result of the proposed development. Table 4-2 shows the significance criteria summary matrix.

ON-SITE TRAFFIC NOISE

- If the on-site exterior noise levels exceed:
  - the 75 dBA CNEL *normally unacceptable* criteria for residential uses; or
  - the 75 dBA CNEL *conditionally acceptable* criteria for playground and park uses (City of Industry General Plan Safety Element, Table 4).

OPERATIONAL NOISE

- If Project-related operational (stationary source) noise levels exceed the exterior 50 dBA L_{50} daytime or 45 dBA L_{50} nighttime noise level standards at nearby sensitive residential land uses in the City of Diamond Bar. These standards shall not be exceeded for a cumulative period of 30 minutes (L_{50}) or cannot exceed 55 dBA (daytime) or 50 dBA (nighttime) for a cumulative period of more than 15 minutes (L_{25}) in any hour, or 60 dBA (daytime) or 55 dBA (nighttime) for a cumulative period of more than 5 minutes (L8) in any hour, or 65 dBA (daytime) or 60 dBA (nighttime) for a cumulative period of more than 1 minute (L2) in any hour, or 70 dBA (daytime) or 65 dBA (nighttime) at any time (L_{max}) (City of Diamond Bar Municipal Code, Section 22.28.080).
- If the existing ambient noise levels at the nearby noise-sensitive receivers near the Project site:
  - are less than 60 dBA L_{50} and the Project creates a readily perceptible 5 dBA L_{50} or greater Project-related noise level increase; or
  - range from 60 to 65 dBA L_{50} and the Project creates a barely perceptible dBA L_{50} or greater Project-related noise level increase; or
  - already exceed 65 dBA L_{50}, and the Project creates a community noise level impact of greater than 1.5 dBA L_{50} (FICON, 1992).

CONSTRUCTION NOISE AND VIBRATION

- If Project-related construction activities:
  - create noise levels which exceed the mobile 75 dBA L_{max} or stationary 60 dBA $_{Lmax}$ equipment noise level limits at the nearby sensitive residential land uses (City of Diamond Bar Municipal Code, Section 22.28.120 (1)).
  - Generate construction vibration levels could exceed the City of Diamond Bar maximum acceptable vibration standard of 0.01 in/sec (RMS) at sensitive receiver locations (City of Diamond Bar Municipal Code, Section 22.28.120 (m)).

TABLE 4-2: SIGNIFICANCE CRITERIA SUMMARY

Analysis	Land Use	Condition(s)	Significance Criteria	
			Daytime	Nighttime
On-Site Traffic Noise[1]	Noise-Sensitive	Exterior Noise Level @ Residential Uses	70 dBA CNEL *Conditionally Acceptable*	
			75 dBA CNEL *Normally Unacceptable*	
		Exterior Noise Level @ Park Uses	70 dBA CNEL *Normally Acceptable*	
			75 dBA CNEL *Conditionally Acceptable*	
Operational Noise & Vibration	Noise-Sensitive	Exterior Noise Level Standards[2]	See Table 3-1	
		if ambient is < 60 dBA L_{50}[3]	≥ 5 dBA L_{50} Project increase	
		if ambient is 60 - 65 dBA L_{50}[3]	≥ 3 dBA L_{50} Project increase	
		if ambient is > 65 dBA L_{50}[3]	≥ 1.5 dBA L_{50} Project increase	
Construction Noise & Vibration	Noise-Sensitive	Mobile Equipment Noise Level Threshold[4]	75 dBA L_{max}	
		Stationary Equipment Noise Level Threshold[4]	60 dBA L_{max}	
		Vibration Level Threshold[5]	0.01 in/sec RMS	

[1] Source: City of Industry General Plan Safety Element, Table 4.
[2] Source: City of Diamond Bar Municipal Code, Section 22.28.080 (Appendix 3.1).
[3] Source: FICON, 1992.
[4] Source: City of Diamond Bar Municipal Code, 22.28.120 (1) (Appendix 3.1).
[5] Source: City of Diamond Bar Municipal Code, Section 22.28.120 (m) (Appendix 3.1).
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

5 EXISTING NOISE LEVEL MEASUREMENTS

To assess the existing noise level environment, four 24-hour noise level measurements were taken at sensitive receiver locations in the Project study area. The receiver locations were selected to describe and document the existing noise environment within the Project study area. Exhibit 5-A provides the boundaries of the Project study area and the noise level measurement locations. To fully describe the existing noise conditions, noise level measurements were collected by Urban Crossroads, Inc. on November 8th, 2017. Appendix 5.1 includes study area photos.

5.1 MEASUREMENT PROCEDURE AND CRITERIA

To describe the existing noise environment, the hourly noise levels were measured during typical weekday conditions over a 24-hour period. By collecting individual hourly noise level measurements, it is possible to describe the daytime and nighttime hourly noise levels and calculate the 24-hour CNEL. The long-term noise readings were recorded using Piccolo Type 2 integrating sound level meter and dataloggers. The Piccolo sound level meters were calibrated using a Larson-Davis calibrator, Model CAL 150. All noise meters were programmed in "slow" mode to record noise levels in "A" weighted form. The sound level meters and microphones were equipped with a windscreen during all measurements. All noise level measurement equipment satisfies the American National Standards Institute (ANSI) standard specifications for sound level meters ANSI S1.4-2014/IEC 61672-1:2013. (17)

5.2 NOISE MEASUREMENT LOCATIONS

The long-term noise level measurements were positioned as close to the nearest sensitive receiver locations as possible to assess the existing ambient hourly noise levels surrounding the Project site. Both Caltrans and the FTA recognize that it is not reasonable to collect noise level measurements that can fully represent every part of a private yard, patio, deck, or balcony normally used for human activity when estimating impacts for new development projects. This is demonstrated in the Caltrans general site location guidelines which indicate that, *sites must be free of noise contamination by sources other than sources of interest. Avoid sites located near sources such as barking dogs, lawnmowers, pool pumps, and air conditioners unless it is the express intent of the analyst to measure these sources.* (4) Further, FTA guidance states, t*hat it is not necessary nor recommended that existing noise exposure be determined by measuring at every noise-sensitive location in the project area. Rather, the recommended approach is to characterize the noise environment for clusters of sites based on measurements or estimates at representative locations in the community.* (11)

Based on recommendations of Caltrans and the FTA, it is not necessary to collect measurements at each individual building or residence, because each receiver measurement represents a group of buildings that share acoustical equivalence. (11) In other words, the area represented by the receiver shares similar shielding, terrain, and geometric relationship to the reference noise source. Receivers represent a location of noise sensitive areas and are used to estimate the future noise level impacts. Collecting reference ambient noise level measurements at the nearby

sensitive receiver locations allows for a comparison of the before and after Project noise levels and is necessary to assess potential noise impacts due to the Project's contribution to the ambient noise levels.

5.3 NOISE MEASUREMENT RESULTS

The noise measurements presented below focus on the average or equivalent sound levels (L_{eq}). The equivalent sound level (L_{eq}) represents a steady state sound level containing the same total energy as a time varying signal over a given sample period. Table 5-1 identifies the hourly daytime (7:00 a.m. to 10:00 p.m.) and nighttime (10:00 p.m. to 7:00 a.m.) noise levels at each noise level measurement location. Appendix 5.2 provides a summary of the existing hourly ambient noise levels described below:

- Location L1 represents the noise levels south of the Project site on Walnut Drive near existing residential homes. The noise level measurements collected show an overall 24-hour exterior noise level of 66.7 dBA CNEL. The hourly noise levels measured at location L1 ranged from 56.3 to 61.1 dBA L_{eq} during the daytime hours and from 57.7 to 62.8 dBA L_{eq} during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 58.8 dBA L_{eq} with an average nighttime noise level of 60.2 dBA L_{eq}.
- Location L2 represents the noise levels on Walnut Drive between Moscada Avenue and Calbourne Drive near existing residential homes. The noise level measurements collected show an overall 24-hour exterior noise level of 72.0 dBA CNEL. The hourly noise levels measured at location L2 ranged from 61.5 to 66.4 dBA L_{eq} during the daytime hours and from 58.9 to 68.7 dBA L_{eq} during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 63.8 dBA L_{eq} with an average nighttime noise level of 65.5 dBA L_{eq}.
- Location L3 represents the noise levels south of the Project site on Walnut Drive near existing residential homes east of Calbourne Drive. The 24-hour CNEL indicates that the overall exterior noise level is 70.6 dBA CNEL. At location L3 the background ambient noise levels ranged from 60.8 to 65.2 dBA L_{eq} during the daytime hours to levels of 61.5 to 67.2 dBA L_{eq} during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 63.5 dBA L_{eq} with an average nighttime noise level of 64.1 dBA L_{eq}.
- Location L4 represents the noise levels at the eastern Project site boundary adjacent to an existing residential home. The noise level measurements collected show an overall 24-hour exterior noise level of 70.4 dBA CNEL. The hourly noise levels measured at location L4 ranged from 61.1 to 64.7 dBA L_{eq} during the daytime hours and from 61.9 to 65.8 dBA L_{eq} during the nighttime hours. The energy (logarithmic) average daytime noise level was calculated at 63.3 dBA L_{eq} with an average nighttime noise level of 63.8 dBA L_{eq}.

Table 5-1 provides the (energy average) noise levels used to describe the daytime and nighttime ambient conditions. These daytime and nighttime energy average noise levels represent the average of all hourly noise levels observed during these time periods expressed as a single number. Appendix 5.2 provides summary worksheets of the noise levels for each hour as well as the minimum, maximum, L_1, L_2, L_5, L_8, L_{25}, L_{50}, L_{90}, L_{95}, and L_{99} percentile noise levels observed during the daytime and nighttime periods.

The background ambient noise levels in the Project study area are dominated by the transportation-related noise associated with the arterial transportation network. This includes the auto and heavy truck activities on study area roadway segments near the noise level measurement locations. The 24-hour existing noise level measurement results are shown on Table 5-1.

TABLE 5-1: 24-HOUR AMBIENT NOISE LEVEL MEASUREMENTS

Location[1]	Distance to Project Boundary (Feet)	Description	Energy Average Hourly Noise Level (dBA L_{eq})[2]		Median Noise Level (dBA L_{50})[2]		CNEL
			Daytime	Nighttime	Daytime	Nighttime	
L1	215'	Located south of the Project site on Walnut Drive near existing residential homes.	58.8	60.2	57.5	58.9	66.7
L2	40'	Located on Walnut Drive between Moscada Avenue and Calbourne Drive near existing residential homes.	63.8	65.5	61.6	63.8	72.0
L3	30'	Located south of the Project site on Walnut Drive near existing residential homes east of Calbourne Drive.	63.5	64.1	62.3	62.8	70.6
L4	0'	Located at the eastern Project site boundary adjacent to an existing residential home.	63.3	63.8	62.4	62.8	70.4

[1] See Exhibit 5-A for the noise level measurement locations.
[2] The long-term 24-hour measurement worksheets are included in Appendix 5.2.
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

EXHIBIT 5-A: NOISE MEASUREMENT LOCATIONS

LEGEND:

Noise Measurement Locations

6 METHODS AND PROCEDURES

The following section outlines the methods and procedures used to model and analyze the future traffic noise environment.

6.1 FHWA TRAFFIC NOISE PREDICTION MODEL

The estimated roadway noise impacts from vehicular traffic were calculated using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (18) The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (19) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period.

6.2 ON-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

The on-site roadway parameters including the ADT volumes used for this analysis are presented on Table 6-1. The traffic volumes shown on Table 6-1 reflect the future long-range traffic conditions needed to assess the future on-site traffic noise environment and to identify potential abatement measures (if any) that address the worst-case future conditions. The SR-60 traffic volumes are based on an assumed 10-percent growth over existing 2015 conditions provided in the Caltrans Traffic Data Branch *Annual Average Daily Truck Traffic on the California Highways System*. (20) Future traffic volumes on Walnut Drive are based on the County of Los Angeles *General Plan Environmental Impact Report* Appendix L Traffic Study, Table 4 Design Maximum Two-Way ADT volumes for Collector Streets. For the purposes of this analysis, soft site conditions were used to analyze the on-site traffic noise impacts for the Project study area. Soft site conditions account for the sound propagation loss over natural surfaces such as normal earth and ground vegetation. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (21)

TABLE 6-1: ON-SITE ROADWAY PARAMETERS

Roadway	Lanes	Classification	Roadway Capacity Volumes[1]	Speed Limits (mph)[2]	Site Conditions
SR-60	10	Freeway	256,300	70	Soft
Walnut Dr.	2	Collector	15,000	35	Soft

[1] Based on a 10-percent increase in existing volumes obtained from the Caltrans Traffic Data Branch Annual Average Daily Truck Traffic on the California Highways System, 2015, for SR-60. Walnut Drive volumes are based on Table 4 of the County of Los Angeles General Plan Environmental Impact Report, Appendix L Traffic Study, Design Maximum 2-Way ADT volumes.
[2] Posted speed limit. Speed for SR-60 is based on a conservative 5 mph above the posted speed limit.

Table 6-2 presents the time of day vehicle splits by vehicle type, and Table 6-3 presents the total traffic flow distributions (vehicle mixes) used for this analysis. The distribution of traffic flow by vehicle type is based on 2015 count data provided by the Caltrans Traffic Data Branch in the *Annual Average Daily Truck Traffic on the California Highways System*. (20) The vehicle mix provides the hourly distribution percentages of automobile, medium trucks, and heavy trucks for input into the FHWA Model based on roadway types.

TABLE 6-2: TIME OF DAY VEHICLE SPLITS

Time Period	Vehicle Type		
	Autos	Medium Trucks	Heavy Trucks
Daytime (7:00 a.m. - 7:00 p.m.)	77.5%	84.8%	86.5%
Evening (7:00 p.m. - 10:00 p.m.)	12.9%	4.9%	2.7%
Nighttime (10:00 p.m. - 7:00 a.m.)	9.6%	10.3%	10.8%
Total:	100.0%	100.0%	100.0%

Source: Typical Southern California vehicle mix.

TABLE 6-3: DISTRIBUTION OF TRAFFIC FLOW BY VEHICLE TYPE (VEHICLE MIX)

Roadway	Total % Traffic Flow			Total
	Autos	Medium Trucks	Heavy Trucks	
SR-60[1]	88.62%	3.59%	7.79%	100.00%
Collector[2]	97.42%	1.84%	0.74%	100.00%

[1] Source: Caltrans Traffic Data Branch Annual Average Daily Truck Traffic on the California Highways System, 2015.
[2] Typical Southern California vehicle mix.

To predict the future noise environment at the residential lots and park uses within the Project site, coordinate information was collected to identify the noise transmission path between the noise source and receiver. The coordinate information is based on Google Earth aerial imagery based on the location of the Project buildings in relationship to SR-60 and Walnut Drive. The first-floor exterior noise level receivers were placed five feet above the pad elevation. Second floor receiver locations were placed at 14 feet above the pad elevation.

6.3 VIBRATION ASSESSMENT

This analysis focuses on the potential ground-borne vibration associated with vehicular traffic and construction activities. Ground-borne vibration levels from automobile traffic are generally overshadowed by vibration generated by heavy trucks that roll over the same uneven roadway surfaces. However, due to the rapid drop-off rate of ground-borne vibration and the short duration of the associated events, vehicular traffic-induced ground-borne vibration is rarely perceptible beyond the roadway right-of-way, and rarely results in vibration levels that cause damage to buildings in the vicinity.

However, while vehicular traffic is rarely perceptible, construction has the potential to result in varying degrees of temporary ground vibration, depending on the specific construction activities and equipment used. Ground vibration levels associated with several types of construction equipment are summarized on Table 6-4. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the human response (annoyance) using the following vibration assessment methods defined by the FTA. To describe the human response (annoyance) associated with vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 6-4: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	PPV (in/sec) at 25 feet
Small bulldozer	0.003
Jackhammer	0.035
Loaded Trucks	0.076
Large bulldozer	0.089

Source: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006.

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7 ON-SITE TRAFFIC NOISE IMPACTS

An on-site exterior noise impact analysis has been completed to determine the traffic noise exposure and to identify potential necessary noise abatement measures for the proposed Industry Workforce Housing Community Project. It is expected that the primary source of noise impacts to the Project site will be traffic noise from SR-60 and Walnut Drive. The Project will also experience some background traffic noise impacts from the Project's internal streets, however, due to the low traffic volume/speeds, traffic noise from these roads will not make a significant contribution to the noise environment beyond of the right-of-way of the roadways.

7.1 ON-SITE EXTERIOR NOISE ANALYSIS

Using the FHWA traffic noise prediction model and the parameters outlined in Tables 6-1 to 6-3, the expected future exterior noise levels at the outdoor living areas (backyards), first-floor building façades, and park uses were calculated. Table 6-1 presents a summary of future exterior noise level impacts. The on-site traffic noise level impacts indicate that the unmitigated exterior noise levels will range from 79.8 to 82.1 dBA CNEL. The on-site traffic noise analysis calculations are provided in Appendix 7.1.

To satisfy the City of Industry 75 dBA CNEL exterior noise level criteria for *normally unacceptable* residential and *conditionally acceptable* playground/neighborhood park land uses, the construction of an 8-foot high noise barrier is required at the western Project site boundary to prevent flanking noise levels around the existing 12-foot high noise barrier at the Project's community garden and playground uses. With the existing and recommended noise barriers shown on Exhibit ES-A, the mitigated future exterior noise levels will range from 70.4 to 72.2 dBA CNEL. This noise analysis shows that the recommended noise barriers will satisfy the City of Industry 75 dBA CNEL exterior noise level criteria for *normally unacceptable* residential and *conditionally acceptable* park land uses. The effective noise barrier height recommendations represent the minimum wall and/or berm combination height required to satisfy the City of Industry exterior noise level standards. As a requirement of *normally unacceptable* residential land use, with exterior noise levels between 70 to 75 dBA CNEL, an interior noise analysis is provided in this noise study to demonstrate compliance with the interior noise level standards of the California Code of Regulations, Title 24, Building Standards Administrative Code for residential uses.

TABLE 7-1: EXTERIOR NOISE LEVELS (CNEL)

Receiver Location	Roadway	Unmitigated Noise Level (dBA CNEL)		Mitigated Noise Level (dBA CNEL)		Barrier Height (Feet)	Barrier Type	Top of Barrier Elevation (Feet)
		Individual Roadways	Combined	Individual Roadways	Combined			
Park	SR-60	82.1	82.1	70.4	70.4	12.0'	Existing	512.0'
West Buildings	SR-60	79.7	79.8	70.7	71.5	12.0'	Existing	512.0'
	Walnut Dr.	63.8		63.8		–[1]	–[1]	–[1]
Center Buildings	SR-60	79.8	80.0	70.7	72.1	12.0'	Existing	512.0'
	Walnut Dr.	66.5		66.5		–[1]	–[1]	–[1]
East Buildings	SR-60	81.9	82.0	70.9	72.2	12.0'	Existing	512.0'
	Walnut Dr.	66.3		66.3		–[1]	–[1]	–[1]

[1] No exterior noise barrier required at the southern side of the Project buildings adjacent to Walnut Drive.

7.2 ON-SITE INTERIOR NOISE ANALYSIS

To ensure that the interior noise levels comply with the City of Industry interior noise level standards, future noise levels were calculated at the first-floor and second-floor building façades.

7.2.1 NOISE REDUCTION METHODOLOGY

The interior noise level is the difference between the predicted exterior noise level at the building facade and the noise reduction of the structure. Typical building construction will provide a Noise Reduction (NR) of approximately 12 dBA with "windows open" and a minimum 25 dBA noise reduction with "windows closed." (6; 22) However, sound leaks, cracks and openings within the window assembly can greatly diminish its effectiveness in reducing noise. Several methods are used to improve interior noise reduction, including: (1) weather-stripped solid core exterior doors; (2) upgraded dual glazed windows; (3) mechanical ventilation/air conditioning; and (4) exterior wall/roof assembles free of cut outs or openings.

7.2.2 INTERIOR NOISE LEVEL ASSESSMENT

Tables 7-2 and 7-3 show that the single-family residential homes within the Project site will require a windows-closed condition and a means of mechanical ventilation (e.g. air conditioning). Table 7-2 shows that the future exterior noise levels at the first-floor building façade are expected to range from 71.5 to 72.2 dBA CNEL. The first-floor interior noise level analysis shows that the City of Industry 45 dBA CNEL with windows closed interior noise standards can be satisfied using upgraded windows with a minimum STC rating of 36 for all lots. Table 7-3 shows the future unmitigated noise levels at the second-floor building façade are expected to range from 74.6 to 79.6 dBA CNEL. The second-floor interior noise level analysis shows that the City of Industry 45 dBA CNEL interior noise standards can be satisfied using upgraded windows with a minimum STC rating of 36 for all lots, except the northeastern-most lot, which requires further upgraded second-floor windows with minimum STC ratings of 38.

A final noise study shall be prepared prior to obtaining building permits for the project. This report would finalize the interior noise mitigation measures described in this study using the precise grading plans and actual building design specifications, and may include additional mitigation, if necessary, to meet the California Code of Regulations, Title 24, Building Standards Administrative Code 45 dBA CNEL interior noise level standard. Further, while not required, this noise study recommends an interior noise level design goal of 40 dBA CNEL using upgraded second floor windows with STC ratings of 42 for all lots with windows facing SR-60.

TABLE 7-2: FIRST-FLOOR INTERIOR NOISE IMPACTS (CNEL)

Receiver Location	Noise Level at Façade[1]	Required Interior NR[2]	Estimated Interior NR[3]	Upgraded Windows[4]	Interior Noise Level[5]	Threshold	Threshold Exceeded?
Park	–[6]	–[6]	–[6]	–[6]	–[6]	–[6]	–[6]
West Buildings	71.5	26.5	34.0	No	37.5	45	No
Center Buildings	72.1	27.1	34.0	No	38.1	45	No
East Buildings	72.2	27.2	36.0	No	36.2	45	No

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).
[2] Noise reduction required to satisfy the State of California Building Code 45 dBA CNEL interior noise standard for residential use.
[3] A minimum of 25 dBA noise reduction is assumed with standard building construction.
[4] Does the required interior noise reduction trigger upgraded windows with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.
[6] Park uses do not include interior areas, and therefore, do not require interior noise reduction analysis.
"NR" = Noise Reduction

TABLE 7-3: SECOND-FLOOR INTERIOR NOISE IMPACTS (CNEL)

Receiver Location	Noise Level at Façade[1]	Required Interior NR[2]	Estimated Interior NR[3]	Upgraded Windows[4]	Interior Noise Level[5]	Threshold	Threshold Exceeded?
Park	–[6]	–[6]	–[6]	–[6]	–[6]	–[6]	–[6]
West Buildings	74.6	29.6	34.0	No	40.6	45	No
Center Buildings	74.9	29.9	34.0	No	40.9	45	No
East Buildings	79.6	34.6	36.0	No	43.6	45	No

[1] Exterior noise level at the facade with a windows closed condition requiring a means of mechanical ventilation (e.g. air conditioning).
[2] Noise reduction required to satisfy the State of California Building Code 45 dBA CNEL interior noise standard for residential use.
[3] A minimum of 25 dBA noise reduction is assumed with standard building construction.
[4] Does the required interior noise reduction trigger upgraded windows with a minimum STC rating of greater than 27?
[5] Estimated interior noise level with minimum STC rating for all windows.
[6] Park uses do not include interior areas, and therefore, do not require interior noise reduction analysis.
"NR" = Noise Reduction

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8 RECEIVER LOCATIONS

To assess the potential for long-term operational and short-term construction noise impacts, the following four receiver locations, as shown on Exhibit 8-A, were identified as representative locations for analysis. Sensitive receivers are generally defined as locations where people reside or where the presence of unwanted sound could otherwise adversely affect the use of the land. Noise-sensitive land uses are generally considered to include: schools, hospitals, single-family dwellings, mobile home parks, churches, libraries, and recreation areas. Moderately noise-sensitive land uses typically include: multi-family dwellings, hotels, motels, dormitories, out-patient clinics, cemeteries, golf courses, country clubs, athletic/tennis clubs, and equestrian clubs. Land uses that are considered relatively insensitive to noise include business, commercial, and professional developments. Land uses that are typically not affected by noise include: industrial, manufacturing, utilities, agriculture, natural open space, undeveloped land, parking lots, warehousing, liquid and solid waste facilities, salvage yards, and transit terminals.

The closest sensitive receiver is represented by location R4 where an existing residential outdoor living area (backyard) is located approximately 10 feet east of the Project site. Other sensitive land uses in the Project study area that are located at greater distances than those identified in this noise study will experience lower noise levels than those presented in this report due to the additional attenuation from distance and the shielding of intervening structures.

R1: Location R1 represents the existing residential home located southwest of the Project site on Iluso Avenue at approximately 345 feet. A long-term noise level measurement, L1, was taken near this location to describe the existing ambient noise environment.

R2: Location R2 represents the existing residential home located south of the Project site across Walnut Drive at roughly 84 feet. A long-term noise level measurement, L2, was taken near this location to describe the existing ambient noise environment.

R3: Location R3 represents an existing residential home roughly 70 feet south of the Project site across Walnut Drive. A long-term noise level measurement, L3, was taken near this location to describe the existing ambient noise environment.

R4: Location R4 represents the existing residential home situated east of the Project site at approximately 10 feet. A long-term noise level measurement, L4, was taken near this location to describe the existing ambient noise environment.

EXHIBIT 8-A: RECEIVER LOCATIONS

LEGEND:

- Receiver Locations
- Distance from receiver to Project site boundary (in feet)
- 12' Existing Barrier Height (in feet)
- Existing Barrier

9 OPERATIONAL NOISE IMPACTS

This section analyzes the potential stationary-source operational noise impacts at the nearby receiver locations, identified in Section 8, resulting from operation of the proposed Industry Workforce Housing Community. Exhibit 9-A identifies the representative receiver locations and noise source locations used to assess the operational noise levels. The on-site Project-related noise sources are expected to include: playground activities. This noise analysis is intended to describe noise level impacts associated with the worst-case operational activities at the Project site with all activities occurring simultaneously.

9.1 REFERENCE OPERATIONAL NOISE LEVELS

The Project's operational noise levels are estimated based on reference noise level measurements of similar operational activities. The reference noise levels are intended to describe the expected operational noise sources that may include playground activities. To estimate the Project off-site operational noise impacts associated with the Industry Workforce Housing Community Project, the following reference noise level measurements were collected from existing operations with similar operational noise sources, as shown on Table 9-1.

To represent the potential noise level impacts associated with the Project's park and playground activities, a reference noise level measurement was collected on Wednesday, October 8, 2014 at the Founders Park in the unincorporated community of Ladera Ranch in the County of Orange. The reference noise levels collected at the Founders Park are expected to reflect the noise level activities within the recreation area of the Project site, since the reference noise level measurement includes girls' youth soccer games, coaches shouting instructions, parents speaking on cell phones, and background noise levels from kids playing on swing sets and people cheering and clapping. Using the uniform reference distance of 50 feet, the reference park activity noise level is 41.7 dBA L_{50}. The playground activities are estimated to occur for 60 minutes during the peak hour conditions.

TABLE 9-1: REFERENCE NOISE LEVEL MEASUREMENTS

Noise Source	Duration (hh:mm:ss)	Dist. From Source (Feet)	Noise Source Height (Feet)	Hourly Activity (Mins)[1]	Median Noise Levels (dBA L_{50})	
					@ Ref. Distance	@ 50'
Playground Activities[2]	00:15:00	5'	4'	60	61.7	41.7

[1] Anticipated duration (minutes within the hour) of noise activity during typical hourly conditions expected at the Project site based on the reference noise level measurement activity.
[2] As measured by Urban Crossroads, Inc. on 10/8/2014 by Urban Crossroads, Inc. at the Founder's Park in the unincorporated community of Ladera Ranch in the County of Orange.

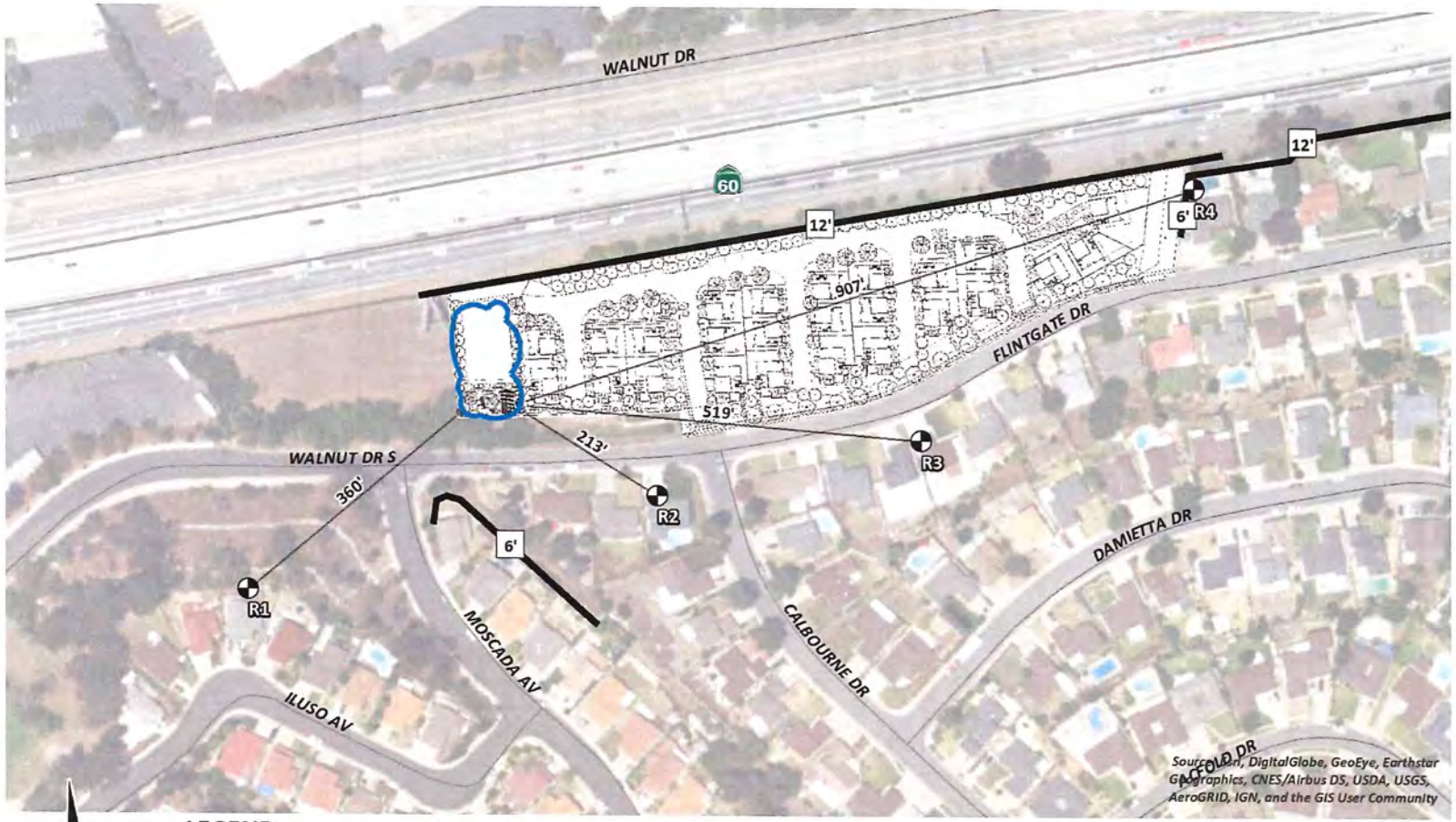
9.2 PROJECT OPERATIONAL NOISE LEVELS

Using the reference noise levels to represent the proposed Project operations that include playground activities, Urban Crossroads, Inc. calculated the operational source noise levels that are expected to be generated at the sensitive receiver locations. The operational noise level calculations, shown on Table 9-2, account for the distance attenuation provided due to geometric spreading when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. Hard site conditions are used in the operational noise analysis which result in noise levels that attenuate (or decrease) at a rate of 6 dBA for each doubling of distance from a point source. The basic noise attenuation equation shown below is used to calculate the distance attenuation based on a reference noise level (SPL_1):

$$SPL_2 = SPL_1 - 20\log(D_2/D_1)$$

Where SPL_2 is the resulting noise level after attenuation, SPL_1 is the source noise level, D_2 is the distance to the reference sound pressure level (SPL_1), and D_1 is the distance to the receiver location. Table 9-2 shows the individual operational noise levels of each noise source at each of the nearby sensitive receiver locations. As indicated on Table 9-2, the Project-only operational noise levels will range from 11.0 to 29.1 dBA L_{50} at the sensitive receiver locations.

EXHIBIT 9-A: OPERATIONAL NOISE SOURCE LOCATIONS



N

LEGEND:

- Receiver Locations
- 12' Existing Barrier Height (in feet)
- Existing Barrier
- Playground Activity
- Distance from receiver to center of noise source (in feet)

TABLE 9-2: UNMITIGATED PROJECT-ONLY OPERATIONAL NOISE LEVELS

Receiver Location[1]	Noise Source[2]	Project Operational Noise Levels (dBA)[3]				
		L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (Anytime)
R1	Playground Activities	16.2	18.6	21.5	24.2	28.4
R2	Playground Activities	29.1	31.5	34.4	37.1	41.3
R3	Playground Activities	21.4	23.8	26.7	29.4	33.6
R4	Playground Activities	11.0	13.4	16.3	19.0	23.2

[1] See Exhibit 9-A for the receiver and noise source locations.
[2] Reference noise sources as shown on Table 9-1.
[3] Operational noise level calculations are provided in Appendix 9.1.

Table 9-3 presents a summary of the combined total Project-only operational noise level projections at the nearby sensitive receiver locations for a comparison with local jurisdiction exterior noise level standards. The Project operational noise levels at the nearby sensitive receiver locations are shown to range from 11.0 to 29.1 dBA L_{50}. Based on the results of this analysis, the operational noise levels associated with the Industry Workforce Housing Community will satisfy the City of Diamond Bar daytime and nighttime exterior noise level standards at all nearby sensitive receiver locations, and no exterior noise mitigation is required.

TABLE 9-3: UNMITIGATED OPERATIONAL NOISE LEVEL COMPLIANCE

Receiver Location[1]	Land Use	Noise Level at Receiver Locations (dBA)[2]					Threshold Exceeded?[3]	
		L_{50} (30 mins)	L_{25} (15 mins)	L_8 (5 mins)	L_2 (1 min)	L_{max} (Anytime)	Daytime	Nighttime
Operational Standards	**Residential**	**50**	**55**	**60**	**65**	**70**	-	-
		45	**50**	**55**	**60**	**65**	-	-
R1	Residential	16.2	18.6	21.5	24.2	28.4	No	No
R2	Residential	29.1	31.5	34.4	37.1	41.3	No	No
R3	Residential	21.4	23.8	26.7	29.4	33.6	No	No
R4	Residential	11.0	13.4	16.3	19.0	23.2	No	No

[1] See Exhibit 9-A for the receiver and noise source locations.
[2] Estimated Project stationary source noise levels as shown on Table 9-2.
[3] Do the estimated Project stationary source noise levels exceed the exterior noise level standards?
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

9.3 PROJECT OPERATIONAL NOISE LEVEL CONTRIBUTION

To describe the Project operational noise level contributions, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearby receiver locations potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (4) Instead, they must be logarithmically added using the following base equation:

$$SPL_{Total} = 10\log_{10}[10^{SPL1/10} + 10^{SPL2/10} + \ldots 10^{SPLn/10}]$$

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describe the Project noise level contributions to the existing ambient noise environment. Noise levels that would be experienced at receiver locations when Project-source noise is added to the ambient conditions are presented on Tables 9-4 and 9-5 for the daytime and nighttime hours, respectively.

As indicated on Tables 9-4 and 9-5, the Project will not generate a daytime or nighttime noise level increase at the nearby receiver locations. Since the Project-related operational noise level contributions will satisfy the significance criteria discussed in Section 4, the increases at the sensitive receiver locations will be *less than significant*. On this basis, Project operational stationary-source noise would not result in a substantial temporary/periodic, or permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project, and impacts in these regards will be *less than significant*.

TABLE 9-4: PROJECT DAYTIME NOISE LEVEL CONTRIBUTIONS

Receiver Location[1]	Total Project Operational Noise Level (dBA L_{50})[2]	Measurement Location[3]	Reference Ambient Noise Levels (dBA L_{50})[4]	Combined Project and Ambient (dBA L_{50})[5]	Project Contribution (dBA L_{50})[6]	Threshold Exceeded?[7]
R1	16.2	L1	57.5	57.5	0.0	No
R2	29.1	L2	61.6	61.6	0.0	No
R3	21.4	L3	62.3	62.3	0.0	No
R4	11.0	L4	62.4	62.4	0.0	No

[1] See Exhibit 9-A for the sensitive receiver locations.
[2] Total Project operational noise levels as shown on Table 9-3.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed daytime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance Criteria as defined in Section 4.

TABLE 9-5: PROJECT NIGHTTIME NOISE LEVEL CONTRIBUTIONS

Receiver Location[1]	Total Project Operational Noise Level (dBA L_{50})[2]	Measurement Location[3]	Reference Ambient Noise Levels (dBA L_{50})[4]	Combined Project and Ambient (dBA L_{50})[5]	Project Contribution (dBA L_{50})[6]	Threshold Exceeded?[7]
R1	16.2	L1	58.9	58.9	0.0	No
R2	29.1	L2	63.8	63.8	0.0	No
R3	21.4	L3	62.8	62.8	0.0	No
R4	11.0	L4	62.8	62.8	0.0	No

[1] See Exhibit 9-A for the sensitive receiver locations.
[2] Total Project operational noise levels as shown on Table 9-3.
[3] Reference noise level measurement locations as shown on Exhibit 5-A.
[4] Observed nighttime ambient noise levels as shown on Table 5-1.
[5] Represents the combined ambient conditions plus the Project activities.
[6] The noise level increase expected with the addition of the proposed Project activities.
[7] Significance Criteria as defined in Section 4.

10 CONSTRUCTION IMPACTS

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit 10-A shows the construction noise source locations in relation to the nearby sensitive receiver locations previously described in Section 8.

10.1 CONSTRUCTION NOISE LEVELS

Noise generated by the Project construction equipment will include a combination of trucks, power tools, concrete mixers, and portable generators that when combined can reach high levels. The number and mix of construction equipment is expected to occur in the following stages:

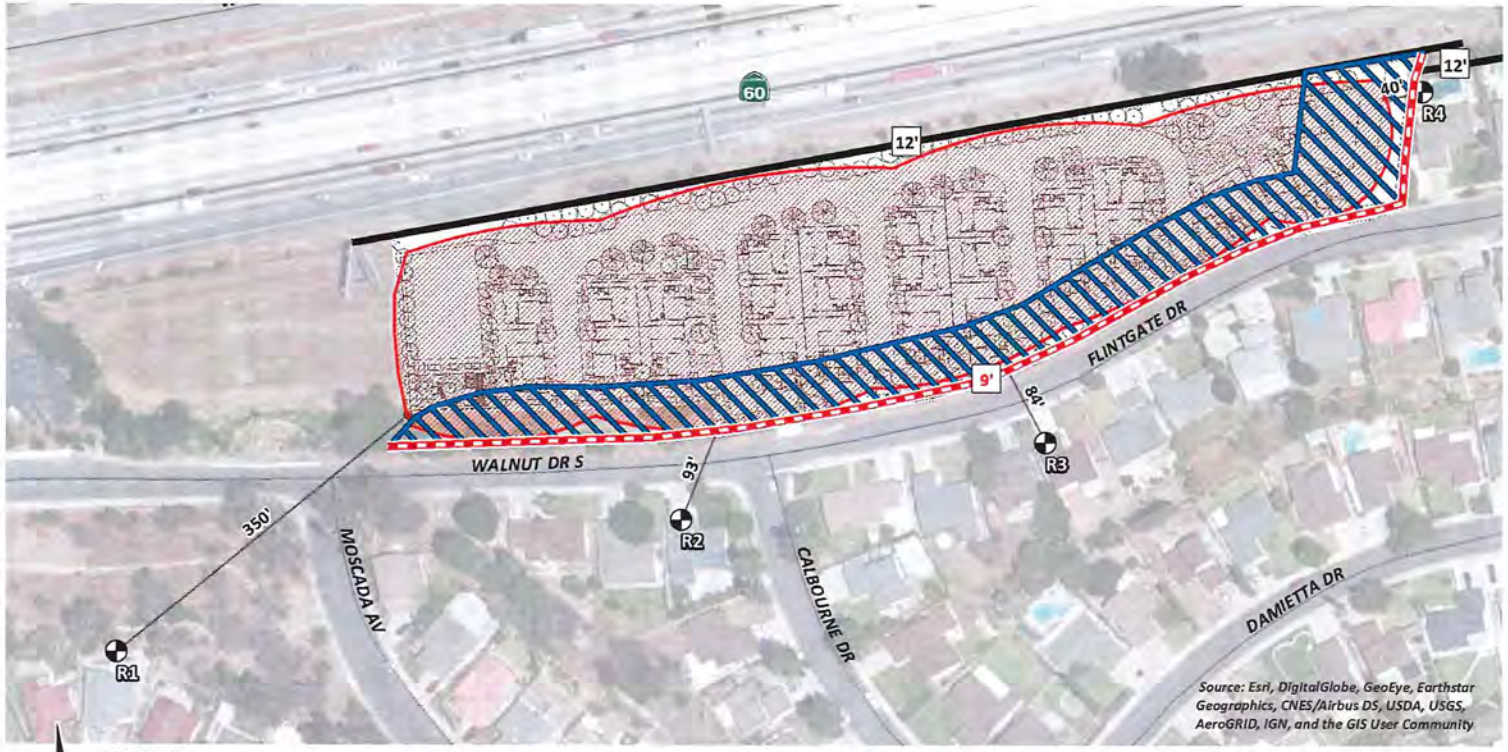
- **Mobile Equipment:**
  - Demolition
  - Site Preparation
  - Grading
  - Paving
- **Stationary Equipment:**
  - Building Construction
  - Architectural Coating

This construction noise analysis was prepared using reference noise level measurements taken by Urban Crossroads, Inc. to describe the typical construction activity noise levels for each stage of Project construction. The construction reference noise level measurements represent a list of typical construction activity noise levels. Noise levels generated by heavy construction equipment can range from approximately 68 dBA to more than 80 dBA when measured at 50 feet. However, these noise levels diminish with distance from the construction site at a rate of 6 dBA per doubling of distance. For example, a noise level of 80 dBA measured at 50 feet from the noise source to the receiver would be reduced to 74 dBA at 100 feet from the source to the receiver, and would be further reduced to 68 dBA at 200 feet from the source to the receiver. The construction stages used in this analysis are consistent with the *Industry Workforce Housing Community Air Quality Impact Analysis* prepared by Urban Crossroads, Inc. (23)

10.2 CONSTRUCTION REFERENCE NOISE LEVELS

To describe the Project construction noise levels, measurements were collected for similar activities at several construction sites. Table 10-1 provides a summary of the 17-construction reference noise level measurements. Since the reference noise levels were collected at varying distances of 30 feet and 50 feet, all construction noise level measurements presented on Table 10-1 have been adjusted for consistency to describe a uniform reference distance of 50 feet.

EXHIBIT 10-A: CONSTRUCTION NOISE SOURCE LOCATIONS



N

LEGEND:

- Receiver Locations
- 12' Existing Barrier Height (in feet)
- Existing Barrier
- Primary Construction Activity
- Distance from receiver to construction activity (in feet)
- 9' Temporary Noise Barrier Height (in feet)
- Temporary Noise Barrier
- 100-foot buffer for large construction equipment (e.g., dozers, graders, etc.) capable of noise levels of 78 dBA Lmax at 50 feet over a 10-minute period.

TABLE 10-1: CONSTRUCTION REFERENCE NOISE LEVELS

ID	Noise Source	Reference Distance From Source (Feet)	Reference Noise Levels @ Reference Distance (dBA L_{max})	Reference Noise Levels @ 50 Feet (dBA L_{max})[7]
1	Truck Pass-Bys & Dozer Activity[1]	30'	68.1	63.7
2	Dozer Activity[1]	30'	76.4	72.0
3	Construction Vehicle Maintenance Activities[2]	30'	74.8	70.4
4	Foundation Trenching[2]	30'	74.9	70.5
5	Rough Grading Activities[2]	30'	84.8	80.4
6	Framing[3]	30'	76.7	72.3
7	Water Truck Pass-By & Backup Alarm[4]	30'	82.3	77.9
8	Dozer Pass-By[4]	30'	89.9	85.5
9	Two Scrapers & Water Truck Pass-By[4]	30'	89.0	84.6
10	Two Scrapers Pass-By[4]	30'	86.9	82.5
11	Scraper, Water Truck, & Dozer Activity[4]	30'	87.7	83.3
12	Concrete Mixer Truck Movements[5]	50'	73.1	73.1
13	Concrete Paver Activities[5]	30'	75.7	71.3
14	Concrete Mixer Pour & Paving Activities[5]	30'	76.3	71.9
15	Concrete Mixer Backup Alarms & Air Brakes[5]	50'	78.8	78.8
16	Concrete Mixer Pour Activities[5]	50'	79.2	79.2
17	Forklift, Jackhammer, & Metal Truck Bed Loading	50'	81.6	81.6

[1] As measured by Urban Crossroads, Inc. on 10/14/15 at a business park construction site located at the northwest corner of Barranca Parkway and Alton Parkway in the City of Irvine.
[2] As measured by Urban Crossroads, Inc. on 10/20/15 at a construction site located in Rancho Mission Viejo.
[3] As measured by Urban Crossroads, Inc. on 10/20/15 at a residential construction site located in Rancho Mission Viejo.
[4] As measured by Urban Crossroads, Inc. on 10/30/15 during grading operations within an industrial construction site located in the City of Ontario.
[5] Reference noise level measurements were collected from a nighttime concrete pour at an industrial construction site, located at 27334 San Bernardino Avenue in the City of Redlands, between 1:00 a.m. to 2:00 a.m. on 7/1/15.
[6] As measured by Urban Crossroads, Inc. on 9/9/16 during the demolition of an existing paved parking lot at 41 Corporate Park in Irvine.
[7] Reference noise levels are calculated at 50 feet using a drop off rate of 6 dBA per doubling of distance (point source).

10.3 CONSTRUCTION NOISE ANALYSIS

Using the reference construction equipment noise levels, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. Tables 10-2 to 10-7 present the short-term construction noise levels for each stage of construction. Table 10-8 provides a summary of the construction noise levels by stage at the nearby noise-sensitive receiver locations. Based on the stages of construction, the noise impacts associated with the proposed Project are expected to create temporarily high noise levels at the nearby receiver locations. To assess the worst-case construction noise levels, this analysis shows the highest noise impacts when the equipment with the highest reference noise level is operating at the closest point from the edge of primary construction activity to each receiver location.

TABLE 10-2: DEMOLITION MOBILE EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{max})
Truck Pass-Bys & Dozer Activity	63.7
Dozer Activity	72.0
Forklift, Jackhammer, & Metal Truck Bed Activities	81.6
Highest Reference Noise Level at 50 Feet:	81.6

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA)[3]	Calculated Noise Barrier Attenuation (dBA)[4]	Construction Noise Level (dBA L_{max})
R1	350'	-16.9	-8.5	56.2
R2	93'	-5.4	0.0	76.2
R3	84'	-4.5	0.0	77.1
R4	40'	1.9	-4.9	78.6

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Calculated barrier attenuation from existing barriers & berms in the Project study area (Appendix 10.1).

TABLE 10-3: SITE PREPARATION MOBILE EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{max})
Truck Pass-Bys & Dozer Activity	63.7
Dozer Activity	72.0
Highest Reference Noise Level at 50 Feet:	72.0

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA)[3]	Calculated Noise Barrier Attenuation (dBA)[4]	Construction Noise Level (dBA L_{max})
R1	350'	-16.9	-8.5	46.6
R2	93'	-5.4	0.0	66.6
R3	84'	-4.5	0.0	67.5
R4	40'	1.9	-4.9	69.0

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Calculated barrier attenuation from existing barriers & berms in the Project study area (Appendix 10.1).

TABLE 10-4: GRADING MOBILE EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{max})
Truck Pass-Bys & Dozer Activity	63.7
Dozer Activity	72.0
Rough Grading Activities	80.4
Highest Reference Noise Level at 50 Feet:	80.4

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA)[3]	Calculated Noise Barrier Attenuation (dBA)[4]	Construction Noise Level (dBA L_{max})
R1	350'	-16.9	-8.5	55.0
R2	93'	-5.4	0.0	75.0
R3	84'	-4.5	0.0	75.9
R4	40'	1.9	-4.9	77.4

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Calculated barrier attenuation from existing barriers & berms in the Project study area (Appendix 10.1).

TABLE 10-5: PAVING MOBILE EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{max})
Concrete Mixer Truck Movements	73.1
Concrete Paver Activities	71.3
Concrete Mixer Pour & Paving Activities	71.9
Concrete Mixer Backup Alarms & Air Brakes	78.8
Concrete Mixer Pour Activities	79.2
Highest Reference Noise Level at 50 Feet:	79.2

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA)[3]	Calculated Noise Barrier Attenuation (dBA)[4]	Construction Noise Level (dBA L_{max})
R1	350'	-16.9	-8.5	53.8
R2	93'	-5.4	0.0	73.8
R3	84'	-4.5	0.0	74.7
R4	40'	1.9	-4.9	76.2

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Calculated barrier attenuation from existing barriers & berms in the Project study area (Appendix 10.1).

TABLE 10-6: BUILDING CONSTRUCTION STATIONARY EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{max})
Construction Vehicle Maintenance Activities	70.4
Foundation Trenching	70.5
Framing	72.3
Highest Reference Noise Level at 50 Feet:	72.3

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA)[3]	Calculated Noise Barrier Attenuation (dBA)[4]	Construction Noise Level (dBA L_{max})
R1	350'	-16.9	-8.5	46.9
R2	93'	-5.4	0.0	66.9
R3	84'	-4.5	0.0	67.8
R4	40'	1.9	-4.9	69.3

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Calculated barrier attenuation from existing barriers & berms in the Project study area (Appendix 10.1).

TABLE 10-7: ARCHITECTURAL COATING STATIONARY EQUIPMENT NOISE LEVELS

Reference Construction Activity[1]	Reference Noise Level @ 50 Feet (dBA L_{max})
Construction Vehicle Maintenance Activities	70.4
Framing	72.3
Highest Reference Noise Level at 50 Feet:	72.3

Receiver Location	Distance to Construction Activity (Feet)[2]	Distance Attenuation (dBA)[3]	Calculated Noise Barrier Attenuation (dBA)[4]	Construction Noise Level (dBA L_{max})
R1	350'	-16.9	-8.5	46.9
R2	93'	-5.4	0.0	66.9
R3	84'	-4.5	0.0	67.8
R4	40'	1.9	-4.9	69.3

[1] Reference construction noise level measurements taken by Urban Crossroads, Inc.
[2] Distance from the nearest point of construction activity to the nearest receiver.
[3] Point (stationary) source drop off rate of 6.0 dBA per doubling of distance.
[4] Calculated barrier attenuation from existing barriers & berms in the Project study area (Appendix 10.1).

10.4 Construction Noise Thresholds of Significance

The construction noise analysis shows that the highest construction noise levels will occur when equipment is operating at the closest point to each receiver location. As shown on Table 10-8, the unmitigated construction noise levels experienced at the nearby sensitive receiver locations are expected to range from 46.6 to 78.6 dBA L_{max} for mobile equipment, and between 46.9 to 69.3 dBA L_{max} at the sensitive receiver locations.

TABLE 10-8: UNMITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL SUMMARY (DBA L_{MAX})

Receiver Location[1]	Construction Stage Hourly Noise Level (dBA L_{max})						
	Mobile Equipment				Stationary Equipment		Highest Noise Levels[2]
	Demolition	Site Preparation	Grading	Paving	Building Construction	Architectural Coating	
R1	56.2	46.6	55.0	53.8	46.9	46.9	56.2
R2	76.2	66.6	75.0	73.8	66.9	66.9	76.2
R3	77.1	67.5	75.9	74.7	67.8	67.8	77.1
R4	78.6	69.0	77.4	76.2	69.3	69.3	78.6

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Highest construction noise levels across all stages of Project construction.

Table 10-9 shows the highest construction noise levels at the potentially impacted receiver locations are expected to approach 78.6 dBA L_{max} from mobile equipment, and 69.3 dBA L_{max} for stationary equipment and will exceed the City of Diamond Bar Municipal Code construction noise level standards of 75 dBA L_{max} for mobile equipment and 60 dBA L_{max} for stationary equipment during temporary Project construction activities. The noise impact due to unmitigated Project construction noise levels is, therefore, considered a *potentially significant* impact at sensitive receiver locations R2 to R4.

TABLE 10-9: UNMITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL COMPLIANCE (DBA L_{MAX})

Receiver Location[1]	Highest Construction Activity Noise Levels[2]		Noise Level Threshold[3]		Threshold Exceeded?[4]	
	Mobile Equipment	Stationary Equipment	Mobile Equipment	Stationary Equipment	Mobile Equipment	Stationary Equipment
R1	56.2	46.9	75	60	No	No
R2	76.2	66.9	75	60	Yes	Yes
R3	77.1	67.8	75	60	Yes	Yes
R4	78.6	69.3	75	60	Yes	Yes

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Highest construction noise levels of mobile and stationary equipment, as shown on Table 10-8.
[3] Construction noise standards as shown on Table 3-2 and 3-3.
[4] Do the estimated Project construction noise levels exceed the construction noise level thresholds?

Therefore, temporary construction noise mitigation measures are required to reduce these impacts at receiver locations R2 to R4. This includes the use of temporary construction noise barriers and a 100-foot buffer zone for large construction equipment (e.g. dozers, graders, scrapers, etc.) from the impacted receiver locations where Project construction noise levels could potentially exceed the noise level thresholds, as shown on Exhibit 10-A. The construction noise analysis presents a conservative approach with the highest noise-level-producing equipment for each stage of Project construction operating at the closest point from construction activity to the nearby sensitive receiver locations. This scenario is unlikely to occur during typical construction activities and likely overstates the construction noise levels which will be experienced at each receiver location. With the construction noise mitigation measures identified in this noise study, shown on Exhibit 10-A, the worst-case construction noise level increases at the nearby residential receivers would be reduced.

The noise attenuation provided through temporary noise barriers depends on many factors including cost, wind loading, the location of the receiver, and the ability to place barriers such that the line-of-sight of the receiver is blocked to the noise source, among others. This analysis

assumes a temporary noise barrier constructed using frame-mounted materials such as vinyl acoustic curtains or quilted blankets attached to the construction site perimeter fence.

Table 10-10 shows the peak construction noise levels at the potentially impacted receiver locations will be reduced to range from 63.9 to 69.6 dBA L_{max} for mobile equipment, and between 54.5 to 60.0 dBA L_{max} for stationary equipment with the attenuation provided by the temporary construction noise barriers and the 100-foot buffer zone. As shown on Table 10-10, the temporary construction noise mitigation measures will reduce the construction noise levels at the impacted receiver locations to satisfy the 75 dBA L_{max} mobile equipment and 60 dBA L_{max} stationary equipment significance thresholds during temporary Project construction activities. Therefore, the noise impact due to Project construction is considered a *less than significant* impact with mitigation. The temporary construction noise barrier attenuation calculations are provided in Appendix 10.1. Appendix 10.2 includes example photographs of temporary noise barrier installations for reference.

TABLE 10-10: MITIGATED CONSTRUCTION EQUIPMENT NOISE LEVEL COMPLIANCE (DBA L_{MAX})

Receiver Location[1]	Highest Construction Activity Noise Levels (dBA L_{max})[2]		Attenuation from Mitigation Measures (dBA L_{max})		Mitigated Construction Activity Noise Levels (dBA L_{max})		Noise Level Threshold (dBA L_{max})[5]		Threshold Exceeded?[6]	
	Mobile Equipment	Stationary Equipment	100' Buffer For Equip.	9' Temp. Barrier	Mobile Equipment	Stationary Equipment	Mobile Equipment	Stationary Equipment	Mobile Equipment	Stationary Equipment
R2	76.2	66.9	-0.6	-6.0	69.6	60.0	75	60	No	No
R3	77.1	67.8	-1.5	-6.0	69.6	60.0	75	60	No	No
R4	78.6	69.3	-8.0	-6.8	63.9	54.5	75	60	No	No

[1] Noise receiver locations are shown on Exhibit 10-A.
[2] Highest construction noise levels of mobile and stationary equipment, as shown on Table 10-9.
[3] Construction noise standards as shown on Table 3-2 and 3-3.
[4] Do the estimated Project construction noise levels exceed the construction noise level thresholds?

10.5 CONSTRUCTION VIBRATION IMPACTS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods used, distance to the affected structures and soil type. It is expected that ground-borne vibration from Project construction activities would cause only intermittent, localized intrusion. The proposed Project's construction activities most likely to cause vibration impacts are:

- Heavy Construction Equipment: Although all heavy mobile construction equipment has the potential of causing at least some perceptible vibration while operating close to building, the vibration is usually short-term and is not of sufficient magnitude to cause building damage. It is not expected that heavy equipment such as large bulldozers would operate close enough to any residences to cause a vibration impact.
- Trucks: Trucks hauling building materials to construction sites can be sources of vibration intrusion if the haul routes pass through residential neighborhoods on streets with bumps or potholes. Repairing the bumps and potholes generally eliminates the problem.

Ground-borne vibration levels resulting from construction activities occurring within the Project site were estimated by data published by the Federal Transit Administration. Construction activities that would have the potential to generate low levels of ground-borne vibration within the Project site include grading. Using the vibration source level of construction equipment provided on Table 6-4 and the construction vibration assessment methodology published by the FTA, it is possible to estimate the Project vibration impacts. Table 10-11 presents the expected Project-related unmitigated vibration levels at the nearby receiver locations.

Based on the reference vibration levels provided by the FTA, a large bulldozer represents the peak source of vibration with a reference velocity of 0.089 in/sec PPV at 25 feet. At distances ranging from 40 to 350 feet from the Project construction activities, construction vibration velocity levels are expected to range from 0.0042 to 0.044 in/sec PPV, as shown on Table 10-11. To assess the human perception of vibration levels in PPV, as previously discussed in Section 3, the velocities are converted to RMS vibration levels based on the Caltrans *Transportation and Construction Vibration Guidance Manual* conversion factor of 0.71. Table 10-11 shows the construction vibration levels are expected to range from 0.001 0.031 in/sec RMS. As such, the Project-related vibration impacts will exceed the City of Diamond Bar 0.01 in/sec RMS threshold, and impacts are considered *potentially significant* during the construction activities at the Project site.

Therefore, the 100-foot buffer zone for large construction equipment (e.g. dozers, graders, scrapers, etc.), as detailed in the construction noise and vibration mitigation measures of this report, is required to reduce construction vibration levels at nearby sensitive receiver locations R2 and R4. Table 10-12 shows the mitigated vibration levels at nearby sensitive receiver locations will approach 0.008 in/sec RMS and will remain below the City of Diamond Bar 0.01 in/sec RMS threshold, thereby resulting in *less than significant* vibration impacts with mitigation.

TABLE 10-11: UNMITIGATED CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver Location[1]	Distance To Const. Activity (Feet)	Receiver PPV Levels (in/sec)[2]					RMS Velocity Levels (in/sec)[3]	Threshold Exceeded?[4]
		Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Highest Vibration Level		
R1	350'	0.000	0.001	0.001	0.002	0.002	0.001	No
R2	93'	0.000	0.005	0.011	0.012	0.012	0.009	No
R3	84'	0.000	0.006	0.012	0.014	0.014	0.010	Yes
R4	40'	0.001	0.017	0.038	0.044	0.044	0.031	Yes

[1] Receiver locations are shown on Exhibit 10-A.
[2] Based on the Vibration Source Levels of Construction Equipment included on Table 6-4.
[3] Vibration levels in PPV are converted to RMS velocity using a 0.71 conversion factor identified in the Caltrans Transportation and Construction Vibration Guidance Manual, September 2013.
[4] Does the highest vibration level exceed the maximum acceptable vibration threshold shown on Table 3-4?

TABLE 10-12: MITIGATED CONSTRUCTION EQUIPMENT VIBRATION LEVELS

Receiver Location[1]	Distance To Const. Activity (Feet)	Receiver PPV Levels (in/sec)[2]					RMS Velocity Levels (in/sec)[3]	Threshold Exceeded?[4]
		Small Bulldozer	Jack-hammer	Loaded Trucks	Large Bulldozer	Peak Vibration (PPV)		
R2	100'	0.000	0.004	0.010	0.011	0.011	0.008	No
R3	100'	0.000	0.004	0.010	0.011	0.011	0.008	No
R4	100'	0.000	0.004	0.010	0.011	0.011	0.008	No

[1] Receiver locations are shown on Exhibit 10-A.
[2] Based on the Vibration Source Levels of Construction Equipment included on Table 6-4.
[3] Vibration levels in PPV are converted to RMS velocity using a 0.71 conversion factor identified in the Caltrans Transportation and Construction Vibration Guidance Manual, September 2013.
[4] Does the mitigated vibration level exceed the maximum acceptable vibration threshold shown on Table 3-4?

In addition, the mitigated vibration levels due to Project construction do not represent vibration levels capable of causing building damage to nearby residential homes. The FTA identifies construction vibration levels capable of building damage ranging from 0.12 to 0.5 in/sec PPV. (11) The peak Project-construction vibration levels shown on Table 10-12, approaching 0.011 in/sec PPV, will remain below the FTA vibration levels for building damage at the residential homes near the Project site. Further, the levels at the site of the closest sensitive receivers are unlikely to be sustained during the entire construction period, but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter.

Soil Import Truck Haul Trips

The Project site will require up to 12,000 cubic yards of soil import during the construction process. Truck vibration levels are dependent on vehicle characteristics, load, speed, and pavement conditions. Typical vibration levels for the Industry Workforce Housing Community

heavy truck activity at normal traffic speeds will approach 0.004 in/sec PPV and 0.003 in/sec RMS at 25 feet based on the FTA *Transit Noise Impact and Vibration Assessment.* (11) Truck deliveries transiting on site will be travelling at very low speeds so it is expected that delivery truck vibration levels at nearby homes will remain below the 0.01 in/sec RMS City of Diamond Bar threshold.

10.6 Construction Noise and Vibration Mitigation Measures

Though construction noise is temporary, intermittent and of short duration, and will not present any long-term impacts, the following mitigation measures are required to reduce noise and vibration levels produced by the construction equipment to the nearby sensitive residential land uses.

- Install minimum 9-foot high temporary construction noise barriers at the Project's site boundaries adjacent to sensitive receivers on Walnut Drive, as shown on Exhibit 10-A, for the duration of Project construction. The noise control barriers must have a solid face from top to bottom. The noise control barriers must meet the minimum height and be constructed as follows:
    - The temporary noise barriers shall provide a minimum transmission loss of 20 dBA (Federal Highway Administration, Noise Barrier Design Handbook). The noise barrier shall be constructed using an acoustical blanket (e.g. vinyl acoustic curtains or quilted blankets) attached to the construction site perimeter fence or equivalent temporary fence posts;
    - The noise barrier must be maintained, and any damage promptly repaired. Gaps, holes, or weaknesses in the barrier or openings between the barrier and the ground shall be promptly repaired;
    - The noise control barrier and associated elements shall be completely removed, and the site appropriately restored upon the conclusion of the construction activity.
- The use of large construction equipment (e.g., dozers, graders, scrapers) capable of generating noise levels in excess of 78 dBA L_{max} at 50 feet shall be prohibited within 100 feet of nearby occupied sensitive residential homes to reduce the noise and vibration levels for the entire duration of Project construction. If the contractor can demonstrate that specific pieces of large construction equipment can demonstrate compliance with the 78 dBA L_{max} at 50 feet criteria, then they shall be allowed to operate within the buffer zone shown on Exhibit 10-A.
- During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site.
- The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receivers nearest the Project site during all Project construction (i.e., to the northern center).

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11 REFERENCES

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13. **City of Industry.** *General Plan Safety Element.* June 2014.
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16. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
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18. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
19. **California Department of Transportation Environmental Program, Office of Environmental Engineering.** *Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calveno REMELs) in FHWA Highway Traffic Noise Prediction.* September 1995. TAN 95-03.
20. **California Department of Transportation.** *Traffic Data Branch Annual Average Daily Truck Traffic on the California Highways System.* 2015.

21. —. *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.

22. —. *Traffic Noise Analysis Protocol.* May 2011.

23. **Urban Crossroads, Inc.** *East Walnut Drive Air Quality Impact Analysis.* December 2017.

12 CERTIFICATION

The contents of this noise study report represent an accurate depiction of the noise environment and impacts associated with the proposed Industry Workforce Housing Community. The information contained in this noise study report is based on the best available data at the time of preparation. If you have any questions, please contact me directly at (949) 336-5979.

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EDUCATION

Master of Science in Civil and Environmental Engineering
California Polytechnic State University, San Luis Obispo • December, 1993

Bachelor of Science in City and Regional Planning
California Polytechnic State University, San Luis Obispo • June, 1992

PROFESSIONAL REGISTRATIONS

PE – Registered Professional Traffic Engineer – TR 2537 • January, 2009
AICP – American Institute of Certified Planners – 013011 • June, 1997–January 1, 2012
PTP – Professional Transportation Planner • May, 2007 – May, 2013
INCE – Institute of Noise Control Engineering • March, 2004

PROFESSIONAL AFFILIATIONS

ASA – Acoustical Society of America
ITE – Institute of Transportation Engineers

PROFESSIONAL CERTIFICATIONS

Certified Acoustical Consultant – County of Orange • February, 2011
FHWA-NHI-142051 Highway Traffic Noise Certificate of Training • February, 2013

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APPENDIX 3.1:

CITY OF DIAMOND BAR MUNICIPAL CODE

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CHAPTER 22.28. - NOISE CONTROL

Sec. 22.28.010. - Purpose.

The purpose of this chapter is to establish standards in order to protect the health, safety, welfare, and living/working environments of those living and working in the city.

(Ord. No. 02(1998), § 2, 11-3-98)

Sec. 22.28.020. - Declaration of policy.

Excessive noise levels are detrimental to the health and safety of individuals. Noise is considered a public nuisance and the city discourages unnecessary, excessive or annoying noises from all sources. Creating, maintaining, causing or allowing to be created, caused or maintained any noise or vibration in a manner prohibited by the provisions of this chapter is a public nuisance and shall be punishable as a misdemeanor.

(Ord. No. 02(1998), § 2, 11-3-98)

Sec. 22.28.030. - Enforcement of regulations.

The director shall have responsibility for the enforcement of the noise regulations contained in this chapter. The director shall make all noise level measurements required for the enforcement of this chapter.

(Ord. No. 02(1998), § 2, 11-3-98)

Sec. 22.28.040. - Initial violations.

In the event of an initial violation of the provisions of this chapter, a written notice of violation shall be given the alleged violator, specifying the time by which the condition shall be corrected or an application for permit or variance shall be filed. No further action shall be taken if the cause of the violation has been removed, the condition abated, or fully corrected within the time period specified in the written notice.

(Ord. No. 02(1998), § 2, 11-3-98)

Sec. 22.28.050. - Activities exempt from regulations.

The following activities shall be exempt from the provisions of this chapter:

(1) *Emergency exemption.* The emission of sound for the purpose of alerting persons to the existence of an emergency, or the emission of sound in the performance of emergency work.

(2) *Warning device.* Warning devices necessary for the protection of public safety (e.g., police, fire and ambulance sirens, and train horns).

(3) *Outdoor activities.* Activities conducted on public playgrounds and public or private school grounds, including, but not limited to, school athletic and school entertainment events.

(4) *Motion picture production and related activities.* Activities in connection to production of motion pictures.

(5) *Railroad activities.* All locomotives and rail cars operated by any railroad which is regulated by the state public utilities commission.

(6) *Federal or state preexempted activities.* Any activity, to the extent regulation thereof has been preempted by state or federal law.

(7) *Public health and safety activities.* All transportation, flood control, and utility company maintenance and construction operations at any time on public right-of-way, and those situations that may occur on private real property deemed necessary to serve the best interest of the public and to protect the public's health and well being, including, but not limited to, street sweeping, debris and limb removal, removal of downed wires, restoring electrical service, repairing traffic signals, unplugging sewers, house moving, vacuuming catchbasins, removal of damaged poles and vehicles, repair of water hydrants and mains, gas lines, oil lines, sewers, etc.

(8) *Motor vehicles on public right-of-way and private property.* All legal vehicles of transportation operating in a legal manner in compliance with local, state and federal vehicle-noise regulations within the public right-of-way or air space, or on private property.

(9) *Minor maintenance to residential real property.* Noise sources associated with the minor maintenance of residential real property, provided the activities take place between the hours of 7:00 a.m. and 8:00 p.m. on any day except Sunday, or between the hours of 9:00 a.m. and 8:00 p.m. on Sunday.

(Ord. No. 02(1998), § 2, 11-3-98)

Sec. 22.28.060. - Decibel measurement.

Decibel measurements made in compliance with the provisions of this chapter shall be based on a reference sound pressure of 20 micropascals, as measured with a sound level meter using the A-weighted network (scale) at slow response, or at the fast response when measuring impulsive sound levels and vibrations.

(Ord. No. 02(1998), § 2, 11-3-98)

Sec. 22.28.070. - Noise zones designated.

Receptor properties described in this chapter are assigned to the following noise zones:

(1) Noise zone I, noise-sensitive area;

(2) Noise zone II, residential properties;

(3) Noise zone III, commercial properties; and

(4) Noise zone IV, industrial properties.

(Ord. No. 02(1998), § 2, 11-3-98)

Sec. 22.28.080. - Exterior noise standards.

(a) *Standards for noise zones.* Unless otherwise provided in this chapter, the following exterior noise standards shall apply to all receptor properties within a designated noise zone:

TABLE 3-9
EXTERIOR NOISE STANDARDS

Noise Zone	Designated Noise Zone Land Use (Receptor Property)	Time Interval	Exterior Noise Level (dB)
I	Noise-sensitive area	Anytime	45
II	Residential properties	10:00 p.m. to 7:00 a.m. (nighttime) 7:00 a.m. to 10:00 p.m. (daytime)	45 50
III	Commercial properties	10:00 p.m. to 7:00 a.m. (nighttime) 7:00 am. to 10:00 p.m. (daytime)	55 60
IV	Industrial properties	Anytime	70

(b) *Noise standards.* No person shall operate or cause to be operated a source of sound location within the city or allow the creation of a noise on property owned, leased, occupied, or otherwise controlled by a person that causes the noise level, when measured on any other property to exceed the following exterior noise standards:

(1) *Standard No. 1.* Standard No. 1 shall be the exterior noise level that may not be exceeded for a cumulative period of more than 30 minutes in any hour. Standard No. 1 shall be the applicable noise level from subsection (a); or, if the ambient L_{50} exceeds the foregoing level, then the ambient L_{50} becomes the exterior noise level for Standard No. 1.

(2) *Standard No. 2.* Standard No. 2 shall be the exterior noise level that may not be exceeded for a cumulative period of more than 15 minutes in any hour. Standard No. 2 shall be the applicable noise level from subsection (a), plus 5 dB; or, if the ambient L_{25} exceeds the foregoing level, then the ambient L_{25} becomes the exterior noise level for Standard No.2.

(3) *Standard No. 3.* Standard No. 3 shall be the exterior noise level that may not be exceeded for a cumulative period of more than five minutes in any hour. Standard No. 3 shall be the applicable noise level from subsection (a), plus ten dB; or, if the ambient $L_{8.3}$ exceeds the foregoing level, then the ambient $L_{8.3}$ becomes exterior noise level for Standard No. 3.

(4) *Standard No. 4.* Standard No. 4 shall be the exterior noise level that may not be exceeded for a cumulative period of more than one minute in any hour. Standard No. 4 shall be the applicable noise level from subsection (a), plus 15 dB; or, if the ambient $L_{1.7}$ exceeds the foregoing level, then the ambient $L_{1.7}$ becomes the exterior noise level for Standard No. 4.

(5) *Standard No. 5.* Standard No. S shall be the exterior noise level that may not be exceeded for any period of time. Standard No. 5 shall be the applicable noise level from subsection (a), plus 20 dB; or, if the ambient L_0 exceeds the foregoing level then the ambient $L_{1.7}$ becomes the exterior noise level for Standard No. S.

(c) *Noise at zone boundaries.* If the measurement location is on a boundary property between two different zones, the exterior noise level used in subsection (b) to determine the exterior standard shall be the arithmetic mean of the exterior noise levels, as specified in subsection (a), of the subject zones. Except as provided for in this subsection, when an intruding noise source originates on an industrial property and is impacting another noise zone, the applicable exterior noise level as designated in subsection (a) shall be the daytime exterior noise level for the subject receptor property.

(d) *Measurement of ambient noise histogram.* The ambient noise histogram shall be measured at the same location along the property line utilized in subsection (b) of this section, with the alleged intruding noise source inoperative. If for any reason the alleged intruding noise source cannot be turned off, the ambient noise histogram will be estimated by performing a measurement in the same general area of the alleged intruding noise source but at a sufficient distance so that the noise from the alleged intruding noise source is at least ten dB below the ambient noise histogram. If the difference between the ambient noise histogram and the alleged intruding noise source is five to ten dB, then the level of the ambient noise histogram itself can be reasonably determined by subtracting a one decibel correction to account for the contribution of the alleged intruding noise source.

(e) *Abatement notice in lieu of citation.* If the intrusive noise exceeds the exterior noise standards provided in subsections (b) and (c) of this section at a specific receptor property and the director has reason to believe that this violation was unanticipated and due to abnormal atmospheric conditions, the director shall issue an abatement notice in lieu of a citation. If the specific violation is abated, no citation shall be issued. If the specific violation is not abated, the director may issue a citation.

(Ord. No. 02(1998), § 2, 11-3-98)

Sec. 22.28.090. - Interior noise standards for residential uses.

(a) *Noise standards for residential units.* No person shall operate or cause to be operated within a residential unit any source of sound, or allow the creation of any noise, that causes the noise level when measured inside a neighboring receiving residential unit to exceed the following standards:

(1) *Standard No. 1.* The applicable interior noise level from subsection (b), for a cumulative period of more than five minutes in any hour;

(2) *Standard No. 2.* The applicable interior noise level from subsection (b), plus five dB for a cumulative period of more than one minute in any hour; or

(3) *Standard No. 3.* The applicable interior noise level from subsection (b), plus ten dB or the maximum measured ambient noise level for any period of time.

(b) *Interior noise levels.* The following interior noise levels for residential dwellings shall apply within all single-family and dwellings with windows in their normal seasonal configuration.

Noise Zone	Designated Land Use	Allowable Interior Noise Level (dB)
All	Residential	40

If the measured ambient noise level reflected by the L_{50} exceeds that permissible within any of the interior noise standards in subsection 22.28.080(a) (Standards for noise zones), the allowable interior noise level shall be increased in five dB increments in each standard as appropriate to reflect the ambient noise level (L_{50}).

(c) *Residential design requirements.*

(1) Whenever a residential project is to be developed on a site where the existing exterior ambient noise level exceeds 65 dBA, a detailed analysis of noise reduction

requirements shall be made and the developer shall incorporate noise mitigation features into the design of the structure(s) that will ensure interior noise levels at, or below, 40 dBA.

(2) All residential developments shall consider the following noise mitigation measures whenever appropriate:

a. Increase the distance between the noise source and receiver;

b. Locate land uses not sensitive to noise (i.e., parking lots, garages, utility areas, etc.) between the noise source and the receiver;

c. Locate bedrooms on the side/rear of the structure away from major rights-of-way; and

d. Provide quiet outdoor spaces in multifamily projects next to a noisy right-of-way by creating a U-shaped development that faces away from the noise source.

(Ord. No. 02(1998), § 2, 11-3-98)

Sec. 22.28.100. - Correction for certain types of sounds.

For any source of sound that emits a pure tone or impulsive noise, the noise levels provided in sections 22.28.080 (Exterior noise standards) and 22.28.090 (Interior noise standards) shall be reduced by five decibels.

(Ord. No. 02(1998), § 2, 11-3-98)

Sec. 22.28.110. - Measurement methods.

(a) *A-weighting scale.* The noise level shall be measured at positions on the receiver's property utilizing the A-weighting scale of the sound-level meter and the slow meter response (use fast response for impulsive type sounds).

(b) *Microphone location.* The microphone shall be located four to five feet above the ground and ten feet or more from the nearest reflective surface except in those cases where another elevation is deemed appropriate.

(c) *Interior noise.* Interior noise measurements shall be made within the affected residential unit. The measurements shall be made at a point at least four feet from the wall, ceiling or floor nearest the noise source, with windows in their normal seasonal configuration. Calibration of the measurement equipment, utilizing an acoustic calibrator, shall be performed immediately prior to recording any noise data.

(Ord. No. 02(1998), § 2, 11-3-98)

Sec. 22.28.120. - Acts deemed violations of chapter.

The following acts are a violation of this chapter:

(1) *Construction noise.*

a. Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work between weekday hours of 7:00 p.m. and 7:00 a.m., or at any time on Sundays or holidays, so that the sound creates a noise disturbance across a residential or commercial property line, except for emergency work of public service utilities is prohibited.

b. Construction activities shall be conducted in a manner that the maximum noise levels at the affected structures will not exceed those listed in the following schedule:

1. *Residential structures:*

(a) *Mobile equipment.* Maximum noise levels for nonscheduled, intermittent, short-term operation (less than ten days) of mobile equipment shall be as follows:

Time Interval	Single-Family Residential	Multifamily Residential	Semi-Residential/Commercial
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	75 dBA	80 dBA	85 dBA
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	60 dBA	64 dBA	70 dBA

(b) *Stationary equipment.* Maximum noise level for repetitively scheduled and relatively long-term operation (periods of ten days or more) of stationary equipment shall be as follows:

Time Interval	Single-Family Residential	Multifamily Residential	Semi-Residential/Commercial
Daily, except Sundays and legal holidays, 7:00 a.m. to 8:00 p.m.	60 dBA	65 dBA	70 dBA
Daily, 8:00 p.m. to 7:00 a.m. and all day Sunday and legal holidays	50 dBA	55 dBA	60 dBA

2. *Nonstructures.* Mobile equipment. Maximum noise levels for nonscheduled, intermittent, short-term operation of mobile equipment. Daily, including Sundays and legal holidays, all hours: Maximum of 85 dBA.

c. All mobile or stationary internal combustion engine powered equipment or machinery shall be equipped with suitable exhaust and air-intake silencers in proper working order.

d. In case of a conflict between this chapter and any other ordinance regulating construction activities, the provisions of a more specific ordinance regulating construction activities shall control.

(b) *Forced-air blowers in tunnel car washes.* Operating or permitting the operation of a forced-air blower in a tunnel car wash between the hours of 7:00 a.m. and 8:00 p.m. in a manner that e: the following sound levels is prohibited:

Measurement Location	Units Installed	
	Before 1-1-80	On or after 1-1-80
Any point on contiguous receptor property, five feet above grade level, no closer than three feet from any wall:		
Residential	65 dBA	55 dBA
Commercial/Industrial	70 dBA	60 dBA

(c) *Loading and unloading operations.* Loading, unloading, opening, closing or other handling of boxes, crates, containers, building materials, garbage cans or similar objects between the hours of 10:00 p.m. and 6:00 a.m. in a manner to cause a noise disturbance is prohibited.

(d) *Noise disturbances in noise-sensitive zones.* Creating or causing the creation of a noise disturbance within a noise-sensitive zone is prohibited, provided that conspicuous signs are displayed indicating the presence of the zone. Noise-sensitive zones shall be indicated by the display of conspicuous signs in at least three separate locations within 500 feet of the institution or facility.

(e) *Places of public entertainment.* Operating, playing or permitting the operation or playing of a radio, television, phonograph, drum, musical instrument, sound amplifier or similar device that produces, reproduces, or amplifies sound in a place of public entertainment at a sound level greater than 95 dBA, (read by the slow response on a sound level meter) at any point that is normally occupied by a customer is prohibited, unless conspicuous signs are located near each public entrance, stating "Warning Sound Levels Within May Cause Hearing Impairment."

(f) *Powered model vehicles.* Operating or permitting the operation of powered model vehicles that create a noise disturbance across a residential property line, or within a noise-sensitive zone between the hours of 8:00 p.m. and 7:00 a.m. the following day is prohibited.

(g) *Emergency signaling devices.*

(1) The intentional sounding or permitting the sounding outdoors of an emergency signaling device, including fire, burglar or civil defense alarm, siren, whistle, or similar stationary emergency signaling device, except for emergency purposes or for testing, is prohibited.

(2) Testing of a stationary emergency signaling device shall not occur before 7:00 a.m. or after 7:00 p.m. Testing shall use only the minimum cycle test time. Test time shall not exceed 60 seconds. Testing of the complete emergency signaling system, including the functioning of the signaling device, and the personnel response to the signaling device, shall not occur more than once in each calendar month. Testing shall not occur before 7:00 a.m. or after 10:00 p.m.

(3) Sounding or permitting the sounding of an exterior burglar or fire alarm, or motor vehicle burglar alarm is prohibited, unless the alarm is terminated within ten minutes of activation.

(h) *Stationary nonemergency signaling devices.* Sounding or permitting the sounding of an electronically amplified signal from a stationary bell, chime, siren, whistle, or similar device intended primarily for nonemergency purposes, from any place, for more than ten consecutive seconds in any hourly period is prohibited.

(i) *Refuse collection vehicles.*

(1) Operating or permitting the operation of the compacting mechanism of any motor vehicle that compacts refuse and which creates, during the compacting cycle, a sound level in excess of 85 dBA when measured at 50 feet from any point of the vehicle is prohibited.

(2) Collecting refuse, or operating or permitting the operation of the compacting mechanism of a motor vehicle that compacts refuse between the hours of 10:00 p.m. and 6:00 a.m. the following day within 500 feet of a residential area or noise-sensitive zone is prohibited.

(j) *Residential air conditioning or refrigeration equipment.* Operating or permitting the operation of air conditioning or refrigeration equipment in a manner that exceeds the following sound levels is prohibited:

Measurement Location	Units Installed Before 1-1-80	Units Installed On or After 1-1-80
Any point on neighboring property line, 5 feet above grade level, no closer than 3 feet from any wall.	60 dBA	55 dBA
Center of neighboring patio, 5 feet above grade level, no closer than 3 feet from any wall.	55 dBA	50 dBA
Outside the neighboring living area window nearest the equipment location, not more than 3 feet from the window opening, but at least 3 feet from any other surface.	55 dBA	50 dBA

(k) *Street sales.* Offering for sale, selling anything, or advertising by shouting or outcry within a residential or commercial area or noise-sensitive zone in the city is prohibited.

(l) *Vehicle or motorboat repairs and testing.* Repairing, rebuilding, modifying or testing any motor vehicle, motorcycle or motorboat in a manner as to cause a noise disturbance across property lines or within a noise-sensitive zone is prohibited.

(m) *Vibration.* Operating or permitting the operation of any device that creates vibration which is above the vibration perception threshold of any individual at or beyond the property boundar source if on private property, or at 150 feet from the source if on a public space or public right-of-way is prohibited. The perception threshold shall be a motion velocity of 0.01 in/sec over t range of one to 100 Hertz.

(Ord. No. 02(1998), § 2, 11-3-98)

Sec. 22.28.130. - Delay in compliance.

The director may grant a delay in the compliance with the requirements of this chapter for a period of not to exceed 60 days. The planning commission, upon conclusion of a public hearing, may grant a delay not to exceed one year, subject to any terms, conditions, or requirements to minimize adverse effects on the surrounding neighborhood. The director or planning commission's decision may be appealed to the city council. A delay in compliance may be granted only if one of the following conditions apply:

(1) Additional time is necessary for the applicant to alter or modify his activity, operation or noise source to comply with this chapter; or

(2) The activity, operation or noise source cannot feasibly be done in a manner that would comply with the provisions of this chapter, and no other reasonable alternative is available to the applicant at this time.

(Ord. No. 02(1998), § 2, 11-3-98)

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APPENDIX 5.1:

STUDY AREA PHOTOS

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JN:11366 Walnut Drive

L1_E
33, 59' 47.100000", 117, 51' 50.720000"

L1_N
33, 59' 47.090000", 117, 51' 50.700000"

L1_S
33, 59' 47.100000", 117, 51' 50.700000"

L1_W
33, 59' 47.090000", 117, 51' 50.700000"

L2_E
33, 59' 47.600000", 117, 51' 45.400000"

L2_N
33, 59' 47.640000", 117, 51' 45.420000"

JN:11366 Walnut Drive

L2_S
33, 59' 47.600000", 117, 51' 45.400000"

L2_W
33, 59' 47.640000", 117, 51' 45.420000"

L3_E
33, 59' 48.260000", 117, 51' 41.800000"

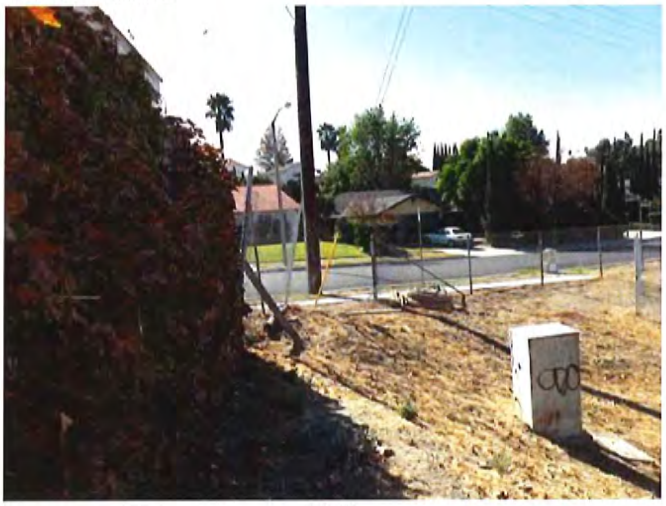
L3_N
33, 59' 48.300000", 117, 51' 41.800000"

L3_S
33, 59' 48.230000", 117, 51' 41.770000"

L3_W
33, 59' 48.450000", 117, 51' 42.980000"

JN:11366 Walnut Drive

L4_N
33, 59' 50.350000", 117, 51' 38.010000"



L4_S
33, 59' 50.520000", 117, 51' 42.290000"

L4_W
33, 59' 50.430000", 117, 51' 37.760000"

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APPENDIX 5.2:

NOISE LEVEL MEASUREMENT WORKSHEETS

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24-Hour Noise Level Measurement Summary

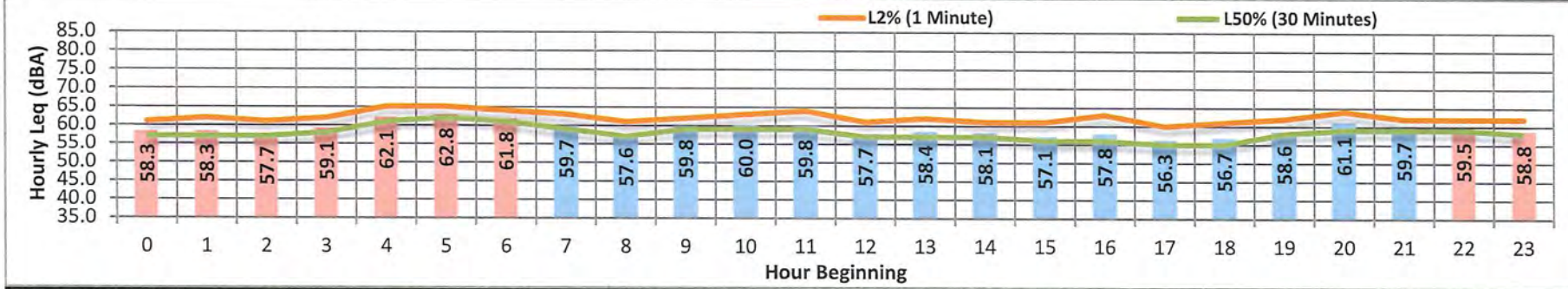
Project Name: Walnut Drive

Location: L1 - Located south of the Project site on Walnut Drive near existing residential homes.

JN: 11366
Analyst: A. Wolfe
Date: 11/8/2017

Energy Average Leq		24-Hour
Day	Night	CNEL
58.8	60.2	66.7

Hourly Leq dBA Readings (unadjusted)



Time Period	Hour	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	56.3	65.1	51.2	61.0	60.0	59.0	58.0	56.0	55.0	53.0	53.0	52.0
	Max	61.1	81.9	54.9	66.0	64.0	62.0	61.0	60.0	59.0	57.0	57.0	56.0
Energy Average:		58.8	Average:		63.3	62.0	60.8	60.0	58.6	57.5	55.4	55.0	54.0
Night	Min	57.7	65.9	48.7	62.0	61.0	60.0	60.0	58.0	57.0	53.0	52.0	51.0
	Max	62.8	81.4	58.3	65.0	65.0	64.0	64.0	63.0	62.0	60.0	60.0	59.0
Energy Average:		60.2	Average:		63.1	62.7	61.7	61.3	60.1	58.9	56.7	55.9	54.9
Hourly Summary													
Night	0	58.3	71.5	51.8	62.0	61.0	60.0	60.0	59.0	57.0	55.0	54.0	53.0
	1	58.3	73.2	50.3	62.0	62.0	61.0	60.0	59.0	57.0	54.0	53.0	52.0
	2	57.7	75.6	48.7	62.0	61.0	60.0	60.0	58.0	57.0	53.0	52.0	51.0
	3	59.1	65.9	53.3	62.0	62.0	61.0	61.0	59.0	58.0	56.0	55.0	54.0
	4	62.1	70.8	57.7	65.0	65.0	64.0	63.0	62.0	61.0	60.0	59.0	58.0
	5	62.8	69.2	58.3	65.0	65.0	64.0	64.0	63.0	62.0	60.0	60.0	59.0
	6	61.8	81.4	57.2	65.0	64.0	63.0	63.0	62.0	61.0	59.0	59.0	58.0
Day	7	59.7	70.2	54.8	64.0	63.0	62.0	61.0	60.0	59.0	57.0	56.0	55.0
	8	57.6	65.1	53.1	62.0	61.0	60.0	59.0	58.0	57.0	55.0	55.0	54.0
	9	59.8	70.6	52.9	62.0	62.0	61.0	61.0	60.0	59.0	57.0	56.0	55.0
	10	60.0	69.1	54.2	65.0	63.0	62.0	61.0	60.0	59.0	57.0	56.0	55.0
	11	59.8	72.0	53.6	66.0	64.0	62.0	61.0	60.0	59.0	57.0	56.0	55.0
	12	57.7	68.7	52.3	62.0	61.0	60.0	59.0	58.0	57.0	55.0	54.0	53.0
	13	58.4	71.3	52.5	63.0	62.0	61.0	60.0	59.0	57.0	55.0	55.0	54.0
	14	58.1	68.8	52.9	62.0	61.0	60.0	60.0	58.0	57.0	55.0	55.0	54.0
	15	57.1	70.9	51.2	63.0	61.0	60.0	59.0	57.0	56.0	54.0	53.0	52.0
	16	57.8	70.5	52.2	65.0	63.0	61.0	60.0	57.0	56.0	54.0	54.0	53.0
	17	56.3	66.1	51.6	61.0	60.0	59.0	58.0	56.0	55.0	53.0	53.0	52.0
	18	56.7	68.8	51.5	62.0	61.0	60.0	59.0	57.0	55.0	53.0	53.0	52.0
	19	58.6	69.5	52.3	63.0	62.0	61.0	60.0	59.0	58.0	55.0	55.0	54.0
	20	61.1	81.9	54.9	66.0	64.0	62.0	61.0	60.0	59.0	57.0	57.0	56.0
	21	59.7	69.0	54.7	63.0	62.0	61.0	61.0	60.0	59.0	57.0	57.0	56.0
Night	22	59.5	70.4	53.1	63.0	62.0	61.0	61.0	60.0	59.0	57.0	56.0	55.0
	23	58.8	66.2	52.3	62.0	62.0	61.0	60.0	59.0	58.0	56.0	55.0	54.0

URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

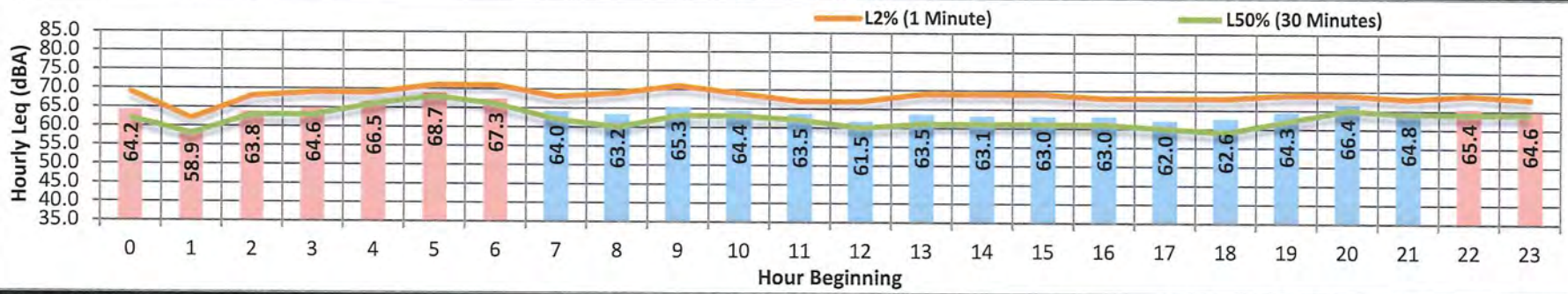
Project Name: Walnut Drive

Location: L2 - Located on Walnut Drive between Moscada Avenue and Calbourne Drive near existing residential homes.

JN: 11366
Analyst: A. Wolfe
Date: 11/8/2017

Energy Average Leq		24-Hour
Day	Night	CNEL
63.8	65.5	72.0

Hourly Leq dBA Readings (unadjusted)



Time Period	Hour	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	61.5	75.6	55.2	69.0	67.0	64.0	63.0	61.0	59.0	57.0	57.0	56.0
	Max	66.4	85.2	61.0	73.0	71.0	69.0	68.0	67.0	65.0	63.0	63.0	62.0
Energy Average:		63.8	Average:		70.7	68.5	66.2	65.2	63.3	61.6	59.5	59.1	58.0
Night	Min	58.9	73.4	50.5	63.0	62.0	61.0	61.0	59.0	58.0	55.0	54.0	53.0
	Max	68.7	81.7	64.1	72.0	71.0	70.0	70.0	69.0	68.0	66.0	66.0	65.0
Energy Average:		65.5	Average:		69.3	68.4	67.3	67.0	65.1	63.8	61.2	60.4	59.1
Hourly Summary													
Night	0	64.2	74.0	53.3	70.0	69.0	68.0	68.0	65.0	62.0	58.0	57.0	54.0
	1	58.9	76.2	50.5	63.0	62.0	61.0	61.0	59.0	58.0	55.0	54.0	53.0
	2	63.8	77.0	54.2	68.0	68.0	67.0	66.0	64.0	63.0	59.0	58.0	56.0
	3	64.6	73.4	58.0	70.0	69.0	68.0	67.0	65.0	63.0	61.0	60.0	59.0
	4	66.5	80.6	61.8	71.0	69.0	68.0	68.0	66.0	66.0	64.0	64.0	63.0
	5	68.7	77.6	64.1	71.0	71.0	70.0	70.0	69.0	68.0	66.0	66.0	65.0
	6	67.3	81.7	62.5	72.0	71.0	69.0	69.0	67.0	66.0	65.0	64.0	63.0
Day	7	64.0	82.2	58.0	71.0	68.0	66.0	66.0	64.0	62.0	60.0	59.0	58.0
	8	63.2	82.9	56.7	71.0	69.0	66.0	65.0	63.0	60.0	58.0	58.0	57.0
	9	65.3	77.8	58.7	72.0	71.0	69.0	68.0	65.0	63.0	61.0	60.0	59.0
	10	64.4	81.6	58.8	72.0	69.0	67.0	65.0	64.0	63.0	61.0	61.0	59.0
	11	63.5	78.4	58.0	70.0	67.0	66.0	65.0	64.0	62.0	60.0	59.0	59.0
	12	61.5	77.6	56.0	69.0	67.0	64.0	63.0	61.0	60.0	58.0	57.0	56.0
	13	63.5	84.6	56.5	73.0	69.0	66.0	65.0	62.0	61.0	58.0	58.0	57.0
	14	63.1	75.6	57.3	70.0	69.0	66.0	65.0	63.0	61.0	59.0	59.0	58.0
	15	63.0	79.4	56.7	72.0	69.0	66.0	64.0	62.0	61.0	58.0	58.0	57.0
	16	63.0	77.7	58.0	70.0	68.0	65.0	64.0	63.0	61.0	60.0	59.0	59.0
	17	62.0	75.6	56.0	69.0	68.0	65.0	64.0	62.0	60.0	58.0	57.0	56.0
	18	62.6	85.2	55.2	70.0	68.0	65.0	64.0	61.0	59.0	57.0	57.0	56.0
	19	64.3	79.3	56.8	71.0	69.0	67.0	66.0	64.0	62.0	60.0	60.0	57.0
	20	66.4	78.7	61.0	71.0	69.0	68.0	68.0	67.0	65.0	63.0	63.0	62.0
	21	64.8	77.4	58.8	69.0	68.0	67.0	66.0	65.0	64.0	62.0	61.0	60.0
Night	22	65.4	76.2	59.2	70.0	69.0	68.0	67.0	66.0	64.0	62.0	61.0	60.0
	23	64.6	74.9	57.6	69.0	68.0	67.0	67.0	65.0	64.0	61.0	60.0	59.0

URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

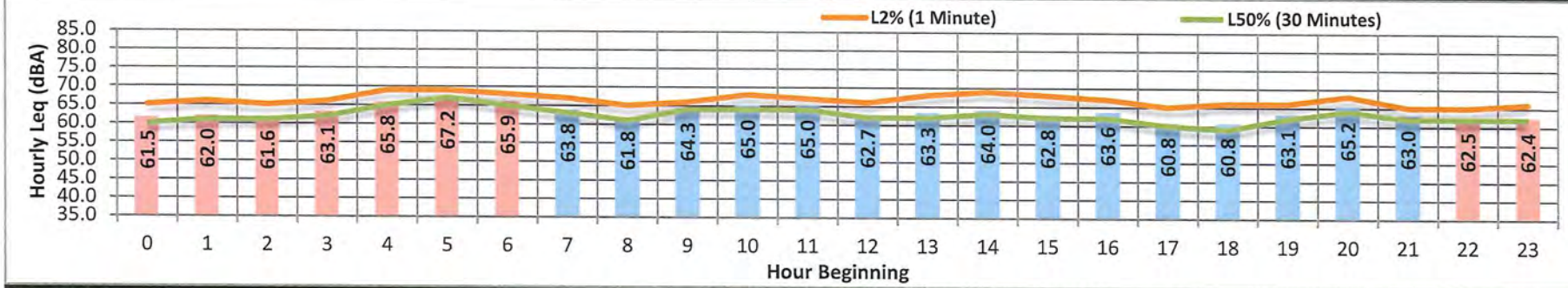
Project Name: Walnut Drive

Location: L3 - Located south of the Project site on Walnut Drive near existing residential homes east of Calbourne Drive.

JN: 11366
Analyst: A. Wolfe
Date: 11/8/2017

Energy Average Leq		24-Hour
Day	Night	CNEL
63.5	64.1	70.6

Hourly Leq dBA Readings (unadjusted)



Time Period	Hour	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	60.8	69.4	54.9	66.0	65.0	63.0	62.0	61.0	59.0	57.0	56.0	56.0
	Max	65.2	84.3	61.0	71.0	69.0	67.0	66.0	65.0	64.0	63.0	62.0	62.0
Energy Average:		63.5	Average:		68.3	66.7	65.1	64.5	63.2	62.3	60.6	59.8	59.1
Night	Min	61.5	68.2	53.9	65.0	65.0	64.0	63.0	62.0	60.0	58.0	57.0	56.0
	Max	67.2	81.3	63.3	70.0	69.0	68.0	68.0	67.0	67.0	65.0	65.0	64.0
Energy Average:		64.1	Average:		67.1	66.6	65.2	65.1	63.8	62.8	60.8	60.3	59.3
Hourly Summary													
Night	0	61.5	68.2	55.3	66.0	65.0	64.0	64.0	62.0	60.0	58.0	58.0	57.0
	1	62.0	75.5	56.2	67.0	66.0	64.0	64.0	62.0	61.0	59.0	58.0	57.0
	2	61.6	69.7	53.9	65.0	65.0	64.0	63.0	62.0	61.0	58.0	57.0	56.0
	3	63.1	68.5	58.4	66.0	66.0	65.0	65.0	63.0	62.0	60.0	60.0	59.0
	4	65.8	81.3	60.7	70.0	69.0	67.0	67.0	66.0	65.0	63.0	63.0	61.0
	5	67.2	75.9	63.3	69.0	69.0	68.0	68.0	67.0	67.0	65.0	65.0	64.0
	6	65.9	76.1	62.8	69.0	68.0	67.0	67.0	66.0	65.0	64.0	63.0	63.0
Day	7	63.8	81.5	59.9	68.0	67.0	65.0	65.0	64.0	63.0	61.0	61.0	60.0
	8	61.8	76.5	57.6	67.0	65.0	63.0	62.0	61.0	61.0	60.0	59.0	58.0
	9	64.3	84.3	59.8	67.0	66.0	66.0	65.0	64.0	64.0	61.0	60.0	60.0
	10	65.0	74.8	60.9	70.0	68.0	67.0	66.0	65.0	64.0	63.0	62.0	61.0
	11	65.0	79.2	60.8	69.0	67.0	66.0	66.0	65.0	64.0	62.0	62.0	61.0
	12	62.7	75.3	57.8	68.0	66.0	65.0	64.0	63.0	62.0	60.0	59.0	58.0
	13	63.3	77.5	58.6	70.0	68.0	65.0	65.0	63.0	62.0	60.0	59.0	59.0
	14	64.0	77.7	59.1	71.0	69.0	67.0	66.0	64.0	63.0	61.0	60.0	59.0
	15	62.8	75.1	58.5	69.0	68.0	65.0	64.0	63.0	62.0	60.0	59.0	59.0
	16	63.6	79.6	59.0	69.0	67.0	65.0	64.0	63.0	62.0	61.0	61.0	60.0
	17	60.8	69.4	56.4	66.0	65.0	64.0	63.0	61.0	60.0	58.0	57.0	56.0
	18	60.8	77.2	54.9	68.0	66.0	63.0	63.0	61.0	59.0	57.0	56.0	56.0
	19	63.1	72.9	58.3	67.0	66.0	65.0	64.0	63.0	62.0	61.0	60.0	59.0
	20	65.2	80.0	61.0	69.0	68.0	67.0	66.0	65.0	64.0	63.0	62.0	62.0
	21	63.0	71.9	58.8	66.0	65.0	64.0	64.0	63.0	62.0	61.0	60.0	59.0
Night	22	62.5	71.8	58.4	66.0	65.0	64.0	64.0	63.0	62.0	60.0	60.0	59.0
	23	62.4	69.0	57.0	66.0	66.0	64.0	64.0	63.0	62.0	60.0	59.0	58.0

URBAN CROSSROADS

24-Hour Noise Level Measurement Summary

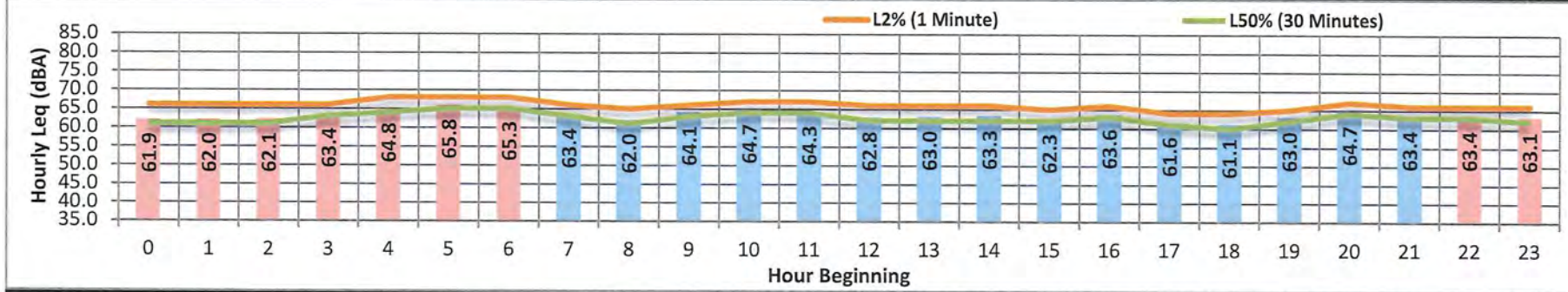
Project Name: Walnut Drive

Location: L4 - Located at the eastern Project site boundary adjacent to an existing residential home.

JN: 11366
Analyst: A. Wolfe
Date: 11/8/2017

Energy Average Leq		24-Hour
Day	*Night*	*CNEL*
63.3	63.8	70.4

Hourly Leq dBA Readings (unadjusted)



Time Period	Hour	Leq	Lmax	Lmin	L1%	L2%	L5%	L8%	L25%	L50%	L90%	L95%	L99%
Day	Min	61.1	70.9	56.5	65.0	64.0	63.0	63.0	61.0	60.0	58.0	58.0	57.0
	Max	64.7	77.2	60.4	68.0	67.0	66.0	66.0	65.0	64.0	62.0	62.0	61.0
Energy Average:		63.3	Average:		66.5	65.7	64.9	64.6	63.4	62.4	60.6	60.0	59.1
Night	Min	61.9	70.8	49.2	66.0	66.0	65.0	64.0	63.0	61.0	57.0	56.0	54.0
	Max	65.8	75.5	60.9	69.0	68.0	67.0	67.0	66.0	65.0	63.0	63.0	62.0
Energy Average:		63.8	Average:		67.3	66.7	65.8	65.1	64.0	62.8	59.9	59.2	57.8
Hourly Summary													
Night	0	61.9	74.5	53.6	66.0	66.0	65.0	64.0	63.0	61.0	57.0	56.0	55.0
	1	62.0	70.8	50.6	66.0	66.0	65.0	64.0	63.0	61.0	57.0	56.0	54.0
	2	62.1	74.4	49.2	67.0	66.0	65.0	64.0	63.0	61.0	57.0	56.0	54.0
	3	63.4	70.9	55.9	67.0	66.0	66.0	65.0	64.0	63.0	60.0	59.0	58.0
	4	64.8	73.7	57.6	68.0	68.0	67.0	66.0	65.0	64.0	62.0	61.0	60.0
	5	65.8	73.9	60.9	69.0	68.0	67.0	67.0	66.0	65.0	63.0	63.0	62.0
	6	65.3	75.5	60.7	69.0	68.0	67.0	66.0	65.0	65.0	63.0	63.0	62.0
Day	7	63.4	74.0	58.9	67.0	66.0	65.0	65.0	64.0	63.0	61.0	60.0	59.0
	8	62.0	71.0	56.5	66.0	65.0	64.0	63.0	62.0	61.0	60.0	59.0	58.0
	9	64.1	72.1	58.9	67.0	66.0	66.0	65.0	64.0	63.0	61.0	61.0	60.0
	10	64.7	72.5	59.2	68.0	67.0	66.0	66.0	65.0	64.0	62.0	62.0	60.0
	11	64.3	73.2	59.6	67.0	67.0	66.0	66.0	65.0	64.0	62.0	61.0	60.0
	12	62.8	76.9	58.2	67.0	66.0	65.0	64.0	63.0	62.0	60.0	59.0	58.0
	13	63.0	77.2	57.9	66.0	66.0	65.0	65.0	63.0	62.0	60.0	60.0	59.0
	14	63.3	71.8	58.9	67.0	66.0	65.0	65.0	64.0	62.0	61.0	60.0	59.0
	15	62.3	73.8	58.3	65.0	65.0	64.0	64.0	62.0	62.0	60.0	59.0	59.0
	16	63.6	74.1	59.4	67.0	66.0	65.0	65.0	64.0	63.0	61.0	60.0	60.0
	17	61.6	75.8	57.3	65.0	64.0	63.0	63.0	62.0	61.0	59.0	59.0	58.0
	18	61.1	71.0	56.9	65.0	64.0	63.0	63.0	61.0	60.0	58.0	58.0	57.0
	19	63.0	70.9	57.5	66.0	65.0	65.0	64.0	63.0	62.0	61.0	60.0	59.0
	20	64.7	74.3	60.4	68.0	67.0	66.0	66.0	65.0	64.0	62.0	62.0	61.0
	21	63.4	72.7	57.9	67.0	66.0	65.0	65.0	64.0	63.0	61.0	60.0	59.0
Night	22	63.4	71.5	56.1	67.0	66.0	65.0	65.0	64.0	63.0	60.0	60.0	58.0
	23	63.1	71.9	56.2	67.0	66.0	65.0	65.0	63.0	62.0	60.0	59.0	57.0

URBAN CROSSROADS

APPENDIX 7.1:

ON-SITE TRAFFIC NOISE LEVEL CALCULATIONS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	Backyard With Wall	*Project Name:*	East Walnut Drive
Road Name:	SR-60	*Job Number:*	11366
Lot No:	Park	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	256,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	25,630 vehicles
Vehicle Speed:	70 mph
Near/Far Lane Distance:	110 feet

Site Data

Barrier Height:	**12.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	103.0 feet
Centerline Dist. to Observer:	125.0 feet
Barrier Distance to Observer:	22.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	499.0 feet
Road Elevation:	500.0 feet
Barrier Elevation:	500.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	88.62%
Medium Trucks:	84.8%	4.9%	10.3%	3.59%
Heavy Trucks:	86.5%	2.7%	10.8%	7.79%

Noise Source Elevations (in feet)

Autos:	500.000		
Medium Trucks:	502.297		
Heavy Trucks:	508.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	111.318
Medium Trucks:	111.034
Heavy Trucks:	110.587

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	76.79	9.81	-5.32	-1.20	*2.00*	-12.300	-15.300
Medium Trucks:	82.53	-4.12	-5.30	-1.20	*1.81*	-11.920	-14.920
Heavy Trucks:	85.83	-0.75	-5.27	-1.20	*1.39*	-11.080	-14.080

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	80.1	78.2	76.4	70.4	79.0	79.6
Medium Trucks:	71.9	70.4	64.0	62.5	71.0	71.2
Heavy Trucks:	78.6	77.2	68.1	69.4	77.7	77.9
Vehicle Noise:	82.8	81.1	77.2	73.3	81.8	82.2

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	67.8	65.9	64.1	58.1	66.7	67.3
Medium Trucks:	60.0	58.5	52.1	50.6	59.0	59.3
Heavy Trucks:	67.5	66.1	57.1	58.3	66.7	66.8
Vehicle Noise:	71.0	69.4	65.1	61.6	70.0	70.4

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	811	1,748	3,766	8,113

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	Backyard With Wall	*Project Name:*	East Walnut Drive
Road Name:	SR-60	*Job Number:*	11366
Lot No:	West Buildings	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	256,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	25,630 vehicles
Vehicle Speed:	70 mph
Near/Far Lane Distance:	110 feet

Site Data

Barrier Height:	**12.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	104.0 feet
Centerline Dist. to Observer:	171.0 feet
Barrier Distance to Observer:	67.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	500.0 feet
Road Elevation:	500.0 feet
Barrier Elevation:	500.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	88.62%
Medium Trucks:	84.8%	4.9%	10.3%	3.59%
Heavy Trucks:	86.5%	2.7%	10.8%	7.79%

Noise Source Elevations (in feet)

Autos:	500.000		
Medium Trucks:	502.297		
Heavy Trucks:	508.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	156.443
Medium Trucks:	156.163
Heavy Trucks:	155.722

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	76.79	9.81	-7.53	-1.20	*0.96*	-10.180	-13.180
Medium Trucks:	82.53	-4.12	-7.52	-1.20	*0.78*	-9.620	-12.620
Heavy Trucks:	85.83	-0.75	-7.50	-1.20	*0.41*	-8.050	-11.050

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	77.9	76.0	74.2	68.1	76.8	77.4
Medium Trucks:	69.7	68.2	61.8	60.3	68.7	69.0
Heavy Trucks:	76.4	74.9	65.9	67.2	75.5	75.6
Vehicle Noise:	80.6	78.9	75.0	71.1	79.6	80.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.7	65.8	64.0	58.0	66.6	67.2
Medium Trucks:	60.1	58.6	52.2	50.7	59.1	59.4
Heavy Trucks:	68.3	66.9	57.9	59.1	67.5	67.6
Vehicle Noise:	71.4	69.7	65.2	61.9	70.4	70.7

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	789	1,700	3,663	7,891

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	Backyard With Wall	*Project Name:*	East Walnut Drive
Road Name:	Walnut Dr.	*Job Number:*	11366
Lot No:	West Buildings	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,500 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	10 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	500.0 feet
Road Elevation:	500.0 feet
Barrier Elevation:	500.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	500.000		
Medium Trucks:	502.297		
Heavy Trucks:	508.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	66.000
Medium Trucks:	65.866
Heavy Trucks:	65.879

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	0.90	-1.91	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	74.83	-16.34	-1.90	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	80.05	-20.29	-1.90	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.9	61.0	59.2	53.2	61.8	62.4
Medium Trucks:	55.4	53.9	47.5	46.0	54.4	54.7
Heavy Trucks:	56.7	55.2	46.2	47.4	55.8	55.9
Vehicle Noise:	64.4	62.6	59.7	54.8	63.4	63.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.9	61.0	59.2	53.2	61.8	62.4
Medium Trucks:	55.4	53.9	47.5	46.0	54.4	54.7
Heavy Trucks:	56.7	55.2	46.2	47.4	55.8	55.9
Vehicle Noise:	64.4	62.6	59.7	54.8	63.4	63.8

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	26	55	119	257

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	Backyard With Wall	*Project Name:*	East Walnut Drive
Road Name:	SR-60	*Job Number:*	11366
Lot No:	Center Buildings	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	256,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	25,630 vehicles
Vehicle Speed:	70 mph
Near/Far Lane Distance:	110 feet

Site Data

Barrier Height:	**12.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	105.0 feet
Centerline Dist. to Observer:	170.0 feet
Barrier Distance to Observer:	65.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	500.0 feet
Road Elevation:	500.0 feet
Barrier Elevation:	500.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	88.62%
Medium Trucks:	84.8%	4.9%	10.3%	3.59%
Heavy Trucks:	86.5%	2.7%	10.8%	7.79%

Noise Source Elevations (in feet)

Autos:	500.000		
Medium Trucks:	502.297		
Heavy Trucks:	508.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	155.620
Medium Trucks:	155.343
Heavy Trucks:	154.908

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	76.79	9.81	-7.50	-1.20	*0.96*	-10.180	-13.180
Medium Trucks:	82.53	-4.12	-7.49	-1.20	*0.78*	-9.620	-12.620
Heavy Trucks:	85.83	-0.75	-7.47	-1.20	*0.42*	-8.100	-11.100

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	77.9	76.0	74.2	68.2	76.8	77.4
Medium Trucks:	69.7	68.2	61.9	60.3	68.8	69.0
Heavy Trucks:	76.4	75.0	65.9	67.2	75.5	75.7
Vehicle Noise:	80.6	78.9	75.0	71.1	79.6	80.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.7	65.8	64.1	58.0	66.6	67.2
Medium Trucks:	60.1	58.6	52.2	50.7	59.2	59.4
Heavy Trucks:	68.3	66.9	57.8	59.1	67.4	67.6
Vehicle Noise:	71.4	69.7	65.2	61.9	70.4	70.7

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	789	1,699	3,660	7,886

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	Backyard With Wall	*Project Name:*	East Walnut Drive
Road Name:	Walnut Dr.	*Job Number:*	11366
Lot No:	Center Buildings	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,500 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	10 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	500.0 feet
Road Elevation:	500.0 feet
Barrier Elevation:	500.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	500.000		
Medium Trucks:	502.297		
Heavy Trucks:	508.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	44.000
Medium Trucks:	43.798
Heavy Trucks:	43.818

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	0.90	0.73	-1.20	*-4.61*	0.000	0.000
Medium Trucks:	74.83	-16.34	0.76	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	80.05	-20.29	0.76	-1.20	*-5.50*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.5	63.6	61.9	55.8	64.4	65.0
Medium Trucks:	58.1	56.5	50.2	48.6	57.1	57.3
Heavy Trucks:	59.3	57.9	48.9	50.1	58.5	58.6
Vehicle Noise:	67.1	65.3	62.4	57.5	66.0	66.5

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.5	63.6	61.9	55.8	64.4	65.0
Medium Trucks:	58.1	56.5	50.2	48.6	57.1	57.3
Heavy Trucks:	59.3	57.9	48.9	50.1	58.5	58.6
Vehicle Noise:	67.1	65.3	62.4	57.5	66.0	66.5

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	26	55	119	257

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	Backyard With Wall	*Project Name:*	East Walnut Drive
Road Name:	SR-60	*Job Number:*	11366
Lot No:	East Buildings	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	256,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	25,630 vehicles
Vehicle Speed:	70 mph
Near/Far Lane Distance:	110 feet

Site Data

Barrier Height:	**12.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	106.0 feet
Centerline Dist. to Observer:	129.0 feet
Barrier Distance to Observer:	23.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	500.0 feet
Road Elevation:	500.0 feet
Barrier Elevation:	500.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	88.62%
Medium Trucks:	84.8%	4.9%	10.3%	3.59%
Heavy Trucks:	86.5%	2.7%	10.8%	7.79%

Noise Source Elevations (in feet)

Autos:	500.000		
Medium Trucks:	502.297		
Heavy Trucks:	508.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	115.447
Medium Trucks:	115.174
Heavy Trucks:	114.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	76.79	9.81	-5.55	-1.20	*1.59*	-11.480	-14.480
Medium Trucks:	82.53	-4.12	-5.54	-1.20	*1.43*	-11.160	-14.160
Heavy Trucks:	85.83	-0.75	-5.51	-1.20	*1.06*	-10.420	-13.420

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	79.8	77.9	76.2	70.1	78.7	79.3
Medium Trucks:	71.7	70.2	63.8	62.3	70.7	71.0
Heavy Trucks:	78.4	76.9	67.9	69.1	77.5	77.6
Vehicle Noise:	82.5	80.9	77.0	73.1	81.6	81.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.4	66.5	64.7	58.6	67.3	67.9
Medium Trucks:	60.5	59.0	52.6	51.1	59.6	59.8
Heavy Trucks:	67.9	66.5	57.5	58.7	67.1	67.2
Vehicle Noise:	71.5	69.9	65.7	62.1	70.5	70.9

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	807	1,739	3,747	8,072

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	Backyard With Wall	*Project Name:*	East Walnut Drive
Road Name:	Walnut Dr.	*Job Number:*	11366
Lot No:	East Buildings	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,500 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	10 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	45.0 feet
Centerline Dist. to Observer:	45.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	500.0 feet
Road Elevation:	500.0 feet
Barrier Elevation:	500.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	500.000		
Medium Trucks:	502.297		
Heavy Trucks:	508.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	65.11	0.90	0.58	-1.20	*-4.62*	0.000	0.000
Medium Trucks:	74.83	-16.34	0.61	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	80.05	-20.29	0.61	-1.20	*-5.49*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.4	63.5	61.7	55.7	64.3	64.9
Medium Trucks:	57.9	56.4	50.0	48.5	56.9	57.2
Heavy Trucks:	59.2	57.7	48.7	50.0	58.3	58.4
Vehicle Noise:	66.9	65.1	62.2	57.3	65.9	66.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.4	63.5	61.7	55.7	64.3	64.9
Medium Trucks:	57.9	56.4	50.0	48.5	56.9	57.2
Heavy Trucks:	59.2	57.7	48.7	50.0	58.3	58.4
Vehicle Noise:	66.9	65.1	62.2	57.3	65.9	66.3

Centerline Distance to Noise Contour (in feet)	*70 dBA*	*65 dBA*	*60 dBA*	*55 dBA*
CNEL:	26	55	119	257

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	First Floor With Wall	*Project Name:*	East Walnut Drive
Road Name:	SR-60	*Job Number:*	11366
Lot No:	West Buildings	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	256,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	25,630 vehicles
Vehicle Speed:	70 mph
Near/Far Lane Distance:	110 feet

Site Data

Barrier Height:	**12.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	104.0 feet
Centerline Dist. to Observer:	171.0 feet
Barrier Distance to Observer:	67.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	500.0 feet
Road Elevation:	500.0 feet
Barrier Elevation:	500.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	88.62%
Medium Trucks:	84.8%	4.9%	10.3%	3.59%
Heavy Trucks:	86.5%	2.7%	10.8%	7.79%

Noise Source Elevations (in feet)

Autos:	500.000		
Medium Trucks:	502.297		
Heavy Trucks:	508.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	156.443
Medium Trucks:	156.163
Heavy Trucks:	155.722

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	76.79	9.81	-7.53	-1.20	*0.96*	-10.180	-13.180
Medium Trucks:	82.53	-4.12	-7.52	-1.20	*0.78*	-9.620	-12.620
Heavy Trucks:	85.83	-0.75	-7.50	-1.20	*0.41*	-8.050	-11.050

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	77.9	76.0	74.2	68.1	76.8	77.4
Medium Trucks:	69.7	68.2	61.8	60.3	68.7	69.0
Heavy Trucks:	76.4	74.9	65.9	67.2	75.5	75.6
Vehicle Noise:	80.6	78.9	75.0	71.1	79.6	80.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.7	65.8	64.0	58.0	66.6	67.2
Medium Trucks:	60.1	58.6	52.2	50.7	59.1	59.4
Heavy Trucks:	68.3	66.9	57.9	59.1	67.5	67.6
Vehicle Noise:	71.4	69.7	65.2	61.9	70.4	70.7

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	First Floor With Wall	*Project Name:*	East Walnut Drive
Road Name:	Walnut Dr.	*Job Number:*	11366
Lot No:	West Buildings	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,500 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	10 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	500.0 feet
Road Elevation:	500.0 feet
Barrier Elevation:	500.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	500.000		
Medium Trucks:	502.297		
Heavy Trucks:	508.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	66.000
Medium Trucks:	65.866
Heavy Trucks:	65.879

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	65.11	0.90	-1.91	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	74.83	-16.34	-1.90	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	80.05	-20.29	-1.90	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.9	61.0	59.2	53.2	61.8	62.4
Medium Trucks:	55.4	53.9	47.5	46.0	54.4	54.7
Heavy Trucks:	56.7	55.2	46.2	47.4	55.8	55.9
Vehicle Noise:	64.4	62.6	59.7	54.8	63.4	63.8

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	62.9	61.0	59.2	53.2	61.8	62.4
Medium Trucks:	55.4	53.9	47.5	46.0	54.4	54.7
Heavy Trucks:	56.7	55.2	46.2	47.4	55.8	55.9
Vehicle Noise:	64.4	62.6	59.7	54.8	63.4	63.8

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	First Floor With Wall	*Project Name:*	East Walnut Drive
Road Name:	SR-60	*Job Number:*	11366
Lot No:	Center Buildings	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	256,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	25,630 vehicles
Vehicle Speed:	70 mph
Near/Far Lane Distance:	110 feet

Site Data

Barrier Height:	**12.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	105.0 feet
Centerline Dist. to Observer:	170.0 feet
Barrier Distance to Observer:	65.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	500.0 feet
Road Elevation:	500.0 feet
Barrier Elevation:	500.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	88.62%
Medium Trucks:	84.8%	4.9%	10.3%	3.59%
Heavy Trucks:	86.5%	2.7%	10.8%	7.79%

Noise Source Elevations (in feet)

Autos:	500.000		
Medium Trucks:	502.297		
Heavy Trucks:	508.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	155.620
Medium Trucks:	155.343
Heavy Trucks:	154.908

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	76.79	9.81	-7.50	-1.20	*0.96*	-10.180	-13.180
Medium Trucks:	82.53	-4.12	-7.49	-1.20	*0.78*	-9.620	-12.620
Heavy Trucks:	85.83	-0.75	-7.47	-1.20	*0.42*	-8.100	-11.100

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	77.9	76.0	74.2	68.2	76.8	77.4
Medium Trucks:	69.7	68.2	61.9	60.3	68.8	69.0
Heavy Trucks:	76.4	75.0	65.9	67.2	75.5	75.7
Vehicle Noise:	80.6	78.9	75.0	71.1	79.6	80.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	67.7	65.8	64.1	58.0	66.6	67.2
Medium Trucks:	60.1	58.6	52.2	50.7	59.2	59.4
Heavy Trucks:	68.3	66.9	57.8	59.1	67.4	67.6
Vehicle Noise:	71.4	69.7	65.2	61.9	70.4	70.7

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	First Floor With Wall	*Project Name:*	East Walnut Drive
Road Name:	Walnut Dr.	*Job Number:*	11366
Lot No:	Center Buildings	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,500 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	10 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	500.0 feet
Road Elevation:	500.0 feet
Barrier Elevation:	500.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	500.000		
Medium Trucks:	502.297		
Heavy Trucks:	508.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	44.000
Medium Trucks:	43.798
Heavy Trucks:	43.818

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	65.11	0.90	0.73	-1.20	*-4.61*	0.000	0.000
Medium Trucks:	74.83	-16.34	0.76	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	80.05	-20.29	0.76	-1.20	*-5.50*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.5	63.6	61.9	55.8	64.4	65.0
Medium Trucks:	58.1	56.5	50.2	48.6	57.1	57.3
Heavy Trucks:	59.3	57.9	48.9	50.1	58.5	58.6
Vehicle Noise:	67.1	65.3	62.4	57.5	66.0	66.5

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.5	63.6	61.9	55.8	64.4	65.0
Medium Trucks:	58.1	56.5	50.2	48.6	57.1	57.3
Heavy Trucks:	59.3	57.9	48.9	50.1	58.5	58.6
Vehicle Noise:	67.1	65.3	62.4	57.5	66.0	66.5

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	First Floor With Wall	*Project Name:*	East Walnut Drive
Road Name:	SR-60	*Job Number:*	11366
Lot No:	East Buildings	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	256,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	25,630 vehicles
Vehicle Speed:	70 mph
Near/Far Lane Distance:	110 feet

Site Data

Barrier Height:	**12.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	106.0 feet
Centerline Dist. to Observer:	129.0 feet
Barrier Distance to Observer:	23.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	500.0 feet
Road Elevation:	500.0 feet
Barrier Elevation:	500.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	88.62%
Medium Trucks:	84.8%	4.9%	10.3%	3.59%
Heavy Trucks:	86.5%	2.7%	10.8%	7.79%

Noise Source Elevations (in feet)

Autos:	500.000		
Medium Trucks:	502.297		
Heavy Trucks:	508.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	115.447
Medium Trucks:	115.174
Heavy Trucks:	114.744

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	76.79	9.81	-5.55	-1.20	*1.59*	-11.480	-14.480
Medium Trucks:	82.53	-4.12	-5.54	-1.20	*1.43*	-11.160	-14.160
Heavy Trucks:	85.83	-0.75	-5.51	-1.20	*1.06*	-10.420	-13.420

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	79.8	77.9	76.2	70.1	78.7	79.3
Medium Trucks:	71.7	70.2	63.8	62.3	70.7	71.0
Heavy Trucks:	78.4	76.9	67.9	69.1	77.5	77.6
Vehicle Noise:	82.5	80.9	77.0	73.1	81.6	81.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.4	66.5	64.7	58.6	67.3	67.9
Medium Trucks:	60.5	59.0	52.6	51.1	59.6	59.8
Heavy Trucks:	67.9	66.5	57.5	58.7	67.1	67.2
Vehicle Noise:	71.5	69.9	65.7	62.1	70.5	70.9

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario: First Floor With Wall
Road Name: Walnut Dr.
Lot No: East Buildings

Project Name: East Walnut Drive
Job Number: 11366
Analyst: A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,500 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	10 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	45.0 feet
Centerline Dist. to Observer:	45.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	500.0 feet
Road Elevation:	500.0 feet
Barrier Elevation:	500.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	500.000		
Medium Trucks:	502.297		
Heavy Trucks:	508.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	45.000
Medium Trucks:	44.803
Heavy Trucks:	44.822

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	65.11	0.90	0.58	-1.20	*-4.62*	0.000	0.000
Medium Trucks:	74.83	-16.34	0.61	-1.20	*-4.87*	0.000	0.000
Heavy Trucks:	80.05	-20.29	0.61	-1.20	*-5.49*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.4	63.5	61.7	55.7	64.3	64.9
Medium Trucks:	57.9	56.4	50.0	48.5	56.9	57.2
Heavy Trucks:	59.2	57.7	48.7	50.0	58.3	58.4
Vehicle Noise:	66.9	65.1	62.2	57.3	65.9	66.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	65.4	63.5	61.7	55.7	64.3	64.9
Medium Trucks:	57.9	56.4	50.0	48.5	56.9	57.2
Heavy Trucks:	59.2	57.7	48.7	50.0	58.3	58.4
Vehicle Noise:	66.9	65.1	62.2	57.3	65.9	66.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	Second Floor With Wall	*Project Name:*	East Walnut Drive
Road Name:	SR-60	*Job Number:*	11366
Lot No:	West Buildings	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	256,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	25,630 vehicles
Vehicle Speed:	70 mph
Near/Far Lane Distance:	110 feet

Site Data

Barrier Height:	**12.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	104.0 feet
Centerline Dist. to Observer:	171.0 feet
Barrier Distance to Observer:	67.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	500.0 feet
Road Elevation:	500.0 feet
Barrier Elevation:	500.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	88.62%
Medium Trucks:	84.8%	4.9%	10.3%	3.59%
Heavy Trucks:	86.5%	2.7%	10.8%	7.79%

Noise Source Elevations (in feet)

Autos:	500.000		
Medium Trucks:	502.297		
Heavy Trucks:	508.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	156.108
Medium Trucks:	155.828
Heavy Trucks:	155.387

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	76.79	9.81	-7.52	-1.20	*0.14*	-6.320	-9.320
Medium Trucks:	82.53	-4.12	-7.51	-1.20	*0.08*	-5.800	-8.800
Heavy Trucks:	85.83	-0.75	-7.49	-1.20	*0.00*	-4.900	-7.900

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	77.9	76.0	74.2	68.2	76.8	77.4
Medium Trucks:	69.7	68.2	61.8	60.3	68.8	69.0
Heavy Trucks:	76.4	75.0	65.9	67.2	75.5	75.7
Vehicle Noise:	80.6	78.9	75.0	71.1	79.6	80.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.6	69.7	67.9	61.8	70.5	71.1
Medium Trucks:	63.9	62.4	56.0	54.5	63.0	63.2
Heavy Trucks:	71.5	70.1	61.0	62.3	70.6	70.8
Vehicle Noise:	74.9	73.2	68.9	65.4	73.9	74.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	Second Floor With Wall	*Project Name:*	East Walnut Drive
Road Name:	Walnut Dr.	*Job Number:*	11366
Lot No:	West Buildings	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,500 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	10 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	500.0 feet
Road Elevation:	500.0 feet
Barrier Elevation:	500.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	500.000		
Medium Trucks:	502.297		
Heavy Trucks:	508.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	67.283
Medium Trucks:	66.843
Heavy Trucks:	66.083

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	0.90	-2.04	-1.20	*-12.26*	0.000	0.000
Medium Trucks:	74.83	-16.34	-1.99	-1.20	*-12.73*	0.000	0.000
Heavy Trucks:	80.05	-20.29	-1.92	-1.20	*-13.91*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.8	60.9	59.1	53.1	61.7	62.3
Medium Trucks:	55.3	53.8	47.4	45.9	54.3	54.6
Heavy Trucks:	56.6	55.2	46.2	47.4	55.8	55.9
Vehicle Noise:	64.3	62.5	59.6	54.7	63.3	63.7

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	62.8	60.9	59.1	53.1	61.7	62.3
Medium Trucks:	55.3	53.8	47.4	45.9	54.3	54.6
Heavy Trucks:	56.6	55.2	46.2	47.4	55.8	55.9
Vehicle Noise:	64.3	62.5	59.6	54.7	63.3	63.7

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	Second Floor With Wall	*Project Name:*	East Walnut Drive
Road Name:	SR-60	*Job Number:*	11366
Lot No:	Center Buildings	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	256,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	25,630 vehicles
Vehicle Speed:	70 mph
Near/Far Lane Distance:	110 feet

Site Data

Barrier Height:	**12.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	105.0 feet
Centerline Dist. to Observer:	170.0 feet
Barrier Distance to Observer:	65.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	500.0 feet
Road Elevation:	500.0 feet
Barrier Elevation:	500.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	88.62%
Medium Trucks:	84.8%	4.9%	10.3%	3.59%
Heavy Trucks:	86.5%	2.7%	10.8%	7.79%

Noise Source Elevations (in feet)

Autos:	500.000		
Medium Trucks:	502.297		
Heavy Trucks:	508.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	155.275
Medium Trucks:	154.998
Heavy Trucks:	154.563

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	76.79	9.81	-7.49	-1.20	*0.14*	-6.320	-9.320
Medium Trucks:	82.53	-4.12	-7.47	-1.20	*0.07*	-5.700	-8.700
Heavy Trucks:	85.83	-0.75	-7.46	-1.20	*0.00*	-4.900	-7.900

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	77.9	76.0	74.2	68.2	76.8	77.4
Medium Trucks:	69.7	68.2	61.9	60.3	68.8	69.0
Heavy Trucks:	76.4	75.0	66.0	67.2	75.6	75.7
Vehicle Noise:	80.6	78.9	75.1	71.1	79.6	80.0

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	71.6	69.7	67.9	61.9	70.5	71.1
Medium Trucks:	64.0	62.5	56.2	54.6	63.1	63.3
Heavy Trucks:	71.5	70.1	61.1	62.3	70.7	70.8
Vehicle Noise:	74.9	73.3	69.0	65.5	74.0	74.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	Second Floor With Wall	*Project Name:*	East Walnut Drive
Road Name:	Walnut Dr.	*Job Number:*	11366
Lot No:	Center Buildings	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,500 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	10 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	44.0 feet
Centerline Dist. to Observer:	44.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	500.0 feet
Road Elevation:	500.0 feet
Barrier Elevation:	500.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	500.000		
Medium Trucks:	502.297		
Heavy Trucks:	508.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	45.902
Medium Trucks:	45.254
Heavy Trucks:	44.124

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	0.90	0.45	-1.20	*-11.57*	0.000	0.000
Medium Trucks:	74.83	-16.34	0.55	-1.20	*-12.26*	0.000	0.000
Heavy Trucks:	80.05	-20.29	0.71	-1.20	*-14.01*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.3	63.4	61.6	55.5	64.2	64.8
Medium Trucks:	57.8	56.3	50.0	48.4	56.9	57.1
Heavy Trucks:	59.3	57.8	48.8	50.1	58.4	58.5
Vehicle Noise:	66.8	65.1	62.1	57.2	65.8	66.3

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.3	63.4	61.6	55.5	64.2	64.8
Medium Trucks:	57.8	56.3	50.0	48.4	56.9	57.1
Heavy Trucks:	59.3	57.8	48.8	50.1	58.4	58.5
Vehicle Noise:	66.8	65.1	62.1	57.2	65.8	66.3

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	Second Floor With Wall	*Project Name:*	East Walnut Drive
Road Name:	SR-60	*Job Number:*	11366
Lot No:	East Buildings	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	256,300 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	25,630 vehicles
Vehicle Speed:	70 mph
Near/Far Lane Distance:	110 feet

Site Data

Barrier Height:	**12.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	106.0 feet
Centerline Dist. to Observer:	129.0 feet
Barrier Distance to Observer:	23.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	500.0 feet
Road Elevation:	500.0 feet
Barrier Elevation:	500.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	77.5%	12.9%	9.6%	88.62%
Medium Trucks:	84.8%	4.9%	10.3%	3.59%
Heavy Trucks:	86.5%	2.7%	10.8%	7.79%

Noise Source Elevations (in feet)

Autos:	500.000		
Medium Trucks:	502.297		
Heavy Trucks:	508.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	114.492
Medium Trucks:	114.219
Heavy Trucks:	116.841

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	76.79	9.81	-5.50	-1.20	*0.01*	-5.100	-8.100
Medium Trucks:	82.53	-4.12	-5.48	-1.20	*0.00*	-4.900	-7.900
Heavy Trucks:	85.83	-0.75	-5.63	-1.20	*-0.02*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	79.9	78.0	76.2	70.2	78.8	79.4
Medium Trucks:	71.7	70.2	63.9	62.3	70.8	71.0
Heavy Trucks:	78.2	76.8	67.8	69.0	77.4	77.5
Vehicle Noise:	82.5	80.9	77.0	73.0	81.5	81.9

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	74.8	72.9	71.1	65.1	73.7	74.3
Medium Trucks:	66.8	65.3	59.0	57.4	65.9	66.1
Heavy Trucks:	78.2	76.8	67.8	69.0	77.4	77.5
Vehicle Noise:	80.1	78.5	73.0	70.7	79.1	79.4

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (CALVENO) - 6/2/2013

Scenario:	Second Floor With Wall	*Project Name:*	East Walnut Drive
Road Name:	Walnut Dr.	*Job Number:*	11366
Lot No:	East Buildings	*Analyst:*	A. Wolfe

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,000 vehicles
Peak Hour Percentage:	10%
Peak Hour Volume:	1,500 vehicles
Vehicle Speed:	35 mph
Near/Far Lane Distance:	10 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	45.0 feet
Centerline Dist. to Observer:	45.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	14.0 feet
Pad Elevation:	500.0 feet
Road Elevation:	500.0 feet
Barrier Elevation:	500.0 feet
Road Grade:	0.0%

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	77.5%	12.9%	9.6%	97.42%
Medium Trucks:	84.8%	4.9%	10.3%	1.84%
Heavy Trucks:	86.5%	2.7%	10.8%	0.74%

Noise Source Elevations (in feet)

Autos:	500.000		
Medium Trucks:	502.297		
Heavy Trucks:	508.006	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	46.861
Medium Trucks:	46.227
Heavy Trucks:	45.121

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	65.11	0.90	0.32	-1.20	*-11.62*	0.000	0.000
Medium Trucks:	74.83	-16.34	0.41	-1.20	*-12.29*	0.000	0.000
Heavy Trucks:	80.05	-20.29	0.57	-1.20	*-14.00*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.1	63.2	61.5	55.4	64.0	64.6
Medium Trucks:	57.7	56.2	49.8	48.3	56.7	57.0
Heavy Trucks:	59.1	57.7	48.7	49.9	58.3	58.4
Vehicle Noise:	66.7	64.9	62.0	57.1	65.7	66.1

Mitigated Noise Levels (with Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	65.1	63.2	61.5	55.4	64.0	64.6
Medium Trucks:	57.7	56.2	49.8	48.3	56.7	57.0
Heavy Trucks:	59.1	57.7	48.7	49.9	58.3	58.4
Vehicle Noise:	66.7	64.9	62.0	57.1	65.7	66.1

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APPENDIX 9.1:

OPERATIONAL STATIONARY-SOURCE NOISE CALCULATIONS

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STATIONARY SOURCE NOISE PREDICTION MODEL 12/4/2017

Observer Location: **R1**
Source: Playground Activities
Condition: Operational

Project Name: East Walnut Drive
Job Number: 11366
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	360.0 feet	***Barrier Height:***	**60.0 feet**
Noise Distance to Barrier:	350.0 feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	10.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	560.0 feet	*Barrier Type (0-Wall, 1-Berm):*	1
Noise Source Elevation:	500.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	500.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	0.0	61.7	64.1	67.0	69.7	73.9
Distance Attenuation	360.0	-37.1	-37.1	-37.1	-37.1	-37.1	-37.1
Shielding (Barrier Attenuation)	350.0	-8.4	-8.4	-8.4	-8.4	-8.4	-8.4
Raw (Distance + Barrier)		-45.5	16.2	18.6	21.5	24.2	28.4
60 Minute Hourly Adjustment		**-45.5**	**16.2**	**18.6**	**21.5**	**24.2**	**28.4**

STATIONARY SOURCE NOISE PREDICTION MODEL 12/4/2017

Observer Location: **R2**
Source: Playground Activities
Condition: Operational

Project Name: East Walnut Drive
Job Number: 11366
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	213.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	213.0 feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	0.0	61.7	64.1	67.0	69.7	73.9
Distance Attenuation	213.0	-32.6	-32.6	-32.6	-32.6	-32.6	-32.6
Shielding (Barrier Attenuation)	213.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		-32.6	29.1	31.5	34.4	37.1	41.3
60 Minute Hourly Adjustment		**-32.6**	**29.1**	**31.5**	**34.4**	**37.1**	**41.3**

STATIONARY SOURCE NOISE PREDICTION MODEL 12/4/2017

Observer Location: **R3**
Source: Playground Activities
Condition: Operational

Project Name: East Walnut Drive
Job Number: 11366
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	519.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	519.0 feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	0.0	61.7	64.1	67.0	69.7	73.9
Distance Attenuation	519.0	-40.3	-40.3	-40.3	-40.3	-40.3	-40.3
Shielding (Barrier Attenuation)	519.0	0.0	0.0	0.0	0.0	0.0	0.0
Raw (Distance + Barrier)		-40.3	21.4	23.8	26.7	29.4	33.6
60 Minute Hourly Adjustment		**-40.3**	**21.4**	**23.8**	**26.7**	**29.4**	**33.6**

STATIONARY SOURCE NOISE PREDICTION MODEL 12/4/2017

Observer Location: **R4**
Source: Playground Activities
Condition: Operational

Project Name: East Walnut Drive
Job Number: 11366
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	907.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	897.0 feet	*Noise Source Height:*	4.0 feet
Barrier Distance to Observer:	10.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	5.0	0.0	61.7	64.1	67.0	69.7	73.9
Distance Attenuation	907.0	-45.2	-45.2	-45.2	-45.2	-45.2	-45.2
Shielding (Barrier Attenuation)	897.0	-5.5	-5.5	-5.5	-5.5	-5.5	-5.5
Raw (Distance + Barrier)		-50.7	11.0	13.4	16.3	19.0	23.2
60 Minute Hourly Adjustment		**-50.7**	**11.0**	**13.4**	**16.3**	**19.0**	**23.2**

APPENDIX 10.1:

CONSTRUCTION NOISE BARRIER ATTENUATION CALCULATIONS

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STATIONARY SOURCE NOISE PREDICTION MODEL 12/4/2017

Observer Location: **R1**
Source: Peak Mobile Construction Activity
Condition: Construction Unmitigated

Project Name: East Walnut Dr
Job Number: 11366
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	350.0 feet	***Barrier Height:***	**60.0 feet**
Noise Distance to Barrier:	340.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	10.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	560.0 feet	*Barrier Type (0-Wall, 1-Berm):*	1
Noise Source Elevation:	500.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	500.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	50.0	0.0	0.0	0.0	0.0	0.0	81.6
Distance Attenuation	350.0	-16.9	-16.9	-16.9	-16.9	-16.9	-16.9
Shielding (Barrier Attenuation)	340.0	-8.5	-8.5	-8.5	-8.5	-8.5	-8.5

STATIONARY SOURCE NOISE PREDICTION MODEL 12/4/2017

Observer Location: **R1**
Source: Peak Stationary Construction Activity
Condition: Construction Unmitigated

Project Name: East Walnut Dr
Job Number: 11366
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	350.0 feet	***Barrier Height:***	**60.0 feet**
Noise Distance to Barrier:	340.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	10.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	560.0 feet	*Barrier Type (0-Wall, 1-Berm):*	1
Noise Source Elevation:	500.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	500.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	50.0	0.0	0.0	0.0	0.0	0.0	72.3
Distance Attenuation	350.0	-16.9	-16.9	-16.9	-16.9	-16.9	-16.9
Shielding (Barrier Attenuation)	340.0	-8.5	-8.5	-8.5	-8.5	-8.5	-8.5

STATIONARY SOURCE NOISE PREDICTION MODEL 12/4/2017

Observer Location: **R2**
Source: Peak Mobile Construction Activity
Condition: Construction Unmitigated

Project Name: East Walnut Dr
Job Number: 11366
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	93.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	93.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	50.0	0.0	0.0	0.0	0.0	0.0	81.6
Distance Attenuation	93.0	-5.4	-5.4	-5.4	-5.4	-5.4	-5.4
Shielding (Barrier Attenuation)	93.0	0.0	0.0	0.0	0.0	0.0	0.0

STATIONARY SOURCE NOISE PREDICTION MODEL 12/4/2017

Observer Location: **R2**
Source: Peak Stationary Construction Activity
Condition: Construction Unmitigated

Project Name: East Walnut Dr
Job Number: 11366
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	93.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	93.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	50.0	0.0	0.0	0.0	0.0	0.0	72.3
Distance Attenuation	93.0	-5.4	-5.4	-5.4	-5.4	-5.4	-5.4
Shielding (Barrier Attenuation)	93.0	0.0	0.0	0.0	0.0	0.0	0.0

STATIONARY SOURCE NOISE PREDICTION MODEL 12/4/2017

Observer Location: **R3**
Source: Peak Mobile Construction Activity
Condition: Construction Unmitigated

Project Name: East Walnut Dr
Job Number: 11366
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	84.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	84.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	50.0	0.0	0.0	0.0	0.0	0.0	81.6
Distance Attenuation	84.0	-4.5	-4.5	-4.5	-4.5	-4.5	-4.5
Shielding (Barrier Attenuation)	84.0	0.0	0.0	0.0	0.0	0.0	0.0

STATIONARY SOURCE NOISE PREDICTION MODEL 12/4/2017

Observer Location: **R3**
Source: Peak Stationary Construction Activity
Condition: Construction Unmitigated

Project Name: East Walnut Dr
Job Number: 11366
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	84.0 feet	***Barrier Height:***	**0.0 feet**
Noise Distance to Barrier:	84.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	0.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	50.0	0.0	0.0	0.0	0.0	0.0	72.3
Distance Attenuation	84.0	-4.5	-4.5	-4.5	-4.5	-4.5	-4.5
Shielding (Barrier Attenuation)	84.0	0.0	0.0	0.0	0.0	0.0	0.0

STATIONARY SOURCE NOISE PREDICTION MODEL 12/4/2017

Observer Location: **R4**
Source: Peak Mobile Construction Activity
Condition: Construction Unmitigated

Project Name: East Walnut Dr
Job Number: 11366
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	40.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	30.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	10.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	50.0	0.0	0.0	0.0	0.0	0.0	81.6
Distance Attenuation	40.0	1.9	1.9	1.9	1.9	1.9	1.9
Shielding (Barrier Attenuation)	30.0	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9

STATIONARY SOURCE NOISE PREDICTION MODEL 12/4/2017

Observer Location: **R4**
Source: Peak Stationary Construction Activity
Condition: Construction Unmitigated

Project Name: East Walnut Dr
Job Number: 11366
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	40.0 feet	***Barrier Height:***	**6.0 feet**
Noise Distance to Barrier:	30.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	10.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	50.0	0.0	0.0	0.0	0.0	0.0	72.3
Distance Attenuation	40.0	1.9	1.9	1.9	1.9	1.9	1.9
Shielding (Barrier Attenuation)	30.0	-4.9	-4.9	-4.9	-4.9	-4.9	-4.9

STATIONARY SOURCE NOISE PREDICTION MODEL 12/4/2017

Observer Location: **R2**
Source: Peak Mobile Construction Activity
Condition: Construction Mitigated

Project Name: East Walnut Dr
Job Number: 11366
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	93.0 feet	***Barrier Height:***	**9.0 feet**
Noise Distance to Barrier:	10.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	83.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	50.0	0.0	0.0	0.0	0.0	0.0	81.6
Distance Attenuation	93.0	-5.4	-5.4	-5.4	-5.4	-5.4	-5.4
Shielding (Barrier Attenuation)	10.0	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0

STATIONARY SOURCE NOISE PREDICTION MODEL 12/4/2017

Observer Location: **R2**
Source: Peak Stationary Construction Activity
Condition: Construction Mitigated

Project Name: East Walnut Dr
Job Number: 11366
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	93.0 feet	***Barrier Height:***	**9.0 feet**
Noise Distance to Barrier:	10.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	83.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	50.0	0.0	0.0	0.0	0.0	0.0	72.3
Distance Attenuation	93.0	-5.4	-5.4	-5.4	-5.4	-5.4	-5.4
Shielding (Barrier Attenuation)	10.0	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0

STATIONARY SOURCE NOISE PREDICTION MODEL 12/4/2017

Observer Location: **R3**
Source: Peak Mobile Construction Activity
Condition: Construction Mitigated

Project Name: East Walnut Dr
Job Number: 11366
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	84.0 feet	***Barrier Height:***	**9.0 feet**
Noise Distance to Barrier:	10.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	74.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	50.0	0.0	0.0	0.0	0.0	0.0	81.6
Distance Attenuation	84.0	-4.5	-4.5	-4.5	-4.5	-4.5	-4.5
Shielding (Barrier Attenuation)	10.0	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0

STATIONARY SOURCE NOISE PREDICTION MODEL 12/4/2017

Observer Location: **R3**
Source: Peak Stationary Construction Activity
Condition: Construction Mitigated

Project Name: East Walnut Dr
Job Number: 11366
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	84.0 feet	***Barrier Height:***	**9.0 feet**
Noise Distance to Barrier:	10.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	74.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	50.0	0.0	0.0	0.0	0.0	0.0	72.3
Distance Attenuation	84.0	-4.5	-4.5	-4.5	-4.5	-4.5	-4.5
Shielding (Barrier Attenuation)	10.0	-6.0	-6.0	-6.0	-6.0	-6.0	-6.0

STATIONARY SOURCE NOISE PREDICTION MODEL 12/4/2017

Observer Location: **R4**
Source: Peak Mobile Construction Activity
Condition: Construction Mitigated

Project Name: East Walnut Dr
Job Number: 11366
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	40.0 feet	***Barrier Height:***	**9.0 feet**
Noise Distance to Barrier:	10.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	30.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	50.0	0.0	0.0	0.0	0.0	0.0	81.6
Distance Attenuation	40.0	1.9	1.9	1.9	1.9	1.9	1.9
Shielding (Barrier Attenuation)	10.0	-6.8	-6.8	-6.8	-6.8	-6.8	-6.8

STATIONARY SOURCE NOISE PREDICTION MODEL 12/4/2017

Observer Location: **R4**
Source: Peak Stationary Construction Activity
Condition: Construction Mitigated

Project Name: East Walnut Dr
Job Number: 11366
Analyst: A. Wolfe

NOISE MODEL INPUTS

Noise Distance to Observer	40.0 feet	***Barrier Height:***	**9.0 feet**
Noise Distance to Barrier:	10.0 feet	*Noise Source Height:*	8.0 feet
Barrier Distance to Observer:	30.0 feet	*Observer Height:*	5.0 feet
Observer Elevation:	0.0 feet	*Barrier Type (0-Wall, 1-Berm):*	0
Noise Source Elevation:	0.0 feet	*Drop Off Coefficient:*	20.0
Barrier Elevation:	0.0 feet	20 = 6 dBA per doubling of distance 15 = 4.5 dBA per doubling of distance	

NOISE MODEL PROJECTIONS

Noise Level	*Distance (feet)*	*Leq*	*L50*	*L25*	*L8*	*L2*	*Lmax*
Reference (Sample)	50.0	0.0	0.0	0.0	0.0	0.0	72.3
Distance Attenuation	40.0	1.9	1.9	1.9	1.9	1.9	1.9
Shielding (Barrier Attenuation)	10.0	-6.8	-6.8	-6.8	-6.8	-6.8	-6.8

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APPENDIX 10.2:

TEMPORARY CONSTRUCTION NOISE BARRIER EXAMPLE PHOTOS

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Temporary Construction Noise Barrier Examples

I-Beam & Acoustic Material 01

I-Beam & Acoustic Material 02

I-Beam & Acoustic Material 03

K-Rail Plywood & Acoustic Material

K-Rail Temporary Fence & Acoustic Material

K-Rail-Mounted Acoustic Material 01

Temporary Construction Noise Barrier Examples

Pillar & Acoustic Material

Straw Bales 01

Straw Bales 02

Temporary Fence & Acoustic Material 01

Temporary Fence & Acoustic Material 02

PHASE 1 ENVIRONMENTAL SITE ASSESSMENT

3.86-acre NCO Site (APN 8762-002-902) located at
20249 E. Walnut Drive South in the City of Industry, Los Angeles County, California

Prepared for:

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November 22, 2017

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SECTION 1: Executive Summary

LSA Associates, Inc. (LSA) has prepared a Phase I Environmental Site Assessment (ESA) for the 3.86-acre NCO City of Industry site (APN 8762-002-902) in the City of Industry in Los Angeles County. This ESA report was prepared in conformance with the American Society for Testing and Materials (ASTM) E1527-16 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process and Federal Code 40 CFR Part 312 Standards and Practices for All Appropriate Inquiries.

The subject property consists of approximately 3.86 acres and is located adjacent south of State Route 60 (SR-60) and north of E. Walnut Drive, between Fairway Drive and S. Lemon Avenue. The subject property is approximately 1.4 miles east of the SR-60 and State Route 57 (SR-57) interchange in the eastern portion of City of Industry, Los Angeles County. The subject property is vacant with the exception of one single family house located in the central portion of the site. The site slopes down to the northwest from an elevation of 531 feet above mean sea level on the southeast corner down to 508 feet above mean sea level on the northwestern corner. No onsite indicators of hazardous materials were observed during the visual reconnaissance on November 9, 2017.

This ESA provides evidence that recognized environmental conditions currently do not exist relative to the subject property. A review of historical aerial photographs and historical contamination characterization studies determined hazardous materials were not previously used, stored, and/or disposed of on the site. There were no indications of wells or underground or above-ground storage tanks, and a review of state and local registries did not indicate the presence of any underground or above ground storage tanks on the subject property. A review of government agency databases indicates: 1) the site is not referenced as using, generating, storing, or disposing of hazardous materials; 2) no underground storage tanks have been permitted for the site. There were several offsite facilities listed in the governmental databases as being associated with hazardous materials, but due to the distance and topography in relation to the site, there is no indication that any of these facilities would contribute to hazardous conditions on the subject property.

Groundwater in the general vicinity of the property is contaminated by various volatile organic compounds (VOCs) including trichloroethylene (TCE), perchloroethylene (PCE), and 1, 4-dioxane. Low levels of perchlorate have also been detected in local groundwater. Therefore, LSA recommends that only municipal water supplies be utilized by any future development on this site. No person knowledgeable about the site was found during preparation of this report, but data from other sources was sufficient to make conclusions about site conditions.

Based on available information, LSA concludes there is a low potential for the site to contain any Recognized Environmental Conditions (REC), Controlled Recognized Environmental Conditions (CREC), Historical Recognized Environmental Conditions (HREC), or conditions that would threaten public health or safety. There is evidence the site was used for agriculture for some time in the mid 1900's. Therefore, LSA recommends surficial soil testing for agricultural chemicals. According to building permit data, the single-family residential unit was built in 1964, therefore, the structure may contain asbestos and/or lead-based paint. Due to the age of the onsite structure, LSA recommends testing for asbestos-containing materials (ACMs) and lead-based paint (LBP) prior to demolition.

SECTION 2: Introduction

2.1 Purpose and Scope

The purpose of this Phase I ESA is to identify, to the extent feasible, and pursuant to the processes prescribed herein, recognized environmental conditions in connection with the property.

> *ASTM E 1527 Section 1.1.1 Recognized Environmental Conditions - The term recognized environmental conditions means the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment.*

This report was prepared generally in accordance with the standards and procedures outlined in American Society for Testing and Materials (ASTM) E 1527-16, as applicable. The following principles are integral to the practice: 1) That performance of this ESA is intended to reduce, but not eliminate, uncertainty regarding the potential for recognized environmental conditions in connection with the property; 2) That the level of inquiry into past ownership and use is not exhaustive, and is balanced between the competing goals of limiting costs and time, and the reduction of uncertainty about unknown conditions; and, 3) the appropriate level of inquiry is guided by the type of property, the expertise and risk tolerance of the user, and the information developed as part of this study.

This written Phase I ESA report has three components: 1) records review; 2) site reconnaissance; and 3) interviews with current owners, persons knowledgeable with the property or local environmental conditions, and local government officials.

2.1.1 Special Terms and Conditions

This report was prepared for the use by National Community Renaissance (NCR) and their agents. The results of this study may be used at the discretion of NCR as necessary relative to this property, subject to the limitations identified herein. Any opinions or recommendations presented, apply to site

conditions existing when services were performed. The author is unable to report on or accurately predict events that may change the site conditions after the described services have been performed. The author assumes no responsibility for conditions the author was not authorized to investigate, or conditions not generally recognized as environmentally unacceptable when services were performed.

Environmental conditions may exist at the site that cannot be identified by visual observation. Where the scope of services was limited to observations made during site reconnaissance, interviews, review of available reports and literature or any combination, any conclusions or recommendation are necessarily based, in part, on information supplied by others. The accuracy or sufficiency of reporting information may not have been independently reviewed.

The author has assumed the legal capacity of all legal persons, the genuineness of all signatures, the authenticity of all documents submitted to author as originals, the conforming to original documents of all documents submitted to author as certified photo static copies, or facsimiles, and the authenticity of all the originals. In examination of the documents, it was assumed that all parties had the power, governmental or otherwise, to enter into and perform all obligations under such documents, have further assumed the due authorization by all requisite action, governmental or otherwise, of the execution and delivery by all parties of such documents against all parties in accordance with the terms thereof. Unless otherwise stated, the author did not make independent investigation or inquiry into the accuracy or completeness of the comments and information supplied. The author is not responsible for any potential impact of changes to applicable environmental standards, practices or regulations following performance of services, on the conclusions or recommendations of the study. Services hereunder were performed consistent with our agreement and understanding with, and solely for the use of NCR and their agents. Opinions and recommendations are intended for the client, purpose, site, location, time period, and project parameters indicated. The author is not responsible for subsequent separation, detachment, or partial use of this document. Any reliance on this report by a third party shall be at such party's sole risk.

2.1.2 Limitations and Exceptions of Assessment

A visual site reconnaissance was conducted to check for visible indications of previously disposed hazardous waste, surface contamination or underground storage tanks, as well as a visual survey of nearby properties. This Phase I ESA addresses only the observed surface features. Boreholes were not drilled for the purpose of obtaining subsurface samples, nor were surface samples gathered for analysis which is standard for Phase I reports in accordance with Section 6.4 of ASTM E 1527-16. In addition, the author was unable to contact any persons knowledgeable about the site, but information from other sources was available of which to draw conclusions about previous uses on the site. LSA was provided with prelim soils and geotech data for this site to prepare this report.

2.1.3 Limiting Scope and Methodology

Records Review: The following standard databases and records review search distances were used for this assessment, as measured from the boundaries of the property as recommended under ASTM E 1527-16: EPA and State Government Records, 1-mile search distance for National Priorities List (NPL), Resource Conservation and Recovery Act (RCRA), CORRACTS, and State NPL equivalents; 0.5-mile search distance for RCRA, Treatment Storage and Disposal (TSD), CERCLIS, Solid Waste Landfills (SWL), and Leaking Underground Storage Tank (LUST); and 0.5-mile minimum search distance for NFRAP, RCRA Violators, Emergency Response Notification System (ERNS), Toxic Release Inventory Database (TRIS), hazardous spills since 1990, Registered Underground/ Aboveground Storage Tanks (RUST/AST), 0.5-mile search distance for Spills, Leaks, Investigations, and Cleanups (SLIC), etc. Review of available documents, including maps, aerial photos, applicable information, governmental lists of hazardous waste sites and underground tanks, and other records referenced in Appendix B were obtained and/or reviewed to assist in the identification of recognized environmental conditions in connection with the site.

Data Gaps: LSA was not able to contact anyone knowledgeable about the history of the site, but there were no other data gaps in the preparation of this report.

2.2 All Appropriate Inquiry (AAI)

The Brownfield Amendments to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) was enacted by Congress in 2002 directing the EPA to establish federal regulations for conducting Phase I ESAs. Compliance with these guidelines enables property owners to assume the concept of "innocent landowner, contiguous property owner, or bona fide prospective purchaser" and avoid litigation in cases where hazardous material releases were discovered on property during their tenure of ownership, provided they could prove they did not cause the contamination. A function of this Phase I ESA is to gather sufficient information to develop an independent professional opinion about the environmental condition of the subject property and any potential environmental contamination that may affect the purchaser's claim to an "innocent land owner" defense following the acquisition of the property.

For a Phase I ESA to comply with the EPA's AAI Rule, a set of conditions must be satisfied during the course of the assessment and report generation; these conditions are mandatory for the document to be compliant and protect the landowner. This Phase I Environmental Site Assessment has been performed to comply with 40 Code of Federal Regulations (CFR) 312 (AAI Rule). The signature at the end of this document verifies the investigation associated with the completion of this assessment is in accordance with the EPA's AAI Rule place in effect as of November 2006.

2.3 CREC/HREC and Vapor Migration

The most recent updates to ASTM 1527-16 include a requirement to evaluate "Controlled Recognized Environmental Conditions"(CREC) and "Historical Recognized Environmental Conditions "(HREC). In addition, ASTM E2600-10 (as outlined in the most recent updates to ASTM 1527-16) requires a Phase 1 document to provide a "Vapor Migration Assessment" from onsite or offsite activities that might result in Recognized Vapor Environmental Condition (VEC) on the subject property (see Section 5.7). The subject property is bounded by residential uses to the north, east, and south, and the governmental database report prepared for this Phase I report did not identify any vapor sources adjacent to or immediately up-gradient of the subject property. Therefore, the site is considered to have negligible risk from vapor migration.

Section 3: Site Description

3.1 Location and Legal Description

The subject property consists of approximately 3.86 acres and is located adjacent south of State Route 60 (SR-60) and north of E. Walnut Drive, between Fairway Drive and S. Lemon Avenue, Los Angeles County as depicted on the U.S. Geological Survey (USGS) 7.5-minute *Yorba Linda, California* quadrangle in an un-sectioned area of Township 2 South, Range 9 West (Figures 1 and 2 in Appendix A). The site is located north of E. Walnut Drive and adjacent south of SR-60 between Fairway Drive and S. Lemon Avenue. The site consists of Los Angeles County Assessor's Parcel Number (APN) 8762-002-902. The latitude of the site is 33° 59' 49.1" North and the longitude is 117° 51' 54.5" West.

3.1.1 Site and Vicinity Characteristics

The subject property is vacant with the exception of one single-family residential unit located in the central portion of the subject property. Additionally, a billboard is located, on the northwest corner of the subject site. According to the aerial photographs, a residential unit was once located adjacent north of the subject site, in close proximity to the single-family residential unit that is currently located on the site. Additionally, the site has previously been used for agricultural purposes in the 1920's and ceasing between 1970 and 1983.

The land uses currently surrounding the subject site include single-family residential units to the south and east that have been developed around the 1970's. Just beyond the single-family residential unit is the Royal Vista Golf Club. The Sri Guru Singh Sabha is located west of the site along with a storage facility, just across riparian habitat, while State Route 60 (SR-60) is located directly adjacent north of the site. Industrial uses are located north of the subject site just beyond SR-60 freeway.

3.2 Physical Setting

3.2.1 Topography

The site is located within the United States Geological Survey (USGS) 7.5-minute *Yorba Linda, California* quadrangle. The property slopes down to the northwest from an elevation of 531 feet elevation above mean sea level (amsl) on the southeastern corner down to 508 feet amsl on the northwestern corner (1.9 percent slope down to the northwest). The subject property is located adjacent south of State Route 60 (SR-60) approximately 1.3 miles west of SR-60 and State Route 57 (SR-57) interchange. San Jose Creek is located approximately 0.5 mile north of the site, just north of the industrial buildings.

3.2.2 Geology and Soils

The study area is within the north central Peninsular Ranges Geomorphic Province of California. This geomorphic province is characterized by a series of mountain ranges separated by northwest trending valleys, sub-parallel to branching faults from the San Andreas Fault. The Peninsular Ranges Province extends 900 miles from the Transverse Ranges to the north and southward to the tip of Baja California. The property is south of the San Jacinto Fault Zone and northwest of Chino Hills State Park.

The site is mainly underlain by urban land sorrento-arbolado complex (2-9% slopes) with the southwestern corner of the site underlain by Counterfeit-urban land complex (10-35% slopes, terraced). These soils are well drained and their runoff is very high.[1]

3.2.3 Hydrology

The surrounding area comprises of State Route 60 (SR-60) to the north, single-family residential to the east and south, and a storage facility to the west. The San Gabriel Valley (Area 4) site is an area of contaminated groundwater that runs along San Jose Creek in La Puente. The contaminated groundwater associated with all of the San Gabriel Valley sites lies under significant portions of Alhambra, Irwindale, La Puente, Rosemead, Azusa, City of Industry and other areas of the San Gabriel Valley. Groundwater and soils are contaminated with various VOCs including trichloroethylene (TCE), perchloroethylene (PCE), and 1, 4-dioxane. Low levels of perchlorate have also been detected. Although groundwater contamination has occurred in the area, the project will be required to tap into municipal water supplies.

3.2.4 Interviews Regarding Specialized Knowledge or Experience

On November 11, 2017, the author interviewed Mr. Helling with the City of Industry (telling@cityofindustry.org). He said he has been working for the City for 14 years and is not aware

1 Web Soil Survey, United States Department of Agriculture, Natural Resources Conservation Service, August 21, 2017. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm (Accessed November 11, 2017).

of any spills or fires on or adjacent to the subject property. No other persons knowledgeable about the site were available for interviews.

3.2.5 Current Uses of the Property

A single-family residential unit is currently occupying the western portion of the subject site. One billboard exists on the northwestern portion of the subject site. A utility easement runs the length of the property in an east-west direction on the southern boundary of the site. The utility easement then travels north along the eastern boundary of the site. One transformer possibly containing polychlorinated biphenyls (PCBs) is located on a utility pole on the eastern portion of the subject property. There were no indications of any hazardous wastes present or dumped on the site.

3.2.6 Past Uses of the Property

Majority of the site appears to have agricultural uses (citrus orchards) on and adjacent to the subject site dating back from 1928 and ultimately ceasing in 1964. A single-family residential unit appears on the northern boundary of subject site from 1928 to around 1970. It was then demolished due to the construction of SR-60 freeway in 1970. A single-family residential unit then appeared on the subject site (slightly south from the previous residential unit) simultaneously with the construction of SR-60 (1970). The billboard located on the northwest of the property appears to have been installed between 1983 and 1989.

3.2.7 Current and Past Uses of Adjoining Properties

Agricultural uses were located north, east, and west of the subject site until ceasing around 1964 while vacant land was located to the south. Between 1964 and 1970, single-family residential units were developing east and southeast of the site. Additionally, by 1970, the development of SR-60 has commenced adjacent north of the subject property. By 1983, single-family residential units were predominantly developed along the southern portion of the site and storage facilities are located adjacent west of the site. Industrial buildings are located north of the site across SR-60. These uses have remained the same with additional industrial building located north of SR-60.

3.3 Descriptions of Structures, Roads, Other Improvements on the Site

The subject property is currently occupied by one single-family residential unit located in the central portion of the site. One billboard is located on the site, generally located on the northwest corner of the site. There are local electrical distribution lines along the southern boundary of the site (north side of E. Walnut Drive) which then travels north along the eastern boundary of the site.

Section 4: Environmental Records Review

The purpose of the records review is to obtain and evaluate records that will help identify recognized environmental conditions in connection with this property. ASTM E 1927-13 establishes Standard Environmental Record Sources and specifies an approximate minimum search distance for each of the standard records. A detailed records search was conducted for this site using a maximum 1-mile search, as measured from the center of the property, for the record sources listed in Appendix B.

4.1 Standard Environmental Record Sources

A computerized database search of the standard environmental record lists based on EPA, state, and local agency databases was made by EDR on October 30, 2017 (see Appendix B). A description of each database/list, together with a summary of search results and agency data release dates is provided below. Use of this information is subject to the limitation described in Section 2.0.

4.1.1 Federal National Priority List (NPL)

The NPL is the EPA's database of uncontrolled or abandoned hazardous waste sites identified for priority remedial actions under the Superfund Program (Comprehensive Environmental Response, Compensation and Liability Act of 1980 or CERCLIS). A site must meet or surpass a predetermined hazard ranking system score, be chosen as a state's top priority site, or meet three specific criteria set jointly by the US Department of Health and Human Services and the US EPA in order to become an NPL site. A review of the EPA NPL database (last updated May 30, 2017) indicated there is one site located within 1 mile of the subject property. This site is the San Gabriel Valley (area 4) located at Stimson Avenue and Old Valley Boulevard located approximately 0.8 mile west of the site and is at equal or high elevation then the subject property.

4.1.2 EPA CERCLIS List

The federal CERCLIS List is a compilation by the EPA of sites that the EPA has investigated or is currently investigating for a release or threatened release of hazardous substances pursuant to the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA or the Superfund Act). A review of the EPA CERCLIS database (last updated May 30, 2017) indicated that there are no sites within 0.50 mile of the subject property.

4.1.3 EPA RCRA Permitted Treatment, Storage and Disposal Facilities (TSDF)

The EPA's RCRA Program identifies and tracks hazardous waste from the point of generation to the point of disposal. The "RCRA Facilities" database is a compilation by the EPA reporting generation, storage, transportation, treatment or disposal of hazardous waste. RCRA TSDs are facilities, which treat, store and/or dispose of hazardous waste. A review of the EPA RCRA database (last updated September 13, 2017) indicated that there are no sites within 0.50 mile of the subject property.

4.1.4 US EPA RCRA Corrective Actions

The EPA maintains this database of the RCRA facilities, which are undergoing "corrective action" (CORRACTS). A "corrective action order" is issued pursuant to RCRA Section 3008(h) when there has been a release of hazardous waste or constituents into the environment from a RCRA facility. Corrective actions may be required beyond the facility's boundary and can be required regardless of when the release occurred, even if it predates RCRA. A review of the US EPA CORRACTS database (last updated September 13, 2017) indicated that there are no sites within 0.5 to 1.0 mile of the subject property.

4.1.5 EPA RCRA Generators

RCRA facilities database is a compilation by the EPA reporting generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Large Generators are facilities, which generate at least 1,000 kilogram (kg)/month of non-acutely hazardous waste, or 1 kg/month of acutely hazardous waste. RCRA LQGs are facilities, which generate less than 1,000 kg/month of non-acutely hazardous waste. A review of the EPA RCRAIS list database (last updated September 13, 2017) indicated that there are two RCRA –LQG sites within approximately 0.25 mile of the subject property. These two properties are the Marrs Printing Inc. (identified twice) located at 860 Tucker Lane approximately 0.1 mile northeast of the subject site.

4.1.6 EPA RCRA-SQG

RCRA facilities database is a compilation by the EPA reporting generation, storage, transportation, treatment or disposal of hazardous waste. RCRA Small Generators are facilities, which generate between 100 kg and 1,000 kg of hazardous waste per month. A review of the EPA RCRA list database (last updated September 13, 2017) indicated that there are three RCRA –SQG sites within approximately 0.25 mile of the subject property. These three properties include: Walnut Drive Industrial located on Walnut Drive approximately 0.2 mile northeast of the subject site; Fairway Industrial located at 19888 Quiroz Court approximately 0.2 mile west-southwest of the subject site; and Systematics located at 19935 E. Walnut Drive located approximately 0.2 mile west-northwest of the subject site.

4.1.7 EPA ERNS List

The ERNS is a national database used to collect information on reported releases of oil and hazardous substances. The database contains information from spill reports made to federal authorities including the EPA, the U.S. Coast Guard, the National Response Center and the Department of Transportation. A review of EPA ERNS database (last updated September 18, 2017) indicated that no such spills have occurred on the subject property.

4.1.8 CORTESE/CAL Sites

The California Abandoned Site Program Information System was integrated into the CAL SITES database in 1991. California's Environmental Protection Agency (Cal EPA) Department of Toxic Substances Control (DTSC) maintains an inventory of facilities subject to investigations concerning likely or threatened releases of hazardous substances from those facilities. Sites with an Annual Work Plan (AWP) and Preliminary Endangerment Assessment (PEA) are also included in this database query. Pursuant to Government Code Section 65962.5, the Hazardous Waste and Substances Sites List has been compiled by California's EPA Hazardous Materials Data Management Program. The DTSC compiles information from subsets of a number of databases to make up the CORTESE list. A review of these databases (last updated November 21, 2017) indicated that there are no sites within 1 mile of the subject property.

4.1.9 Solid Waste Disposal Site Listings

California's Integrated Waste Management Board maintains an inventory of the solid waste facilities in the state. A review of the California Solid Waste Information System (SWIS) and Solid Waste Landfill (SWL) database showed Active, Closed and Inactive Landfills. SWF records typically contain an inventory of solid waste disposal facilities or landfills. These may be active or inactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites (last updated August 14, 2017). The records revealed that there is 1 SWF/LF site within approximately 0.5 mile of the subject property. This site is the Road Division 417 (map ID C10) located at 19865 Walnut Drive approximately 0.2 mile west-southwest of the subject site.

4.1.10 Hazardous Materials Permits

This is a database compiled of handlers and generators of hazardous waste which is maintained by the State DTSC and is included in their "ENVIROSTOR" webpage. The database (last updated July 31, 2017) indicated that there are two sites within approximately 1 mile of the subject property, but both cases have been closed (see Table A).

4.1.11 State and Tribal Leaking Storage Tank List

The State and Tribal Leaking Storage Tank List identifies four LUST sites within approximately 0.5 mile of the subject property. These sites include: LA Sun West/Virginia (map ID B9) located at 20445 Walnut Drive approximately 0.2 mile northeast (equal/higher elevation) of the site; Road Maintenance #11 (map ID C11) located at 19865 Walnut Drive approximately 0.2 mile west-southwest (lower elevation) of the site; LA CO DPW Road 41 (map ID 13) located at 19865 E. Walnut Drive approximately 0.2 mile west-southwest (lower elevation) of the site; and ARCO Facility No. 056 (map ID 14) located at 1010 Fairway Drive approximately 0.2 mile west (lower elevation) of the site.

4.1.12 Spills, Leaks, Investigations, and Cleanups (SLIC)

Cleanup Program Sites (CPS; also known as Site Cleanups (SC) and formerly known as Spills, Leaks, Investigations, and Cleanups (SLIC) sites included in GeoTracker which is the Waterboard's data management system for sites that impact, or have the potential to impact, water quality in California, with emphasis on groundwater. A review of the SLIC list, as provided by EDR, has revealed that there are two (2) SLIC sites within approximately 0.5 mile of the subject property. The sites include: Café Double O Building 1 located at 20627 Golden Springs approximately 0.3 mile east of the subject site; and Expert Cleaner located at 20627 Golden Springs approximately 0.3 mile east of the subject site.

4.1.13 State and Tribal – Equivalent CERCLIS

The Department of Toxic Substance Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifies sites that have known contamination or sites for which there may be a reason to investigate further. The database includes the follow site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School Sites. A review of the EnviroStor list, as provided by EDR, has revealed that there is one (1) EnviroStor site within approximately 1 mile of the subject property. This site is the California Machine located at 1180 Centre Drive approximately 0.4 mile west-southwest of the subject property.

4.1.14 State and Tribal Registered Storage Tank List

UST: The Underground Storage Tank database contains registered USTs. USTs are regulated under Subtitle I of the Resource Conservation and Recovery Act (RCRA). The data come from the State Water Resource Control Board's Hazardous Substance Storage Container Database. A review of the UST list revealed that there is one (1) UST site within approximately 0.25 mile of the subject property. The site is the Road Maintenance Yard #417 located at 19865 E. Walnut Drive approximately 0.2 mile west-southwest of the subject site.

AST: A listing of aboveground storage tank petroleum storage tank locations. A review of the AST list (last updated July 6, 2016) identified one (1) AST within approximately 0.25 mile of the subject property. The site is the Triumph Structures located at 20415 E. Walnut Drive approximately 0.2 mile northeast of the site.

4.1.15 State and Tribal Voluntary Cleanup Sites

VCP: Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs. A review of the VCP list (last updated July 31, 2017) identified one (1) VCP site within 0.5 mile of the property. The site is the California Machine located at 1180 Centre Drive approximately 0.4 mile of the subject property.

4.1.16 Historical Underground Storage Tank Registered Database

HIST UST: A review of the HIST UST list (last updated October 15, 1990) revealed one (1) site within 0.25 mile of the subject property. The site is the Moore Chemical Corporation located at 800 Tucker Lane approximately 0.2 mile north-northeast of the subject property.

4.1.17 Toxic Release Inventory Database

Section 313 of the Emergency Planning and Community Right-to-Know Act (also known as SARA Title III) of 1986 requires the EPA to establish an inventory of toxic chemical emissions from certain facilities (Toxic Release Inventory System or TRIS). Facilities subject to this reporting are required to complete a Toxic Chemical Release Form (Form R) for specified chemicals. The TRIS database (last updated September 22, 2017) indicated no sites on the subject property.

4.1.18 EnviroStor Hazardous Waste Facilities (HWP)

A list of hazardous waste facilities including permitted, post-closure and historical facilities found in the Department of Toxic Substances Control (DTSC) EnviroStor database. This database indicates there are no HWP facilities in the immediate vicinity of the subject property.

4.1.19 Record of Decision (ROD)

ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid the cleanup. A review of the ROD list (last updated September 27, 2017) indicated that there is one (1) ROD site within approximately 1 mile of the site. The site is the San Gabriel Valley located at Stimson Avenue and Old Valley Road approximately 0.8 mile west of the subject property.

4.1.20 Historical CORTESE

The sites for the list are designated by the State Water Resource Control Board (LUST) the Integrated Waste Board (SWF/LS), and the Department of Toxic Substance Control (CALSITES). This listing is no longer updated by the state agency. A review of the HIST CORTESE list, (updated April 1, 2001) identified two (2) sites within approximately 0.5 mile of the subject site. The sites are LA Sun West/Virginia located at 20445 Walnut approximately 0.3 mile northeast of the subject site; and Road Maintenance #11 located at 19865 Walnut Drive approximately 0.2 mile west-southwest of the subject site.

4.1.19 Summary of Governmental Database Information

There are twenty-one (21) separate potential sources of contamination in the vicinity of the subject property which are presented in Table A below and summarized as follows:

- Ten (10) are at a higher elevation and eleven (11) are at a lower elevation compared to the subject property (vapor migration typically occurs only from sites of higher elevation);
- One (1) site are from the NPL (Map ID 0)– U.S. EPA database;
- Two (2) sites are from RCRA_LQG (Map ID A1 and A2);
- Three (3) sites on RCRA-SQG (Map ID B5, 6, and 7);
- One (1) site on EnviroStor (Map ID 17);
- One (1) site on SWF/LF (Map ID C10);
- Four (4) sites on LUST (Map ID B9, C11, 13, and 14);
- Two (2) sites on SLIC (Map ID D15 and D16);
- One (1) site on UST (Map ID C8);
- One (1) site on AST (Map ID B4);
- One (1) site on VCP (Map ID 17);
- One (1) site on HIST UST (Map ID 3);
- One (1) site on ROD (Map ID 0); and
- Two (2) sites on HIST CORTESE (Map ID 12 and C11).

Table A: Report Findings of Surrounding Properties

Map Ref	Database(s)	Company/Site Name/Address	Direction/ Distance from Site[1]	Regulatory Status
Higher Elevation[1]				
0	NPL	San Gabriel Valley/Stimson Avenue and Old Valley Parkway	W/0.8 mi	Groundwater is contaminated with trichloroethylene TCE and perchloroethyleene PCE. Currently on the final NPL
A1	RCRA-LQG	Marrs Printing Inc./860 Tucker Lane	NE/0.1 mi	Handler generate above threshold of hazardous waste. No violations found
A2	RCRA-LQG	Marrs Printing Inc./860 Tucker Lane	NE/0.1mi	Handler generate above threshold of hazardous waste. No violations found
B5	RCRA-SQG	Walnut Drive Industrial/Walnut Drive	NE/0.2 mi	Generates more than 100 and less than 1000 kg of hazardous waste during calendar month. No violations found.
B9	LUST	LA Sun West-Virginia/20445 N. Walnut Drive	NE/0.2	Completed-Case Closed
D15	SLIC	Café Double O Building 1/20627 Golden Springs	E/0.3 mi	Completed-Case Closed
D16	SLIC	Expert Cleaner/20627 Golden Springs	E/0.3 mi	No further action required
B4	AST	Triumph Structures/20415 E. Walnut Drive	NE/0.2 mi	No file data available in AST
0	ROD	San Gabriel Valley/Stimson Avenue and Old Valley Parkway	W/0.8 mi	Groundwater is contaminated with trichloroethylene TCE and perchloroethyleene PCE.
12	HIST CORTESE	La Sun West-Virginia/20445 Walnut	NE/0.3 mi	No file data available in HIST CORTESE
Lower Elevation[1]				
6	RCRA-SQG	Fairway Industrial/19888 Quiroz Court	WSW/0.2 mi	Generates more than 100 and less than 1000 kg of hazardous waste during calendar month. No violations found.
7	RCRA-SQG	Systematics/19935 E. Walnut Drive	WNW/0.2 mi	Generates more than 100 and less than 1000 kg of hazardous waste during calendar month. No violations found.
17	EnviroStor	California Machine/1180 Centre Drive	WSW/0.5 mi	No Further Action
C10	SWF/LF	Road Division 417/19865 Walnut Drive	WSW/0.2	Notification
C11	LUST	Road Maintenance #117/19865 E. Walnut Drive	WSW/0.2 mi	Case Closed
13	LUST	LA CO DPW Road 41/19865 E. Walnut Drive	WSW/0.3 mi	Completed-Case Closed
14	LSUT	Arco Facility NO 056/1010 Fairway Drive	W/0.3 mi	Completed-Case Closed
C8	UST	Road Maintenance Yard #417/19865 E. Walnut Drive	WSW/0.2 mi	No file data available in UST
17	VCP	California Machine/1180 Centre Drive	WSW/0.5 mi	No Further Action
3	HIST UST	Moore Chemical Corporation/800 Tucker Lane	NNE/0.2 mi	No leak detection
C11	HIST CORTESE	La Sun West-Virginia/19865 E. Walnut Drive	WSW/0.2 mi	No file data available in HIST CORTESE

[1] Facility in relation to subject property and groundwater gradient (i.e., higher, lower)
N = North, S = South, E = East, W = West mi = miles

4.2 Additional Record Sources

Additional environmental record sources were checked to supplement standard federal and State record sources, as defined by ASTM E 1527-16.

4.2.2 Los Angeles County Fire Dept., Health Hazardous Materials Division

The Los Angeles County Fire Department, Health Hazardous Materials Division, maintains a list of underground tank cleanup sites and emergency response activity within the County. The agency was contacted as part of Phase 1 ESA work on the subject property. The County responded on November 17, 2017 that there were no records in their files of any incidents or accidents involving hazardous materials on the subject property (Appendix C).

4.2.3 Regional Water Quality Control Board

Data from the files of the Regional Water Quality Control Board is related to the historical and ongoing groundwater contamination in the San Gabriel Valley (Area 4) superfund site.

4.3 Previous Environmental Information

No previous Phase I ESA report or other environmental information was available for review during preparation of this report.

4.4 Historical Use Information

4.4.1 Aerial Photographs and Topographic Maps

Current and historic aerial photographs were reviewed of the site from the years 2012, 2010, 2005, 2002, 1995, 1990, 1983, 1970, 1964, 1953, 1948, 1946, 1938, and 1928 (Appendix C), as summarize in Table B.

Current and historic topographical maps of the subject site from the years 2012, 1981, 1972, 1964, 1952, 1949, 1942, 1935, 1928, 1925, 1904, 1901, 1897, and 1894 were reviewed (Appendix C), as summarized in Table C.

Table B: Historic Aerial Maps

Photo Year	Level of Improvements on Subject Property and Surrounding Land
1928	The subject site appears to be used for agricultural purposes. The driveway to the single-family residential unit that is located to the north of the site appears to intersect through the central portion of the subject site. South of the site is vacant. East and west of the site appears to be used for agricultural. A single-family residential units as well as agricultural uses are located to the north of the site.
1946	Appears to be similar to 1928
1953	Appears to be similar to 1953 with the exception of the ceasing of agricultural uses to the west of the single-family residential driveway.
1964	Agricultural uses are located to the west of the single-family driveway. It appears that a small section of agriculture is located just east of the driveway. The remainder of the eastern portion of the site is vacant.
1970	The single-family residential unit that existed north of the site appears to have been either relocated to the south and is not on the subject site or demolished due to the construction of State Route 60 (SR-60) adjacent north of the subject site. If demolished, a new single-family residential unit appears to be constructed on the subject site. A community of single-family residential units appears to exist adjacent east and southeast of the subject site. Vacant lots appear north of SR-60, and west and southwest of the subject site.
1983	The subject site appears similar to 1970. East and south of the site appears to be built-out with single-family residential units. A parking lot as well as commercial buildings appears to be located to the west of the subject site. SR-60 is located north of the site and just beyond SR-60 appears to be developed with industrial buildings.
1990	Conditions appear similar to 1983 with the addition of a billboard.
1995	Conditions appear similar to 1990.
2002	Conditions appear similar to 1990.
2005	Conditions appear similar to 1990.
2010	Conditions appear similar to 1990 with the exception of a surface parking lot located west of the site.
2012	Conditions appear similar to 2010.

Source: EDR, Historic Aerial Report (completed October 30, 2017) (Appendix C).

Table C: Historic Topo Maps

Topo Year	Level of Improvements on Subject Property and Surrounding Land
1894	It appears as if a structure once was located on the southwest portion of the site. A railroad track was located north of the subject site. A creek was located south of the railroad track.
1901	Conditions appear similar to 1894.
1925	The site appears vacant with no structures located on the subject property. Two Pacific railroad tracks are located north of the site, approximately 0.5 mile separation from one another. Walnut drive is located south of the site. The Walnut Station is located approximately 0.7 mile northeast of the subject site. The San Jose Creek is located approximately 0.5 mile north of the site.
1942	The site appears to be developed with citrus orchards. Walnut drive is located to the south of the site and Fifth Avenue is located approximately 0.5 mile south of the site.
1949	Site appears similar to 1942.
1952	Site appears similar to 1942.
1964	The area is now called the City of Industry. Agricultural uses are located to the east and west of the site. The Union Pacific Railroad is located approximately 0.5 mile north of the site. Walnut Drive runs adjacent south of the site. Fifth Avenue is located south of the subject site. San Jose Creek is located approximately 0.5 mile north of the site.
1972	Conditions appear similar to 1964 with the exception of State Route 60 (SR-60) is now located adjacent north of the subject site and a residential community is now located east and southeast of the subject site.
1987	Conditions appear similar to 1972 with the exception of industrial buildings are located north of SR-60.
2012	Conditions appear similar to 1987 with the exception of the Royal Vista Golf Course located to the south of the site.

Source: EDR, Historical Topographic Maps, October 30, 2017 (Appendix C).

4.4.2 Current and Previous Ownership

The site consists of the Los Angeles County Assessor's Parcel Numbers 8762-002-901 and 8762-002-902. The site is currently owned by the City of Industry Property and Housing Management Authority. No other records of past ownership of this property were readily available.

4.4.3 Sanborn Maps

The Sanborn insurance map service website listing for the property indicates it to be designated as "unmapped property" and there is no record of any buildings or improvements that required insurance prior to that time within the Sanborn service database which dates to before 1900 in Southern California.

4.4.4 Building Permits and City Directory Records

City Directories were searched for building addresses (e.g., local utility companies, etc.) and no records were found for the subject property.

4.5 Analysis of Impact on Recognized Environmental Conditions

Information obtained from standard environmental and additional record sources, interviews with affected agencies, historical information obtained from aerial photos and topographic maps, and analysis of physical setting sources indicated that no recognized environmental conditions exist on this site. Available evidence indicates that development of the subject property would not be affected by recognized environmental conditions and would not represent a public health risk or hazard.

Section 5: Site Reconnaissance

Site photographs taken during the visual reconnaissance are shown in Appendix A. The methodology used during the visual reconnaissance consisted of a pedestrian survey. The survey began at the northeast corner and progressed in a general clockwise direction with all parts of the site visually surveyed. The site slopes down to the northwest and over 95 percent of the site appeared to have been recently disked for weed abatement. The property contained one tree, an electrical easement on the southern portion of the site, and a soil stockpile in the central portion of the site.

LSA staff conducted a site survey on Thursday morning, November 9, 2017 (see Figure 3a through 3d). The site survey was conducted in three transects starting at the northeast corner and ending at the southwest corner. The weather was cloudy and with an air temperature of 59° F. During the site reconnaissance, one (1) pole-mounted transformer was observed on utility poles along the eastern boundary of the site adjacent to the residences to the east. The site has been recently disked for weed abatement so all areas were fully visible. There were no signs of discolored soil or stunted vegetation that might indicate disposal of liquid or solid hazardous waste materials, including near the single-family residential.

As identified above, a single-family residential unit is located on the central portion of the site. A gravel road is located east of the single-family residential unit providing access to the vacant lot (see Figure 3d). A permanent wall is located north of the site providing separation to State Route 60 (SR-60) and the subject site. Along the southern and eastern portion of the site is a chain-link fence. An electrical easement is located along the southern portion of the site, north of the chain-link fence. Also, a single tree is located along the southern central portion of the site near a utility pole. Two billboards are located on the subject site, one located on the northeast corner while the other billboard is located on the northwest corner. There was a large amount of soil stockpiled in the central portion of the subject property. The stockpile was approximately 10 to 11 feet in height and approximately 560 feet in length. Pieces of domestic trash (waste) were scattered along the northern portion of the site. A stand-alone concrete pipe was located on the southeast corner of the site which was used for agricultural irrigation. A few burned stumps were also found in this area. No signs of hazardous materials, solid waste containers, etc. were observed during the site walkover.

5.1 Hazardous Substances In Connection With Identified Uses

The subject site contains no visible evidence of containing any hazardous materials or past incidents involving hazardous materials.

5.2 Hazardous and Unidentified Substance Containers

No large containers (e.g., 55-gallon drums, boxes, etc.) were observed during the site reconnaissance, and there was only a minor amount of windblown trash and domestic refuse dumping along the western margin of the site.

5.3 Storage Tanks

No storage tanks or structures were observed on-site during the visual reconnaissance survey.

5.4 Indications of Polychlorinated Biphenyls (PCBs)

During the site reconnaissance, one (1) pole-mounted transformer was observed on a utility pole along the eastern boundary of the site adjacent to the residences to the east. Older pole-mounted electrical transformers contained PCB until 1977. Although it is not certain if the observed pole-mounted transformers contain PCBs, no indications of PCB leakage or contamination were observed on the subject property.

5.5 Indications of Solid Waste Disposal

During the site survey, there were remnants of broken concrete, soil stockpile, and a small amount of domestic waste. No evidence of ongoing disposal of commercial or industrial wastes was observed on-site.

5.6 Physical Setting Analysis

The site has been previously used for agricultural uses from 1928 and ultimately ceasing in 1953. A single-family residential unit was constructed in 1964 and is located in the central portion of the subject site. Two billboards are located on the site, one located in the northeast corner of the site and the other is located on the northwest corner of the site. An electrical easement is located adjacent south of the site, north of East Walnut Drive. Precipitation that falls on the site would typically infiltrate into the subsurface, and eventually flows northwest toward San Jose Creek approximately 0.5 mile north of the site which then ultimately drains into the San Gabriel River. The San Jose Creek has a concrete bottom while the San Gabriel River has a natural bottom. No physical conditions observed or documented on or in the area of the site represent significant environmental conditions.

5.7 Other Conditions of Concern

The most recent updates to ASTM 1527-16 include a requirement to evaluate "Controlled Recognized Environmental Conditions" (CREC) and "Historical Recognized Environmental Conditions" (HREC). According to the new definitions for these terms, there is no identified contamination on or adjacent to the subject property that would constitute either CREC or HREC conditions. In addition, ASTM E2600-10 (as outlined in the most recent updates to ASTM 1527-16) requires a Phase 1 document to provide a "Vapor Migration Assessment" from onsite or offsite activities that might result in Recognized Vapor Environmental Condition (VEC) on the subject property.

According to the governmental database search, the subject property and immediate surrounding area contain no uses or facilities that would produce hazardous vapor conditions (Appendix C) such as gas stations with leaking underground storage tanks, dry cleaning facilities, etc. Therefore, it is unlikely the subject property would be subject to vapor migration conditions from any potential identified offsite sources. There were no other conditions of concern related to the subject property.

5.8 Analysis of Impact on Recognized Environmental Conditions

According to available information, the subject property does not currently contain any recognized environmental conditions (REC, CREC, or HREC), nor is it subject to vapor migration from any onsite or offsite sources.

Section 6: Findings and Conclusions

This Phase I ESA has provided evidence that no recognized environmental conditions currently exist relative to the 3.86-acre subject property. A review of historical aerial photographs and historical contamination characterization studies determined that hazardous materials were not previously used, stored, and/or disposed of on the site. The property is currently occupied by one single-family residential unit and one billboard. There were no indications of wells or underground or above-ground storage tanks onsite, and a review of state and local registries did not indicate the presence of any underground or above ground storage tanks on the subject property.

A review of government agency databases indicates: 1) the site is not referenced as using, generating, storing, or disposing of hazardous materials; and 2) no underground storage tanks have been permitted for the site. There were several offsite facilities listed in the governmental databases as being associated with hazardous materials or underground storage tanks, but there is no indication that any of these facilities would contribute to hazardous conditions on the subject property. No information was available on groundwater quality, but LSA understands municipal water supplies would be utilized by future development on this site.

Based on available information, LSA concludes there is a potential for the site to contain any RECs, CRECs, HRECs, or conditions that would threaten public health or safety. The site was once used for agriculture, therefore, LSA recommends Phase II testing for herbicides, pesticides, and heavy metals, including arsenic. In addition, due to the single-family residential unit being built in 1964, there is possibility for asbestos-containing materials (ACMs) or lead-based paint (LBP) to be present, therefore, LSA recommends testing for ACMs and LBP prior to demolition.

Section 7: Closure

This Phase I ESA was conducted in substantial conformance with ASTM E 1527-16 as well as applicable local regulations. Conclusions and recommendations were formulated using that degree of care normally exercised by environmental professionals practicing in this, or in similar localities. No other warranty is expressed or implied. To the extent that professional judgment has been exercised based upon third party information, should additional information become available within 180 days of this study, this firm will reconsider the applicability of the new information to the overall conclusions, and update this report as necessary. Because environmental conditions and regulations change regularly, we do not recommend reliance of information presented herein, without update, beyond 180 days of the date of this report.

Section 8: Qualifications of Environmental Professional

Mr. Norton has been conducting assessments for hazardous materials for 35 years in Southern California. Until July 2012, Mr. Norton was a Class I Registered Environmental Assessor (R.E.A.) with the State of California (#06827). Mr. Norton was certified in June of 1997 and performed Phase I ESAs for dozens of private properties and hundreds of telecommunication sites throughout Southern California as an REA. In July 2012, the State Department of Toxic Substances Control (DTSC) suspended the REA program. However, Mr. Norton's qualifications are still sufficient to continue preparing Phase 1 ESA reports as an "Environmental Professional" as allowed under ASTM 1527 guidelines.

I have developed and performed the all-appropriate inquiries in conformance with the standards and practices set forth in 40 CFR part 312.

I declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in § 312.10 of this part.

I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the subject property. I have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312."

Kent Norton, Senior Environmental Planner
Environmental Professional[2]

Section 9: References

American Society of Testing and Materials (ASTM), 2013. "ASTM Standards on Environmental Site Assessments for Commercial Real Estate. ASTM E 1527-16 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process."

EDR Corporation (EDR). Government Records Report. "NCO City of Industry Site, 20137 & 20249 E. Walnut Drive South, Industry, California." October 30, 2017.

Google Earth. "NCO City of Industry Site, City of Industry, Los Angeles County, California." 33°59'49.1" N 117°51'54.5" W.

Los Angeles County, Health Hazardous Materials Division, HAZMAT Records Research Request Results. November 17, 2017.

Web Soil Survey, United States Department of Agriculture, Natural Resources Conservation Service, August 21, 2017. https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm (Accessed November 11, 2017).

[2] Registered Environmental Property Assessor (REPA) and former California DTSC Registered Environmental Assessor #06827

Appendix A: Report Exhibits and Site Photographs

- Figure 1 – Site Location (including USGS Map)
- Figure 2 - Aerial Photograph
- Figure 3 – Site Photographs

Appendix B: Database Report (on CD)

- EDR Database Search Results (2017)

Appendix C: Supporting Materials (on CD)

- Historical Topographic Maps
- Historical Aerial Photographs
- City Directory Report
- Title Report
- Title Map
- Sanborn Map Report
- County HAZMAT search letter memo

LSA

BERKELEY
CARLSBAD
FRESNO
IRVINE
PALM SPRINGS
POINT RICHMOND
RIVERSIDE
ROCKLIN
SAN LUIS OBISPO

PROJECT MEMORANDUM

DATE: December 6, 2017

TO: Alexa Washburn, National Community Renaissance

FROM: Kent Norton, REPA, LSA Riverside

SUBJECT: Phase II Site Assessment - City of Industry

The Phase I Environmental Site Assessment prepared for your 3.86-acre City of Industry site dated November 22, 2017 contained the following recommendation (Executive Summary page 2):

> *LSA recommends surficial soil testing for agricultural chemicals. According to building permit data, the single-family residential unit was built in 1964, therefore, the structure may contain asbestos and/or lead-based paint. Due to the age of the onsite structure, LSA recommends testing for asbestos-containing materials (ACMs) and lead-based paint (LBP) prior to demolition.*

At your request, LSA retained IWS Environmental to take soil samples and conduct laboratory testing for the potential presence of residual agricultural chemicals. Page 2 of the IWS report indicates the following:

> *No Organochlorine Pesticides were detected in any of the samples analyzed. Trace levels of Arsenic were detected in both 6" soil samples. However, the levels detected are well below any regulatory action level and would be considered naturally occurring background levels native to the area.*

Based on this evidence, our Phase II work concludes there are no concerns regarding agricultural chemicals relative to the City of Industry site. Any conclusions regarding asbestos-containing materials (ACMs) or lead-based paint (LBP) would still apply as the house on the site has not yet been demolished. If you have any questions, please feel free to contact me at (951) 781-9310 or kent.norton@lsa.net.

Sincerely,

LSA Associates, Inc.

Kent Norton, AICP, REPA
Associate

CLASS 1 REGISTERED ENVIRONMENTAL ASSESSOR
KENT K. NORTON
No. 06927
Exp. NA
STATE OF CALIFORNIA

IWS Environmental, Inc.
Environmental Management & Engineering

4 December 2017
IWS Project No. 112417

Ms. Kent Norton
LSA Associates
1500 Iowa Avenue, Suite 200
Riverside, California 92507
Email: kent.norton@LSA.net

Subject: Phase II Subsurface Soil Investigation for Chemical Compounds Relating to Previous Agricultural Use

Project/Site: National Core Site, 20137 & 20249 E. Walnut Drive, City of Industry, California

Dear Ms. Norton:

Per your request, IWS Environmental has completed this Phase II Environmental Assessment for the above referred site. The subject property is comprised of approximately 3.7-acres of vacant located between East Walnut Drive and the I-60 Freeway in the City of Industry, California. (subject property). The property location is depicted on Figure 1. The property with sampling locations is depicted on Figure 2. This investigation involved the collection of soil samples and the subsequent testing of these samples for the possible presence of Organochlorine Pesticides and Arsenic.

Authorization to proceed on this Phase II work was received on November 20, 2017

Should you have any questions regarding this report, please contact us at our office (714) 893-6140.

Sincerely Yours,

IWS ENVIRONMENTAL, INC.

Jim Bunck
Principal

PROFESSIONAL GEOLOGIST
ROBERT D LOEFFLER
No. 6709
STATE OF CALIFORNIA

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Phase II Assessment - Subsurface Soil Investigation
20137 & 20249 E. Walnut Drive, City of Industry, California

1.0. INTRODUCTION/BACKGROUND

This report describes the results of a Phase II Assessment - Subsurface Soil Investigation (Phase II) for 3.7-acres of vacant land located between East Walnut Drive and the I-60 Freeway in the City of Industry, California. This investigation was conducted by IWS Environmental Inc. (IWS), at the request of Mr. Kent Norton at LSA Associates.

The purpose of this Phase II Subsurface Investigation was to determine if the soil on the subject site has been negatively impacted by the former use of chemical materials (pesticides, herbicides, etc.) associated with historical agricultural activities conducted on the site. This Phase II Assessment was accomplished by the collection and testing of soil samples. If the investigation concludes that the soil has been negatively impacted by hazardous materials, IWS will determine if it represents an environmental and, or health concern if disturbed. All soil sampling and laboratory testing was conducted in general accordance with the *Department of Toxic Substance Controls (DTSC) Interim Guidance for Sampling Agricultural Properties (August 7, 2008).* The investigation would also serve as a benchmark for soil quality in the project area.

2.0. SCOPE OF WORK

Two soil samples were collected from the site at depths of 6-inches and 3-feet below surface (See: Soil Sampling Location Map, Figure 2). Samples were analyzed for Organochlorine Pesticides and Arsenic.

SOIL SAMPLING

- Field work was performed by personnel working under the direct supervision of a California Professional Geologist (PG).
- Soil samples were collected utilizing a hand augur at 6-inches and 3 feet below surface grade.
- Soil sample duplicates were screened visually for any discoloration and screened for organic vapors utilizing a photo-ionization detector.
- After hand auguring, the soil borings were backfilled with hydrated bentonite sand.

SITE CHARACTERIZATION REPORT

Analysis of data and preparation of this report was signed by a California Professional Geologist.

3.0. FIELD PROCEDURES

On 22 November, IWS established 2 boring locations (HA-1 and HA-2) on the subject property (Figure 2).

The borings were advanced utilizing a hand auger. Soil samples were collected at 6-inches and 3-feet below surface grade in each boring location. Soil samples collected were transferred from the hand auger bucket into a 4-oz glass jar, sealed with a Teflon-lined threaded cap, labeled and placed in a cooler. After each sample was collected the hand auger bucket was cleaned and rinsed in an alconox solution prior to the collection of the next soil sample.

The samples were transported to EnviroChem Laboratory, Inc., a California State Certified Testing Laboratory located in Pomona California for analysis. The samples were analyzed for Organochlorine Pesticides and Arsenic in accordance with EPA method 8081A 6010B respect-tively.

4.0. FINDINGS

All 6-inch samples were analyzed by the laboratory for Organochlorine Pesticides utilizing EPA Testing Method 8081A, and Arsenic utilizing EPA Testing Method 6010B (See Laboratory Report: Appendix A). No Organochlorine Pesticides were detected in any of the samples analyzed. Trace levels of Arsenic were detected in both 6" soil samples. However, the levels detected are well below any regulatory action level and would be considered naturally occurring background levels native to the area. Based upon the findings of the 6 inch samples, the 3-foot samples were not tested by the laboratory.

5.0. CONCLUSIONS/RECOMMENDATIONS

Based upon the findings of the Phase II investigation it appears the soil at the subject site has not been impacted by any chemicals associated with previous agricultural use. IWS does not recommend any additional environmental investigations on the subject property at this time.

6.0. REFERENCES

California Environmental Protection Agency – *Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties*, January 2005.

California Environmental Protection Agency – *Revised California Human Health Screening Levels for Lead,* September 2009.

Department of Toxic Substances Control - *Interim Guidance for Sampling Agricultural Properties* (Third Revision) (August 7, 2008).

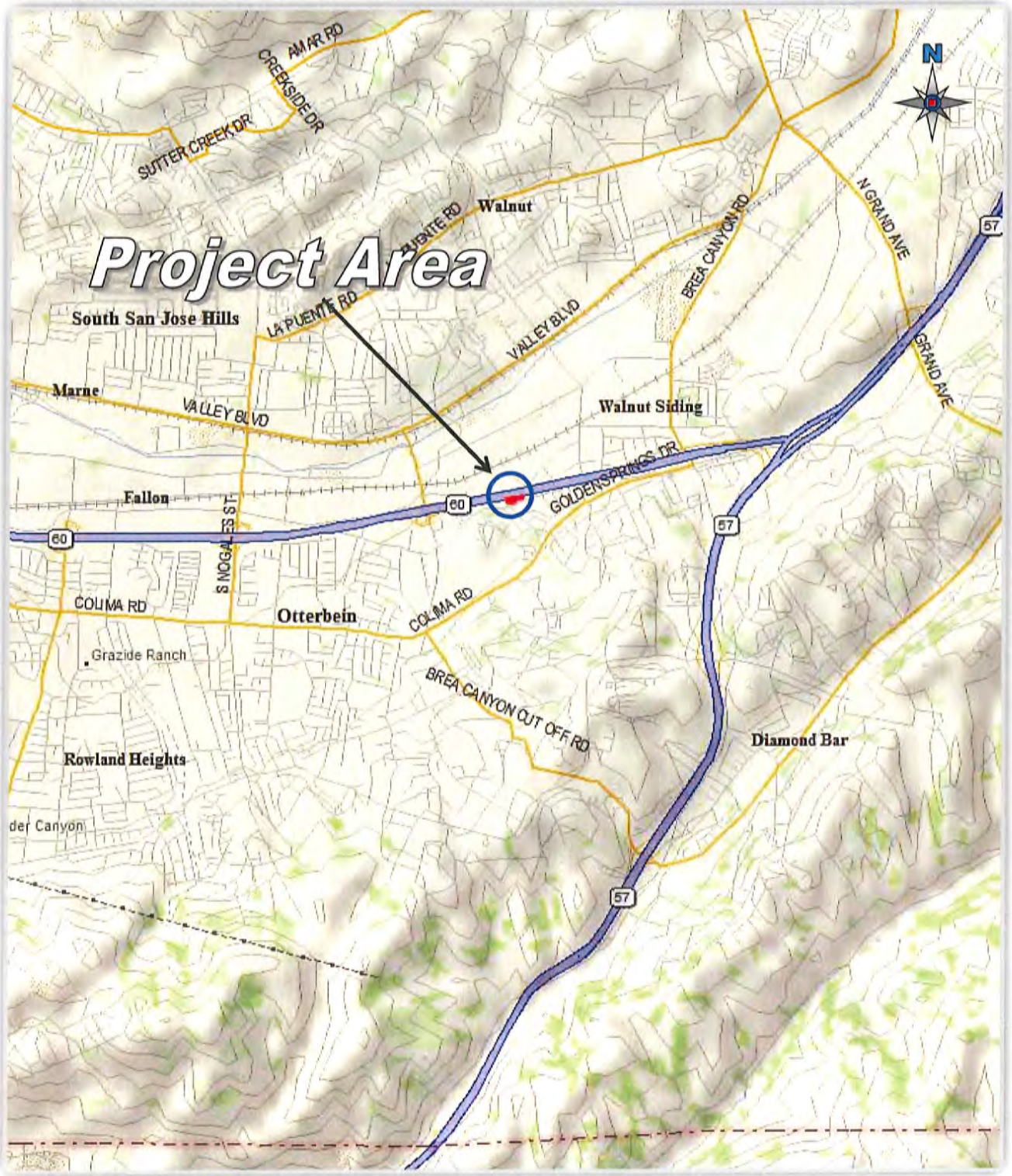
United States Environmental Protection Agency, Region 9 – *Regional Screening Levels*, November 2012

7.0. LIMITATIONS

Our professional services were performed using that degree of care and skill ordinarily exercised by environmental consultants practicing in this or similar localities. Findings were based upon analytical results provided by an independent laboratory. Evaluation of the geologic, hydrogeologic conditions at the site for the purpose of this investigation was made from a limited number of available data points (soil samples) and subsurface conditions may vary away from these data points. No other warranty, expressed or implied, is made as to the professional interpretations, opinions and recommendations contained in this report.

Figures 1 & 2

Figure 1 Site Location Map
Figure 2 Soil Sampling Location Map



Site Map Courtesy DeLorme Topo

IWS Environmental 5211 Hartford Way Westminster, California 92683	**Location Map** National Core Site 20137 & 20249 E. Walnut Dr. City of Industry, CA Date December 4, 2017	*Figure 1* IWS Project No. 112417

Scale 1" = 180-Feet

Legend

Boring Locations ●

Boring ID HA-1, HA-2

IWS Environmental 5211 Hartford Way Westminster, California 92683	**Soil Boring Location Map** National Core Site 20137 & 20249 E. Walnut Dr. City of Industry, CA Date December 4, 2017	Figure 2 IWS Project No. 112417

Laboratory Report

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

Date: December 4, 2017

Mr. Jim Bunck
IWS Environmental
5211 Hartford Way
Westminster, CA 92683
Tel(714)893-6140 Fax(714)893-1354

Project: **City of Industry**
Lab I.D.: **171127-9 through -12**

Dear Mr. Bunck:

The **analytical results** for the soil samples, received by our lab on November 27, 2017, are attached. The samples were received chilled, intact, and accompanying chain of custody record.

Enviro-Chem appreciates the opportunity to provide you and your company this and other services. Please do not hesitate to call us if you have any questions.

Sincerely,

Curtis Desilets
Vice President/Program Manager

for

Andy Wang
Laboratory Manager

Enviro – Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

LABORATORY REPORT

CUSTOMER: **IWS ENVIRONMENTAL**
5211 HARTFORD WAY, WESTMINSTER, CA 92683
TEL(714)893-6140 FAX(714)893-1354

PROJECT: **City of Industry**
SAMPLING DATE: 11/22/17
MATRIX: SOIL
REPORT TO: MR. JIM BUNCK

DATE RECEIVED: 11/27/17
DATE ANALYZED: 11/28/17
DATE REPORTED: 12/04/17

EPA 6010B FOR TTLC-ARSENIC
UNITS: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

SAMPLE I.D.	LAB I.D.	ARSENIC RESULT	DF
HA-1@6"	171127-9	3.41	1
HA-2@6"	171127-11	3.22	1
Method Blank	---	ND	1
	PQL	0.30	

COMMENTS:
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = DF X PQL
ND = Non-Detected or below the Actual Detection Limit
TTLC = Total Threshold Limit Concentration
STLC = Soluble Threshold Limit Concentration
STLC Limit for Arsenic = 5 PPM
* = STLC analysis is recommended (if marked)
*** = The concentration exceeds the TTLC Limit @ 500 PPM, therefore the sample is defined as hazardous waste as per CCR-TITLE 22 (if marked)

Data Reviewed and Approved by: _____
CAL-DHS ELAP CERTIFICATE No.: 1555

QA/QC for Metals Analysis --TTLC--SOLID/SOIL MATRIX

Matrix Spike/ Matrix Spike Duplicate/ LCS :

ANALYSIS DATE: 11/28/2017

Unit : mg/Kg(ppm)

Analysis	Spk.Sample ID	LCS CONC.	LCS %Rec.	LCS STATUS	Sample Result	Spike Conc.	MS	% Rec MS	MSD	% Rec MSD	% RPD
Arsenic(As)	171127-9	50.0	108	PASS	3.41	50.0	51.8	97%	53.7	101%	4%
Lead(Pb)	171127-9	50.0	115	PASS	13.6	50.0	59.0	91%	60.5	94%	3%
Nickel(Ni)	171127-9	50.0	111	PASS	1.29	50.0	52.8	103%	54.2	106%	3%

ANALYSIS DATE. : 11/22/2017

Analysis	Spk.Sample ID	LCS CONC.	LCS %Rec.	LCS STATUS	Sample Result	Spike Conc.	MS	% Rec MS	MSD	% Rec MSD	% RPD
Mercury (Hg)	171121-33	0.108	96	PASS	0	0.125	0.111	88%	0.113	90%	2%

MS/MSD Status:

Analysis	%MS	%MSD	%LCS	%RPD
Arsenic(As)	PASS	PASS	PASS	PASS
Lead(Pb)	PASS	PASS	PASS	PASS
Nickel(Ni)	PASS	PASS	PASS	PASS
Mercury (Hg)	PASS	PASS	PASS	PASS
Accepted Range	**75 ~ 125**	**75 ~ 125**	**85 ~ 115**	**0 ~ 20**

ANALYST: _____

FINAL REVIEWER: _____

*=Fail due to matrix interference

Note:LCS is in control therefore results are in control

Enviro – Chem, Inc.
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LABORATORY REPORT

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5211 HARTFORD WAY, WESTMINSTER, CA 92683
TEL(714)893-6140 FAX(714)893-1354

PROJECT: **City of Industry**
SAMPLING DATE: 11/22/17
MATRIX: SOIL
REPORT TO: MR. JIM BUNCK

DATE RECEIVED: 11/27/17
DATE EXTRACTED: 11/27/17
DATE ANALYZED: 11/27&28/17
DATE REPORTED: 12/04/17

PCBs ANALYSIS
METHOD: EPA 8082
UNIT: mg/Kg = MILLIGRAM PER KILOGRAM = PPM

SAMPLE I.D.	LAB I.D.	PCB-1016	PCB-1221	PCB-1232	PCB-1242	PCB-1248	PCB-1254	PCB-1260	TOTAL PCBs*	DF
HA-1@6"	171127-9	ND	ND	ND	ND	ND	ND	ND	ND	1
HA-2@6"	171127-11	ND	ND	ND	ND	ND	ND	ND	ND	1
Method Blank		ND	ND	ND	ND	ND	ND	ND	ND	1
	PQL	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	

COMMENTS
DF = Dilution Factor
PQL = Practical Quantitation Limit
Actual Detection Limit = DF X PQL
ND = Non-Detected Or Below the Actual Detection Limit
* = Sum of the PCB 1016, 1221, 1232, 1242, 1248, 1254 and 1260
*** = The concentration exceeds the TTLC Limit of 50, and the sample is defined as hazardous waste as per CCR-TITLE 22 (if marked)

Data Reviewed and Approved by: _____
CAL-DHS ELAP CERTIFICATE No.: 1555

Enviro-Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909)590-5905 Fax (909)590-5907

QA/QC Report

Analysis: EPA 8082 (PCB)

Matrix: **Soil/Solid/Liquid/Sludge** Date Analyzed: **11/27-28/2017**

Unit: mg/Kg (PPM)

Matrix Spike (MS)/Matrix Spike Duplicate (MSD)

Spiked Sample Lab I.D.: 171127-LCS1/2

Analyte	S.R.	spk conc	MS	%REC	MSD	%REC	%RPD	ACP % RPD	ACP %REC
PCB (1016+1260)	0.00	0.100	0.118	**118%**	0.108	**108%**	**9%**	**0-20%**	**70-130**

LCS STD RECOVERY:

Analyte	spk conc	LCS	% REC	ACP %REC
PCB (1016+1260)	0.100	0.115	**115%**	**75-125**

S.R. = Sample Result
spk conc = Spike Concentration
%REC = Percent Recovery
ACP %RPD = Acceptable Percent RPD Range
ACP %REC = Acceptable Percent Recovery Range

Analyzed and Reviewed By: _____

Final Reviewer: _____

Enviro – Chem, Inc.
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LABORATORY REPORT

CUSTOMER: **IWS ENVIRONMENTAL**
5211 HARTFORD WAY, WESTMINSTER, CA 92683
TEL(714)893-6140 FAX(714)893-1354

PROJECT: **City of Industry**
SAMPLING DATE: 11/22/17
MATRIX: SOIL
REPORT TO: MR. JIM BUNCK

DATE RECEIVED: 11/27/17
DATE EXTRACTED: 11/27/17
DATE ANALYZED: 11/28/17
DATE REPORTED: 12/04/17

SAMPLE I.D.: **HA-1@6"**
LAB I.D.: 171127-9

Organochlorine Pesticides Analysis
Method: EPA 8081A
Unit: mg/Kg = Milligram Per Kilogram = PPM

PARAMETER	SAMPLE RESULT	PQL	DF
Aldrin	ND	0.001	10*
alpha-BHC	ND	0.001	10*
beta-BHC	ND	0.001	10*
gamma-BHC (Lindane)	ND	0.001	10*
delta-BHC	ND	0.001	10*
alpha-Chlordane	ND	0.001	10*
gamma-Chlordane	ND	0.001	10*
Total Chlordane (Technical)	ND	0.005	10*
4,4'-DDD	ND	0.001	10*
4,4'-DDE	ND	0.001	10*
4,4'-DDT	ND	0.001	10*
Dieldrin	ND	0.001	10*
Endosulfan I	ND	0.001	10*
Endosulfan II	ND	0.001	10*
Endosulfan Sulfate	ND	0.001	10*
Endrin	ND	0.001	10*
Endrin Aldehyde	ND	0.001	10*
Endrin Ketone	ND	0.001	10*
Heptachlor Epoxide	ND	0.001	10*
Heptachlor	ND	0.001	10*
Methoxyclor	ND	0.001	10*
Toxaphene	ND	0.020	10*

COMMENTS:
DF = DILUTION FACTOR
PQL = PRACTICAL QUANTITATION LIMIT
ACTUAL DETECTION LIMIT = PQL X DF
ND = NON-DETECTED OR BELOW THE ACTUAL DETECTION LIMIT
* = ACTUAL DETECTION LIMIT RAISED DUE TO MATRIX INTERFERENCE

DATA REVIEWED AND APPROVED BY: _____
CAL-DHS ELAP CERTIFICATE No.: 1555

Enviro – Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

METHOD BLANK REPORT

CUSTOMER: **IWS ENVIRONMENTAL**
5211 HARTFORD WAY, WESTMINSTER, CA 92683
TEL(714)893-6140 FAX(714)893-1354

PROJECT: **City of Industry**
SAMPLING DATE: 11/22/17
MATRIX: SOIL
REPORT TO: MR. JIM BUNCK

DATE RECEIVED: 11/27/17
DATE EXTRACTED: 11/27/17
DATE ANALYZED: 11/27/17
DATE REPORTED: 12/04/17

METHOD BLANK FOR LAB I.D.: 171127-9

Organochlorine Pesticides Analysis
Method: EPA 8081A
Unit: mg/Kg = Milligram Per Kilogram = PPM

PARAMETER	SAMPLE RESULT	PQL	DF
Aldrin	ND	0.001	1
alpha-BHC	ND	0.001	1
beta-BHC	ND	0.001	1
gamma-BHC (Lindane)	ND	0.001	1
delta-BHC	ND	0.001	1
alpha-Chlordane	ND	0.001	1
gamma-Chlordane	ND	0.001	1
Total Chlordane (Technical)	ND	0.005	1
4,4'-DDD	ND	0.001	1
4,4'-DDE	ND	0.001	1
4,4'-DDT	ND	0.001	1
Dieldrin	ND	0.001	1
Endosulfan I	ND	0.001	1
Endosulfan II	ND	0.001	1
Endosulfan Sulfate	ND	0.001	1
Endrin	ND	0.001	1
Endrin Aldehyde	ND	0.001	1
Endrin Ketone	ND	0.001	1
Heptachlor Epoxide	ND	0.001	1
Heptachlor	ND	0.001	1
Methoxyclor	ND	0.001	1
Toxaphene	ND	0.020	1

COMMENTS:
DF = DILUTION FACTOR
PQL = PRACTICAL QUANTITATION LIMIT
ACTUAL DETECTION LIMIT = PQL X DF
ND = NON-DETECTED OR BELOW THE ACTUAL DETECTION LIMIT

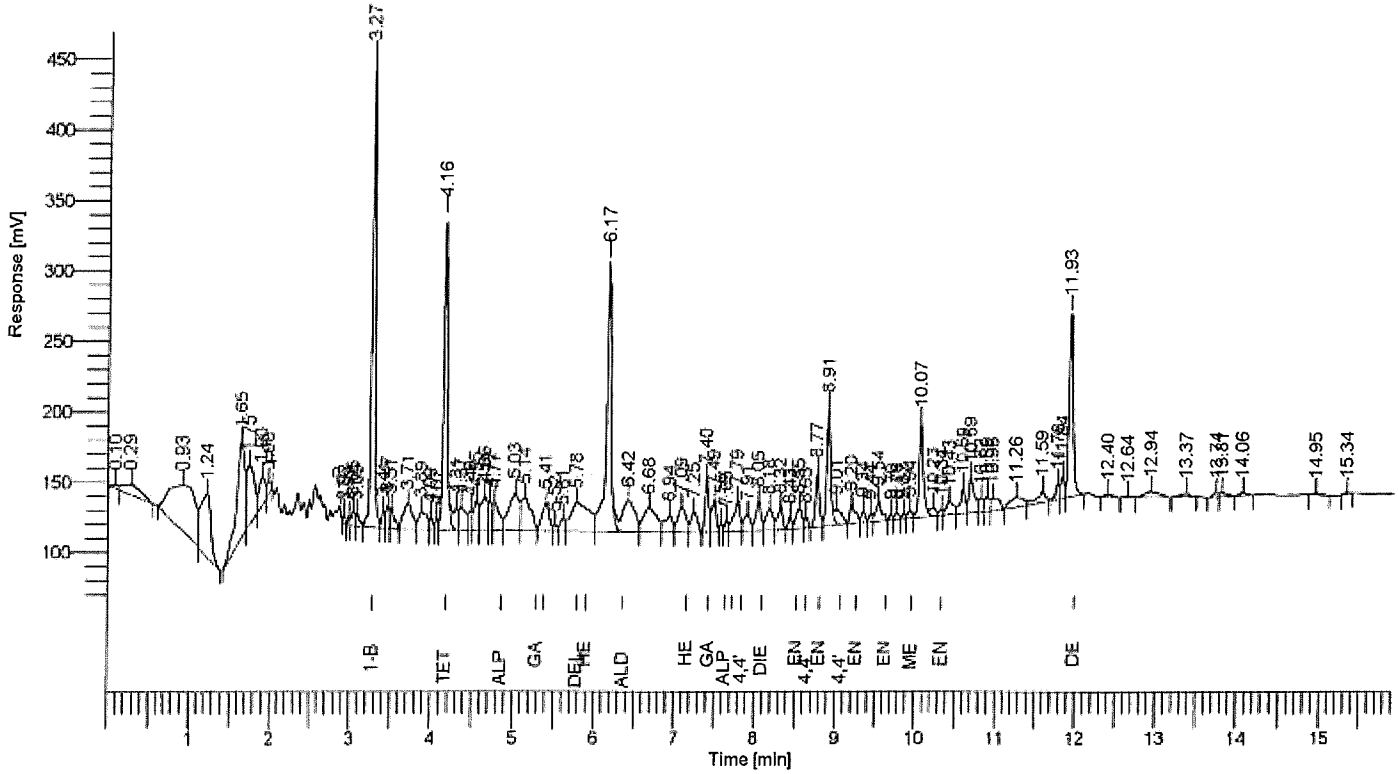
DATA REVIEWED AND APPROVED BY: _____
CAL-DHS ELAP CERTIFICATE No.: 1555

Software Version : 6.3.2.0646
Sample Name : 171127-9 20/20
Instrument Name : GC-J
Rack/Vial : 0/15
Sample Amount : 1.000000
Cycle : 15

Date : 11/29/2017 12:19:55 PM
Data Acquisition Time : 11/27/2017 9:22:39 PM
Channel : B
Operator : manager
Dilution Factor : 1.000000

Result File : D:\GC DATA\GC-J\J02017\J1711\J171127\B015.rst
Sequence File : D:\GC DATA\GC-J\J02017\J1711\J171127\J171127.seq

(MATRIX INTERFERENCE)



Results

Component Name	Time [min]	Area [uV*sec]	Height [uV]	Adjusted Amount
1-Bromo-2-Nitrobenze	3.27	924561	326114	----------
Tetra chloro-meta-xy	4.16	658918	215515	90.7743
Alpha-BHC	4.77	111548	19663	0.0044
Beta-BHC	5.41	121253	19860	0.0094
Delta-BHC	5.78	317528	20547	0.0127
Aldrin	6.42	263287	21805	0.0116
Heptachlor Epoxide	7.09	132662	17526	0.0062
Gamma Chlordane	7.40	119310	37178	0.0067
Alpha Chlordane	7.65	25040	8028	0.0014
4,4' DDE	7.79	117853	22179	0.0071
Dieldrin	8.05	95323	20815	0.0053
Endrin	8.55	76777	14438	0.0048
4,4' DDD	8.63	23586	7523	0.0020
Endosulfan II	8.77	132174	38341	0.0086
4,4' DDT	9.01	68219	9863	0.0053
Endrin Aldhyde	9.20	67919	13426	0.0052
Endosulfan Sulfate	9.70	14080	4289	0.0010
Methoxychlor	9.94	21539	5600	0.0028
Endrin Ketone	10.34	13920	4118	0.0009
Decachlorobiphenyl	11.93	473265	130488	51.1849
		3778762	957315	142.0547

Enviro-Chem, Inc.

1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909)590-5905 Fax (909)590-5907

EPA 8081 QA/QC Report

Matrix: **Soil/Solid/Liquid(Oil)** Date Analyzed: **11/27-28/2017**

Unit: **mg/Kg (ppm)**

Matrix Spike (MS)/Matrix Spike Duplicate (MSD)

Spiked Sample Lab I.D.: **171127-LCS1/2**

Analyte	S.R.	spk conc	MS	%REC	MSD	%REC	%RPD	ACP %RPD	ACP %REC
Gamma-BHC	0.000	0.00500	0.00409	**82%**	0.00432	**86%**	**5%**	**0-20%**	**70-130**
Aldrin	0.000	0.00500	0.00459	**92%**	0.00508	**102%**	**10%**	**0-20%**	**70-130**
4,4-DDE	0.000	0.00500	0.00445	**89%**	0.00473	**95%**	**6%**	**0-20%**	**70-130**

Lab Control Spike (LCS) Recovery:

Analyte	spk conc	LCS	% REC	ACP %REC
Gamma-BHC	0.00500	0.00427	**85%**	**75-125**
Aldrin	0.00500	0.00494	**99%**	**75-125**
4,4-DDE	0.00500	0.00481	**96%**	**75-125**
Dieldrin	0.00500	0.00496	**99%**	**75-125**

Surrogate Recovery	ACP%	%REC	%REC	%REC	%REC	%REC	%REC	%REC
Sample I.D.		MB	171120-126	171120-127	171120-128	171120-129	171121-15	171121-17
Tetra-chloro-meta-xylene	50-150	109%	93%	92%	86%	95%	86%	87%
Decachlorobiphenyl	50-150	53%	64%	66%	69%	67%	66%	55%

Surrogate Recovery	ACP%	%REC	%REC	%REC	%REC	%REC	%REC	%REC
Sample I.D.		171121-19	171121-21	171127-9	171127-11			
Tetra-chloro-meta-xylene	50-150	91%	101%	91%	99%			
Decachlorobiphenyl	50-150	63%	54%	51%	51%			

Surrogate Recovery	ACP%	%REC	%REC	%REC	%REC	%REC	%REC	%REC
Sample I.D.								
Tetra-chloro-meta-xylene	50-150							
Decachlorobiphenyl	50-150							

S.R. = Sample Result

spk conc = Spike Concentration

%REC = Percent Recovery

ACP %RPD = Acceptable Percent RPD Range

ACP %REC = Acceptable Percent Recovery Range

** = Surrogate fail due to matrix interference (If Marked)*

Note: ***LCS, MS, MSD are in control therefore results are in control.***

Analyzed and Reviewed By: _____

Final Reviewer: _____

Enviro – Chem, Inc.
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LABORATORY REPORT

CUSTOMER: **IWS ENVIRONMENTAL**
5211 HARTFORD WAY, WESTMINSTER, CA 92683
TEL(714)893-6140 FAX(714)893-1354

PROJECT: **City of Industry**
SAMPLING DATE: 11/22/17
MATRIX: SOIL
REPORT TO: MR. JIM BUNCK

DATE RECEIVED: 11/27/17
DATE EXTRACTED: 11/27/17
DATE ANALYZED: 11/29/17
DATE REPORTED: 12/04/17

SAMPLE I.D.: **HA-2@6"**
LAB I.D.: 171127-11

Organochlorine Pesticides Analysis
Method: EPA 8081A
Unit: mg/Kg = Milligram Per Kilogram = PPM

PARAMETER	SAMPLE RESULT	PQL	DF
Aldrin	ND	0.001	2*
alpha-BHC	ND	0.001	2*
beta-BHC	ND	0.001	2*
gamma-BHC (Lindane)	ND	0.001	2*
delta-BHC	ND	0.001	2*
alpha-Chlordane	ND	0.001	2*
gamma-Chlordane	ND	0.001	2*
Total Chlordane (Technical)	ND	0.005	2*
4,4'-DDD	ND	0.001	2*
4,4'-DDE	ND	0.001	2*
4,4'-DDT	ND	0.001	2*
Dieldrin	ND	0.001	2*
Endosulfan I	ND	0.001	2*
Endosulfan II	ND	0.001	2*
Endosulfan Sulfate	ND	0.001	2*
Endrin	ND	0.001	2*
Endrin Aldehyde	ND	0.001	2*
Endrin Ketone	ND	0.001	2*
Heptachlor Epoxide	ND	0.001	2*
Heptachlor	ND	0.001	2*
Methoxyclor	ND	0.001	2*
Toxaphene	ND	0.020	2*

COMMENTS:
DF = DILUTION FACTOR
PQL = PRACTICAL QUANTITATION LIMIT
ACTUAL DETECTION LIMIT = PQL X DF
ND = NON-DETECTED OR BELOW THE ACTUAL DETECTION LIMIT
* = ACTUAL DETECTION LIMIT RAISED DUE TO MATRIX INTERFERENCE

DATA REVIEWED AND APPROVED BY: _____
CAL-DHS ELAP CERTIFICATE No.: 1555

Enviro - Chem, Inc.
1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909) 590-5905 Fax (909) 590-5907

METHOD BLANK REPORT

CUSTOMER: IWS ENVIRONMENTAL
5211 HARTFORD WAY, WESTMINSTER, CA 92683
TEL(714)893-6140 FAX(714)893-1354

PROJECT: City of Industry
SAMPLING DATE: 11/22/17
MATRIX: SOIL
REPORT TO: MR. JIM BUNCK

DATE RECEIVED: 11/27/17
DATE EXTRACTED: 11/27/17
DATE ANALYZED: 11/29/17
DATE REPORTED: 12/04/17

METHOD BLANK FOR LAB I.D.: 171127-11

Organochlorine Pesticides Analysis
Method: EPA 8081A
Unit: mg/Kg = Milligram Per Kilogram = PPM

PARAMETER	SAMPLE RESULT	PQL	DF
Aldrin	ND	0.001	1
alpha-BHC	ND	0.001	1
beta-BHC	ND	0.001	1
gamma-BHC (Lindane)	ND	0.001	1
delta-BHC	ND	0.001	1
alpha-Chlordane	ND	0.001	1
gamma-Chlordane	ND	0.001	1
Total Chlordane (Technical)	ND	0.005	1
4,4'-DDD	ND	0.001	1
4,4'-DDE	ND	0.001	1
4,4'-DDT	ND	0.001	1
Dieldrin	ND	0.001	1
Endosulfan I	ND	0.001	1
Endosulfan II	ND	0.001	1
Endosulfan Sulfate	ND	0.001	1
Endrin	ND	0.001	1
Endrin Aldehyde	ND	0.001	1
Endrin Ketone	ND	0.001	1
Heptachlor Epoxide	ND	0.001	1
Heptachlor	ND	0.001	1
Methoxyclor	ND	0.001	1
Toxaphene	ND	0.020	1

COMMENTS:
DF = DILUTION FACTOR
PQL = PRACTICAL QUANTITATION LIMIT
ACTUAL DETECTION LIMIT = PQL X DF
ND = NON-DETECTED OR BELOW THE ACTUAL DETECTION LIMIT

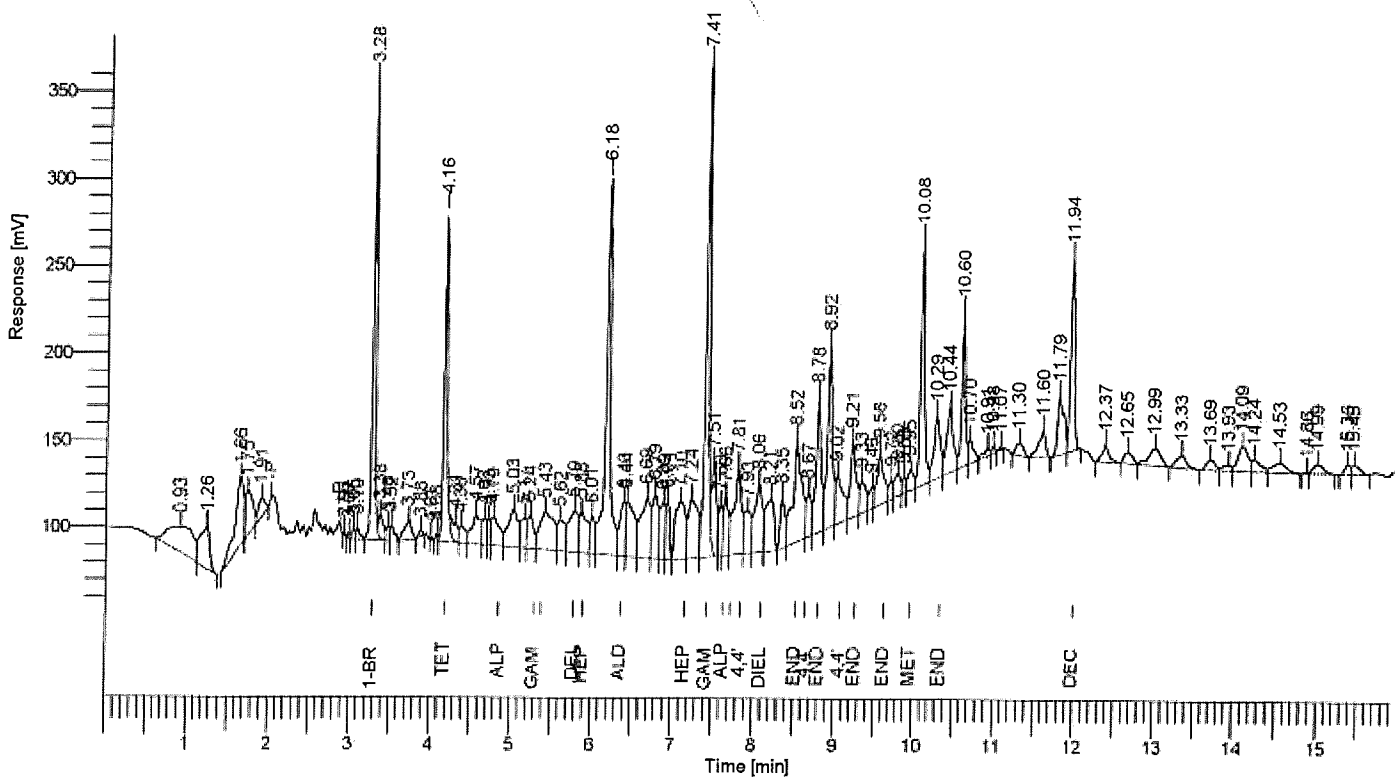
DATA REVIEWED AND APPROVED BY: _____
CAL-DHS ELAP CERTIFICATE No.: 1555

Software Version : 6.3.2.0646
Sample Name : 171127-11 20/4 RE
Instrument Name : GC-J
Rack/Vial : 0/45
Sample Amount : 1.000000
Cycle : 4

Date : 11/29/2017 12:23:08 PM
Data Acquisition Time : 11/29/2017 11:10:43 AM
Channel : B
Operator : manager
Dilution Factor : 1.000000

MATRIX INTERFERENCE

Result File : D:\GC DATA\GC-J\J02017\J1711\J171127\B060.rst
Sequence File : D:\GC DATA\GC-J\J02017\J1711\J171127\J171127.seq



Results

Component Name	Time [min]	Area [uV*sec]	Height [uV]	Adjusted Amount
1-Bromo-2-Nitrobenze	3.28	717969	257804	----------
Tetra chloro-meta-xy	4.16	556062	182607	98.6472
Alpha-BHC	4.79	117934	16561	0.0060
Gamma-BHC	5.24	105969	19176	0.0055
Beta-BHC	5.43	258839	21936	0.0259
Delta-BHC	5.79	193272	24026	0.0099
Heptachlor	5.88	151578	23519	0.0078
Aldrin	6.40	154982	31220	0.0088
Heptachlor Epoxide	7.10	293052	33512	0.0178
Gamma Chlordane	7.41	905892	282048	0.0659
Alpha Chlordane	7.66	145193	33870	0.0105
4,4' DDE	7.81	315297	50147	0.0243
Dieldrin	8.06	259706	39360	0.0185
Endrin	8.52	447589	58652	0.0363
4,4' DDD	8.67	110090	25136	0.0119
Endosulfan II	8.78	338121	76478	0.0282
4,4' DDT	9.02	179858	28019	0.0182
Endrin Aldhyde	9.21	216958	43265	0.0213
Endosulfan Sulfate	9.56	195632	29906	0.0185
Methoxychlor	9.95	55585	11902	0.0094
Endrin Ketone	10.29	199207	35871	0.0166
Decachlorobiphenyl	11.94	367986	109284	51.2506
		6286772	1434300	150.2592

Enviro-Chem, Inc.

1214 E. Lexington Avenue, Pomona, CA 91766 Tel (909)590-5905 Fax (909)590-5907

EPA 8081 QA/QC Report

Matrix: **Soil/Solid/Liquid(Oil)** Date Analyzed: **11/28-29/2017**

Unit: **mg/Kg (ppm)**

Matrix Spike (MS)/Matrix Spike Duplicate (MSD)

Spiked Sample Lab I.D.: **171128-LCS1/2**

Analyte	S.R.	spk conc	MS	%REC	MSD	%REC	%RPD	ACP %RPD	ACP %REC
Gamma-BHC	0.000	0.00500	0.00402	**80%**	0.00400	**80%**	**0%**	**0-20%**	**70-130**
Aldrin	0.000	0.00500	0.00446	**89%**	0.00397	**79%**	**12%**	**0-20%**	**70-130**
4,4-DDE	0.000	0.00500	0.00446	**89%**	0.00392	**78%**	**13%**	**0-20%**	**70-130**

Lab Control Spike (LCS) Recovery:

Analyte	spk conc	LCS	% REC	ACP %REC
Gamma-BHC	0.00500	0.00412	**82%**	**75-125**
Aldrin	0.00500	0.00457	**91%**	**75-125**
4,4-DDE	0.00500	0.00501	**100%**	**75-125**
Dieldrin	0.00500	0.00455	**91%**	**75-125**

Surrogate Recovery	ACP%	%REC	%REC	%REC	%REC	%REC	%REC	%REC
Sample I.D.		MB	171128-1	171128-2	171127-11			
Tetra-chloro-meta-xylene	50-150	84%	84%	87%	99%			
Decachlorobiphenyl	50-150	51%	71%	70%	51%			

Surrogate Recovery	ACP%	%REC	%REC	%REC	%REC	%REC	%REC	%REC
Sample I.D.								
Tetra-chloro-meta-xylene	50-150							
Decachlorobiphenyl	50-150							

Surrogate Recovery	ACP%	%REC	%REC	%REC	%REC	%REC	%REC	%REC
Sample I.D.								
Tetra-chloro-meta-xylene	50-150							
Decachlorobiphenyl	50-150							

S.R. = Sample Result

spk conc = Spike Concentration

%REC = Percent Recovery

ACP %RPD = Acceptable Percent RPD Range

ACP %REC = Acceptable Percent Recovery Range

** = Surrogate fail due to matrix interference (If Marked)*

Note: ***LCS, MS, MSD are in control therefore results are in control.***

Analyzed and Reviewed By: _____

Final Reviewer: _____

Enviro-Chem, Inc. Laboratories
1214 E. Lexington Avenue,
Pomona, CA 91766
Tel: (909) 590-5905 Fax: (909) 590-5907
CA-DHS ELAP CERTIFICATE #1555

Turnaround Time
0 Same Day
0 24 Hours
0 48 Hours
0 72 Hours
X 1 Week (Standard)
Other:

Misc./PO#

SAMPLE ID	LAB ID	SAMPLING DATE	SAMPLING TIME	MATRIX	No. OF CONTAINERS	TEMPERATURE	PRESERVATION	8081A/8082	6010B ARSENIC								COMMENTS
HA-1@6"	171127-9	11/22/17	0530	Soil	1	40°	—	X	X								
HA-1@3'	-10	"	0545	"	1		—	X	X								HOLD
HA-2@6"	-11	"	0600	"	1		—	X	X								
HA-2@3'	-12	"	0615	"	1		—	X	X								HOLD
						40°E/W											

Analysis Required

Company Name: IWS ENVIRONMENTAL
Address: 5211 HARTFORD WAY
City/State/Zip: WESTMINSTER, CA 92683

Project Contact: Jim Bunch
Tel: 714-893-6140
Fax:

Sampler's Signature:
Project Name/ID: City of Industry

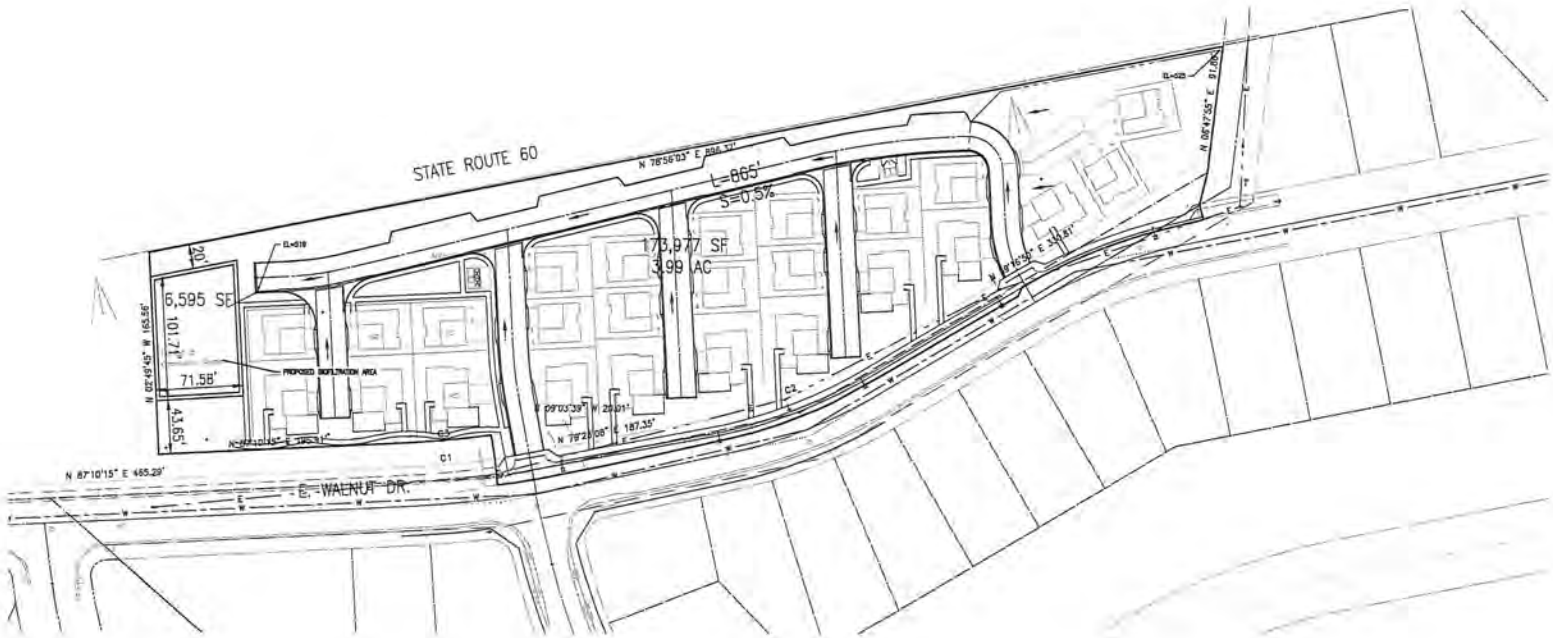
Relinquished by:	Received by:	Date & Time: 11/27/17 955 am	Instructions for Sample Storage After Analysis:
Relinquished by:	Received by:	Date & Time: 11/27/17 1135	O Dispose of O Return to Client X Store (30 Days)
Relinquished by:	Received by:	Date & Time:	O Other:

CHAIN OF CUSTODY RECORD

Date: 11/27/17

WHITE WITH SAMPLE • YELLOW TO CLIENT

PRELIMINARY LID LAYOUT PLAN
NATIONAL CORE HOUSING PROJECT



DRAINAGE AREAS:	1
AREA:	3.99 AC
% IMPERVIOUS:	65%
SWDQv:	8936 CF
BMP:	BIOFILTRATION
BMP SIZE:	1.5' (D)x71'x102'

(Infiltration not deemed feasible by Geotechnical Engineer)

ENCOMPASS ASSOCIATES, INC.

260 E. Baker St. | Suite 200 | Costa Mesa, CA 92626 | (949) 660-1994
urbanxroads.com

December 12, 2017

Ms. Alexa Washburn
National Community Renaissance
9421 Haven Avenue
Rancho Cucamonga, CA 91730

SUBJECT: INDUSTRY WORKFORCE HOUSING COMMUNITY TRIP GENERATION EVALUATION

Dear Ms. Alexa Washburn:

The following letter summarizes the findings for the Trip Generation Evaluation prepared for the proposed Industry Workforce Housing Community development (referred to as "Project") located at 20137 and 20249 East Walnut Drive in the City of Industry.

As the City of Industry does not have specific traffic study guidelines, this analysis has been prepared in accordance with the Los Angeles County Congestion Management Program (CMP) Traffic Study Guidelines outlined in Appendix D of the CMP Guidelines (most recently updated in 2010). It is our understanding that the City accepts the Los Angeles County traffic study guidelines and outlined methodologies. The County's traffic study guidelines indicate that if a project generates fewer than 50 peak hour trips to a CMP intersection, a formal traffic study is typically not required as off-site improvements are assumed to be nominal for low traffic generating uses.

SUMMARY OF FINDINGS

The proposed Project is anticipated to generate less than 50 peak hour trips during both the morning (7-9 AM) and evening (4-6 PM) peak hours. During any given hour between 7:00 AM and 4:00 PM, the construction related activities of the Project are expected to generate 8 trips (24 Passenger Car Equivalents). The Project's potential to impact off-site intersections is anticipated to be less-than-significant as the Project would generate less than the 50 peak hour trip threshold utilized by the County of Los Angeles.

PROJECT DESCRIPTION

The Project is proposed to consist of up to 25 single-family detached residential dwelling units and approximately 4,500 square feet of community recreational space.

PROJECT TRIP GENERATION

Trip generation represents the amount of traffic which is both attracted to and produced by a development. Determining traffic generation for a specific project is therefore based upon forecasting the amount of traffic that is expected to be both attracted to and produced by the specific land uses being proposed for a given development. The trip generation rates used for this assessment are based

upon information collected by the Institute of Transportation Engineers (ITE) as provided in their Trip Generation manual (10th Edition, 2017). The ITE Trip Generation manual is a nationally recognized source for estimating site-specific trip generation.

The ITE Single Family Detached Residential land use (ITE Land Use Code 210) has been utilized for the purposes of this trip generation evaluation. Trip generation rates and the daily and peak hour trip generation for proposed Project are shown in Table 1. The proposed Project is anticipated to generate a net total of approximately 236 trip-ends per day with 19 AM peak hour trips and 25 PM peak hour trips.

TABLE 1: PROPOSED PROJECT TRIP GENERATION SUMMARY

Land Use	Units[1]	ITE LU Code	AM Peak Hour			PM Peak Hour			Weekday Daily
			In	Out	Total	In	Out	Total	
Trip Generation Rates:[2]									
Single Family Detached Residential	DU	210	0.19	0.55	0.74	0.62	0.37	0.99	9.44
Land Use	**Units[1]**	**Quantity**	**AM Peak Hour In**	**AM Peak Hour Out**	**AM Peak Hour Total**	**PM Peak Hour In**	**PM Peak Hour Out**	**PM Peak Hour Total**	**Weekday Daily**
Trip Generation Summary:									
E. Walnut Street Residential	DU	25	5	14	19	16	9	25	236

[1] DU = Dwelling Units

[2] Trip Generation Source: Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition (2017).

CONSTRUCTION TRAFFIC

Trip Generation volumes for haul trips are based on peak construction related traffic activity derived from the planned construction schedule of 35 truckloads per day over 21 days. Peak traffic activity appears to occur during the grading phase of construction (i.e., import of soil), with a maximum of 4 truckloads per hour between 7:00 AM and 4:00 PM. This construction traffic would coincide with AM peak hour (7-9 AM) only as the construction activity would end prior to the PM peak hour (4-6 PM).

Passenger Car Equivalents (PCE) factors have been applied to the trip generation rates for heavy trucks (large 4+-axles). Consistent with standard traffic engineering practice in Southern California, PCE factors have been utilized due to the expected haul truck component of the proposed construction. PCE factors allow the typical "real-world" mix of vehicle types to be represented as a single, standardized unit, such as the passenger car, for the purposes of level of service analyses. A PCE factor of 3.0 for 4+-axle trucks was applied to the haul truck trips anticipated to be generated by the proposed Project.

The construction related activities of the Project are anticipated to generate 70 daily truck trips (35 truck-loads with one inbound and one outbound trip), which equates to 105 daily PCEs. During any given hour between 7:00 AM and 4:00 PM, the construction related activities of the Project are expected to generate 8 trips (24 PCEs).

Employee related passenger car traffic is anticipated to occur outside the AM and PM peak hours. As such, construction related passenger car traffic during the peak hours are considered to be nominal.

Construction related Project trip generation summary is shown on Table 2.

TABLE 2: PROJECT (CONSTRUCTION TRAFFIC) TRIP GENERATION SUMMARY

Land Use	AM Peak Hour		
	In	Out	Total
Actual Vehicles			
Construction			
Employees:[2]	0	0	0
Trucks:	4	4	8
Total:	**4**	**4**	**8**
Passenger Car Equivalent (PCE) Vehicles			
Construction			
Employees:[2]	0	0	0
Trucks:[3]	12	12	24
Total:	**12**	**12**	**24**

[1] Trip generation summary provided for AM peak hour only as the construction activity would end at 4:00 PM (prior to the PM peak hour).

[2] Employees are anticipated to arrive prior to the AM peak hour (prior to 7 AM)

[3] Assumes a PCE factor of 3.0 for heavy trucks.

CONCLUSIONS

As discussed previously, the proposed Project is anticipated to generate approximately 19 AM peak hour trips and 25 PM peak hour trips. During any given hour between 7:00 AM and 4:00 PM, the construction related activities of the Project are expected to generate 8 trips (24 PCEs).

Based on County of Los Angeles Traffic Impact Analysis guidelines, a traffic impact analysis, beyond this trip generation evaluation, is not required as the Project is anticipated to generate less than 50 peak hour trips to any off-site study area intersection.

If you have any questions, please contact me directly at (949) 336-5987.

Respectfully submitted,

URBAN CROSSROADS, INC.

Haseeb Qureshi
Senior Associate

Exhibit H
General Plan Amendment 17-1
Resolution No. PC 2018-02

RESOLUTION NO. PC 2018- 02

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF INDUSTRY, CALIFORNIA, RECOMMENDING CITY COUNCIL APPROVAL OF GENERAL PLAN AMENDMENT (GPA 17-1), AMENDING THE GENERAL PLAN TO ESTABLISH A RESIDENTIAL LAND USE DESIGNATION IN THE LAND USE ELEMENT; AMEND RELATED TEXT AND EXHIBITS OF THE CITY'S GENERAL PLAN; AND CHANGE THE LAND USE DESIGNATION OF 20137 E. WALNUT DRIVE SOUTH AND 20249 E. WALNUT DRIVE SOUTH FROM EMPLOYMENT TO RESIDENTIAL

RECITALS

WHEREAS, the City has an adopted General Plan and Zoning Ordinance; and

WHEREAS, the City's Regional Housing Needs Assessment ("RHNA") 2014-2021 assigns two (2) affordable housing units comprised of one very-low and one low income unit; and

WHEREAS, the City's 2013-2021 Housing Element of the General Plan adopted in February 2014, identified Program 7, which calls for the establishment of a Housing Overlay Zone to facilitate the development of housing in the City in appropriate locations, and create opportunities for the development of affordable housing units in response to the City's RHNA assignments; and

WHEREAS, the City's General Plan Land Use Element and Land Use Map do not identify Residential Land Use designations because the City has been a commercial and industrial jurisdiction throughout its history, and no areas within the City are currently designated for residential development; and

WHEREAS, at this time, to create opportunities for the development of affordable housing and to comply with its RHNA assignments, as well as to implement Program 7 of the City's 2013-2021 Housing Element, the City has initiated General Plan Amendment 17-1 to create a Residential Land Use designation in the Land Use Element of the General Plan; and

WHEREAS, General Plan Amendment 17-1 will also ensure consistency between the General Plan's Housing Element and Land Use Element; and

WHEREAS, on December 1, 2017, National Community Renaissance (National CORE) filed an Application for approval of Zone Change ("ZC") 17-1, Lot Line Adjustment ("LLA") 83 and Development Plan ("DP") No. 17-13 ("Application") on a 3.86-acre site located at 20137 and 20249 E. Walnut Drive South, located north of Walnut Drive and south of Pomona Freeway (SR-60), City of Industry, California,

comprising Assessor's Parcel Numbers 8762-002-901 and 8762-002-902 ("Property"); and

WHEREAS, the Property comprises two of the three sites identified in the Housing Element, Program 7 as suitable for inclusion in a Housing Overlay Zone; and

WHEREAS, the Applicant proposes to construct twenty-five (25) detached dwelling units, including two (2) very-low and two (2) low income affordable units, and 4,300 square feet of community recreational area/tot lot ("Project"); and

WHEREAS, the City desires to create a Residential Land Use designation by amending the Land Use Element and Land Use Map through General Plan Amendment ("GPA") 17-1. The GPA will add a new goal, (Goal LU6) and a new policy (Policy LU6-1), and will amend the Land Use Map for the Property.

WHEREAS, pursuant to California Environmental Quality Act, California Public Resources Code section 21000 *et seq.* ("CEQA"), the State CEQA Guidelines, California Code of Regulations, Title 14, Chapter 3, sections 15000 *et seq.*, and the Environmental Impact Report Guidelines of the City of Industry, an Initial Study ("IS") was prepared and it was determined that the General Plan Amendment, Zone Change, Lot Line Adjustment and Development Plan, would not have a significant impact on the environment with mitigation measures incorporated, and a Mitigated Negative Declaration ("MND") and Mitigation Monitoring and Reporting Program ("MMRP") were prepared; and

WHEREAS, the IS/MND and MMRP were circulated for public and agency review and comment on December 14, 2017 through, and including, January 2, 2018; and

WHEREAS, notice of the Planning Commission's January 9, 2018, public hearing on the General Plan Amendment was published in The San Gabriel Valley Tribune on December 22, 2017, in compliance with the City's Code and Government Code Section 65091, and was posted at the Property and at three public places on December 22, 2017; and

WHEREAS, on January 9, 2018, the Planning Commission opened the public hearing, and continued consideration of the General Plan Amendment to its regular meeting of February 6, 2018; and

WHEREAS, notice of the Planning Commission's February 6, 2018 public hearing on the Application including the General Plan Amendment was published in The San Gabriel Valley Tribune on January 25, 2018, in compliance with the City's Code and Government Code Section 65091, and was posted at the Property and at three public places on January 25, 2018; and

WHEREAS, on February 6, 2018, the Planning Commission reviewed and carefully considered the information in the IS/MND, and all testimony written and oral, and recommended that the City Council adopt the MND for the Project; and

WHEREAS, on February 6, 2018, the Planning Commission of the City of Industry conducted a duly noticed public hearing on the General Plan Amendment and considered all testimony written and oral; and

WHEREAS, all legal prerequisites have occurred prior to the adoption of this Resolution.

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF INDUSTRY DOES HEREBY RESOLVE, DETERMINE, FIND, AND ORDER AS FOLLOWS:

SECTION 1: The Planning Commission finds that all of the facts set forth in the Recitals are true and correct, and are incorporated herein by reference.

SECTION 2: All necessary public hearings and opportunities for public testimony and comment have been conducted in compliance with State law and the City's Code.

SECTION 3: Based upon substantial evidence presented to the Planning Commission during the February 6, 2018 public hearing, including public testimony and written and oral staff reports, and which includes without limitation, CEQA, the CEQA Guidelines, the IS/MND, and the City's Code, and documents provided by the public to the Planning Commission at the January 9, 2018 public hearing, the Planning Commission finds as follows:

A. The General Plan Amendment is consistent with other elements of the City's General Plan pursuant to Government Code Section 65300.5. The proposed amendment does not modify or alter the intent of any of the General Plan elements.

B. The General Plan Amendment will create opportunities for housing development and will facilitate provision of affordable housing on a suitable site in the City.

C. The General Plan Amendment will facilitate the City's compliance with its current and projected future RHNA assignment.

D. The General Plan Amendment will ensure consistency between the Housing and Land Use Elements of the General Plan, and provide opportunities for compliance with the implementation programs, and specifically Program 7 of the Housing Element.

E. The Residential Land Use designation for the Property will facilitate development of residential uses which are compatible with the surrounding uses because the proposed residential development on the Property will be consistent in land use, architectural design and scale of the units, density, building heights and setbacks with the surrounding residential uses, will provide adequate parking, landscaping and on-site amenities, and will have adequate water and sewer service, drainage, police and fire protection, emergency response and school availability.

F. The design or improvements will not be detrimental to the public health, safety and welfare. As documented in the IS/MND, the Project complies with development standards, complies with access and circulation requirements, does not alter emergency response, is not located in flood zones, near active earthquake faults, will not be used to store or produce hazardous materials, and will comply with applicable building and fire codes, and therefore, will not be detrimental to public health, safety and welfare.

SECTION 4: Based upon the substantial evidence presented to the Planning Commission during the above referenced February 6, 2018 public hearing, including public testimony, the written and oral staff report and attachments, and which includes, without limitation, CEQA, the CEQA Guidelines, the IS/MND and the City's Code, the findings and conclusions set forth herein, and documents provided by the public to the Planning Commission at the January 9, 2018 public hearing, the Planning Commission does hereby recommend that the City Council approve the General Plan Amendment, attached hereto as Exhibit A, and incorporated herein by reference.

SECTION 5: The provisions of this Resolution are severable and if any provision, clause, sentence, word or part thereof is held illegal, invalid, unconstitutional, or inapplicable to any person or circumstances, such illegality, invalidity, unconstitutionality, or inapplicability shall not affect or impair any of the remaining provisions, clauses, sentences, sections, words or parts thereof of the Resolution or their applicability to other persons or circumstances.

SECTION 6: That the Secretary of the Planning Commission shall certify to the adoption of this Resolution and that the same shall be in full force and effect, and shall forward a copy of this Resolution to the City Council.

PASSED, APPROVED AND ADOPTED by the Planning Commission of the City of Industry at a regular meeting held on February 6, 2018, by the following vote:

AYES: COMMISSIONERS:

NOES: COMMISSIONERS:

ABSTAIN: COMMISSIONERS:

ABSENT: COMMISSIONERS:

Michael Greubel, Chairman

ATTEST:

Diane M. Schlichting, Secretary

Exhibit A

Section 1.5 – Goals and Policies

Add the following Goal and Policy:

1.5.6 – Create opportunities for housing development

Goal

LU6 Create opportunities for development of a range of housing types, products and affordability levels including single-family rental, multifamily rental, factory-built housing, mobile homes, housing for agricultural employees, supportive housing, and transitional housing in select areas of the City.

Policy

LU6-1 Develop a Residential Zone that would enable housing in select areas of the City compatible with the surrounding primary land use.

Table 1
Land Use Designations

Land Use Designation	*Allowable Uses* [1]	*Max FAR* [2]
Employment	- A variety of business and employment uses including industrial manufacturing, assembly, printing, machining, milling, welding, research and development, distribution, warehousing, storage, and supporting office uses - The uses permitted in the Commercial land use designation when zoned appropriately	0.5 FAR
Commercial	- A mixture of commercial (retail, service, tourist-serving), medical, professional office, entertainment, fitness, and dining uses - The uses permitted in the Employment land use designation when zoned appropriately	0.5 FAR (commercial) 1.0 FAR (office)
Recreation/Open Space	- Commercial recreation such as golf courses, resorts, equestrian facilities, exposition centers - Open space such as parks, trails, bikeways, indoor and outdoor recreational facilities, and interpretive centers - Commercial nurseries	N/A
Institutional	- Public schools and school offices and maintenance facilities - Publicly owned and maintained facilities including civic centers, governmental institutions and facilities, post offices, museums, transportation facilities, and libraries. - Quasi-Public Uses such as public utility facilities, power generation facilities, and electrical substations - Hospitals, nursing homes, comprehensive subacute and skilled nursing care, and long term residential care	N/A

[1] Uses such as railways, roadways, waterways, utilities, and flood control channels are accommodated within each land use designation.

[2] When more than one parcel shares common parking, landscape, access, and maintenance, the maximum FAR is determined based on the perimeter of an entire project. This means that individual parcels within the project may exceed the maximum FAR as long as the FAR for the entire project complies with the maximum FAR.

Add to Table 1 – Land Use Designations

Land Use Designation	*Allowable Uses*	*Max FAR*
Residential	A range of housing types, products and affordability levels including single-family rental, multifamily rental, factory-built housing, mobile homes, housing for agricultural employees, supportive housing, and transitional housing	N/A

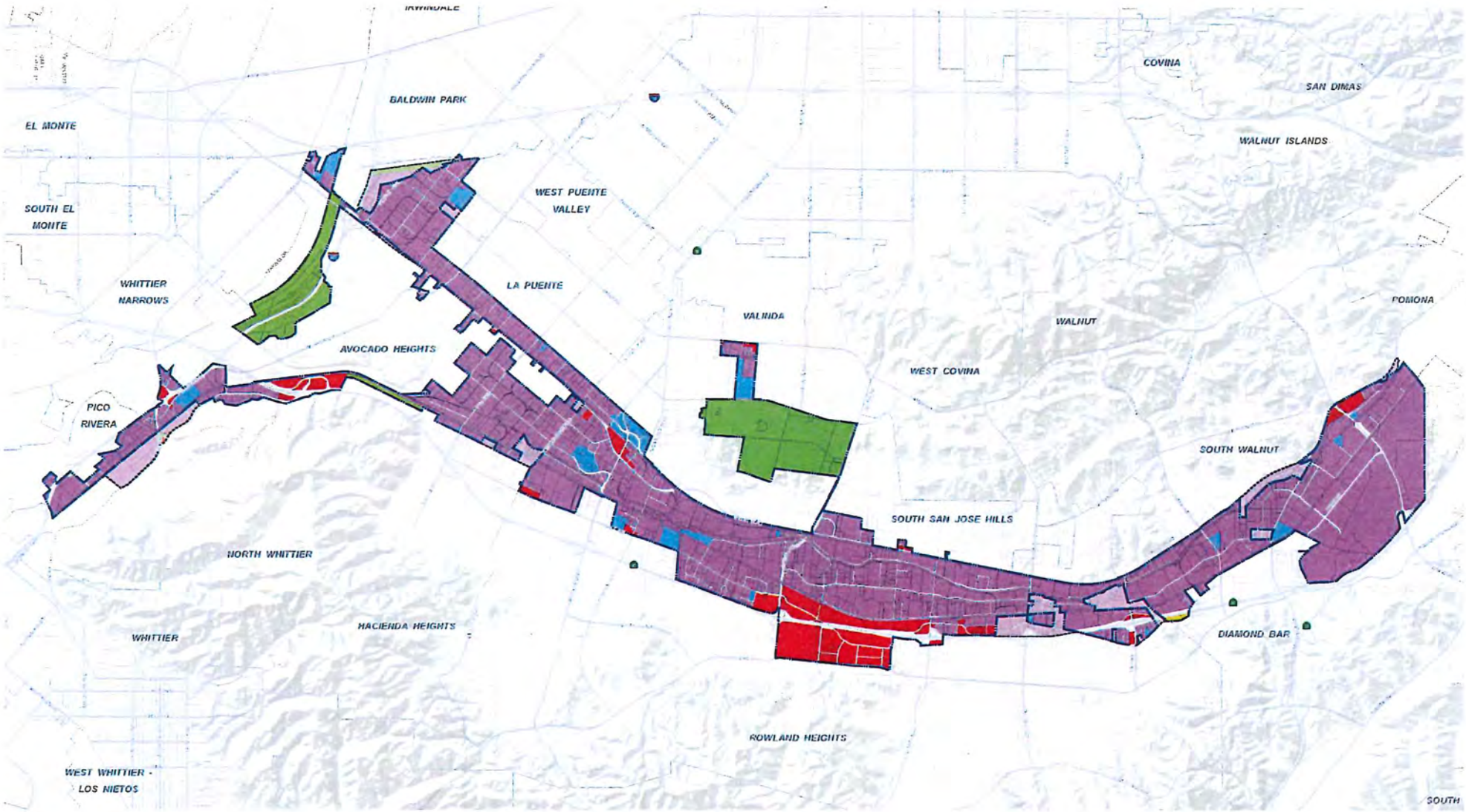
Table 2
Land Use Buildout

Land Use Designation	*Acres*	*Building Square Feet*	*Jobs*	*Daily Population*
City Boundaries				
Commercial	523.7	11,851,027	21,665	21,665
Employment	5,350.2	91,086,436	79,211.6	79,307
Recreation and Open Space	794.1	521,000	450	535
Institutional	238.9	NA	605	887
Street R.O.W.	799.7	NA	NA	NA
Subtotal City Boundaries	**7,706.6**	**103,458,464**	**101,932**	**102,395**
Sphere of Influence				
Commercial	1.2	26,136	58	58
Employment	405.9	7,042,067	6,018	6,018
Recreation and Open Space	46.5	0	0	0
Institutional	0.0	0	0	0
Street R.O.W.	75.5	NA	NA	NA
Subtotal SOI	**529.1**	**7,068,203**	**6,076**	**6,076**
Total Planning Area				
Commercial	524.9	11,877,163	21,723	21,723
Employment	5,756	98,128,504	85,230	85,326
Recreation and Open Space	840.6	521,000	450	535
Institutional	238.9	0	605	887
Street R.O.W.	875.2	NA	NA	NA
Total Planning Area	**8,235.8**	**110,526,667**	**108,008**	**108,471**

Notes:
R.O.W. = right-of-way
The assumptions used in these projections are detailed in the Appendix: Buildout Methodology.
Population density is expressed in terms of daily population to capture both employment and residential population as it is most applicable to the City of Industry.
Projections were modified to account for existing railroad right-of-ways, utilities, flood control channels, existing residences, and the Metrolink station.
The 2004 Industry Business Center Master Plan was assumed for the buildout of the currently undeveloped 592-acre property at the eastern end of the City.

Add to Table 2 – Land Use Buildout

Land Use Designation	*Acres*	*Building Square Feet*	*Jobs*	*Daily Population*
City Boundaries				
Residential	5.39	25 dwelling units	N/A	See note



THE PLANNING CENTER DC&E

0 2,500 5,000 10,000 Feet

0 0.5 1 2 Miles

Date: 6/12/14

General Plan
- Employment
- Commercial
- Institutional
- Recreation & Open Space
- Residential

General Plan Sphere
- Employment
- Commercial
- Recreation & Open Space

- City of Industry
- Sphere of Influence Boundary

GENERAL PLAN LAND USE

CITY OF INDUSTRY

2014 GENERAL PLAN

Exhibit I
Zone Change 17-1
Resolution No. PC 2018-03

RESOLUTION NO. PC 2018- 03

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF INDUSTRY, CALIFORNIA, RECOMMENDING THAT THE CITY COUNCIL ADOPT AN ORDINANCE AMENDING TITLE 17 (ZONING) OF THE CITY'S MUNICIPAL CODE TO ADD CHAPTER 17.30 (RESIDENTIAL ZONE), AND AMENDING CHAPTER 17.28.060 (MAP-ADOPTED) TO AMEND THE CITY'S ZONING MAP TO CHANGE THE ZONING DESIGNATION OF THE PROPERTIES LOCATED AT 20137 AND 20249 E. WALNUT DRIVE SOUTH FROM INDUSTRIAL TO RESIDENTIAL

RECITALS

WHEREAS, the City has an adopted General Plan and Zoning Ordinance; and

WHEREAS, the City's Regional Housing Needs Assessment ("RHNA") 2014-2021 assigns the City two (2) affordable housing units comprised of one very-low and one low income unit; and

WHEREAS, the City's 2013-2021 Housing Element of the General Plan adopted in February 2014, identified Program 7 which calls for the establishment of a Housing Overlay Zone to facilitate the development of housing in the City in appropriate locations, and create opportunities for the development of affordable housing units in response to the City's RHNA assignments; and

WHEREAS, the City's General Plan Land Use Element and Land Use Map do not identify Residential Land Use designations because the City has been a commercial and industrial jurisdiction throughout its history, and no areas within the City are currently designated for residential development; and

WHEREAS, at this time, to create opportunities for the development of affordable housing and to comply with its RHNA assignments, as well as to implement Program 7 of the City's 2013-2021 Housing Element, the City has initiated General Plan Amendment 17-1 to create a Residential Land Use designation in the Land Use Element of the General Plan; and

WHEREAS, General Plan Amendment 17-1 ensures consistency between the General Plan's Housing Element and Land Use Element; and

WHEREAS, on December 1, 2017, National Community Renaissance (National CORE) filed an Application requesting an amendment to the City's Municipal Code ("Code") and Zoning Map to establish a residential zone in the City, and to change the zoning designation for the properties at 20137 and 20249 E. Walnut Drive South, comprising Assessor's Parcel Numbers 8762-002-901 and 8762-002-902, (the "Property") from Industrial to Residential (collectively the "Zone Change") ;and

WHEREAS, the Property is located north of Walnut Drive and south of Pomona Freeway (SR-60); and

WHEREAS, pursuant to Government Code Sections 65583(a)(3), 65583(1) and 65583.2, the City must identify adequate sites for residential uses. An adequate site is a parcel or group of parcels that have appropriate zoning, development standards, infrastructure, and services needed to accommodate housing. The City's 2013-2021 Housing Element proposed an implementation program (Program 7) whereby three (3) suitable sites were identified within the City boundaries for residential development. The Property comprises two of the three sites identified in the Housing Element, Program 7 as suitable for inclusion in a Housing Overlay Zone; and

WHEREAS, the Applicant proposes to construct twenty-five (25) detached dwelling units, including two (2) very-low and two (2) low income affordable units, and 4,300 square feet of community recreational area/tot lot ("Project"), and in accordance with Sections 17.36.020 of the City's Municipal Code ("Code"), the Applicant has submitted a Development Plan application to construct the Project; and

WHEREAS, the Applicant has also requested Lot Line Adjustment ("LLA 83") to modify the properties located at 20137 and 20249 E. Walnut Drive South, which comprise Assessor Parcel Number ("APN") 8762-002-901 which currently is approximately 1.53 acres, and APN 8762-002-902 which currently is 3.81 acres, with a combined acreage of approximately 5.34 acres, into a 3.86-acre lot for a residential development, and a 1.48-acre lot that is not a part of the proposed development, by adjusting the existing lot line currently separating the two lots to the west; and

WHEREAS, pursuant to California Environmental Quality Act California Public Resources Code section 21000 *et seq.* ("CEQA"), the State CEQA Guidelines, California Code of Regulations, Title 14, Chapter 3, sections 15000 *et seq.*, and the Environmental Impact Report Guidelines of the City of Industry, an Initial Study ("IS") was prepared, and it was determined that the General Plan Amendment, the Application (Zone Change and Development Plan) and the Lot Line Adjustment, together as the Project, would not have a significant impact on the environment with mitigation measures incorporated, and a Mitigated Negative Declaration ("MND") and Mitigation Monitoring and Reporting Program ("MMRP") were prepared; and

WHEREAS, the IS/MND and MMRP were circulated for public and agency review and comment on December 14, 2017 through, and including, January 2, 2018; and

WHEREAS, notice of the Planning Commission's January 9, 2018, public hearing on the Zone Change was published in The San Gabriel Valley Tribune on December 22, 2017, in compliance with the City's Code and Government Code Section

65091, and was posted at the Property and at three public places on December 22, 2017; and

WHEREAS, on January 9, 2018, the Planning Commission opened the public hearing, and continued consideration of the Zone Change to its regular meeting of February 6, 2018; and

WHEREAS, notice of the Planning Commission's February 6, 2018 public hearing on the Application including the Zone Change was published in The San Gabriel Valley Tribune on January 25, 2018 , in compliance with the City's Code and Government Code Section 65091, and was posted at the Property and at three public places on January 25, 2018 ; and

WHEREAS, the Planning Commission reviewed and carefully considered the information in the IS/MND, and on February 6, 2018, recommended that the City Council adopt the IS/MND for the Project; and

WHEREAS, on February 6, 2018, the Planning Commission of the City of Industry conducted a duly noticed public hearing on the Application, including the Zone Change and considered all testimony written and oral; and

WHEREAS, all legal prerequisites have occurred prior to the adoption of this Resolution.

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF INDUSTRY DOES HEREBY RESOLVE, DETERMINE, FIND, AND ORDER AS FOLLOWS:

SECTION 1: The Planning Commission finds that all of the facts set forth in the Recitals are true and correct, and are incorporated herein by reference.

SECTION 2: All necessary public hearings and opportunities for public testimony and comment have been conducted in compliance with State law and the City's Code.

SECTION 3: Based upon substantial evidence presented to the Planning Commission during the February 6, 2018 public hearing, including public testimony and written and oral staff reports, and which includes without limitation, CEQA, the CEQA Guidelines, the IS/MND, and the City's Code, and documents provided by the public to the Planning Commission at the January 9, 2018 public hearing, the Planning Commission finds as follows:

A. The Zone Change will create opportunities for housing development and will facilitate the provision of affordable housing on a suitable site in the City of Industry.

B. The Zone Change will ensure consistency between the Housing and Land Use Elements of the General Plan, and provide opportunities for compliance with the implementation programs, and specifically Program 7 of the Housing Element.

C. In accordance with Government Code Section 65855, the Zone Change will bring the City's Zoning Code into consistency with the General Plan, and there is no applicable Specific Plan.

D. The Property has had Industrial zoning similar to the majority of properties in the City since incorporation. The Zone Change is warranted because it will facilitate the development of the site for residential uses consistent with Program 7 of the Housing Element and in response to the City's RHNA assignment, thereby helping to address the region's increased need for housing and specifically affordable housing.

E. There are no existing business, commercial or industrial uses on the Property.

F. The owner of the Property cannot develop the Property for residential uses consistent with Program 7 of the City's Housing Element, if the Zone Change is not granted, and therefore is deprived of a property right established under the General Plan land use designation.

G. The Zone Change does not adversely affect the adjoining property as to value, precedent, and is not detrimental to the area. The Property is located in a predominantly residential area. The proposed residential development improves the existing conditions of the Property, is compatible in land use, residential product type, architectural design and scale with the surrounding uses, meets density, setback, height and parking standards and provides adequate landscaping and on-site amenities, which will ensure that the Zone Change does not adversely affect property values or be detrimental to the area.

H. The Zone Change is in the interest of furtherance of public health, safety and general welfare because the Project complies with development standards, complies with access and circulation requirements, does not alter emergency response, is not located in flood zones, near active earthquake faults, will not be used to store or produce hazardous materials, and will comply with applicable building and fire codes, and assists in meeting the housing needs of the region; And

I. According to the Southern California Association of Governments, there is a housing crisis in California due to a combination of both a housing shortage and a lack of affordability. The Zone Change is in the public interest because it will facilitate the development of housing, and affordable housing in the City of Industry pursuant to Government Code Sections 65583(a)(3), 65583(c)(1) and 65583.2, and will help to address the housing crisis in California by contributing to housing supply and providing affordable housing in the region.

J. Based on the foregoing, the Planning Commission recommends that the City Council adopt an ordinance amending Title 17 (Zoning) of the City's Municipal Code to add Chapter 17.30 (Residential), attached hereto as Exhibit A, and incorporated herein by reference, and amending Chapter 17.28.060 (Map-Adopted) of the City's Code, attached hereto as Exhibit B, and incorporated herein by reference, to

amend the City's zoning map to reflect a residential land use designation for the properties located at 20137 and 20249 E. Walnut Drive South.

SECTION 4: The provisions of this Resolution are severable and if any provision, clause, sentence, word or part thereof is held illegal, invalid, unconstitutional, or inapplicable to any person or circumstances, such illegality, invalidity, unconstitutionality, or inapplicability shall not affect or impair any of the remaining provisions, clauses, sentences, sections, words or parts thereof of the Resolution or their applicability to other persons or circumstances.

SECTION 5: That the Secretary of the Planning Commission shall certify to the adoption of this Resolution and that the same shall be in full force and effect, and shall forward a copy of this Resolution to the City Council.

PASSED, APPROVED AND ADOPTED by the Planning Commission of the City of Industry at a regular meeting held on February 6, 2018, by the following vote:

AYES: COMMISSIONERS:

NOES: COMMISSIONERS:

ABSTAIN: COMMISSIONERS:

ABSENT: COMMISSIONERS:

_____
Michael Greubel, Chairman

ATTEST:

_____
Diane M. Schlichting, Secretary

Exhibit A

Chapter 17.30
RESIDENTIAL ZONE (R)

Sections

17.30.010 Purpose..... 1

17.30.020 Change of Zone..... 1

17.30.030 Permitted Uses..... 1

17.30.040 Applicability..... 2

17.30.050 Residential Development Standards..... 2

17.30.010 Purpose.

It is the intent and purpose of the Residential Zone to:

A. Implement the Housing Element of the General Plan and allow for a variety of housing types, including multifamily rental, factory-built, mobile homes, supportive housing, and transitional housing on select sites.

B. Create opportunities for residential development on select sites by amending the Zoning Code to provide residential development standards and approval procedures to facilitate the development of housing, including affordable housing, in the Residential Zone.

C. To implement state laws that require cities to demonstrate available land capacity and zoning tools to accommodate the City's projected need for housing.

D. Facilitate well-designed new residential development projects to promote a better balance of jobs and housing.

E. Stimulate economic development and reinvestment through regulations based upon recognized urban design principles that allow property owners to respond with flexibility to market forces.

F. Allow development standard modifications, and expedited processing for projects that address the Regional Housing Needs Allocation (RHNA).

17.30.020 Change of Zone.

A. Any change of an existing industrial or commercial zone to include, a residential zone, shall be made in accordance with the provisions of Chapter 17.28.

17.30.030 Permitted Uses.

A. The following residential uses shall be permitted pursuant to a development plan approved by the city council pursuant to Chapter 17.36:

1. Single family residential (attached or detached).
2. Multiple family residential (townhomes, condominiums, or rental apartments)
3. Mobile homes
4. Manufactured housing
5. Supportive housing (17.08.152)
6. Transitional housing (17.08.157)
7. Accessory uses or structures incidental to the principally permitted use.

17.30.040 Applicability.

The regulations set forth in this chapter may be applied to sites meeting the following criteria:

A. The development site is a minimum of one (1) acre.
B. The site is vacant or underutilized and could readily accommodate residential development.
C. Adequate infrastructure and services exist or may be readily extended to support residential uses on the site.
D. The site is near other residential development or residentially zoned lands.
E. The site is not located adjacent to industrial or commercial uses that would raise environmental or operational concerns, or would result in foreseeable conflicts between uses.

17.30.050 Property Development Standards

The following development standards shall apply to housing developments in the Residential Zone. The City may waive, or modify, any, or all, of these requirements during Design Review if it finds that one or more of the requirements is infeasible due to physical or other constraints on the property or would otherwise facilitate the construction of affordable housing to meet the City's RHNA requirements.

A. General Compatibility Standards.
   1. General Design Standards. The housing units shall be designed and developed in a manner compatible with and complementary to existing and potential development in the immediate vicinity of the project site.
   2. Adjacent Uses. Site planning on the perimeter shall provide for protection of the property from adverse surrounding influences and shall protect surrounding areas from potentially adverse influences of residents on the property.

3. Privacy. To the greatest extent possible, the design of the development shall promote privacy for residents and neighbors, security, and use of passive solar heating and cooling through proper placement of walls, windows, and landscaping.
4. Compatible Materials. Building design and materials shall blend with the neighborhood or existing structures on the site.

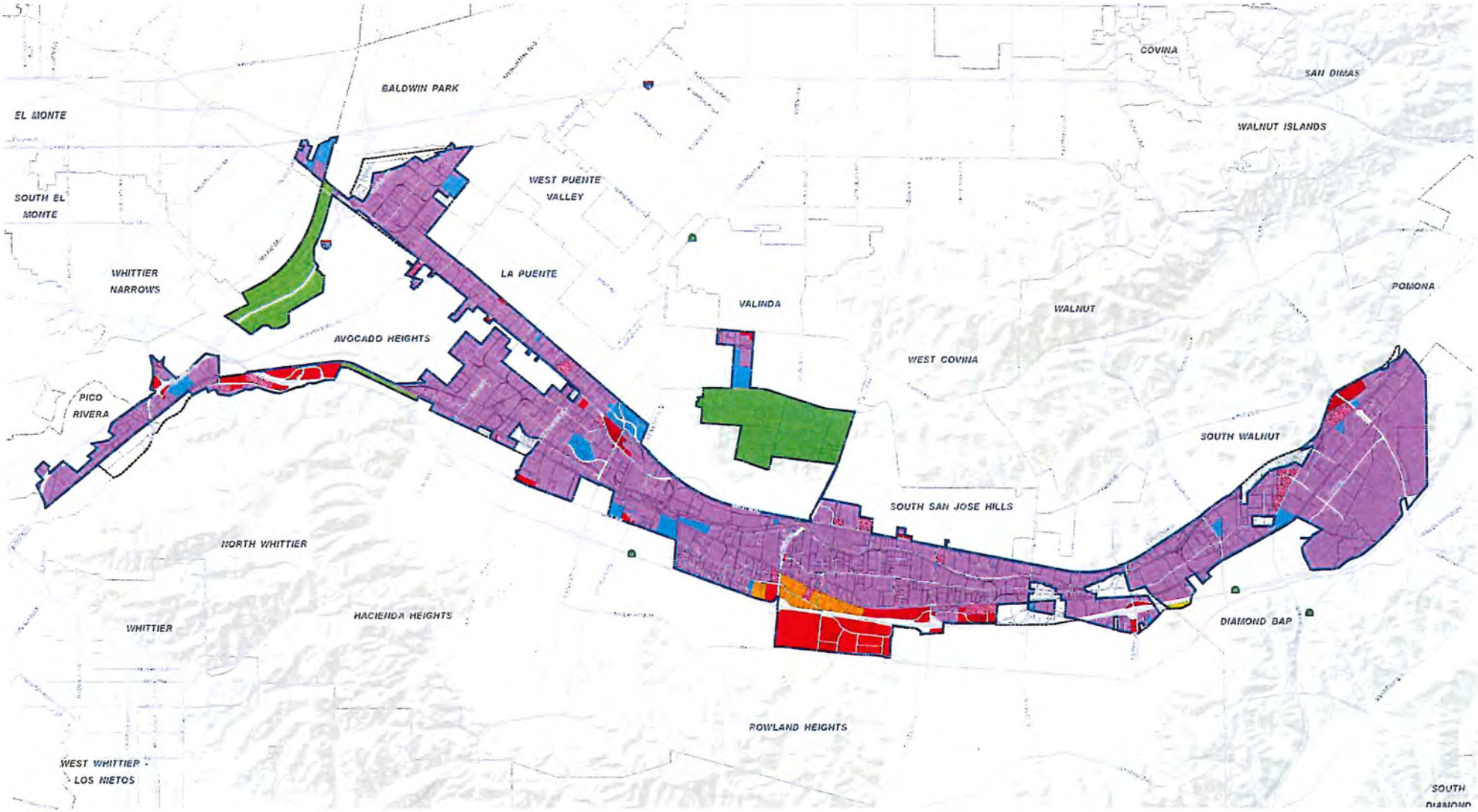
B. Property Development Standards.

1. Streets. All public streets within or abutting the residential use shall be dedicated and improved to city specifications for the particular classification of street consistent with Title 12 Streets and Sidewalks. All private streets shall meet fire code and access standards.
2. Sidewalks. Sidewalks shall be installed along all public street frontages.
3. Parking. Parking shall be provided as follows:
   a. One (1) space for studios, one-bedroom units and accessory apartments
   b. Two (2) spaces per two- or more-bedroom dwelling units.
   c. Where part of a planned development, a minimum of one (1) visitor parking space for every seven (7) dwelling units shall be provided. On-street parking, where permitted, may be used to satisfy visitor parking.
4. Common Open Space. Common open space shall comprise the greater of: (a) five percent of the total area of the site; or (b) seventy-five square feet for each dwelling unit. Land occupied by buildings, streets, driveways, parking, utility units, and trash enclosures shall not be counted in satisfying the open space requirement; land in landscaping and passive and active recreation/open space with a minimum depth/width of five feet shall be counted, and land occupied by recreational buildings and structures shall be counted. Common open space shall be suitable for and improved with amenities to promote physical activity and social interaction amongst residents of the development.

C. Development Standards by Type. The following table provides standards for a range of housing and density types.

Residential Development Standards				
DEVELOPMENT TYPE & DENSITY				
Development Type	**LOW DENSITY**	**MEDIUM DENSITY**	**MED-HIGH DENSITY**	**HIGH DENSITY**
Density Range (dwelling units/acre)	2 – 8	8 – 15	15 – 25	25 – 35
BUILDING TYPES				
Single House	X	X		
Duplex - Quadplex		X	X	
Bungalow Court	X	X	X	
Townhouse		X	X	X
Live/Work			X	X
Multifamily Apartments			X	X
Stacked Flats			X	X
Accessory Unit	X	X	X	X
LOT DIMENSIONS				
Minimum Lot Area	n.a.	n.a.	n.a.	n.a.
Maximum Lot Coverage	60%	70%	80%	90%
PRINCIPAL BUILDING SETBACKS				
Front	5 ' min – 20 ' max	5 ' min – 20 ' max	2 ' min - 15 ' max	0 ' min – 10 ' max
Side	5 ' min	5 ' min	0 ' min – 24 ' max	0 ' min – 24 ' max
Rear	10 ' min	5 ' min	3 ' min	3 ' min
ACCESSORY BUILDING SETBACKS				
Front	24 ' min	40 ' max from rear	40 ' max from rear	40 ' max from rear
Side	5 ' min	0 ' or 3 ' at rear	0 ' or 3 ' at corner	0 ' or 3 ' at corner
Rear	10 ' min	3 ' min	3 ' min	3 ' min
MAXIMUM BUILDING HEIGHT (Floors/Feet)				
Principal Building	2 / 35 '	2 / 35 '	3 / 50 '	4 / 60 '
Accessory	2 / 25 '	2 / 25 '	2 / 25 '	2 / 25 '

Exhibit B



PLACEWORKS

0 2,500 5,000 10,000 Feet

0 0.5 1 2 Miles

City of Industry

Sphere of Influence Boundary

Zoning

Industrial (I)

Industrial - Commercial Overlay (IC Overlay)

Commercial (C)

Commercial - Adult Business Overlay (AB)

Institutional (INST)

Automobile Zone (AZ)

Recreation and Open Space Zone (ROS)

Residential (R)

ZONING

CITY OF INDUSTRY

Exhibit J
Lot Line Adjustment 83
Resolution No. PC 2018-04

RESOLUTION NO. PC 2018-04

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF INDUSTRY, CALIFORNIA, RECOMMENDING CITY COUNCIL APPROVAL OF LOT LINE ADJUSTMENT 83, FOR THE PROPERTIES LOCATED AT 20137 AND 20249 E. WALNUT DRIVE SOUTH IN THE CITY OF INDUSTRY, CALIFORNIA, AND MAKING FINDINGS IN SUPPORT THEREOF

RECITALS

WHEREAS, to create opportunities for the development of affordable housing and to comply with its Regional Housing Needs Assessment ("RHNA") assignments, as well as to implement Program 7 of the City's 2013-2021 Housing Element, the City has initiated General Plan Amendment ("GPA") 17-1 to create a Residential Land Use designation in the Land Use Element of the General Plan; and

WHEREAS, on December 1, 2017, National Community Renaissance ("National CORE") filed an application requesting: an amendment to the City's Municipal Code ("Code") and Zoning Map to establish a residential zone in the City, and to change the zoning designation for the properties at 20137 and 20249 E. Walnut Drive South, comprising Assessor's Parcel Numbers 8762-002-901 and 8762-002-902 (the "Property") from Industrial to Residential (collectively the "Zone Change"); approval of Lot Line Adjustment ("LLA") No. 83, to modify the properties located at 20137 and 20249 E. Walnut Drive South, which comprise Assessor Parcel Number ("APN") 8762-002-901 which currently is approximately 1.53 acres, and APN 8762-002-902 which currently is 3.81 acres, with a combined acreage of approximately 5.34 acres, into a 3.86-acre lot for a residential development, and a 1.48-acre lot that is not a part of the proposed development, by adjusting the existing lot line currently separating the two lots to the west; and Development Plan ("DP") No. 17-13, to construct twenty-five detached dwelling units and 4,300 square feet of community recreational area (collective the "Application"); and

WHEREAS, with the approval of GPA 17-1, the Property will have a Land Use designation of Residential. As such, the parcels resulting from the LLA are consistent with the Land Use Element of the General Plan, and are not in conflict with the established goals, policies and performance standards of the General Plan Circulation, Resource Management, Safety and Housing Elements; and

WHEREAS, with the approval of the Zone Change, the Zoning Map designates the Property as "R" Residential. The parcels resulting from the LLA are consistent with the "R" Residential zone in that the parcels will be developed as residential uses and will meet minimum development and building code requirements of setbacks, lot sizes, lot coverage, density, parking, drainage and landscaping; and

WHEREAS, pursuant to California Environmental Quality Act California Public Resources Code section 21000 *et seq.*, the State CEQA Guidelines, California Code of Regulations, Title 14, Chapter 3, sections 15000 *et seq.*, ("CEQA"), and the Environmental Impact Report Guidelines of the City of Industry, an Initial Study was prepared and it was determined that the General Plan Amendment, and the Application together as the Project, would not have a significant impact on the environment with mitigation measures incorporated, and a Mitigated Negative Declaration ("MND") and Mitigation Monitoring and Reporting Program ("MMRP") were prepared; and

WHEREAS, the IS/MND was circulated for public and agency review and comment on December 14, 2017 through, and including January 2, 2018; and

WHEREAS, on January 9, 2018, the Planning Commission of the City of Industry held a duly noticed public meeting to consider the Application including the LLA; and

WHEREAS, on January 9, 2018, the Planning Commission of the City of Industry continued the duly noticed public meeting to consider the Application, including the LLA, to February 6, 2018; and

WHEREAS, notice of the Planning Commission's February 6, 2018, public hearing on the LLA was published in The San Gabriel Valley Tribune on January 25, 2018, in compliance with the City's Code and Government Code Section 65091, and was posted at the Property and at three public places on January 25, 2018; and

WHEREAS, on February 6, 2018, the Planning Commission reviewed and carefully considered the information in the IS/MND, and all testimony written and oral, and recommended that the City Council adopt the IS/MND for the Project; and

WHEREAS, on February 6, 2018, the Planning Commission of the City of Industry conducted a duly noticed public hearing on the Application, including the LLA, and considered all testimony written and oral; and

WHEREAS, all legal prerequisites have occurred prior to the adoption of this Resolution.

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF INDUSTRY DOES HEREBY RESOLVE, DETERMINE, FIND, AND ORDER AS FOLLOWS:

SECTION 1: The Planning Commission finds that all of the facts set forth in the Recitals are true and correct, and are incorporated herein by reference.

SECTION 2: All necessary public hearings and opportunities for public testimony and comment have been conducted in compliance with State law and the City's Code.

SECTION 3. Based upon substantial evidence presented to the Planning Commission during the February 6, 2018 public hearing, including public testimony and written and oral staff reports, and which includes without limitation, CEQA, the CEQA Guidelines, the IS/MND, and the City's Code, and documents provided by the public at the February 6, 2018 public hearing, the Planning Commission finds as follows:

A. The Land Use Element of the General Plan designates the Property as Residential, and it is zoned Residential. The parcels resulting from the lot line adjustment are consistent with the General Plan as they will facilitate the construction of a residential development, and do not conflict with the established goals and objectives of the Land Use Element. Further, the lot line adjustment will facilitate a development that is consistent with the goals, policies and performance standards of General Plan Circulation, Resource Management, Safety and Housing Elements; and

B. The Project's design and improvements for the parcels and LLA conform with the "R" Residential Zoning and development guidelines with minimum size, frontage, access, and drainage requirements addressed in Section 16.10 of the City's Code and the development standards in Section 17.30 and 17.36 of the City's Code; and

C. The Property is suitable for the proposed development in accordance with the Development Plan and Lot Line Adjustment because it complies with minimum lot size and frontage requirements, is flat and free of hazards as noted in the accompanying IS/MND;

D. Based on the foregoing, the Planning Commission recommends that the City Council approve Lot Line Adjustment No. 83, subject to the Conditions of Approval, attached hereto as Attachment 1, and incorporated herein by reference.

SECTION 4: The provisions of this Resolution are severable and if any provision, clause, sentence, word or part thereof is held illegal, invalid, unconstitutional, or inapplicable to any person or circumstances, such illegality, invalidity, unconstitutionality, or inapplicability shall not affect or impair any of the remaining provisions, clauses, sentences, sections, words or parts thereof of the Resolution or their applicability to other persons or circumstances.

SECTION 5: That the Secretary of the Planning Commission shall certify to the adoption of this Resolution and that the same shall be in full force and effect, and shall forward a copy of this Resolution to the City Council.

PASSED, APPROVED AND ADOPTED by the Planning Commission of the City of Industry at a regular meeting held on February 6, 2018 by the following vote:

AYES: COMMISSIONERS:

NOES: COMMISSIONERS:

ABSTAIN: COMMISSIONERS:

ABSENT: COMMISSIONERS:

Michael Greubel, Chairman

ATTEST:

Diane M. Schlichting
Secretary

CITY OF INDUSTRY

P.O. Box 3366 • 15625 E. Stafford St. • City of Industry, CA 91744-0366 • (626) 333-2211 • FAX (626) 961-6795

Attachment 1

Standard Requirements and Conditions of Approval

Application: **Lot Line Adjustment 83**

Applicant: **National Community Renaissance**

Location: **20137 and 20249 E. Walnut Drive South**

Code Requirements and Standards

The following is a list of code requirements and standards deemed applicable to the proposed project. The list is intended to assist the Applicant by identifying requirements that must be satisfied during the various stages of project permitting, implementation, and operation. It should be noted that this list is in addition to any "conditions of approval" adopted by the City Council and noted above. Please note that if the design of your project or site conditions change, the list may also change. If you have any questions regarding these requirements, please contact the City of Industry.

1. The owner of the Property must comply with the Subdivision Ordinance of the City of Industry.

2. The owner shall dedicate necessary landscape and utility easements along all street frontages as depicted on the approved development plan.

3. The owner shall dedicate necessary easements for storm drain, sewer, and street or highways as depicted on the approved development plan and lot line adjustment 83.

4. The Applicant shall provide drainage and grading plans to be approved by the City Engineer prior to the issuance of a building permit. Such plans shall be in substantial conformity with the development plans and lot line adjustment 83.

5. In conformance with Chapter 13.16 of the Municipal Code and prior to the start of grading and construction, the Applicant will provide a Stormwater Pollution Prevention Plan (SWPPP), developed by a Qualified SWPPP Developer (QSD) and consistent with the current National Pollutant Discharge Elimination System (NPDES) construction general permit, along with proof that a Waste Discharger Identification (WDID) Number has been obtained, to the City Engineer for review and approval.

6. In conformance with Chapter 13.16 of the Municipal Code, the Applicant shall provide: 1) a SUSMP standard plan; and 2) an operations, maintenance, and monitoring plan to the City Engineer for review and approval. Upon approval, the Applicant shall construct storm drains and water quality devices according to the approved plans and the satisfaction of the City Engineer.

7. The applicant shall be required to prepare and obtain approval of drainage and landscaping plans to the satisfaction of the City Engineer and Planning Department.
8. The applicant shall be required to provide approved water, utility and sewer facilities for all building sites to the satisfaction of the City Engineer prior to issuance of a grading permit.
9. Applicant shall construct curb, gutter, pavement paveout, and necessary drainage facilities along all street frontages.
10. Applicant shall ensure that all utilities, including electrical and telephone are installed underground and are concealed from view.
11. Street lights shall be designed and installed along all public streets shown on Parcel Map in accordance with Los Angeles County Department of Public Works designs standards at sole expense of the applicant. Three (3) years of advance energy fees shall also be paid by the applicant to the local utility and upon request, the applicant shall approve and execute any petition for the street lights to be annexed into a lighting maintenance district.

Interpretation and Enforcement

1. The Applicant and Property Owner shall comply with all applicable code requirements, conditions of approval, laws, rules, and regulations applicable to the development of the project.

2. The Director of Development Services may interpret the implementation of each condition of approval and, with advanced notice, grant minor amendments to approved plans and/or conditions of approval based on changed circumstances, new information, and/or relevant factors as long as the spirit and intent of the approved condition of approval is satisfied. Permits shall not be issued until the proposed minor amendment has been reviewed and approved for conformance with the intent of the approved condition of approval. If the proposed changes are substantial in nature, an amendment to the original entitlement may be required pursuant to the provisions of Industry Municipal Code.

Indemnification and Hold Harmless Condition

1. The Applicant and each of its heirs, successors and assigns, shall defend, indemnify and hold harmless the City of Industry and its agents, officers, and employees from any claim, action or proceedings, liability cost, including attorney's fees and costs against the City or its agents, officers or employees, to attack, set aside, void or annul any approval of the City, including but not limited to any approval granted by the City Council and Planning Commission concerning this project. The City shall promptly notify the Applicant of any claim, action or proceeding and should cooperate fully in the defense thereof.

2. The Applicant and Property owner shall file an executed and acknowledged Acceptance of Terms and Conditions of Lot Line Adjustment 83 within 10 days after the granting of said entitlements.

Exhibit K
Development Plan17-13
Resolution No. PC 2018-05

RESOLUTION NO. PC 2018- 05

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF INDUSTRY, CALIFORNIA, RECOMMENDING CITY COUNCIL APPROVAL OF DEVELOPMENT PLAN 17-13 TO CONSTRUCT TWENTY-FIVE DETACHED DWELLING UNITS INCLUDING TWO VERY-LOW AND TWO LOW INCOME UNITS, AND 4,300 SQUARE FEET OF COMMUNITY RECREATIONAL AREA ON A 3.86-ACRE PROPERTY, LOCATED AT 20249 E. WALNUT DRIVE SOUTH

RECITALS

WHEREAS, the City has an adopted General Plan and Zoning Ordinance; and

WHEREAS, the City's Regional Housing Needs Assessment ("RHNA") 2014-2021 assigns two (2) affordable housing units comprised of one very-low and one low income unit; and

WHEREAS, the City of Industry 2013-2021 Housing Element of the General Plan adopted in February 2014, identified Program 7 which calls for the establishment of a Housing Overlay Zone to facilitate the development of housing in the City in appropriate locations, and create opportunities for the development of affordable housing units in response to the City's RHNA assignments; and

WHEREAS, the City's General Plan Land Use Element and Land Use Map do not identify Residential Land Use designations because the City has been a commercial and industrial jurisdiction throughout its history, and no areas within the City are currently designated for residential development; and

WHEREAS, at this time, to create opportunities for the development of affordable housing and to comply with its RHNA assignments, as well as to implement Program 7 of the City's 2013-2021 Housing Element, the City has initiated, and the Planning Commission has recommended that the City Council approve General Plan Amendment 17-1 to create a Residential Land Use designation in the Land Use Element of the General Plan and an amendment to the City's Municipal Code ("Code") and Zoning Map to establish a residential zone in the City, and to change the zoning designation for two properties in the City from Industrial to Residential ("Zone Change 17-1"); and

WHEREAS, General Plan Amendment 17-1 and Zone Change 17-1 will ensure consistency between the General Plan's Housing Element and Land Use Element and consistency between the General Plan and the Zoning Code ; and

WHEREAS, on December 1, 2017, National Community Renaissance ("National CORE") filed an application for approval of Zone Change 17-1, Lot Line Adjustment ("LLA 83") and Development Plan ("DP") No. 17-13 (collectively, the "Application"); and

WHEREAS, the Development Plan applies to a 3.86 acre property located at 20249 E. Walnut Drive South, located north of Walnut Drive and south of Pomona Freeway (SR-60), City of Industry, California, comprising Los Angeles County Assessor's Parcel Number (APN) 8762-002-901 ("Property"); and

WHEREAS, the Property comprises two of the three sites identified in the Housing Element, Program 7 as suitable for inclusion in a Housing Overlay Zone; and

WHEREAS, National CORE proposes to construct twenty-five (25) detached dwelling units, including two (2) very-low and two (2) low income affordable units, and 4,300 square feet of community recreational area/tot lot on a 3.86-acre property located at 20249 E. Walnut Drive South ("Project"), and in accordance with Sections 17.36.020 of the City's Municipal Code ("Code"), a Development Plan is required to construct the Project; and

WHEREAS, since at this time, there is a specific development plan application for the Property, the Planning Commission has recommended that the City Council adopt Zone Change 17-1 to create a Residential Zone and change the zoning of the Property from Industrial to Residential, instead of a Housing Overlay Zone; and

WHEREAS, the applicant has requested a lot line adjustment to modify the properties located at 20137 and 20249 E. Walnut Drive South, which comprise Assessor Parcel Number ("APN") 8762-002-901 which currently is approximately 1.53 acres, and APN 8762-002-902 which currently is 3.81 acres, with a combined acreage of approximately 5.34 acres, into a 3.86-acre lot for a residential development, and a 1.48-acre lot that is not a part of the proposed development, by adjusting the existing lot line currently separating the two lots to the west; and

WHEREAS, approval of the Development Plan will allow the City to comply with its current RHNA assignment by providing one very-low and one low income housing, as well as two additional (one very-low and one low income) units to satisfy a projected future RHNA assignment; and

WHEREAS, the Property has already been identified in Program 7 of the City's Housing Element as a suitable site for residential development as it is located in a predominantly residential area and away from heavy industrial uses; and

WHEREAS, with the approval of GPA 17-1 and Zone Change 17-1, the Land Use Element of the General Plan designates the Property as Residential and the Zoning Code zones the Property as Residential. Therefore, the Project is consistent with the General Plan and Zoning Code. The Project is compatible with the residential land uses to the east and south, because the detached residential product type, architectural design and scale, building heights, and the overall density are consistent with the surrounding neighborhood; and

WHEREAS, pursuant to California Environmental Quality Act California Public Resources Code section 21000 *et seq.* ("CEQA"), the State CEQA Guidelines, California Code of Regulations, Title 14, Chapter 3, sections 15000 *et seq.*, and the Environmental Impact Report Guidelines of the City of Industry, an Initial Study ("IS") was prepared and it was determined that the General Plan Amendment and the Application, together as the Project, would not have a significant impact on the environment with mitigation measures incorporated, and a Mitigated Negative Declaration ("MND") and Mitigation Monitoring and Reporting Program (MMRP) were prepared; and

WHEREAS, the Initial Study/MND and MMRP were circulated for public and agency review and comment on December 14, 2017 through, and including, January 2, 2018; and

WHEREAS, the Initial Study/MND concluded that implementation of the Project could result in a significant effect on the environment and by incorporating mitigation measures that would reduce the significant effects to a less-than-significant level; and

WHEREAS, on January 9, 2018, the Planning Commission of the City of Industry continued its duly noticed public meeting to consider DP 17-13, to February 6, 2018; and

WHEREAS, notice of the Planning Commission's February 6, 2018 public hearing on the Application including DP 17-13, was published in The San Gabriel Valley Tribune on January 25, 2018, in compliance with the City's Code and Government Code Section 65091, and was posted at the Property and at three public places on January 25, 2018 ; and

WHEREAS, the Planning Commission reviewed and carefully considered the information in the IS/MND, and on February 6, 2018, recommended that the City Council adopt the IS/MND for the Project; and

WHEREAS, on February 6, 2018, the Planning Commission of the City of Industry conducted a duly noticed public hearing on the Application, including DP 17-13, and considered all testimony written and oral; and

WHEREAS, all legal prerequisites have occurred prior to the adoption of this Resolution.

NOW, THEREFORE, THE PLANNING COMMISSION OF THE CITY OF INDUSTRY DOES HEREBY RESOLVE, DETERMINE, FIND, AND ORDER AS FOLLOWS:

SECTION 1: The Planning Commission finds that all of the facts set forth in the Recitals are true and correct, and are incorporated herein by reference.

SECTION 2: All necessary public hearings and opportunities for public testimony and comment have been conducted in compliance with State law and the City's Code.

SECTION 3: Based upon substantial evidence presented to the Planning Commission during the February 6, 2018 public hearing, including public testimony and written and oral staff reports, and which includes without limitation, CEQA, the CEQA Guidelines, the IS/MND, and the City's Code, the Planning Commission finds as follows:

A. The Property is suitable for development in accordance with the Development Plan because the Property complies with minimum lot area and frontage requirements, is flat and free from hazards as noted in the accompanying Initial Study/MND, and is designated as Residential through the General Plan Amendment 17-1 and zoned Residential through Zone Change 17-1, which are consistent with the proposed residential development; and

B. The total development is arranged so as to avoid traffic congestion, ensure the public health, safety and general welfare or prevent adverse effects upon neighboring properties because, as noted in the accompanying IS/MND, the Project would add approximately 236 daily vehicle trips, with19 AM peak hour trips and 25 PM peak hour trips, which would not significantly impact road capacity. In addition, the proposed Project provides the necessary setback areas, provides adequate landscaping, screens the walls and trash enclosures, presents a variation of architectural and landscape design and provides on-site open space amenities, which ensures the general welfare and prevents adverse effects on neighboring properties. In addition, the attached conditions of approval set construction and operational standards that ensure that the development will operate in a manner consistent with the General Plan's policies related to noise, safety and property maintenance, thereby ensuring the public health, safety and general welfare; and

C. The development is in general accord with all elements of the Industry Zoning Ordinance as amended by Zone Change 17-1 because, with the approval of the Development Plan, the Project complies with development standards in regards to building setbacks, height, parking, access, screening, and design; and

D. With the approval of General Plan Amendment (GPA 17-1), the development is consistent with the provisions of the City's General Plan because the Property is designated as Residential, which allows the development of residential uses; and

E. Based on the foregoing, the Planning Commission recommends City Council approval of Development Plan No. 17-13, subject to the Conditions of Approval, attached hereto as Attachment 1, and incorporated herein by reference.

SECTION 4: The provisions of this Resolution are severable and if any provision, clause, sentence, word or part thereof is held illegal, invalid, unconstitutional, or inapplicable to any person or circumstances, such illegality, invalidity, unconstitutionality, or inapplicability shall not affect or impair any of the remaining provisions, clauses, sentences, sections, words or parts thereof of the Resolution or their applicability to other persons or circumstances.

SECTION 5: That the Secretary of the Planning Commission shall certify to the adoption of this Resolution and that the same shall be in full force and effect, and shall forward a copy of this Resolution to the City Council.

PASSED, APPROVED AND ADOPTED by the Planning Commission of the City of Industry at a regular meeting held on February 6, 2018, by the following vote:

AYES: COMMISSIONERS:

NOES: COMMISSIONERS:

ABSTAIN: COMMISSIONERS:

ABSENT: COMMISSIONERS:

_____
Michael Greubel, Chairman

ATTEST:

_____
Diane M. Schlichting, Secretary

CITY OF INDUSTRY

P.O. Box 3366 • 15625 E. Stafford St. • City of Industry, CA 91744-0366 • (626) 333-2211 • FAX (626) 961-6795

ATTACHMENT 1

Standard Requirements and Conditions of Approval

Application: **Development Plan 17-13**

Applicant: **National Community Renaissance of California**

Location: **20249 E. Walnut Drive South**

Conditions of Approval

Conditions of approval are unique provisions, beyond the requirements of law, the municipal code, or standard practices that are applied to a project by the City Council per Section 17.36.080 of the Zoning Code. Please note that if the design of your project or site conditions change, the conditions of approval may also change. If you have any questions regarding these requirements, please contact the City of Industry.

1. All perimeter walls and fencing, and maintenance of all common areas, shall be maintained in the future by either an Owner's Association or by bond.

2. Four (4) residential units, including two (2) very-low and two (2) low income units shall be maintained as affordable units for a period of fifty-five (55) years subject to a deed restriction approved by the City. Prior to the issuance of any certificate of occupancy, the deed restriction shall be approved and properly recorded.

3. Prior to the issuance of a building permit, the Applicant/Developer shall demonstrate to the satisfaction of the City that all exterior lighting is designed to minimize off-site glare. This may include without limitation, the use of shielded or recessed lighting fixtures.

4. If construction activities are planned during the avian nesting season, a pre-construction nesting bird Survey should be conducted within three days prior to commencement to avoid impacts to birds protected under the California Fish and Game Code and MBTA.

5. If on-site conditions change, a pre-construction survey is recommended within three days prior to beginning site grading to avoid and minimize potential adverse effects to burrowing owls by construction activities. If burrowing owls are found to be present, project-specific mitigation would be developed and authorized through consultation with the City of Industry and the CDFW. A Project Condition of Approval will be included to ensure that if on-site conditions change prior to grading, the applicant will be required to perform a pre-construction survey addressing effects to nesting birds and burrowing owls.

6. Prior to building permits, a final noise study shall be prepared for the project. This report would finalize the interior noise mitigation measures described in the Project's Noise Impact Analysis (Urban Crossroads – Industry Workforce Housing Community Noise Impact Analysis) using the precise grading plans and actual building design specifications, and may include additional mitigation, if necessary, to meet the California Code of Regulations, Title 24, Building Standards Administrative Code 45 dBA CNEL interior noise level standard. Further, as recommended in the Project's Noise Impact Analysis, an interior noise level design goal of 40 dBA CNEL should be considered using upgraded second floor windows with STC ratings of 42 for all lots with windows facing SR-60.

7. The construction of an 8-foot high noise barrier is required at the western Project site boundary. The recommended noise control barriers shall be constructed so that the top of each wall and /or berm combination extends to the planned height above the pad elevation of the lot it is shielding. When the road is elevated above the pad elevation, the barrier shall extend to the recommended height above the highest point between the residential home and the road. The barrier shall provide a weight of at least 4 pounds per square foot of face area with no decorative cutouts or line-of-sight openings between shielded areas and the roadways, or a minimum transmission loss of 20 dBA.
   (2) The noise barrier shall be constructed using the following materials:
      a. Masonry block;
      b. Stucco veneer over wood framing (or foam core), or 1-inch-thick tongue and groove wood of sufficient weight per square foot;
      c. Glass (1/4-inch-thick), or other transparent material with sufficient weight per square foot capable of providing a minimum transmission loss of 20 dBA;
      d. Earthen berm;
      e. Any combination of these construction materials.
      f. The barrier shall consist of a solid face from top to bottom. Unnecessary openings or decorative cutouts shall not be made. All gaps (except for weep holes) should be filled with grout or caulking.

Environmental Mitigation Conditions

Applicant/Developer shall comply with all mitigation measures set forth in Initial Study/Mitigated Negative Declaration and Mitigation Monitoring and Reporting Program adopted for the Project.

8. (AQ-1) During site preparation and grading activity all actively graded areas within the Project site shall be watered at 2.1-hour watering intervals (e.g., 4 times per day) or a movable sprinkler system shall be in place to ensure minimum soil moisture of 12% is maintained for actively graded areas. Moisture content can be verified with use of a moisture probe by the grading contractor.

9. (CULT-1) If archaeological resources are encountered during project construction, all construction activities in the vicinity of the find must halt until an archaeologist certified

by the Society of Professional Archaeologists examines the site, identifies the archaeological significance of the find, and recommends a course of action. Construction cannot resume until the site archaeologist states in writing that the proposed construction activities will not damage significant archaeological resources.

10. (GEO-1) If paleontological resources are encountered during project construction, all construction activities in the vicinity of the find must halt until a professional paleontologist examines the site, identifies the paleontological significance of the find, and recommends a course of action. Construction cannot resume until the site paleontologist states in writing that the proposed construction activities will not damage significant paleontological resources.

11. (HAZ-1) Prior to demolition permits, the contractor shall submit an asbestos work plan for the City's review and approval. The work plan shall indicate the proposed abatement methods and control measures for the removal of asbestos containing materials.

12. (NOI-1) Prior to the start of any construction activities the contractor shall install minimum 9-foot high temporary construction noise barriers at the Project's site boundaries adjacent to sensitive receivers on Walnut Drive, as shown on Exhibit NOI-A, for the duration of Project construction. The noise control barriers must have a solid face from top to bottom. The noise control barriers must meet the minimum height and be constructed as follows:
    a. The temporary noise barriers shall provide a minimum transmission loss of 20 dBA (Federal Highway Administration, Noise Barrier Design Handbook). The noise barrier shall be constructed using an acoustical blanket (e.g. vinyl acoustic curtains or quilted blankets) attached to the construction site perimeter fence or equivalent temporary fence posts;
    b. The noise barrier must be maintained, and any damage promptly repaired. Gaps, holes, or weaknesses in the barrier or openings between the barrier and the ground shall be promptly repaired;
    c. The noise control barrier and associated elements shall be completely removed, and the site appropriately restored upon the conclusion of the construction activity.

13. (NOI-2) During all construction activities the applicant shall ensure that use of large construction equipment (e.g., dozers, graders, scrapers) capable of generating noise levels in excess of 78 dBA Lmax at 50 feet shall be prohibited within 100 feet of nearby occupied sensitive residential homes to reduce the noise and vibration levels for the entire duration of Project construction. If the contractor can demonstrate that specific pieces of large construction equipment can demonstrate compliance with the 78 dBA Lmax at 50 feet criteria, then they shall be allowed to operate within the buffer zone shown on Exhibit NOI-A.

14. (NOI-3) During all Project site construction, the construction contractors shall equip all construction equipment, fixed or mobile, with properly operating and maintained

mufflers, consistent with manufacturers' standards. The construction contractor shall place all stationary construction equipment so that emitted noise is directed away from the noise sensitive receptors nearest the Project site.

15. (NOI-4) The construction contractor shall locate equipment staging in areas that will create the greatest distance between construction-related noise sources and noise-sensitive receivers nearest the Project site during all Project construction (i.e., to the northern center).

16. (NOI-5) Prior to the issuance of building permits, the applicant shall provide evidence to the Community Development Department that the following features will be incorporated in building design:

    Windows/Sliding Glass Doors:
    a. Northeastern lots, closest to SR-60, require minimum second-floor STC ratings of 38, and minimum first-floor STC ratings of 36;
    b. All other lots require minimum STC ratings of 36 for first and second-floors, and window/sliding glass door assemblies shall be well-fitted and well-weather-stripped.

    Doors (Non-Glass): All exterior doors shall be well weather-stripped and have minimum STC ratings of 25. Well-sealed perimeter gaps around the doors are essential to achieve the optimal STC rating.

    Walls: At any penetrations of exterior walls by pipes, ducts, or conduits, the space between the wall and pipes, ducts, or conduits shall be caulked or filled with mortar to form an airtight seal.

    Roof: Roof sheathing of wood construction shall be per manufacturer's specification or caulked plywood of at least one-half inch thick. Ceilings shall be per manufacturer's specification or well-sealed gypsum board of at least one-half inch thick. Insulation with at least a rating of R-19 shall be used in the attic space.

    Ventilation: Arrangements for any habitable room shall be such that any exterior door or window can be kept closed when the room is in use and still receive circulated air. A forced air circulation system (e.g. air conditioning) or active ventilation system (e.g. fresh air supply) shall be provided which satisfies the requirements of the Uniform Building Code.

17. (TCR-1) Retain a Native American Monitor: The project Applicant will be required to obtain the services of a qualified Native American Monitor(s) during construction-related ground disturbance activities. Ground disturbance is defined by the Tribal Representatives from the Gabrieleño Band of Mission Indians-Kizh Nation as activities that include, but are not limited to, pavement removal, pot-holing or auguring, grubbing, weed abatement, boring, grading, excavation, drilling, and trenching, within the project area. The monitor(s) must be approved by the Tribal Representatives and will be present on-site during the construction phases that involve any ground disturbing

activities. The Native American Monitor(s) will complete monitoring logs on a daily basis. The logs will provide descriptions of the daily activities, including construction activities, locations, soil, and any cultural materials identified. The monitor(s) shall possess Hazardous Waste Operations and Emergency Response (HAZWOPER) certification. In addition, the monitor(s) will be required to provide insurance certificates, including liability insurance, for any archaeological resource(s) encountered during grading and excavation activities pertinent to the provisions outlined in the California Environmental Quality Act, California Public Resources Code Division 13, Section 21083.2 (a) through (k). The on-site monitoring shall end when the project site grading and excavation activities are completed, or when the Tribal Representatives and monitor have indicated that the site has a low potential for archeological resources.

**Hazwoper is needed only if the site has hazardous concerns.

18. (TCR-2) Unanticipated Discovery of Tribal Cultural Resources: All archaeological resources unearthed by project construction activities shall be evaluated by the Qualified Archaeologist and Native Monitor. If the resources are Native American in origin, the Tribe shall coordinate with the landowner regarding treatment and curation of these resources. Typically, the Tribe will request reburial or preservation for educational purposes. If a resource is determined by the Qualified Archaeologist to constitute a "historical resource" pursuant to CEQA Guidelines Section 15064.5(a) or has a "unique archaeological resource" pursuant to Public Resources Code Section 21083.2(g), the Qualified Archaeologist shall coordinate with the applicant and the City to develop a formal treatment plan that would serve to reduce impacts to the resources. The treatment plan established for the resources shall be in accordance with CEQA Guidelines Section 15064.5(f) for historical resources and Public Resources Code Sections 21083.2(b) for unique archaeological resources. Preservation in place (i.e., avoidance) is the preferred manner of treatment. If preservation in place is not feasible, treatment may include implementation of archaeological data recovery excavations to remove the resource along with subsequent laboratory processing and analysis. Any historic archaeological material that is not Native American in origin shall be curated at a public, non-profit institution with a research interest in the materials, such as the Natural History Museum of Los Angeles County or the Fowler Museum, if such an institution agrees to accept the material. If no institution accepts the archaeological material, they shall be donated to a local school or historical society in the area for educational purposes.

19. (TCR-3) Unanticipated Discovery of Human remains and associated funerary objects: Human remains are defined as any physical remains of a human being. The term "human remains" encompasses more than human bones. In ancient as well as historic times, Tribal Traditions included, but were not limited to, the burial of associated cultural resources (Funerary objects) with the deceased, and the ceremonial burning of human remains. These remains are to be treated in the same manner as bone fragments that remain intact. Associated funerary objects are objects that, as part of the death rite or ceremony of a culture, are reasonably believed to have been placed with individual human remains either at the time of death or later; other items made exclusively for burial purposes or to contain human remains can also be considered as associated

funerary objects. NAGPRA guidance specifically states that the federal agencies will consult with organizations on whose aboriginal lands the remains and cultural items might be discovered, who are reasonably known to have a cultural relationship to the human remains and other cultural items. Therefore, for this project site, it is appropriate to consult with the Gabrieleno Band of Mission Indians – Kizh Nation as recommended by the NAHC.

Prior to the start of ground disturbing activities, the land owner shall arrange a designated site location within the footprint of the project for the respectful reburial of the human remains and/or ceremonial objects. Any discoveries of human skeletal material shall be immediately reported to the County Coroner. The monitor will immediately divert work at minimum of 50 feet and place an exclusion zone around the burial. The monitor will then notify the Qualified Archaeologist and the construction manager who will call the coroner. Work will continue to be diverted while the coroner determines whether the remains are Native American. The discovery is to be kept confidential and secure to prevent any further disturbance. If Native American, the coroner will notify the NAHC as mandated by state law who will then appoint a Most Likely Descendent. In the case where discovered human remains cannot be fully documented and recovered on the same day, the remains will be covered with muslin cloth and a steel plate that can be moved by heavy equipment placed over the excavation opening to protect the remains. If this type of steel plate is not available, a 24 hour guard should be posted outside of working hours. The Tribe will make every effort to recommend diverting the project and keeping the remains in situ and protected. If the project cannot be diverted, it may be determined that burials will be removed. The Tribe will work closely with the Qualified Archaeologist to ensure that the excavation is treated carefully, ethically and respectfully. If data recovery is approved by the Tribe, documentation shall be taken which includes at a minimum detailed descriptive notes and sketches. Additional types of documentation shall be approved by the Tribe for data recovery purposes. Cremations will either be removed in bulk or by means as necessary to ensure completely recovery of all material. If the discovery of human remains includes 4 or more burials, the location is considered a cemetery and a separate treatment plan shall be created. The project applicant shall consult with the Tribe regarding avoidance of all cemetery sites. Once complete, a final report of all activities are to be submitted to the NAHC. The Tribe does NOT authorize any scientific study or the utilization of any invasive diagnostics on human remains.

If the coroner determines the remains represent a historic non-Native American burial, the burial shall be treated in the same manner of respect with agreement of the coroner. Reburial will be in an appropriate setting. If the coroner determines the remains to be modern, the coroner will take custody of the remains.

Each occurrence of human remains and associated funerary objects will be stored using opaque cloth bags. All human remains, funerary objects, sacred objects and objects of cultural patrimony will be removed to a secure container on site if possible. These items should be retained and reburied within six months of recovery. The site of reburial/repatriation shall be on the project site but at a location mitigated between the

Tribe and the landowner at a site to be protected in perpetuity. There shall be no publicity regarding any cultural materials recovered.

NOTE: Professional Standards: Archaeological and Native American monitoring and excavation during construction projects will be consistent with current professional standards. All feasible care to avoid any unnecessary disturbance, physical modification, or separation of human remains and associated funerary objects shall be taken. Principal personnel must meet the Secretary of Interior standards for archaeology and have a minimum of 10 years of experience as a principal investigator working with Tribal Cultural Resources in southern California. The Qualified Archaeologist shall ensure that all other personnel are appropriately trained and qualified.

Code Requirements and Standards

The following is a list of code requirements and standards deemed applicable to the proposed project. The list is intended to assist the Applicant by identifying requirements that must be satisfied during the various stages of project permitting, implementation, and operation. It should be noted that this list is in addition to any "conditions of approval" adopted by the City Council and noted above. Please note that if the design of your project or site conditions change, the list may also change. If you have any questions regarding these requirements, please contact the City of Industry.

DP 17-13 Conditions

1. The Development Plan approval expires twelve (12) months after the date of approval by the City Council if a building permit for each building and structure thereby approved has not been obtained within such period.

2. In conformance with Chapter 13.18 of the Municipal Code, the Applicant shall provide landscaping and automatic irrigation plans to be approved by the Planning Department prior to the issuance of a building permit. Such plans shall be in substantial conformity with the approved development plan.

3. The Applicant shall construct adequate fire protection facilities to the satisfaction of the Los Angeles County Fire Department.

4. All exterior surfaces of buildings and appurtenant structures shall be painted in accordance with the approved development plan.

5. The owner of the property must comply with the Subdivision Ordinance of the City of Industry.

6. The owner shall dedicate necessary landscape and utility easements along all street frontages as depicted on the approved development plan and Lot Line Adjustment 83.

7. The Applicant shall obtain a Construction Waste Permit or receive Domestic Wastewater Clearance from the City Engineer.

8. The Applicant shall provide off-street parking as shown on the approved development plan.

9. The Applicant shall construct curb, gutter, pave-out, necessary drainage facilities, and sidewalk along all street frontages in accordance with City standards and specifications as depicted on the approved development plan.

10. The owner shall dedicate necessary easements for storm drain, sewer, and street or highways as depicted on the approved development plan and Lot Line Adjustment.

11. The Applicant shall supply sanitary sewer facilities to serve all buildings each residential unit and common areas to the satisfaction of the City Engineer prior to the final approval of the development and hook-up of utilities. One sewer connection per residential lot is permitted and. All sewer lines must connect to a single lateral for each residential lot.

12. The Applicant shall provide drainage and grading plans to be approved by the City Engineer prior to the issuance of a building permit. Such plans shall be in substantial conformity with the development plan.

13. In conformance with Chapter 13.16 of the Municipal Code and prior to the start of grading and construction, the Applicant will provide a Stormwater Pollution Prevention Plan (SWPPP), developed by a Qualified SWPPP Developer (QSD) and consistent with the current National Pollutant Discharge Elimination System (NPDES) construction general permit, along with proof that a Waste Discharger Identification (WDID) Number has been obtained, to the City Engineer for review and approval.

14. In conformance with Chapter 13.16 of the Municipal Code, the Applicant shall provide: 1) a SUSMP standard plan; and 2) an operations, maintenance, and monitoring plan to the City Engineer for review and approval. Upon approval, the Applicant shall construct storm drains and water quality devices according to the approved plans and the satisfaction of the City Engineer.

15. The Applicant shall provide building plans to be approved prior to the issuance of a building permit. Such plans shall be in substantial conformity with the development plans. Building plans shall be submitted to and approved by the Los Angeles County Engineer's Office - Building and Safety Division prior to the issuance of a building permit. All development shall be completed in substantial compliance with the approved development plan.

16. Street lights shall be designed and installed along all street frontages of the development to the satisfaction of the City Engineer.

17. Demolition and construction operations shall be limited to the hours (7:00 am to 7:00 pm) prescribed by the Los Angeles County Noise Ordinance (Los Angeles County Municipal Code, Section 12.08.390).

18. No outdoor storage of any personal property, building materials, or other property not permanently affixed to the Property is allowed.

19. Should archeological resources be uncovered during site preparation, grading, or excavation, work shall be stopped for a period not to exceed 14 days. The find shall be immediately evaluated for significance by a county-certified archaeologist. If the archaeological resources are found to be significant, the archaeologist shall perform data recovery, professional identification, radiocarbon dates as applicable, and other special studies; submit resources to the California State University Fullerton; and provide a comprehensive final report including appropriate records for the California Department of Parks and Recreation (Building, Structure, and Object Record; Archaeological Site Record; or District Record, as applicable).

20. Prior to Planning Final, all outstanding fees and invoices due to the City shall be paid in full. If requested by City Staff, the Applicant shall provide proof of payment.

Interpretation and Enforcement

1. The Applicant shall comply with all applicable code requirements, conditions of approval, laws, rules, and regulations applicable to the development of the project.

2. The Director of Development Services may interpret the implementation of each condition of approval and, with advanced notice, grant minor amendments to approved plans and/or conditions of approval based on changed circumstances, new information, and/or relevant factors as long as the spirit and intent of the approved condition of approval is satisfied. Permits shall not be issued until the proposed minor amendment has been reviewed and approved for conformance with the intent of the approved condition of approval. If the proposed changes are substantial in nature, an amendment to the original entitlement may be required pursuant to the provisions of Industry Municipal Code.

Indemnification and Hold Harmless Condition

1. The Applicant and each of its heirs, successors and assigns, shall defend, indemnify and hold harmless the City of Industry and its agents, officers, and employees from any claim, action or proceedings, liability cost, including attorney's fees and costs against the City or its agents, officers or employees, to attack, set aside, void or annul any approval of the City, including but not limited to any approval granted by the City Council and Planning Commission concerning this project. The City shall promptly notify the Applicant of any claim, action or proceeding and should cooperate fully in the defense thereof.
2. The Applicant and property owner shall file an executed and acknowledged Acceptance

of Terms and Conditions of the Development Plan within 10 days after the approval of said Development Plan.

Exhibit L
Public Comments

Troy Helling

rom: Ying Huang [redacted]
Sent: Wednesday, January 03, 2018 10:38 PM
To: Troy Helling
Cc: Jannette Polich
Subject: General Plan Amendment 17-1 and Zone Change 17-1 and the Construction of 25 homes

Dear Mr. Helling,

I strongly object to the project proposal of developing 25 single-family homes at 20137 and 20249 Walnut Drive South. I believe this project would disrupt our normally peaceful neighborhood with the amount of people moving in. This will cause the neighborhood to be noisier and messier. It would also ruin our quiet atmosphere because it would introduce too many houses and people in a condensed area. Security could be a problem because we are unaware of the backgrounds of incoming people, which can contribute to an increased crime rate.

Lastly, the road leading up to the project site is very small and cramped, which would result in traffic and accidents. During construction, it would also be difficult to get pass all the construction because the usual path we take will be blocked.

It is my strong belief that this location is not appropriate for this project. Given that my family lives very close to the construction area (at Clorinda Dr.), we have a right to reject this proposal.

From,
Ying Huang

Address:
[redacted]

Contact info:
[redacted]

Troy Helling

From: Felicia Rothermund <staff@kathleenstapleton.com>
Sent: Friday, December 29, 2017 12:16 PM
To: Troy Helling
Subject: Planning meeting 1/9/18

Hello:

It's come to my attention of the City of Industry's plan to build a residential properties on Gale (Walnut Drive North?) Ave.

With the holidays, this is fairly short notice. In addition, the people it will impact most are working families and the meeting you've scheduled to discuss this is 11 am on a weekday.

I would like you to schedule a meeting in the community to allow residents to voice their opinions. Perhaps you could coordinate with the RHCCC? They meet monthly in Pathfinder Park.

Thank you for your consideration.

Kathleen Stapleton, CFP
Registered Principal, PlanMember Securities Corp.

206 N. First St., La Puente, CA 91744
O: 626 333-5558, F: 626 855-8622

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Troy Helling

From: Eric Wang <wang302@gmail.com>
Sent: Friday, December 29, 2017 7:33 PM
To: Troy Helling
Subject: General Plan Amendment and Zone Change

I saw the public hearing about the General Plan Amendment and Zone Change, for that Day early I have to work so i cannot attend this hearing.
But here I'm trying to give piece of my mind about this project. I would vote "No" on this project, due to building more housing will increase population
in Walnut Cit and will cause more traffic and taking more resource out of the city. So for this Hearing, please put my Vote in as "NO".

thanks,

Eric Wang

Troy Helling

From:	Greg Gubman <GGubman@DiamondBarCA.Gov>
Sent:	Thursday, January 04, 2018 8:48 AM
To:	Troy Helling
Cc:	Paul Philips; Dan Fox; Ryan McLean
Subject:	GPA 17-1 & ZC 17-1
Attachments:	Industry residential - 1-3-18 resident petition.pdf; Industry residential - 12-27-17 letter from Shirley Liu.pdf; Industry residential - 12-29-17 letter to DB from Shirley Liu.pdf

Hi Troy,

We received copies of the attached letters and petition from the residents of the neighborhood adjacent to the proposed residential project at Walnut Drive South/Flintgate. I don't know if all of these writings had been sent to you directly, so I thought it best to forward them along.

The persons who have been canvassing the neighborhood are Shirley Liu (909-348-4654) and Leu Wang (909-576-2928). Their contact information is also included in the attached writings.

Regards,

Greg

Greg Gubman, AICP | Community Development Director
City of Diamond Bar | Community Development Department
21810 Copley Drive | Diamond Bar, CA 91765
909.839.7031 | 909.861.3117 (f)
www.DiamondBarCa.Gov

RESIDENT COMMUNITY GROUP
All residents (Between Walnut,SE,Colima Rd,
Carbourne Dr,Calpet Dr,Flintgate Dr,California, 91789)

To : CITY OF INDUSTRY;15625 E.Stafford St,City of Industry,CA91744
Date : Dec 29,2017
Ref : Against the risky of general plan amendment 17-1 & Zone change

Dear sirs;
We are a group of our community against the risky of general plan amendment 17-1& Zone change for National CORE & CITY OF INDUSTRY. We are parents and neighbors who deeply love our community.Regardless of our own personal backgrouds & professions,we have all pulled our resources together because of this one goal we believe in;We have to say "NO" because we have been plant to pay PTY TAX with 55 years or less into this community; please read reasons and see our signature:

1. As a concerned local resident for over a quarter century, on South East Walnut Drive (south of the Pomona Freeway), east of Fairway Drive, which is within the jurisdiction of Diamond Bar , Los Angeles County, California, I was recently shockingly notified that a development project is being proposed on the parcel that is immediately south of the 60 Freeway. We the resindents have the right of way, we do not believe that this parcel of land should be accommodating approximately 200 people to move in as additional residents. Traffic congestion and possible insecurity should be of severe concern to the City of Diamond Bar, the local municipality that has the local administrative jurisdiction.

2. This part of the empty land, by visual observation, appears to be lower leveled sandy earth that was filled years ago, but this is not a solid area. When there are winds blowing, the regional air becomes unhealthy for nearby neighborhood, which cover approximately a four- block neighborhood.

3. For 200 hundred resident to move into this 4 acre land area will for sure create an in-balance and unnecessary crowded traffic.

4. Additional trash hauling and possible hazardous waste induced environmental problems, and associated trash haulers created noises.

5. From the very location viewpoint, this area (under the proposed project), which is east of Fairway Drive. There are only a few south bound streets between Fairway Drive and the dead end of South East Walnut Drive/Flintgate Drive. At least a couple of outward bound lanes, road ways would have to be made available for future residents in this area to get out of their (proposed) community, and thus creating unnecessary and unwise traffic congestion.

6. Even with the sound wall blocking the Freeway noise to the north, right along this proposed project, additional traffic noises and dangers with this 200 people community who can only easy out, (move out) from their very limited community coming southward would not be environmentally friendly and healthy to the local residents who have been living there for the past quarter century if not longer.

7. This area, i.e., south of Freeway 60, east of Fairway Drive, to Lemon, and north of Golden Spring, if belonged to the City of Industry, let it be remained an industrial or commercial zone - available for warehousing or commercial facilities only, please.

8. Only 1% of residents were knowing this projects and will be hearing at Jan 09/2018.

9. As this map attached to show out when those 200 people will be driving through Ahtena drive,Clorinda Dr,Calbourne Dr,Acfold Dr Calpet Dr,Belbury Dr, Domiette Dr,Flintgate Dr,Walnut Dr when those 200 people will be shopping,going to school,where will be responded by Diamond Bar City Hall.

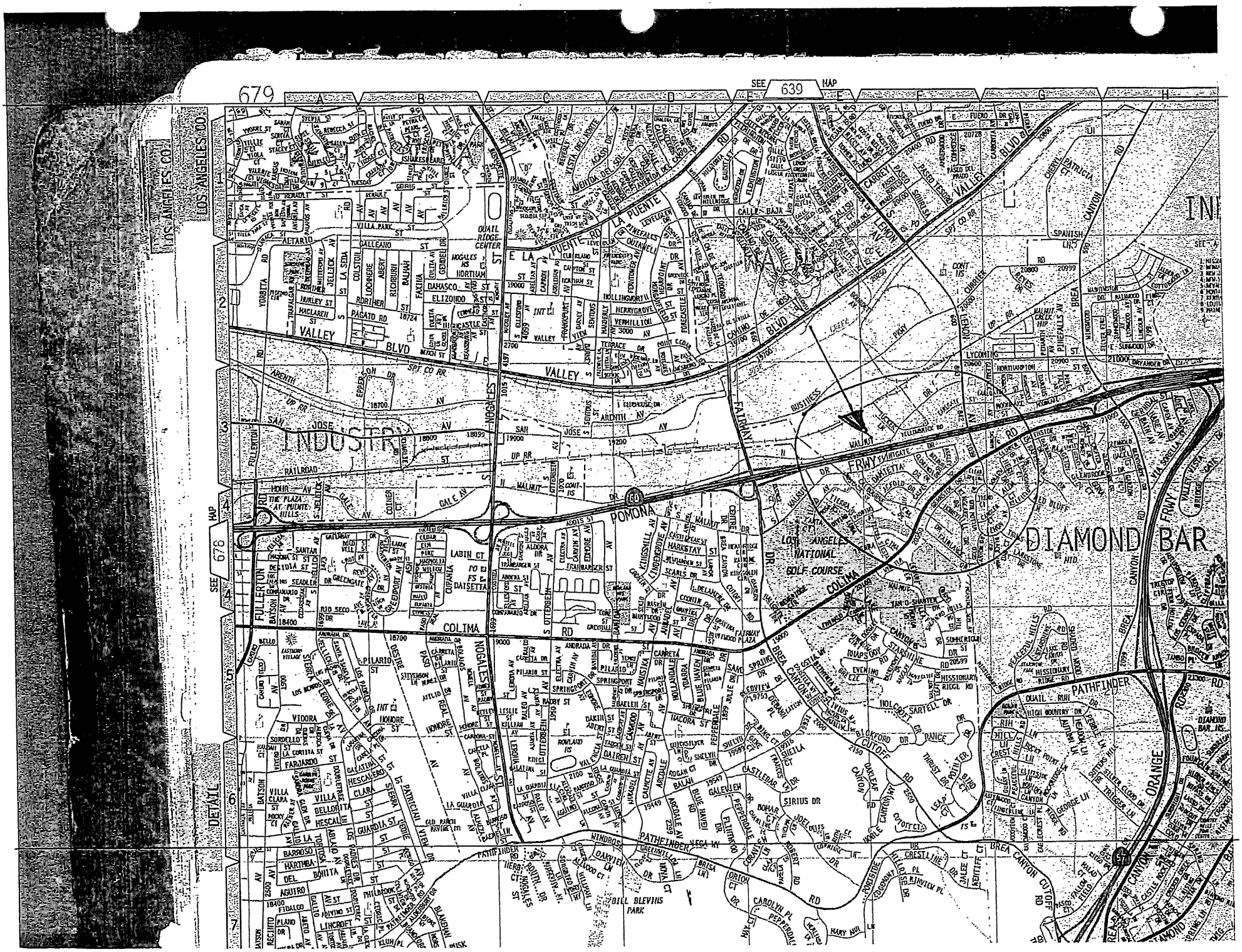
10. Also the school distri. will be Walnut who will be responded.

Community Group

encl:clear Map cc: Walnut City Hall

Quana Senma Joana Senga 714 7359375
Shirley Tzen 909 348 4654
Co Wang 909 576 1817
Xin Chen 626 202 9476
Ji Tang Chen 626 376 8340
Ellen Leung 626 382-9995
Micheal TZEN 310-825-6876
Long Ho 909-856 0588
Yeuh Chow Lin
Mercedes Ngan 909 595 9949
Helen Almaraz 909 7324987
Pete Almaraz 909 7324987
Joe Co (909) 569-5629
Brian Bakabak (909) 282-0143
Belmont Black 909 598-6640
Shu Juan Lin 909-610 5018
Claudia Martinez 714-343-3510
Margaret Gow 909 595-1102
Ron Gow 909 595-1102
Nan Wang 510 610 5782

Sarah Song 909-938-7825
Michelle Lin 909-510-0231
Jin Bao Chou 909-510-0231
Charles Ooi 626 384 6288
Rosemary White 909-263-2797 (No)
Oscar Lopez 626) 324 0483
Louis Rodriguez 626) 399-6267
Shirley Ma (626) 221-3126
Shirley's Daughter (626) 221-3126
[illegible] (909) 610-0695
Carol Mitchell (909) 598-1049
Nelson Wang 626 2597566
Eric Wang 626-258-7566
Carlos Chavira (909) 343-8629
Kiet Tham (626) 675-2178
Carlos Chavira Wife 909 343-8629
Lily Zheng 909 576 8160
Jin Yulin 909 556 5656
Zhi Min Zheng 909 576 8160
Sky Nanx 510 610 5781



679
SEE 639 MAP
LOS ANGELES CO
INDUSTRY
DIAMOND BAR
LOS ANGELES NATIONAL GOLF COURSE
POMONA
COLIMA RD
VALLEY BLVD
LA PUENTE RD
NOGALES ST
FULLERTON RD
BREA CANYON CUTOFF RD
PATHFINDER RD
ORANGE
BILL BLEVINS PARK
DETAIL
SEE 676 MAP

To: City hall of
City Diamond Bar

Shirley Liu
20220 E Walnut Dr. S.
Walnut, CA91789
cell # 909 3484654

Date: Dec 27/2017

We are a group of our community against the general plan amendment 17-1 & Zone change 17-1. Risky for NATIONAL COMMUNITY RENAISSANCE OF CA.

We are parents & neighbors who deeply love our community. Regardless of our own personal backgrounds & professions, we have all pulled our resources together because of this one goal we believe in.

Please help our community to ask the hearing should be rescheduled by those reasons:

① City of industry's hearing doesn't received by all residents, to proved only 50% has been received. And 50% residents didn't know it.

② National CORE applied his cases on 12/22/2017 & open hearing on Jan 09, 2017 when was illegaled period to do completely preparing for all residents.

③ There was closed office until Jan 02/2017, all community's requiring full great documents for project's detail.

④ City industry's sending letter is not clear to understand by all community.

⑤ We have right to protect our living areas & family.

Please find the best ways to reschedule this hearing as attached letter herewith.

⑥ We are not ready to get this hearing.

Sincerely yours
Shirley Liu / Group of Residents

RECEIVED
DEC 29 2017
CITY OF DIAMOND BAR

Shirley Liu
20220 E Walnut Dr S
S Walnut,CA 91789

To : Diamond Bar City Hall
Date : Dec 29,2017
Ref : Much related important things will be involved with City Hall if City of Industry has been building his projects.

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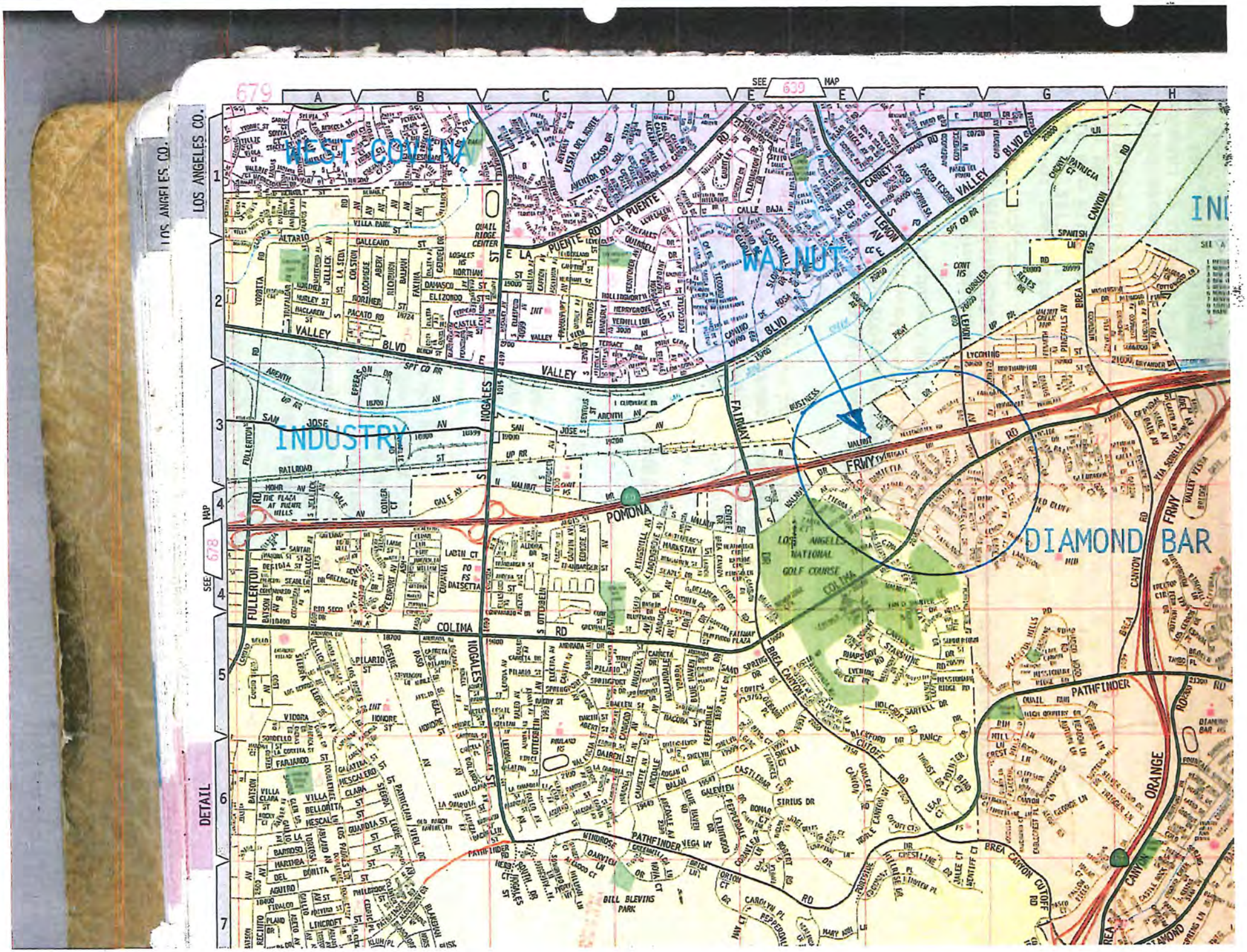
encl:clear Map cc: Walnut City Hall



LOS ANGELES CO.
DETAIL
SEE 639 MAP
SEE 678 MAP
679
WEST COVINA
WALNUT
INDUSTRY
DIAMOND BAR
POMONA
LOS ANGELES NATIONAL GOLF COURSE
BILL BLEVINS PARK
PATHFINDER
ORANGE
FRWY
VALLEY BLVD
LA PUENTE RD
COLIMA RD
NOGALES
FAIRWAY
BREA CANYON CUTOFF RD

1-9-18

Members of the Planning Commission:

First allow me to apologize for the fact that I am unable to attend this Tuesday's Planning Commission Meeting on January 9th. The items on the Planning Commission Agenda are of significant importance such that I would, if possible, prefer to weigh in with my personal attendance and participation. Unfortunately, other important City business requires my presence this week in Sacramento to attend several previously scheduled meetings.

Nevertheless, I wish to say that I have had lengthy discussions with Staff concerning Agenda Items 5.1 through 6.2. I am aware that the City Attorney's office has indicated to Staff the opinion that several revisions should be made to the Resolutions proposed in these Agenda Items. After lengthy consultation with Staff, it is my view that most of the revisions suggested by the City Attorney's office are relatively minor in nature, easily correctible, and that all the suggested revisions can be mutually accommodated or worked out prior to the Items being heard at the City Council, scheduled for January 25th.

Accordingly, it is my strong recommendation that the Planning Commission take the actions that are recommended in the Staff Report, adopting the Resolutions as set forth in the Agenda Items mentioned above. If it becomes necessary or desirable to revise or modify these Resolutions, such can be accomplished later, and prior to the January 25th City Council meeting.

Sincerely,

Paul Philips, City Manager

Troy Helling

From: Joy <joyfeulner@verizon.net>
Sent: Sunday, January 07, 2018 8:22 PM
To: Troy Helling
Subject: Public hearing for amendment 17-1, zone change 17-1

Terry and Joy Feulner have lived on Acfold since 1977. We bought this home because it was a family tract, one exit in and one out, quiet, family dwellings. Adding 200 persons in such a small area is not acceptable. You have the list of reasons we are saying "NO" from the Resident Community Group and we agree with it 100%. We just found out about this today, Jan. 7, from a neighbor. I'd guess the folks of Diamond Bar weren't contacted as today I spoke to some of them and no one knew anything about it. Many of the families living here are original owners or shortly after.

We will be out of the city next week and unable to attend the meeting. Please consider not changing our community we love!
Terry and Joy Feulner
20312 Acfold Drive
Walnut, CA 91789

Troy Helling

From: Carol Mitchell <caroljmitchell@verizon.net>
Sent: Monday, January 08, 2018 6:11 PM
To: Troy Helling
Subject: General Plan Amendment 17-1

To Whom It May Concern:

We are Carol and Roger Mitchell, Diamond Bar residents living at 20130 Walnut Drive, Walnut, CA 91789.

As residents directly across from the project location, I am writing to express my opposition to the proposed rezoning and development of property 20137 and 20249 Walnut Drive South, City of Industry.

Our opposition is based on these potential/probable negative effects:

1. The loss of neighborhood and community character.
2. A decrease in the market value of our home.
3. Increased traffic congestion adding to an already dangerous situation on Walnut Drive.
4. Obstructing current resident's view of the San Gabriel Mountains.

This type of housing does not fit into the single family neighborhood, as the plan includes setting aside 4 units for extremely-low and very low income families.

We respectfully request that the Planning Commission of the City of Industry deny the application from the National Community Renaissance of California.

Respectfully,

Carol and Roger Mitchell

Phone: (909) 598-1049
caroljmitchell@verizon.net

From: Greg Gubman [mailto:GGubman@DiamondBarCA.Gov]
Sent: Tuesday, January 23, 2018 2:41 PM
To: Troy Helling <THelling@cityofindustry.org>
Cc: Dan Fox <DFox@DiamondBarCA.Gov>; Tim D'Zmura <tdzmura@annealtagroup.com>
Subject: GPA 17-1 & ZC 17-1

Troy,

The City hasn't taken a position on this project itself, but there are a couple of design items I wanted to run by you.

The site plan currently shows an offset between Calbourne and the drive entrance that may cause some awkward chicane maneuvering in and out. Would it be possible to align them? Or, alternatively, to relocate that drive approach to the west end?

Secondly, is there an opportunity to remove the billboards? It would be a huge aesthetic benefit for the existing and future residents.

Thanks for letting me share our thoughts.

Greg

Greg Gubman, AICP | Community Development Director
City of Diamond Bar | Community Development Department
21810 Copley Drive | Diamond Bar, CA 91765
909.839.7031 | 909.861.3117 (f)
www.DiamondBarCa.Gov

From: Greg Gubman
Sent: Tuesday, January 23, 2018 12:11 PM
To: 'Troy Helling' <THelling@cityofindustry.org>
Subject: RE: GPA 17-1 & ZC 17-1

Hi Troy,

Thanks very much. I appreciate the heads-up and the copy of the invitation.

Greg Gubman, AICP | Community Development Director

City of Diamond Bar | Community Development Department
21810 Copley Drive | Diamond Bar, CA 91765
909.839.7031 | 909.861.3117 (f)
www.DiamondBarCa.Gov

From: Troy Helling [mailto:THelling@cityofindustry.org]
Sent: Tuesday, January 23, 2018 11:54 AM
To: Greg Gubman <GGubman@DiamondBarCA.Gov>
Cc: Tim D'Zmura <tdzmura@annealtagroup.com>
Subject: RE:

Hi Greg

I wanted to forward this notice for a Community Meeting that the developer is hosting. Please feel free to share with any concerned residents if they contact you

The Project will also be scheduled for the February 6th Planning Commission meeting also Please let me know if you have any questions

Thanks

Troy Helling
Planning and Safety Manager
City of Industry

15625 E. Stafford Street, Suite 100 | Industry, CA 91744
(p) 626.333.2211 | (f) 626.961.6795
(e) thelling@cityofindustry.org

From: Greg Gubman [mailto:GGubman@DiamondBarCA.Gov]
Sent: Thursday, January 04, 2018 8:48 AM
To: Troy Helling <THelling@cityofindustry.org>
Cc: Paul Philips <paul@cityofindustry.org>; Dan Fox <DFox@DiamondBarCA.Gov>; Ryan McLean <RMcLean@DiamondBarCA.Gov>
Subject: GPA 17-1 & ZC 17-1

Hi Troy,

We received copies of the attached letters and petition from the residents of the neighborhood adjacent to the proposed residential project at Walnut Drive

South/Flintgate. I don't know if all of these writings had been sent to you directly, so I thought it best to forward them along.

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Regards,

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