Draft Environmental Document

INITIAL STUDY / MITIGATED NEGATIVE DECLARATION

(APPENDICES)

13-Lot Residential Development (APN 224-142-01) and Annexation

Submitted to:
City of Escondido
Jay Petrek, AICP, Principal Planner
Planning Division
201 North Broadway
Escondido, CA 92025-2798

Prepared for:
Pacific Land Investors, LLC

Prepared by:
VCS Environmental
30900 Rancho Viejo Road, Suite 100
San Juan Capistrano, CA 92675-1763
949.489.2700

June 2014

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13-Lot Residential Development and Annexation

Regional Map

VCS ENVIRONMENTAL
30900 Rancho Viejo Road, Suite 100
San Juan Capistrano, CA 92675
(949) 489-2700
Fax (949) 489-0309

N

Not to scale

FIGURE 1

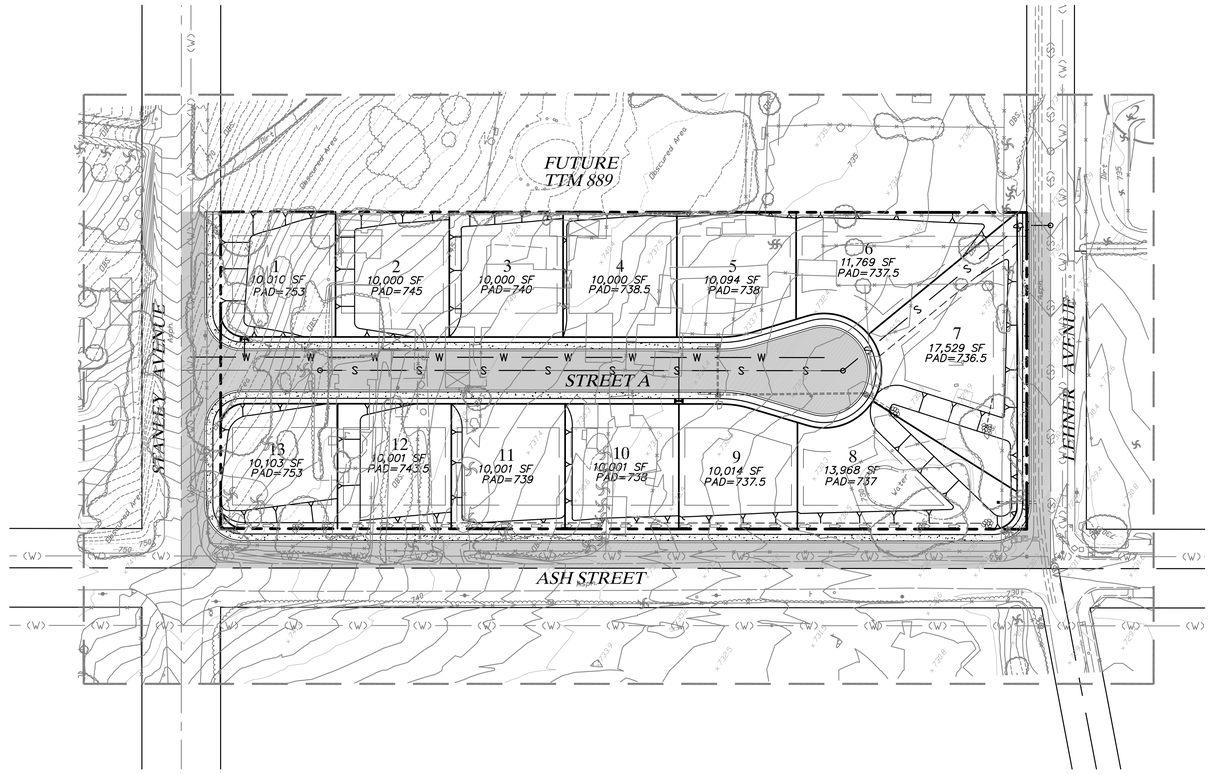
Prepared By: VCS Environmental	Map Created: 5/15/2014	0 50 100 200 Feet 1 inch = 200 feet	Data Sources: Bing Maps	**13-LOT RESIDENTIAL DEVELOPMENT AND ANNEXATION** Aerial Map

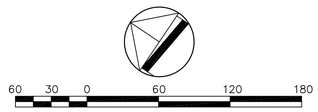
FIGURE 2

CITY OF ESCONDIDO TRACT NO.
TENTATIVE SUBDIVISION MAP

LEGEND

- 3 — SHEET NUMBER (KEY MAP)
- PROPOSED BOX CULVERT
- PROPOSED STORM DRAIN
- S — PROPOSED SEWER
- PROPOSED SEWER MANHOLE
- W — PROPOSED WATER
- 100 — PROPOSED LOT NUMBER
- 6,000 S.F. — PROPOSED LOT AREA
- PE 1030 — PROPOSED PAD ELEVATION
- PROPOSED SLOPE EMBANKMENTS (2:1 MAX)
- F / C — PROPOSED CUT / FILL LINE
- PROPOSED EASEMENT
- 500 — EXISTING CONTOURS
- (W) — EXISTING WATER LINE
- (S) — EXISTING SEWER LINE





KEY MAP

STATEMENT OF FACTS

THE PROPOSED MAP IS CONSISTENT WITH APPLICABLE GENERAL AND SPECIFIC PLANS.

THE DESIGN OR IMPROVEMENT OF THE PROPOSED SUBDIVISION IS CONSISTENT WITH THE APPLICABLE GENERAL OR SPECIFIC PLANS.

THE IS PHYSICALLY SUITABLE FOR THE TYPE OF DEVELOPMENT.

THE SITE IS PHYSICALLY SUITABLE FOR THE PROPOSED DENSITY OF DEVELOPMENT.

THE DESIGN OF THE SUBDIVISION, OR THE PROPOSED IMPROVEMENTS ARE NOT LIKELY TO CAUSE SUBSTANTIAL ENVIRONMENTAL DAMAGE OR SUBSTANTIALLY AND AVOIDABLE INJURE FISH OR WILDLIFE OR THEIR HABITAT.

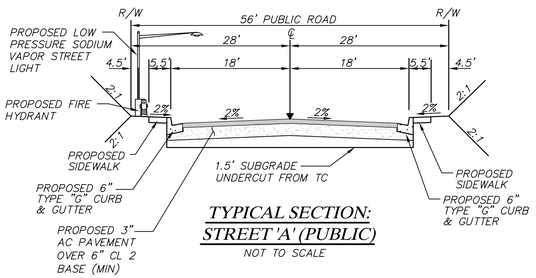
THE DESIGN OF THE SUBDIVISION OR THE TYPE OF IMPROVEMENTS IS NOT LIKELY TO CAUSE SERIOUS PUBLIC HEALTH PROBLEMS.

THE DESIGN OF THE SUBDIVISION OR THE TYPE OF IMPROVEMENTS WILL NOT CONFLICT WITH EASEMENTS OR RECORD, OR EASEMENTS ESTABLISHED BY COURT JUDGMENT, ACQUIRED BY THE PUBLIC AT LARGE, FOR ACCESS THROUGH OR USE OF, PROPERTY WITHIN THE PROPOSED SUBDIVISION. IN THIS CONNECTION, THE DIRECTOR OF PLANNING AND BUILDING MAY RECOMMEND APPROVAL OF A MAP IF HE FINDS THAT ALTERNATE EASEMENTS, OR ACCESS FOR USE, WILL BE PROVIDED, AND THAT THESE WILL BE SUBSTANTIALLY EQUIVALENT TO ONES PREVIOUSLY ACQUIRED BY THE PUBLIC.

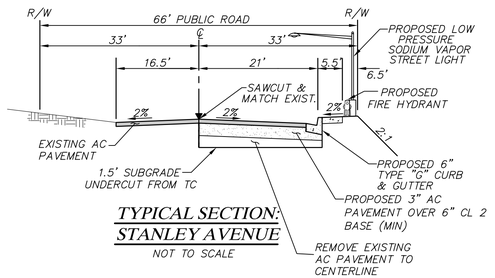
ALL REQUIREMENTS OF THE CALIFORNIA ENVIRONMENTAL QUALITY ACT HAVE BEEN MET.

THE DESIGN OF THE SUBDIVISION HAS PROVIDED, TO THE EXTENT FEASIBLE, FOR FUTURE PASSIVE OR NATURAL HEATING OR COOLING OPPORTUNITIES IN THE SUBDIVISION. (NOTE: SPECIFIC EXAMPLES TO SUBSTANTIATE THIS FINDING MUST BE PROVIDED. EXAMPLES OF PASSIVE OR NATURAL OPPORTUNITIES IN SUBDIVISION DESIGN INCLUDE LOT SIZE OR CONFIGURATION, TO PERMIT ORIENTATION OF A STRUCTURE IN AN APPROPRIATE ALIGNMENT FOR SOUTHERN EXPOSURE, ETC)

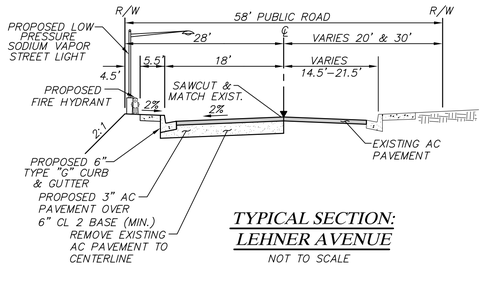
VICINITY MAP
NOT TO SCALE



TYPICAL SECTION: STREET 'A' (PUBLIC)
NOT TO SCALE



TYPICAL SECTION: STANLEY AVENUE
NOT TO SCALE



TYPICAL SECTION: ASH STREET
NOT TO SCALE

TYPICAL SECTION: LEHNER AVENUE
NOT TO SCALE

OWNER'S CERTIFICATE

WE HEREBY CERTIFY THAT WE ARE THE RECORD OWNERS OF THE PROPERTY SHOWN ON THE TENTATIVE SUBDIVISION MAP AND THAT SAID MAP SHOWS ALL OUR CONTIGUOUS OWNERSHIP IN WHICH WE HAVE ANY DEED OR TRUST INTEREST, WE UNDERSTAND THAT OUR PROPERTY IS CONSIDERED CONTIGUOUS EVEN IF IT IS SEPARATED BY ROADS, STREETS, UTILITY EASEMENTS, OR RAILROAD RIGHTS-OF-WAY.

OWNER

LINDA DIANE PICKERING
2056 NORTH ASH STREET
ESCONDIDO, CA 92618

SUBDIVIDER

PACIFIC LAND INVESTORS, LLC
101 PACIFICA SUITE 200
IRVINE, CA 92618

MARK FERRARO, PRESIDENT, AS AGENT FOR OWNER

ENGINEER OF WORK

bHA, Inc.
land planning, civil engineering, surveying
5115 AVENIDA ENCINAS
SUITE "L"
CARLSBAD, CA. 92008-4387
(760) 931-8700

REGISTERED PROFESSIONAL ENGINEER — RONALD L HOLLOWAY NO. 29271 EXP. 3-31-15 CIVIL — STATE OF CALIFORNIA

RONALD L. HOLLOWAY | RCE 29271 | 11-5-2013 DATE

ASSESSOR'S PARCEL NO.

224-142-01

LEGAL DESCRIPTION

LOT "M" IN BLOCK 418 OF THE RESUBDIVISION OF BLOCK 418 AND 419 OF RANCHO RINCON DEL DIABLO, IN THE COUNTY OF SAN DIEGO, STATE OF CALIFORNIA, ACCORDING TO MAP THEREOF NO. 1520, FILED IN THE OFFICE OF THE COUNTY RECORDER OF SAN DIEGO COUNTY, JANUARY 21, 1913.

FIRE: CITY OF ESCONDIDO

SCHOOL: ESCONDIDO UNION SCHOOL DISTRICT
ESCONDIDO UNION HIGH SCHOOL DISTRICT

SEWER: CITY OF ESCONDIDO

WATER: CITY OF ESCONDIDO

TOPOGRAPHY: AERIAL TOPOGRAPHY FLOWN BY INLAND AERIAL SURVEYS, INC. ON 7/23/13

GENERAL NOTES

ALL STREETS ARE PUBLIC

GRADING AND IMPROVEMENTS SHALL BE IN ACCORDANCE WITH CITY OF ESCONDIDO STANDARDS

EASEMENTS OF RECORD NOT SHOWN HEREON SHALL BE HONORED, ABANDONED AND/OR RELOCATED TO THE SATISFACTION OF ALL INTERESTED PARTIES, AND PUBLIC UTILITY EASEMENT NECESSARY TO SERVE THIS PROJECT WILL BE COORDINATED WITH SERVING UTILITY COMPANIES.

LOT DIMENSIONS AND AREAS SHOWN HEREON ARE APPROXIMATE. THE DIMENSIONS MAY BE ADJUSTED TO BE CONSISTENT WITH THE FINAL MAP.

TOTAL AREA OF SUBDIVISION: 4.17 Ac. GROSS

TOTAL LOTS: 13

TOTAL DWELLING UNITS: 13

ZONE: PZ R-1-10

GENERAL PLAN: SUBURBAN (3.33 DUs/Ac.)

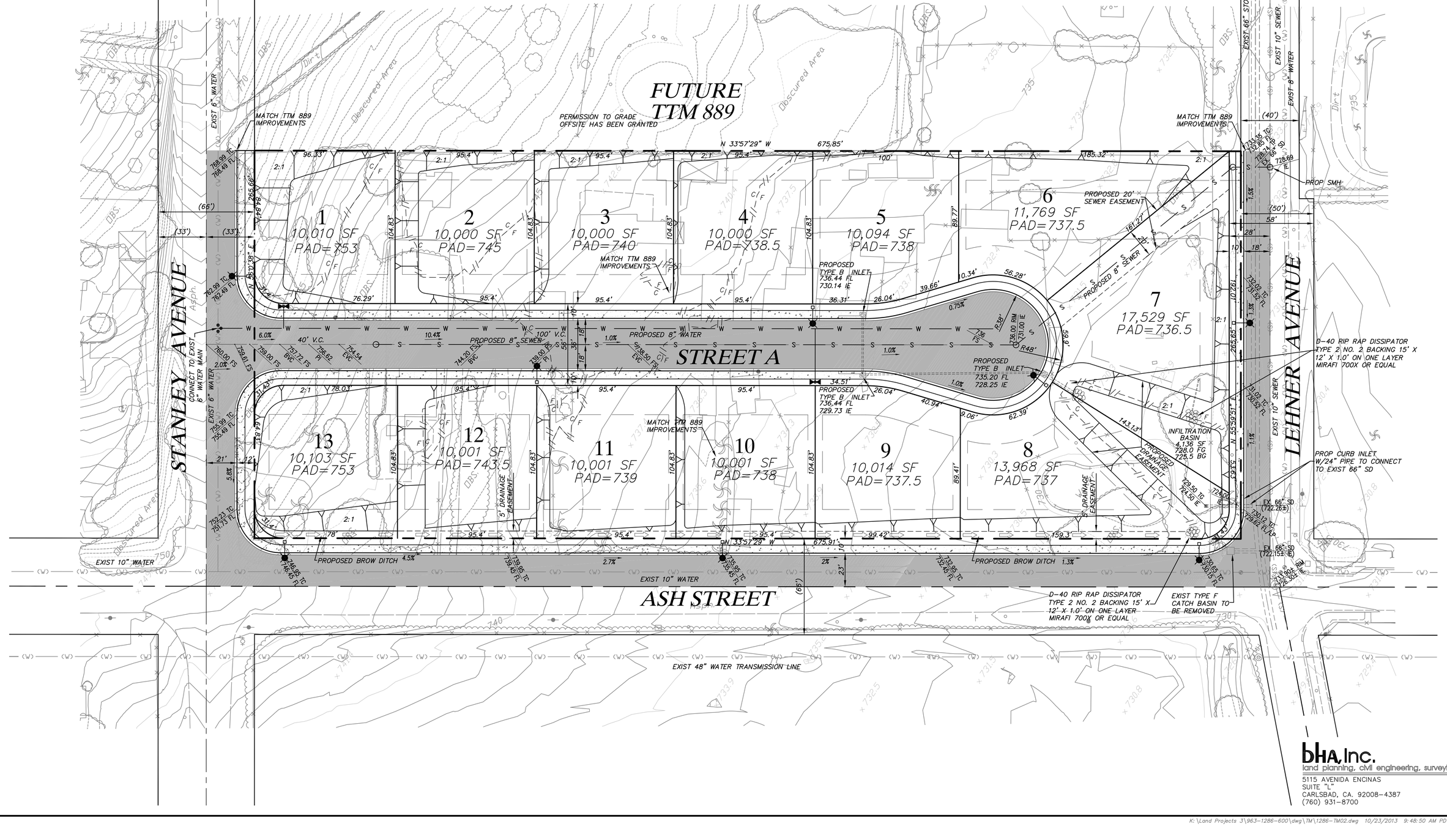
ALL LOTS ARE PROPOSED TO BE ON A SANITARY SEWER SYSTEM

EARTHWORK

CUT: 2,975 CY.
FILL: 17,100 CY.
IMPORT: 14,125 CY.

CITY OF ESCONDIDO TRACT NO.
TENTATIVE SUBDIVISION MAP

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



bHA, Inc.
land planning, civil engineering, surveying
5115 AVENIDA ENCINAS
SUITE "L"
CARLSBAD, CA. 92008-4387
(760) 931-8700

Appendix B
Air Quality & Greenhouse Gas Emissions Technical Report

PICKERING RESIDENTIAL PROJECT

Air Quality and Greenhouse Gas Emissions Technical Report

Prepared for
VCS Environmental

December 2013 (Revised April 2014)

ESA

PICKERING RESIDENTIAL PROJECT

Air Quality and Greenhouse Gas Emissions Technical Report

Prepared for
VCS Environmental

December 2013 (Revised April 2014)

626 Wilshire Boulevard
Suite 1100
Los Angeles, CA 90017
213.599.4300
www.esassoc.com

Oakland
Orlando
Palm Springs
Petaluma
Portland
Sacramento
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Tampa
Woodland Hills
130586

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Pickering Residential Project

Air Quality and Greenhouse Gas Emissions Technical Report

1. Introduction

This technical report has been prepared to support the City of Escondido (City) environmental review process and provide information regarding potential impacts to air quality and climate change associated with the approval of the Pickering Residential Project (Project). The Project consists of the development of 14 single-family residential dwelling units on an approximately 4.2-acre site that is currently located in the unincorporated portion of County of San Diego (County), California. However, the Project site is also located within the Sphere of Influence (SOI) of the City of Escondido, and it is anticipated that the Project site will be annexed into the City prior to development of the Project.

This report describes the existing air quality in the Project area, identifies applicable rules and regulations, and evaluates potential short- and long-term air quality impacts associated with build out of the Project. Additionally, this report also provides background information on greenhouse gas (GHG) emissions and evaluates potential impacts associated with the Project's GHG contributions. Furthermore, where applicable, measures to mitigate or minimize pollutant and GHG emissions associated with the proposed Project are included.

Information used to prepare this analysis was obtained from the County of San Diego General Plan Conservation and Open Space Element, the County of San Diego's *Guidelines for Determining Significance and Report Format and Content Requirements* document, the County of San Diego Climate Action Plan, City of Escondido General Plan Resource Conservation Element, the City of Escondido Municipal Code, the City of Escondido Citywide Facilities Plan, the City of Escondido Draft Climate Action Plan, and other sources.

1.1 Project Location

The proposed Project is currently located in the unincorporated portion of the County within the SOI of the City, on the southeast corner of the intersection of N. Ash Street and Stanley Avenue. The Project site is bounded by Stanley Avenue to the north, undeveloped land and residential uses to the east, Lehner Avenue to the south, and N. Ash Street to the west. An aerial map illustrating the Project site and its immediate surrounding uses is presented in **Figure 1**.

SOURCE: NAIP, 2012; ESRI.

VCS Environmental Technical Studies . 130586

Figure 1

Project Site Location Aerial Map

2. Project Description

The proposed Project would construct 14 new single-family detached residences on an approximately 4.2-acre site. The Project site is designated under County's Land Use Map as Semi-Rural Residential (SR-1), and is zoned RS (Single-Family Residential). Prior to development of the Project, the Project site will be annexed into the City and will be designated under the City's R-1-10 zoning standards (Single-Family Residential – 10,000 square feet minimum lot size).

3. Environmental Setting

3.1 Climate and Meteorology

The Project site is located within the San Diego Air Basin (SDAB), and is under the jurisdiction of the San Diego County Air Pollution Control District (SDAPCD). The boundaries of the SDAB are contiguous with the political boundaries of San Diego County, including the incorporated cities, and encompass approximately 4,260 square miles.

The ambient concentrations of air pollutants are determined by the amount of emissions released by sources and the atmosphere's ability to transport and dilute such emissions. Natural factors that affect transport and dilution include terrain, wind, atmospheric stability, and sunlight. Therefore, existing air quality conditions in the area are determined by such natural factors as topography, meteorology, and climate, in addition to the amount of emissions released by existing air pollutant sources.

Atmospheric conditions such as wind speed, wind direction, and air temperature gradients interact with the physical features of the landscape to determine the movement and dispersal of air pollutants. The topography and climate of southern California combine to make the SDAB an area of high air pollution potential. The County is divided by the Laguna Mountain Range with peaks that exceed 6,000 feet, which runs approximately parallel to the coast about 45 miles inland and separates the coastal area from the desert. To the north of the County are the Santa Ana Mountains, which run along the Orange County coast, turning east to join with the Laguna Mountains near the San Diego-Orange County border. The climate of the SDAB is dominated by a semi-permanent high pressure cell located over the Pacific Ocean. This cell influences the direction of prevailing winds (westerly to northwesterly) and maintains clear skies for much of the year. The high pressure cell also creates two types of temperature inversions that may act to degrade local air quality. Subsidence inversions occur during the warmer months as descending air associated with the Pacific high pressure cell comes into contact with cool marine air. The boundary between the two layers of air creates a temperature inversion that traps pollutants. The other type of inversion, a radiation inversion, develops on winter nights when air near the ground cools through radiation and the air aloft remain warm. The shallow inversion layer formed between these two air masses can also trap pollutants.

Based on past climate records from the Western Regional Climate Center (WRCC), the average annual maximum temperature in the Project area is 76 degrees Fahrenheit (°F) and the average

annual minimum temperature is 47° F (WRCC, 2013). The normal precipitation in the area is about 16 inches annually, occurring primarily from November through March.

3.2 Federal and State Ambient Air Quality Standards

Ambient Air Quality Standards

Regulation of air pollution is achieved through both federal and State ambient air quality standards and emission limits for individual sources of air pollutants. As required by the federal Clean Air Act (CAA), the U.S. Environmental Protection Agency (USEPA) has identified criteria pollutants and has established National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. NAAQS have been established for ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter (PM_{10} and $PM_{2.5}$), and lead (Pb). These pollutants are called "criteria" air pollutants because standards have been established for each of them to meet specific public health and welfare criteria.

To protect human health and the environment, the USEPA has set "primary" and "secondary" maximum ambient limits for each of the criteria pollutants. Primary standards were set to protect human health, particularly sensitive receptors such as children, the elderly, and individuals suffering from chronic lung conditions such as asthma and emphysema. Secondary standards were set to protect the natural environment and prevent damage to animals, crops, vegetation, and buildings.

Regional and Local

The NAAQS establish the level for an air pollutant above which detrimental effects to public health or welfare may result. The NAAQS are defined as the maximum acceptable concentrations that, depending on the pollutant, may not be equaled or exceeded more than once per year or in some cases as a percentile of observations. California has generally adopted more stringent ambient air quality standards for the criteria air pollutants (i.e., California Ambient Air Quality Standards [CAAQS]) and has adopted air quality standards for some pollutants for which there is no corresponding national standard, such as sulfates, hydrogen sulfide, vinyl chloride, and visibility-reducing particles. Both the national and State ambient air quality standards for pollutants along with their associated health effects and sources are presented in **Table 1**.

TABLE 1
AMBIENT AIR QUALITY STANDARDS FOR CRITERIA POLLUTANTS

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Ozone	1 hour 8 hours	0.09 ppm 0.07 ppm	--- 0.075 ppm	High concentrations can directly affect lungs, causing irritation. Long-term exposure may cause damage to lung tissue.	Formed when ROG and NO_X react in the presence of sunlight. Major sources include on-road motor vehicles, solvent evaporation, and commercial / industrial mobile equipment.
Carbon Monoxide (CO)	1 hour 8 hours	20 ppm 9.0 ppm	35 ppm 9 ppm	Classified as a chemical asphyxiant, carbon monoxide interferes with the transfer of fresh oxygen to the blood and deprives sensitive tissues of oxygen	Internal combustion engines, primarily gasoline-powered motor vehicles.

Pollutant	Averaging Time	State Standard	National Standard	Pollutant Health and Atmospheric Effects	Major Pollutant Sources
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm	0.100 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown.	Motor vehicles, petroleum refining operations, industrial sources, aircraft, ships, and railroads.
	Annual Arithmetic Mean	0.030 ppm	0.053 ppm		
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm	75 ppb	Irritates upper respiratory tract; injurious to lung tissue. Can yellow the leaves of plants, destructive to marble, iron, and steel. Limits visibility and reduces sunlight.	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	3 hours	---	0.50 ppm		
	24 hours	0.04 ppm	0.14 ppm		
	Annual Arithmetic Mean	---	0.03 ppm		
Respirable Particulate Matter (PM10)	24 hours	50 µg/m^3	150 µg/m^3	May irritate eyes and respiratory tract, decreases in lung capacity, cancer and increased mortality. Produces haze and limits visibility.	Dust and fume-producing industrial and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g., wind-raised dust and ocean sprays).
	Annual Arithmetic Mean	20 µg/m^3	---		
Fine Particulate Matter (PM2.5)	24 hours	---	35 µg/m^3	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and results in surface soiling.	Fuel combustion in motor vehicles, equipment, and industrial sources; residential and agricultural burning; Also, formed from photochemical reactions of other pollutants, including NO_X, sulfur oxides, and organics.
	Annual Arithmetic Mean	12 µg/m^3	12 µg/m^3		
Lead (Pb)	30 Day Average	1.5 µg/m^3	---	Disturbs gastrointestinal system, and causes anemia, kidney disease, and neuromuscular and neurological dysfunction (in severe cases).	*Present source:* lead smelters, battery manufacturing and recycling facilities. Past source: combustion of leaded gasoline.
	Calendar Quarter	---	1.5 µg/m^3		
	Rolling 3-Month Average	---	0.15 µg/m^3		
Hydrogen Sulfide	1 hour	0.03 ppm	No National Standard	Nuisance odor (rotten egg smell), headache and breathing difficulties (higher concentrations)	Geothermal power plants, petroleum production and refining
Sulfates (SO_4)	24 hour	25 µg/m^3	No National Standard	Decrease in ventilatory functions; aggravation of asthmatic symptoms; aggravation of cardio-pulmonary disease; vegetation damage; degradation of visibility; property damage.	Industrial processes.
Visibility Reducing Particles	8 hour	Extinction of 0.23/km; visibility of 10 miles or more	No National Standard	Reduces visibility, reduced airport safety, lower real estate value, and discourages tourism.	See $PM_{2.5}$.

NOTE: ppm = parts per million; ppb = parts per billion; µg/m^3 = micrograms per cubic meter.

SOURCE: CARB, 2013a.

Criteria Air Pollutants

The California Air Resources Board (CARB) and USEPA currently focus on criteria air pollutants because they are the most prevalent air pollutants known to be injurious to human health and extensive health-effects criteria documents are available about their effects on human health and welfare. A general description of these pollutants is provided below.

Ozone

Ozone, the main component of photochemical smog, is primarily a summer and fall pollution problem. Ozone is not emitted directly into the air, but is formed through a complex series of chemical reactions involving other compounds that are directly emitted. These directly emitted pollutants (also known as ozone precursors) include reactive organic gases (ROGs) or volatile organic compounds (VOCs), and oxides of nitrogen (NOx). While both ROGs and VOCs refer to compounds of carbon, ROG is a term used by CARB and is based on a list of exempted carbon compounds determined by CARB. VOC is a term used by the USEPA and is based on USEPA's own exempt list. The time period required for ozone formation allows the reacting compounds to spread over a large area, producing regional pollution problems. Ozone concentrations are the cumulative result of regional development patterns rather than the result of a few significant emission sources.

Once ozone is formed, it remains in the atmosphere for one or two days. Ozone is then eliminated through reaction with chemicals on the leaves of plants, attachment to water droplets as they fall to earth ("rainout"), or absorption by water molecules in clouds that later fall to earth with rain ("washout").

Short-term exposure to ozone can irritate the eyes and cause constriction of the airways. In addition to causing shortness of breath, ozone can aggravate existing respiratory diseases such as asthma, bronchitis, and emphysema.

Carbon Monoxide

CO, a colorless and odorless gas, is a relatively non-reactive pollutant that is a product of incomplete combustion and is mostly associated with motor vehicles. When inhaled at high concentrations, CO combines with hemoglobin in the blood and reduces the oxygen-carrying capacity of the blood. This results in reduced oxygen reaching the brain, heart and other body tissues. This condition is especially critical for people with cardiovascular diseases, chronic lung disease, or anemia. CO measurements and modeling were important in the early 1980s when CO levels were regularly exceeded throughout California. In more recent years, CO measurements and modeling have not been a priority in most California air districts due to the retirement of older polluting vehicles, lower emissions from new vehicles, and improvements in fuels.

Nitrogen Dioxide

NO_2 is a reddish-brown gas that is a by-product of combustion processes. Automobiles and industrial operations are the main sources of NO_2. Combustion devices emit primarily nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO_2. The combined emissions of NO and NO_2 are referred to as NOx, which are reported as equivalent NO_2. Aside from its contribution to ozone formation, NO_2 can increase the risk of acute and chronic respiratory disease and reduce visibility. NO_2 may be visible as a coloring component of a brown cloud on high pollution days, especially in conjunction with high ozone levels.

Sulfur Dioxide

SO_2 is a colorless, extremely irritating gas or liquid that enters the atmosphere as a pollutant mainly as a result of burning high sulfur-content fuel oils and coal, and from chemical processes occurring at chemical plants and refineries. When SO_2 oxidizes in the atmosphere, it forms sulfur trioxide (SO_3). Collectively, these pollutants are referred to as sulfur oxides (SOx).

Major sources of SO_2 include power plants, large industrial facilities, diesel vehicles, and oil-burning residential heaters. Emissions of SO_2 aggravate lung diseases, especially bronchitis. This compound also constricts the breathing passages, especially in people with asthma and people involved in moderate to heavy exercise. SO_2 potentially causes wheezing, shortness of breath, and coughing. Long-term SO_2 exposure has been associated with increased risk of mortality from respiratory or cardiovascular disease.

Particulate Matter

PM_{10} and $PM_{2.5}$ consist of particulate matter that is 10 microns or less in diameter and 2.5 microns or less in diameter, respectively (a micron is one-millionth of a meter). PM_{10} and $PM_{2.5}$ represent fractions of particulate matter that can be inhaled into the air passages and the lungs and can cause adverse health effects. Acute and chronic health effects associated with high particulate levels include the aggravation of chronic respiratory diseases, heart and lung disease, and coughing, bronchitis and respiratory illnesses in children. Recent mortality studies have shown an association between morbidity and mortality and daily concentrations of particulate matter in the air. Particulate matter can also damage materials and reduce visibility. One common source of $PM_{2.5}$ is diesel exhaust emissions.

PM_{10} consists of particulate matter emitted directly into the air (e.g., fugitive dust, soot, and smoke from mobile and stationary sources, construction operations, fires, and natural windblown dust) and particulate matter formed in the atmosphere by condensation and/or transformation of SO_2 and ROG. Traffic generates particulate matter emissions through entrainment of dust and dirt particles that settle onto roadways and parking lots. PM_{10} and $PM_{2.5}$ are also emitted by burning wood in residential wood stoves and fireplaces and open agricultural burning. $PM_{2.5}$ can also be formed through secondary processes such as airborne reactions with certain pollutant precursors, including ROGs, ammonia (NH_3), NOx, and SOx.

Lead

Lead is a metal found naturally in the environment and present in some manufactured products. There are a variety of activities that can contribute to lead emissions, which are grouped into two general categories, stationary and mobile sources. On-road mobile sources include light-duty automobiles; light-, medium-, and heavy-duty trucks; and motorcycles.

Emissions of lead have dropped substantially over the past 40 years. The reduction before 1990 is largely due to the phase-out of lead as an anti-knock agent in gasoline for on-road automobiles. Substantial emission reductions have also been achieved due to enhanced controls in the metals processing industry. In the Basin, atmospheric lead is generated almost entirely by the combustion of leaded gasoline and contributes less than one percent of the material collected as total suspended particulates.

Toxic Air Contaminants

Concentrations of toxic air contaminants (TACs), or in federal parlance, hazardous air pollutants (HAPs), are also used as indicators of ambient air quality conditions. A TAC is defined as an air pollutant that may cause or contribute to an increase in mortality or in serious illness, or that may pose a hazard to human health. TACs are usually present in minute quantities in the ambient air; however, their high toxicity or health risk may pose a threat to public health even at low concentrations.

According to The California Almanac of Emissions and Air Quality (CARB, 2009a), the majority of the estimated health risk from TACs can be attributed to relatively few compounds, the most important being particulate matter from diesel-fueled engines (diesel PM). Diesel PM differs from other TACs in that it is not a single substance, but rather a complex mixture of hundreds of substances. Although diesel PM is emitted by diesel-fueled internal combustion engines, the composition of the emissions varies depending on engine type, operating conditions, fuel composition, lubricating oil, and whether an emission control system is present.

Unlike the other TACs, no ambient monitoring data are available for diesel PM because no routine measurement method currently exists. However, CARB has made preliminary concentration estimates based on a particulate matter exposure method. This method uses the CARB emissions inventory's PM_{10} database, ambient PM_{10} monitoring data, and the results from several studies to estimate concentrations of diesel PM. In addition to diesel PM, the TACs for which data are available that pose the greatest existing ambient risk in California are benzene, 1,3-butadiene, acetaldehyde, carbon tetrachloride, hexavalent chromium, para-dichlorobenzene, formaldehyde, methylene chloride, and perchloroethylene.

3.3 Project Area Air Quality

Existing Air Quality

SDAPCD monitors air quality conditions at 10 locations throughout the SDAB. The proposed Project is currently located within the SOI of the City of Escondido in the northwestern portion of San Diego County, and the nearest air quality monitoring station to the Project is the Escondido – E. Valley Parkway Station (600 E. Valley Parkway) located approximately 2.2 miles south of the Project site. Air quality in the Project area can be characterized by ambient air quality data collected at this station. This station monitors the ambient concentrations of ozone, CO, NO_2, PM_{10}, and $PM_{2.5}$. Historical data from the Escondido – E. Valley Parkway Station for the three most recent years (2010 – 2012) are shown in **Table 2**.

TABLE 2
AIR QUALITY DATA SUMMARY (2010 – 2012) FOR PROJECT AREA

Pollutant	Standard[a]	Monitoring Data by Year 2010	2011	2012
Ozone				
Highest 1 Hour Average (ppm)		0.105	0.098	0.084
Days over State Standard	0.09 ppm	2	1	0
Highest 8 Hour Average (ppm)		0.085	0.089	0.074
Days over National Standard	0.075 ppm	3	2	0
Days over State Standard	0.070 ppm	5	2	2
Carbon Monoxide				
Highest 8 Hour Average (ppm)		2.46	2.30	3.70
Days over National Standard	9.0 ppm	0	0	0
Days over State Standard	9.0 ppm	0	0	0
Nitrogen Dioxide				
Highest 1 Hour Average (ppm)		0.064	0.062	0.062
Days over National Standard	0.100 ppm	0	0	0
Days over State Standard	0.18 ppm	0	0	0
Annual Average (ppm)		0.014	*	0.013
Days over National Standard	0.053 ppm	0	*	0
Days over State Standard	0.030 ppm	0	*	0
Particulate Matter (PM_{10})				
Highest 24 Hour Average ($\mu g/m^3$)[b]		42.0	40.0	33.0
Days over National Standard (measured)[c]	150 $\mu g/m^3$	0	0	0
Days over State Standard (measured)[c]	50 $\mu g/m^3$	0	0	0
Annual Average ($\mu g/m^3$)[b]	20 $\mu g/m^3$	20.9	18.8	18.0
Particulate Matter ($PM_{2.5}$)				
Highest 24 Hour Average ($\mu g/m^3$)[b]		48.4	69.8	70.7
Days over National Standard (measured)[c]	35 $\mu g/m^3$	2	3	1
Annual Average ($\mu g/m^3$)[b]	12 $\mu g/m^3$	12.2	13.2	10.8

NOTES:
ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter.
- = Data not available.
* = Insufficient data available to determine the value.

[a] Generally, state standards and national standards are not to be exceeded more than once per year.

[b] Concentrations and averages represent federal statistics. State and federal statistics may differ because of different sampling methods.

[c] Measurements are usually collected every six days. Days over the standard represent the measured number of days that the standard has been exceeded.

SOURCE: CARB, 2012a.

Both CARB and USEPA use this type of monitoring data to designate areas according to their attainment status for criteria air pollutants. The purpose of these designations is to identify the areas with air quality problems and thereby initiate planning efforts for improvement. The three basic designation categories are nonattainment, attainment, and unclassified. Unclassified is used in an area that cannot be classified on the basis of available information as meeting or not

meeting the standards. In addition, the California designations include a subcategory of nonattainment-transitional, which is given to nonattainment areas that are progressing and nearing attainment. The current attainment status for the SDAB is provided in **Table 3**.

TABLE 3
SAN DIEGO AIR BASIN ATTAINMENT STATUS

	Attainment Status	
Pollutant	**California Standards**	**Federal Standards**
Ozone	Serious Nonattainment	Marginal Nonattainment
CO	Attainment	Unclassified/ Attainment
NO_2	Attainment	Unclassified/ Attainment
SO_2	Attainment	Attainment
PM_{10}	Nonattainment	Unclassified
$PM_{2.5}$	Nonattainment	Unclassified/ Attainment

SOURCE: CARB, 2013b; USEPA, 2013.

3.4 Sensitive Receptors

Sensitive receptors are individuals who are considered more sensitive to air pollutants than others. The reasons for greater than average sensitivity may include pre-existing health problems, proximity to emissions sources, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality-related health problems than the general public. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with associated greater exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions because vigorous exercise associated with recreation places a high demand on the human respiratory system.

Currently, the nearest sensitive receptors to the Project site are the single-family residential structures located directly to the north, across Stanley Avenue. Sparsely located single-family residential structures are also located further to the east, south (across Lehner Avenue), and to the west (across N. Ash Street) of the Project site. The Rincon Middle School is located to the southeast of the Project site, across Lehner Avenue.

3.5 Background on Greenhouse Gases and Climate Change

This section provides setting information specific to GHG emissions. Gases that trap heat in the atmosphere are called GHGs. The major concern with GHGs is that increases in their

concentrations are causing global climate change. Global climate change is a change in the average weather on Earth that can be measured by wind patterns, storms, precipitation, and temperature. Although there is disagreement as to the rate of global climate change and the extent of the impacts attributable to human activities, most in the scientific community agree that there is a direct link between increased emissions of GHGs and long term global temperature increases. GHGs allow sunlight to enter the atmosphere, but trap a portion of the outward-bound infrared radiation, which warms the air. The process is similar to the effect greenhouses have in raising the internal temperature, hence the name GHGs. Both natural processes and human activities emit GHGs. The accumulation of GHGs in the atmosphere regulates the earth's temperature; however, emissions from human activities such as fossil fuel-based electricity production and the use of motor vehicles have elevated the concentration of GHGs in the atmosphere. It is generally believed that this accumulation of GHGs is contributing to global climate change.

The principal GHGs are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), sulfur hexafluoride (SF_6), perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs). Because different GHGs have different warming potential and CO_2 is the most common reference gas for climate change, GHG emissions are often quantified and reported as CO_2 equivalents (CO_2e). For example, SF_6 is a GHG commonly used in the utility industry as an insulating gas in circuit breakers and other electronic equipment. SF_6, while comprising a small fraction of the total GHGs emitted annually world-wide, is a much more potent GHG with 23,900 times the global warming potential as CO_2. Therefore, an emission of one metric ton (MT) of SF_6 could be reported as an emission of 23,900 MT of CO_2e. Large emission sources are reported in million metric tons (MMT) of CO_2e.[1]

Some of the potential effects in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more high ozone days, more forest fires, and more drought years (CARB, 2009b). Globally, climate change has the potential to impact numerous environmental resources through potential, though uncertain, impacts related to future air temperatures and precipitation patterns. The projected effects of global warming on weather and climate are likely to vary regionally, but are expected to include the following direct effects (IPCC, 2001):

- Higher maximum temperatures and more hot days over nearly all land areas;
- Higher minimum temperatures, fewer cold days and frost days over nearly all land areas;
- Reduced diurnal temperature range over most land areas;
- Increase of heat index over land areas; and
- More intense precipitation events.

Also, there are many secondary effects that are projected to result from global warming, including global rise in sea level, impacts to agriculture, changes in disease vectors, and changes in habitat and biodiversity. While the possible outcomes and the feedback mechanisms involved are not fully understood and much research remains to be done, the potential for substantial environmental, social, and economic consequences over the long term may be great.

[1] A metric ton is 1,000 kilograms; it is equal to approximately 1.1 U.S. tons and approximately 2,204.6 pounds.

California is the 12th to 16th largest emitter of CO_2 in the world (CEC, 2006). California produced 448 gross $MMTCO_2e$ in 2010 (CARB, 2013c). Combustion of fossil fuel in the transportation sector was the single largest source of California's GHG emissions in 2010, accounting for 38 percent of total GHG emissions in the state (CARB, 2013c). This sector was followed by the industrial sector (21 percent) and the electric power sector (including both in-state and out-of-state sources) (19 percent) (CARB, 2013c).

3.6 Regulatory Setting

Federal

The principal air quality regulatory mechanism at the federal level is the CAA and in particular, the 1990 amendments to the CAA and the NAAQS that it establishes. These standards identify the maximum ambient (background) concentration levels of criteria pollutants that are considered to be safe, with an adequate margin of safety, to protect public health and welfare. As discussed previously, the criteria pollutants include ozone, CO, NO_2 (which is a form of NO_X), SO_2 (which is a form of SO_X), PM_{10}, $PM_{2.5}$, and lead.

The CAA also requires each state to prepare an air quality control plan, referred to as a state implementation plan (SIP). The CAA Amendments of 1990 (CAAA) added requirements for states with nonattainment areas to revise their SIPs to incorporate additional control measures to reduce air pollution. The SIP is modified periodically to reflect the latest emissions inventories, planning documents, and rules and regulations of the air basins, as reported by their jurisdictional agencies. USEPA is responsible for reviewing all SIPs to determine whether they conform to the mandates of the CAA and its amendments, and to determine whether implementing the SIPs will achieve air quality goals. If USEPA determines a SIP to be inadequate, a federal implementation plan that imposes additional control measures may be prepared for the nonattainment area. If an approvable SIP is not submitted or implemented within the mandated time frame, sanctions may be applied to transportation funding and stationary sources of air pollution in the air basin.

The USEPA also has regulatory and enforcement jurisdiction over emission sources beyond state waters (outer continental shelf), and those that are under the exclusive authority of the Federal government, such as aircraft, locomotives, and interstate trucking. USEPA's primary role at the state level is to oversee the state air quality programs. USEPA sets federal vehicle and stationary source emissions standards and provides research and guidance in air pollution programs.

The federal CAA does not specifically regulate GHG emissions; however, the U.S. Supreme Court has determined that GHGs are pollutants that can be regulated under the federal CAA. There are currently no federal regulations that set ambient air quality standards for GHGs.

State

California Air Resources Board (CARB)

CARB, a department of the California Environmental Protection Agency (Cal/EPA), oversees air quality planning and control throughout California by administering the SIP. Its primary responsibility lies in ensuring implementation of the 1989 amendments to the CCAA, responding

to the federal CAA requirements, and regulating emissions from motor vehicles sold in California. It also sets fuel specifications to further reduce vehicular emissions.

The amendments to the CCAA establish CAAQS, and a legal mandate to achieve these standards by the earliest practical date. These standards apply to the same criteria pollutants as the federal CAA, and also include sulfates, visibility reducing particulates, hydrogen sulfide and vinyl chloride. They are also generally more stringent than the federal standards.

CARB is also responsible for regulations pertaining to TACs. The Air Toxics "Hot Spots" Information and Assessment Act was enacted in 1987 as a means to establish a formal air toxics emission inventory risk quantification program. Assembly Bill (AB) 2588, as amended, establishes a process that requires stationary sources to report the type and quantities of certain substances their facilities routinely release. Each air pollution control district ranks the data into high, intermediate, and low priority categories. When considering the ranking, the potency, toxicity, quantity, volume, and proximity of the facility to receptors are given consideration by an air district.

Executive Order S-3-05

In 2005, in recognition of California's vulnerability to the effects of climate change, Governor Schwarzenegger established Executive Order S-3-05, which set forth a series of target dates by which statewide emissions of GHGs would be progressively reduced, as follows:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

Assembly Bill 32 – California Global Warming Solutions Act

California Assembly Bill 32 (AB 32), the Global Warming Solutions Act of 2006, requires CARB to establish a statewide GHG emissions cap for 2020 based on 1990 emission levels. AB 32 required CARB to adopt regulations by January 1, 2008, that identify and require selected sectors or categories of emitters of GHGs to report and verify their statewide GHG emissions, and CARB is authorized to enforce compliance with the program. Under AB 32, CARB was also required to adopt, by January 1, 2008, a statewide GHG emissions limit equivalent to the statewide GHG emissions levels in 1990, which must be achieved by 2020. CARB established this limit, in December 2007, at 427 MMT of CO_2e. This is approximately 30 percent below forecasted "business-as-usual" emissions of 596 MMT of CO_2e, and about 10 percent below average annual GHG emissions during the period of 2002 through 2004 (CARB, 2009b).

By January 1, 2011, CARB is required to adopt rules and regulations (which shall become operative January 1, 2012), to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 permits the use of market-based compliance mechanisms to achieve those reductions. AB 32 also requires CARB to monitor compliance with and enforce any rule, regulation, order, emission limitation, emissions reduction measure, or market-based compliance mechanism that it adopts.

In June 2007, CARB directed staff to pursue 37 early strategies for reducing GHG emissions under AB 32. The broad spectrum of strategies that were developed, including a Low Carbon Fuel Standard, regulations for refrigerants with high global warming potentials, guidance and protocols for local governments to facilitate GHG reductions, and green ports, reflects that the serious threat of climate change requires action as soon as possible.

In addition to approving the 37 GHG reduction strategies, CARB directed staff to further evaluate early action recommendations made at its June 2007 meeting, and to report back to CARB within six months. The general sentiment of CARB suggested a desire to try to pursue greater GHG emissions reductions in California in the near-term. Since the June 2007 CARB hearing, CARB staff has evaluated all 48 recommendations submitted by stakeholders and several internally-generated staff ideas and published the *Expanded List of Early Action Measures To Reduce Greenhouse Gas Emissions In California Recommended For Board Consideration* in September 2007 (CARB, 2007). CARB adopted nine Early Action Measures for implementation, including Ship Electrification at Ports, Reduction of High Global-Warming-Potential Gases in Consumer Products, Heavy-Duty Vehicle Greenhouse Gas Emission Reduction (Aerodynamic Efficiency), Reduction of Perfluorocarbons from Semiconductor Manufacturing, Improved Landfill Gas Capture, Reduction of Hydrofluorocarbon-134a from Do-It-Yourself Motor Vehicle Servicing, Sulfur Hexaflouride Reductions from the Non-Electric Sector, a Tire Inflation Program, and a Low Carbon Fuel Standard.

As of January 1, 2012, the GHG emissions limits and reduction measures adopted in 2011 became enforceable. In designing emission reduction measures, CARB must aim to minimize costs, maximize benefits, improve and modernize California's energy infrastructure, maintain electric system reliability, maximize additional environmental and economic co-benefits for California, and complement the state's efforts to improve air quality.

Climate Change Scoping Plan

In December 2008, CARB approved the AB 32 Scoping Plan outlining the State's strategy to achieve the 2020 GHG emissions limit (CARB, 2009b). This Scoping Plan, developed by CARB in coordination with the Climate Action Team (CAT), proposes a comprehensive set of actions designed to reduce overall GHG emissions in California, improve the environment, reduce dependence on oil, diversify California's energy sources, save energy, create new jobs, and enhance public health. It was adopted by CARB at its meeting in December 2008.

According to the Scoping Plan, the 2020 target of 427 $MMTCO_2e$ requires the reduction of 169 $MMTCO_2e$, or 28.3 percent, from the state's projected 2020 business-as-usual (BAU) emissions level of 596 $MMTCO_2e$. However, CARB has discretionary authority to seek greater reductions in more significant and growing GHG sectors, such as transportation, as compared to other sectors that are not anticipated to significantly increase emissions.

In August 2011, the Scoping Plan was re-approved by the Board and includes the *Final Supplement to the Scoping Plan Functional Equivalent Document.* This document includes expanded analysis of project alternatives as well as updates the 2020 emission projections in light of the current economic forecasts. Considering the updated 2020 BAU estimate of 507

$MMTCO_2e$, a 16 percent reduction below the estimated BAU levels would be necessary to return to 1990 levels by 2020 (CARB, 2011). **Table 4** shows the Recommended Actions contained in Appendices C and E of CARB's Scoping Plan.

In addition, the Scoping Plan identifies challenges to meeting future electrical demand, including building transmission lines for renewables and modernizing electricity infrastructure. The Plan states:

"Population growth in hot areas and the need to reach remote renewable generation regions both require adding electricity transmission capability. Without new transmission lines, a 33 percent target for the Renewables Portfolio Standard (RPS) is unlikely to be met. Equally important to building transmission is modernizing the transmission and electricity distribution system. Advanced control, communications, and metering technologies, as well as improvements in control of both conventional and renewable generation, can create a more reliable, resilient grid." (CARB, 2009b)

As required by AB 32, the Scoping Plan must be updated at least every five years to evaluate the mix of AB 32 policies to ensure that California is on track to meet the targets set out in the legislation. Currently, as of October 2013, a draft Update to the initial Scoping Plan has been developed by CARB in collaboration with the California Climate Action Team (CCAT). The draft Update builds upon the initial Scoping Plan with new strategies and expanded measures, and identifies opportunities to leverage existing and new funds to drive GHG emission reductions through strategic planning and targeted program investments. The discussion draft of the Update AB 32 Scoping Plan was released for public comment on October 1, 2013.

Senate Bill 97

Senate Bill (SB) 97, enacted in August 2007, required the Office of Planning and Research (OPR) to develop guidelines for the mitigation of GHG emissions, or the effects related to releases of GHG emissions. On April 13, 2009, the OPR submitted proposed amendments to the Natural Resources Agency in accordance with SB 97 including regarding analysis and mitigation of GHG emissions. Formal rulemaking was conducted in 2009 prior to adopting the amendments. As discussed below, the CEQA significance analysis for the proposed project was conducted in accordance with the proposed OPR guidance developed under this statute.

As part of the guidelines, OPR recommends that CARB set statewide thresholds of significance, and emphasized the need to have a consistent threshold available to analyze projects. The draft guidelines also noted that the analyses should be performed based on the best available information.

As directed by SB 97, the Natural Resources Agency adopted Amendments to the CEQA Guidelines for greenhouse gas emissions on December 30, 2009. On February 16, 2010, the Office of Administrative Law approved the Amendments, and filed them with the Secretary of State for inclusion in the California Code of Regulations. The Amendments became effective on March 18, 2010.

TABLE 4
RECOMMENDED ACTIONS OF CLIMATE CHANGE SCOPING PLAN

ID #	Sector	Strategy Name
T-1	Transportation	Pavley I and II – Light-Duty Vehicle GHG Standards
T-2	Transportation	Low Carbon Fuel Standard (Discrete Earl Action)
T-3	Transportation	Regional Transportation-Related GHG Targets
T-4	Transportation	Vehicle Efficiency Measures
T-5	Transportation	Ship Electrification at Ports (Discrete Early Action)
T-6	Transportation	Goods-movement Efficiency Measures
T-7	Transportation	Heavy Duty Vehicle Greenhouse Gas Emission Reduction Measure – Aerodynamic Efficiency (Discrete Early Action)
T-8	Transportation	Medium and Heavy-Duty Vehicle Hybridization
T-9	Transportation	High Speed Rail
E-1	Electricity and Natural Gas	Increased Utility Energy efficiency programs ; More stringent Building and Appliance Standards
E-2	Electricity and Natural Gas	Increase Combined Heat and Power Use by 30,000 GWh
E-3	Electricity and Natural Gas	Renewables Portfolio Standard
E-4	Electricity and Natural Gas	Million Solar Roofs
CR-1	Electricity and Natural Gas	Energy Efficiency
CR-2	Electricity and Natural Gas	Solar Water Heating
GB-1	Green Buildings	Green Buildings
W-1	Water	Water Use Efficiency
W-2	Water	Water Recycling
W-3	Water	Water System Energy Efficiency
W-4	Water	Reuse Urban Runoff
W-5	Water	Increase Renewable Energy Production
W-6	Water	Public Goods Charge (Water)
I-1	Industry	Energy Efficiency and Co-benefits Audits for Large Industrial Sources
I-2	Industry	Oil and Gas Extraction GHG Emission Reduction
I-3	Industry	GHG Leak Reduction from Oil and Gas Transmission
I-4	Industry	Refinery Flare Recovery Process Improvements
I-5	Industry	Removal of Methane Exemption from Existing Refinery Regulations
RW-1	Recycling and Waste Management	Landfill Methane Control (Discrete Early Action)
RW-2	Recycling and Waste Management	Additional Reductions in Landfill Methane – Capture Improvements
RW-3	Recycling and Waste Management	High Recycling/Zero Waste
F-1	Forestry	Sustainable Forest Target
H-1	High Global Warming Potential Gases	Motor Vehicle Air Conditioning Systems (Discrete Early Action)
H-2	High Global Warming Potential Gases	SF_6 Limits in Non-Utility and Non-Semiconductor Applications (Discrete Early Action)
H-3	High Global Warming Potential Gases	Reduction in Perfluorocarbons in Semiconductor Manufacturing (Discrete Early Action)
H-4	High Global Warming Potential Gases	Limit High GWP Use in Consumer Products (Discrete Early Action, Adopted June 2008)
H-5	High Global Warming Potential Gases	High GWP Reductions from Mobile Sources
H-6	High Global Warming Potential Gases	High GWP Reductions from Stationary Sources
H-7[a]	High Global Warming Potential Gases	Mitigation Fee on High GWP Gases
A-1	Agriculture	Methane Capture at Large Dairies

[a] This original measure in the 2008 Scoping Plan was subsequently excluded by CARB in the *Final Supplement to the Scoping Plan Functional Equivalent Document* in 2011, as CARB staff concluded that implementation of this measure would not be feasible.

SOURCE: CARB, 2009b.

California Green Building Standard Code

In January 2010, the State of California adopted the 2010 California Green Building Standards Code (CALGreen), which became effective in January 2011. CALGreen has mandatory Green Building provisions for all new residential buildings that are three stories or fewer (including hotels and motels) and all new non-residential buildings of any size that are not additions to existing buildings.

As of January 2011, California requires that new buildings reduce water consumption, employ building commissioning to increase building system efficiencies, divert construction waste from landfills, and install low pollutant emitting finish materials. CALGreen's mandatory measures establish a minimum for green construction practices, and incorporate environmentally responsible buildings into California cities. CALGreen allows jurisdictions to adopt stricter requirements than the mandatory minimum requirements in CALGreen.

Local

San Diego County Air Pollution Control District (SDAPCD)

SDAPCD is the primary agency responsible for planning, implementing, and enforcing federal and state ambient standards in San Diego County. The SDAPCD regulates most air pollutant sources, except for motor vehicles, marine vessels, aircrafts, and agricultural equipment, which are regulated by CARB or the USEPA. State and local government projects, as well as projects proposed by the private sector, are subject to SDAPCD requirements if the sources are regulated by the SDAPCD. Additionally, the SDAPCD, along with CARB, maintains and operates ambient air quality monitoring stations at numerous locations throughout San Diego County. These stations are used to measure and monitor criteria and toxic air pollutant levels in the ambient air.

The SDAPCD and the San Diego Association of Governments (SANDAG) are responsible for developing and implementing the clean air plan for attainment and maintenance of the ambient air quality standards in the SDAB. The San Diego County Regional Air Quality Strategy (RAQS) was initially adopted in 1992, and is updated on a triennial basis. The RAQS outlines the SDAPCD's plans and control measures designed to attain the state air quality standards for ozone. The 2009 RAQS Revision, which is the most recent update to the RAQS, contained seven emission control measures to be scheduled for rule development and recommended the deletion of three previously proposed control measures. The SDAPCD has also developed the SDAB's input to the SIP, which is required under the CAA for pollutants that are designated as being in non-attainment of national air quality standards for SDAB.

The RAQS relies on information from CARB and SANDAG, including mobile and area source emissions, as well as information regarding projected growth in San Diego County, to project future emissions and then establish the strategies necessary for the reduction of emissions through regulatory controls. The CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the County as part of the development of the County's General Plan. As such, projects that propose development that is consistent with the growth anticipated by the County General Plan would be consistent with the RAQS and SIP. In the event that a project would propose development that is

less dense than anticipated within the County General Plan, the project would likewise be consistent with the RAQS. If a project proposes development that is greater than that anticipated in the County General Plan and SANDAG's growth projections, the project might be in conflict with the RAQS and SIP, and might have a potentially significant impact on air quality. The SIP relies on the same information from SANDAG to develop emission inventories and emission reduction strategies that are included in the attainment demonstration for SDAB.

The SDAPCD is also tasked with the development of local air quality rules and regulations to improve air quality and protect the health and welfare of San Diego County residents and their environment. Some of the rules and regulations that would apply to the proposed Project are presented below.

SDAPCD Regulation II – Permits, Rule 10 – Permits Required

This rule requires any person building, erecting, altering, or replacing any article, machine, equipment or other contrivance, the use of which may cause the issuance of air contaminants, to receive written authorization (Authority to Construction) and a Permit to Operate from the SDAPCD.

SDAPCD Regulation IV – Prohibitions, Rule 50 – Visible Emissions

This rule prohibits any activity that will create air contaminant emissions darker than 20 percent opacity for more than an aggregate of three minutes in any consecutive 60-minute time period. Rule 50 also prohibits any diesel pile-driving hammer activity that would cause air contaminant emissions for a period or periods aggregating more than four minutes during the driving of a single pile.

SDAPCD Regulation IV – Prohibitions, Rule 51 – Nuisance

This regulation prohibits any activity that will discharge air contaminants that cause or have a tendency to cause injury, detriment, nuisance, or annoyance to people and the public or damage to any business or property.

SDAPCD Regulation IV – Prohibitions, Rule 55 – Fugitive Dust

This rule regulates fugitive dust emissions from any commercial construction or demolition activity capable of generating fugitive dust emissions, including active operations, open storage piles, and inactive disturbed areas, as well as track-out and carry-out onto paved roads beyond a project site.

SDAPCD Regulation IV – Prohibitions, Rule 67.0 – Architectural Coatings

This regulation requires manufacturers, distributors, and end users of architectural and industrial maintenance coatings to reduce VOC emissions from the use of these coatings, primarily by placing limits on the VOC content of various coating categories.

San Diego Association of Governments (SANDAG) Climate Action Strategy

SANDAG, which is an association of local San Diego County governments, developed the Climate Action Strategy in 2010 as a tool to guide climate change policy. The Strategy identifies

a range of potential policy measures for consideration as SANDAG updates long-term planning documents like the Regional Transportation Plan (RTP) and Regional Comprehensive Plan (RCP), and as local jurisdictions update their General Plans and other community plans. The Strategy helps SANDAG identify land use, transportation, and related policy measures and investments that could reduce GHGs from passenger cars and light-duty trucks as part of the development of a Sustainable Communities Strategy for the 2050 RTP in compliance with Senate Bill 375, which was signed in September 2008. Potential policy measures also are identified for buildings and energy use, protecting transportation and energy infrastructure from climate impacts, and to help SANDAG and local jurisdictions reduce GHGs from their operations.

County of San Diego

General Plan

The County of San Diego General Plan includes an Open Space and Conservation Element with the following goal and policies with regard to air quality and GHGs that are relevant to the proposed Project.

Goal COS-14: Land use development techniques and patterns that reduce emissions of criteria pollutants and GHGs through minimized transportation and energy demands, while protecting public health and contributing to a more sustainable environment.

Policy COS-14.3 **Sustainable Development.** Require design of residential subdivisions and nonresidential development through "green" and sustainable land development practices to conserve energy, water, open space, and natural resources.

Goal COS-15: Building design and construction techniques that reduce emissions of criteria pollutants and GHGs, while protecting public health and contributing to a more sustainable environment.

Policy COS-15.1 **Design and Construction of New Buildings.** Require that new buildings be designed and constructed in accordance with "green building" programs that incorporate techniques and materials that maximize energy efficiency, incorporate the use of sustainable resources and recycled materials, and reduce emissions of GHGs and toxic air contaminants.

Policy COS-15.4 **Title 24 Energy Standards.** Require development to minimize energy impacts from new buildings in accordance with or exceeding Title 24 energy standards.

Climate Action Plan

The County of San Diego Climate Action Plan (CAP), which was adopted June 2012, addresses the issues of growth and climate change, and serves to safeguard the environment for residents and visitors. The County's CAP was designed to support the following primary functions:

- Mitigate the impacts of climate change by achieving meaningful GHG reductions within the County, consistent with AB 32, the governor's Executive Order S-3-05, and California Environmental Quality Act (CEQA) guidelines;

- Allow lead agencies to adopt a plan or program that addresses the cumulative impacts of a project;
- Provide a mechanism that subsequent projects may use as a means to address GHG impacts under CEQA, in accordance with the 2011 statement by the Attorney General; and
- Comply with the 2011 adopted County General Plan Environmental Impact Report (EIR) Mitigation Measure CC-1.2, Preparation of a Climate Action Plan.

The County's CAP incorporates already-established County goals described in the General Plan and in the County Strategic Energy Plan (SEP), which identifies measures to develop a cohesive, long-term strategy that addresses climate change. The CAP includes more specific approaches for the actions outlined by the General Plan, and broadens the SEP's scope to include water conservation, waste reduction, land use strategies, and adaptation, while also extending the County's emissions reduction goals to 2020 and beyond. The CAP sets a target to reduce community-wide GHG emission emissions by 15 percent below 2005 levels by 2020, which is consistent with the California statewide reduction goals in AB 32. In addition, the CAP is also a "living" document that will need to be updated as new information, technology, and legislation arise. GHG reduction-measure monitoring and regular inventory updates will be necessary to evaluate the efficacy of the CAP (County of San Diego, 2012).

City of Escondido

General Plan

The City of Escondido General Plan includes a Resource Conservation Element with the following goal and policies with regard to air quality and GHGs that are relevant to the proposed Project.

Goal 7: Improved air quality in the City and the region to maintain the community's health and reduce green-house gas emissions that contribute to climate change.

Policy 7.2 Reduce regional greenhouse gas emissions through the following measures including, but not limited to:

a) Implementing land use patterns that reduce automobile dependence (compact, mixed-use, pedestrian, and transit-oriented development, etc.);

b) Reducing the number of vehicular miles traveled through implementation of Transportation Demand Management programs, jobs-housing balance, and similar techniques;

c) Supporting public transportation improvements;

d) Encouraging the use of alternative modes of transportation by expanding public transit, bicycle, and pedestrian networks and facilities;

e) Participating in the development of park-and-ride facilities;

f) Maintaining and updating the city's traffic signal synchronization plan;

g) Promoting local agriculture;

h) Promoting the use of drought-tolerant landscaping; and

i) Encouraging the use of non-polluting alternative energy systems.

Policy 7.3 Require that new development projects incorporate feasible measures that reduce construction and operational emissions.

Climate Action Plan

The Escondido Climate Action Plan (E-CAP), which was adopted on December 4, 2013, serves to establish goals and policies that incorporate environmental responsibility into the City's daily management of its resources to reduce regional GHG emissions. To achieve a reduction in regional GHG emissions, the E-CAP sets a baseline for the City's GHG emissions, projects how these emissions will grow, and includes strategies to reduce emissions to a level consistent with California's emissions reduction target. These strategies complement Escondido's General Plan policies and are consistent with Escondido's vision for a more sustainable community.

Specifically, the E-CAP has been developed with the following purposes in mind:

- Create an updated 2010 emissions inventory from which to benchmark GHG reductions;
- Provide a plan that is consistent with and complementary to the GHG emissions reduction efforts being conducted by the State of California through the Global Warming Solutions Act (AB 32) and the federal government through the actions of the Environmental Protection Agency;
- Guide the development, enhancement, and implementation of actions that reduce GHG emissions; and
- Provide a policy document with specific implementation measures meant to be considered as part of the planning process for future development projects.

The E-CAP serves as an implementation tool of the General Plan to guide development in the City to meet the objectives of conserving resources and reducing GHG emissions. The E-CAP sets a target to reduce community-wide GHG emission emissions by 15 percent from 2005 levels by 2020, which is consistent with the California statewide reduction goals in AB 32. In order to reach the reduction target, the City would implement local reduction measures that encourage energy efficiency and renewable energy in buildings, transit oriented planning, water conservation, and increase waste diversion. While the reduction measures included in the E-CAP have been developed to meet the 2020 reduction target, implementation of the E-CAP would require periodic updates to ensure that the City is continually tracking GHG emissions and making adjustments as necessary to ensure that future targets are met (City of Escondido, 2013a).

Municipal Code

The City established the Environmental Quality Regulations (EQR) in Chapter 33 Article 47 of its Municipal Code, which serves to implement CEQA and CEQA guidelines by applying the provisions and procedures contained in CEQA to development projects proposed in the City. The EQRs establish screening thresholds to determine if additional analysis is required to determine whether a project would result in significant impacts. In particular, Section 33-924 of the City Municipal Code was established to ensure consistency between the City's thresholds of environmental significance and the City's Citywide Facilities Plan, which implements the growth management element of the General Plan. With respect to air quality impacts, Section 33-

924(a)(6) states that negative and mitigated negative declarations under CEQA could be prepared for a project if the amount of daily pollutant emissions from fixed or mobile sources associated with the project would not exceed certain daily levels. These daily allowable pollutant emission levels, which act as screening thresholds for the City, are presented in **Table 5**.[2]

TABLE 5
CITY OF ESCONDIDO EMISSIONS SCREENING THRESHOLDS

Pollutant	Allowable Daily Emissions (pounds/day)
Carbon monoxide (CO)	550
Volatile organic compounds (VOCs)	75[a], 55[b]
Oxides of nitrogen (NOx)	250
Respiratory particulate matter (PM_{10})	100
Fine particulate matter ($PM_{2.5}$)	55
Oxides of Sulfur (SOx)	250
Lead and lead compounds	3.2[c]

[a] Threshold for construction per South Coast Air Quality Management District (SCAQMD) CEQA Air Quality Handbook.
[b] Threshold for operations per SCAQMD CEQA Air Quality Handbook.
[c] Not applicable to construction.

SOURCE: City of Escondido, Ordinance No. 2013-12.

With respect to GHG emissions, Section 33-924(a)(7) states that negative and mitigated negative declarations under CEQA could be prepared for:

- Projects that do not generate more than 2,500 MT of CO_2e GHG emissions; or
- Projects generating more than 2,500 MT CO_2e that have achieved 100 points implementing reduction measures outlined in the E-CAP screening tables; or
- Projects generating more than 2,500 MT CO_2e that demonstrate through a project specific analysis quantifying GHG emissions that through mitigation and design features, the project reduces GHG emissions consistent with E-CAP.

Under conditions where a project would exceed the pollutant screening thresholds (Table 5) or the GHG screening criteria described above, an environmental impact report (EIR) would need to be prepared.

4. Impacts and Mitigation Measures

This section describes the impact analysis relating to air quality for the proposed Project. It describes the methods used to determine the impacts of the proposed Project and the applicable thresholds from the City's established CEQA significance criteria for air quality to conclude

[2] Article 47 of the City Municipal Code was recently amended in January 10, 2014, which included revised daily emissions thresholds for pollutants.

whether further analysis in an EIR would be necessary. In addition, for informational purposes, the applicable thresholds for criteria pollutant and GHG emissions from the SDAPCD and the County, respectively, are also described.

4.1 Methodology

Criteria Pollutants

This technical report focuses on the nature and magnitude of the change in the air quality environment due to implementation of the proposed Project. Air pollutant emissions associated with the proposed Project would result from operations of the future residential uses at the Project site and from traffic volumes generated by these new uses. Construction activities would also generate air pollutant emissions at the Project site and on roadways resulting from construction-related traffic. The net increase in emissions generated by these activities and other secondary sources have been estimated and compared to the CEQA significance criteria established by the City in its EQR (City of Escondido Municipal Code Chapter 33 Article 47). In addition, for informational purposes, the Project's emissions are also evaluated against the SDAPCD's screening-level thresholds (SLTs), which is the recommended approach under the County's *Guidelines for Determining Significance and Report Format and Content Requirements* document.

Construction Impacts

Short-term construction-generated emissions of criteria air pollutants and ozone precursors associated with the proposed Project were modeled using the California Emissions Estimator Model (CalEEMod), Version 2013.2.2. CalEEMod was used to determine whether short-term construction-related emissions of criteria air pollutants associated with the proposed Project would exceed the City's applicable CEQA significance thresholds and whether further analysis of the Project's air quality impacts in an EIR would be required. Additionally, for informational purposes, the Project's construction emissions were also evaluated against SDAPCD's SLTs. Modeling was based on Project-specific data, when available. Where Project-specific information was not available, reasonable assumptions and default model settings were used to estimate criteria air pollutant and ozone precursor emissions. Modeling input and output files are provided in Appendix A of this report.

Operational Impacts

Long-term (i.e., operational) regional emissions of criteria air pollutants and precursors associated with the proposed Project, including mobile- and area-source emissions, were also quantified using the CalEEMod computer model. Area-source emissions, which are widely distributed and made of many small emissions sources (e.g., building heating and cooling units, landscaping equipment, consumer products, painting operations, etc.), were modeled according to the size and type of land use proposed. Mass mobile-source emissions were modeled based on the net increase in daily vehicle trips that would result from the proposed Project. Project trip generation rates were available from the traffic impact analysis prepared for the Project. Predicted long-term operational emissions were evaluated against the City's CEQA significance thresholds to determine whether further analysis of the Project's air quality impacts in an EIR would be

required. Additionally, for informational purposes, the Project's operational emissions were also evaluated against SDAPCD's SLTs.

Greenhouse Gas Emissions

The *City of Escondido Greenhouse Gas Emissions Adopted CEQA Thresholds and Screening Tables* document provides guidance on how to analyze GHG emissions and determine the significance of those emissions during CEQA review of proposed development projects within the City. The analysis, methodology, and significance determination (thresholds) are based upon the E-CAP, the GHG emission inventories within the E-CAP, and the GHG reduction measures that reduce emissions to the AB 32 compliant reduction target of the E-CAP. As indicated in the document, mitigation of GHG emission impacts through the Development Review Process (DRP) provides one of the most substantial reduction strategies for reducing community-wide emissions associated with new development. As such, the City uses the DRP procedures for evaluating GHG impacts by (1) applying an emissions level that is determined to be less than significant for small projects, and (2) utilizing Screening Tables to mitigate project GHG emissions that exceed the threshold level. Specifically, the City uses a threshold level of 2,500 MT CO_2e per year to identify projects that are considered to contribute a less-than-significant impact to GHG impacts. Projects that generate GHG emissions exceeding 2,500 MT CO_2e per year would need to be evaluated for their potential GHG impacts against the City's established Screening Tables, which provide guidance in measuring the reduction of GHG emissions attributable to certain design and construction measures incorporated into development projects. As an alternative to using the City's Screening Tables, a project can elect to evaluate its potential GHG emissions impacts by determining the percentage reduction of its GHG emissions when compared against its unmitigated (BAU) emissions. A project would be required to provide a 20.6 percent reduction from its BAU emissions in order for its GHG impact to be considered less than significant (City of Escondido, 2013b).

With respect to the County, no formal CEQA significance thresholds for GHG emissions or guidelines for GHG analysis have been adopted at this time. While the County is currently proposing a GHG emissions screening threshold of 2,500 MT of CO_2e emissions per year for projects (similar to the City of Escondido), this screening threshold has not been formally adopted at the time of this writing. However, the County of San Diego is currently using an interim screening GHG threshold of 900 MT of CO_2e emissions per year, which is derived from the California Air Pollution Control Officers Association's (CAPCOA) CEQA & Climate Change report (dated January 2008), to determine whether further GHG analysis and mitigation with regard to climate change will be required for a project. Because it is anticipated that the Project site will be annexed into the City prior to development of the Project, the City of Escondido's adopted GHG thresholds will be used to evaluate the impacts from the proposed Project. However, for informational purposes, the estimated GHG emissions generated by the proposed Project are also evaluated against the County's interim screening GHG threshold in this report.

According to Appendix B of the *City of Escondido Greenhouse Gas Emissions Adopted CEQA Thresholds and Screening Tables* document, which provides a list of sample project sizes by land use category that would typically emit less than 2,500 MT CO_2e per year, it is estimated that it would generally require up to 86 single-family residential dwelling units in order to generate

2,500 MT CO_2e per year. Additionally, based on the County's interim approach to addressing climate change in CEQA documents, single-family residential developments of 50 units or more are generally anticipated to exceed 900 MT of CO_2e emissions per year and would, subsequently, require further GHG analysis. As the proposed Project would only consist of the development of 14 single-family residential units at the approximately 4.2-acre Project site, it can be concluded that the GHG emissions generated by the Project would not exceed the City's 2,500 MT CO_2e per year screening threshold or the County's 900 MT CO_2e per year interim screening threshold. Nonetheless, pursuant to full disclosure and according to the CEQA Guidelines that state, "A lead agency should make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of GHG emissions resulting from a project," the construction and operational GHG emissions associated with the Project have been quantified using methods described below.

Similar to the methodology described above for criteria air pollutants, the Project's construction-related GHG emissions were estimated using the most recent version of CalEEMod. CalEEMod estimates the emissions of CO_2, CH_4, and N_2O associated with construction-related GHG sources such as off-road construction equipment, material delivery trucks, soil haul trucks, and construction worker vehicles. The GHG analysis incorporates similar assumptions as the air quality analysis for consistency.

Operational emissions of GHGs associated with the proposed Project, including GHGs generated by direct and indirect sources, are also estimated using CalEEMod. Direct sources include emissions such as vehicle trips, natural gas consumption, and landscape maintenance. Indirect sources include off-site emissions occurring as a result of the proposed Project's operations such as electricity and water consumption and solid waste disposal. Modeling using CalEEMod was based on Project-specific data (e.g., size and type of proposed use) and vehicle trip information from the traffic impact analysis prepared for the Project (Linscott Law & Greenspan, 2014).

All GHG emission estimate assumptions and calculations are provided in Appendix A to this report.

4.2 Thresholds of Significance

Based on the State CEQA Guidelines, a project would have a significant adverse effect on air quality resources if it would:

- Conflict with or obstruct implementation of the applicable air quality plan;
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation;
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors);
- Expose sensitive receptors to substantial pollutant concentrations; or

- Create objectionable odors affecting a substantial number of people.

As discussed previously, the City of Escondido has established CEQA significance criteria for air quality in its EQR. These CEQA significance thresholds are shown in Table 5. As such, the Project's construction and operational emissions are evaluated against these screening-level thresholds to determine whether further analysis of the Project's air quality impacts in an EIR would be required. If the City's CEQA significance thresholds are not exceeded, it is concluded that the Project would not result in any adverse air quality impacts on the environment.

Additionally, for informational purposes, the Project's construction and operational emissions are also evaluated against the SDAPCD's SLTs, which are shown in **Table 6**.

TABLE 6
SDAPCD AIR QUALITY SCREENING-LEVEL THRESHOLDS

Pollutant	Pounds per day
VOCs (or ROG)	75
NO_x	250
CO	550
SO_x	250
PM_{10}	100
$PM_{2.5}$	55

NOTE: In the absence of pounds per day $PM_{2.5}$ and VOC significance thresholds in the SDAPCDs rules, the $PM_{2.5}$ and VOC thresholds from the County of San Diego *Department of Planning and Land Use, Guidelines for Determining Significance and Report Format and Content Requirements, Air Quality* document were used.

SOURCE: SDAPCD, 1998; County of San Diego, 2007

The following GHG significance thresholds that are used in this report are also based on the State CEQA Guidelines. Implementation of the Project would result in a significant GHG-related impact if it would:

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

- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

As noted previously, the increased concentration of GHGs in the atmosphere has been linked to global warming, which can lead to climate change. Construction and operation of the proposed Project would incrementally contribute to GHG emissions along with past, present, and future activities, and the CEQA Guidelines acknowledge this as a cumulative impact. As such, impacts of GHG emissions are analyzed here on a cumulative basis.

For this analysis, the construction-related and operational GHG emissions generated by the proposed Project would be evaluated against the City's GHG threshold of 2,500 MT of CO_2e per year to determine whether further GHG analysis and mitigation with regard to climate change will be required for the Project. If the Project's GHG emissions do not exceed 2,500 MT per year, then it is concluded that the Project's GHG emissions would not adversely affect statewide attainment of GHG emission reduction goals as described in AB 32. Additionally, for informational purposes, the Project's emissions will also be evaluated against the County's interim screening GHG threshold of 900 MT of CO_2e emissions per year.

4.3 Project Impacts

Consistency with Applicable Air Quality Plan

The proposed Project is located within the SDAB, which is under the jurisdiction of the SDAPCD. As discussed previously, the SDAPCD's air quality plans include the RAQS, which addresses State requirements, and the San Diego portion of the California SIP, which addresses federal requirements.

In general, a project would not interfere with the applicable air quality plan if it is consistent with growth assumptions used to form the applicable air quality plan and if the project implements all reasonably available and feasible air quality control measures. The SDAPCD relies on information from CARB and SANDAG, including projected growth, mobile, area and all other source emissions, in order to predict future emissions and develop appropriate strategies for the reduction of source emissions through regulatory controls. The CARB mobile source emission projections and SANDAG growth projections are based on population and vehicle trends and land use plans developed by the incorporated cities and the County of San Diego. As such, projects that propose development that is in conformance and consistent with the growth anticipated in the general plan would be consistent with the RAQS. The SIP relies on the same information from SANDAG to develop emission inventories and emission reduction strategies that are included in the attainment demonstration for SDAB.

As discussed previously, the Project site would be annexed by the City prior to development of the Project. Upon annexation, the Project site will be designated under the City's R-1-10 zoning standards (Single-Family Residential – 10,000 square feet minimum lot size). Although this annexation would not have been accounted for in the City's previous (1990) and current (2012) General Plan, the proposed development of 14 single-family dwelling units on the approximately 4.2-acre Project site would provide housing to meet the projected population growth in the County and the San Diego region anticipated in SANDAG's 2050 Regional Growth Forecast. As such, the housing and population growth introduced by implementation of the proposed Project would be consistent with SANDAG and RAQS growth forecasts as. Accordingly, the Project's emissions have been accounted for in the RAQS, which was created to bring the SDAB into attainment for ozone. Additionally, as discussed below, the Project's construction and operational emissions would not exceed the City's established CEQA significance criteria for air quality in its EQR (see Tables 8 and 9 below). Consequently, the Project would conform to the City's quality of life standards. Furthermore, the Project would be required to comply with all applicable rules and regulations established by the SDAPCD during construction activities at the Project site (i.e.,

SDAPCD Rule 50 [Visible Emissions], Rule 51 [Nuisance], Rule 55 [Fugitive Dust], and Rule 67 [Architectural Coatings], etc.) Therefore, implementation of the proposed Project would not conflict with applicable air quality plans and this impact would be less than significant.

Violation of Air Quality Standards – Construction

The proposed Project would involve the development of 14 single-family residential dwelling units on an approximately 4.2-acre site. Construction activities associated with the proposed Project would generate pollutant emissions from the following construction activities: (1) site demolition, preparation, grading, and excavation; (2) construction workers traveling to and from project site; (3) delivery and hauling of construction supplies to, and debris from, the project site; (4) fuel combustion by onsite construction equipment; (5) building construction; application of architectural coatings; and paving. These construction activities would temporarily create emissions of dust, fumes, equipment exhaust, and other air contaminants. The amount of emissions generated on a daily basis would vary, depending on the intensity and types of construction activities occurring simultaneously at the time. Construction of the Project is anticipated to commence in April 2014 and be completed over an approximately 6-month period.

Construction emissions are considered short term and temporary, but have the potential to represent a significant impact with respect to air quality. Particulate matter (i.e., PM_{10} and $PM_{2.5}$) are among the pollutants of greatest localized concern with respect to construction activities. Particulate emissions from construction activities can lead to adverse health effects and nuisance concerns, such as reduced visibility and soiling of exposed surfaces. Particulate emissions can result from a variety of construction activities, including excavation, grading, demolition, vehicle travel on paved and unpaved surfaces, and vehicle and equipment exhaust. Construction emissions of PM can vary greatly depending on the level of activity, the specific operations taking place, the number and types of equipment operated, local soil conditions, weather conditions, and the amount of earth disturbance.

Emissions of ozone precursors ROG and NOx are primarily generated from mobile sources and vary as a function of vehicle trips per day associated with debris hauling, delivery of construction materials, vendor trips, and worker commute trips, and the types and number of heavy-duty, off-road equipment used and the intensity and frequency of their operation. A large portion of construction-related ROG emissions also result from the application of asphalt and architectural coatings and vary depending on the amount of coatings and paving applied each day.

The maximum daily construction emissions for the proposed project were estimated using CalEEMod, which is designed to model construction emissions for land use development projects based on building size, land use and type, and disturbed acreage, and allows for input of project-specific information. Project-generated emissions of criteria air pollutants (e.g., PM_{10}) and precursors (i.e., ROG and NOx) were modeled based on Project-specific information as well as model defaults. For the purpose of this analysis, the following construction phases for the proposed Project and their respective schedules were assumed:

- Site Demolition: 04/01/14 – 04/07/14 (5 days total)

- Site Preparation: 04/08/14 – 04/14/14 (5 days total)
- Site Grading: 04/15/14 – 04/24/14 (8 days total)
- Building Construction : 04/25/14 – 09/19/14 (106 days total)
- Paving: 09/22/14 – 10/15/14 (18 days total)
- Architectural Coatings: 09/22/14 – 10/15/14 (18 days total)

A summary of the anticipated amount and types of construction equipment used during each phase of Project construction is provided in **Table 7**.

TABLE 7
ANTICIPATED CONSTRUCTION EQUIPMENT FOR PROJECT

Construction Phase and Equipment	Number of Equipment Pieces	Hours of Operation
Site Demolition		
Concrete/Industrial Saws	2	8
Excavators	1	8
Rubber Tired Dozers	2	8
Site Preparation		
Rubber Tired Dozers	1	8
Tractors/Loaders/Backhoes	3	8
Site Grading		
Graders	1	8
Rubber Tired Dozers	1	8
Tractors/Loaders/Backhoes	3	8
Building Construction		
Forklifts	3	8
Generator Sets	1	8
Tractors/Loaders/Backhoes	3	7
Welders	1	8
Paving		
Cement and Mortar Mixers	2	6
Pavers	1	8
Paving Equipment	2	6
Rollers	2	6
Tractors/Loaders/Backhoes	1	8
Architectural Coatings		
Air Compressors	1	6

Note: Equipment inventory is based on CalEEMod (Version 2013.2.2) model and modified using conservative construction assumptions from similar projects.

Table 8 summarizes the modeled worst-case daily emissions of criteria air pollutants and ozone precursors associated with the proposed Project's construction activities. As shown in Table 8, the maximum daily construction emissions generated by the proposed Project over the course of

the construction schedule would not exceed any of the City's CEQA significance thresholds. Thus, air quality impacts from construction are considered to be less than significant and the preparation of an EIR for the proposed Project would not be necessary. In addition, as shown the Project's construction emissions would also not exceed any of the SDAPCD's SLTs. Thus, air quality impacts from construction are considered to be less than significant.

TABLE 8
PROPOSED PROJECT REGIONAL CONSTRUCTION EMISSIONS (UNMITIGATED)

	Estimated Maximum Daily Emissions (lbs/day)					
Construction Activities	**VOC**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Site Demolition						
Fugitive Dust Emissions	--	--	--	--	2.60	0.39
Off-Road Emissions	4.53	44.81	33.27	0.04	2.46	2.33
On-Road Emissions	0.40	4.72	4.26	0.01	0.40	0.16
Total Emissions	**4.93**	**49.53**	**37.53**	**0.05**	**5.46**	**2.88**
City CEQA Significance Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Exceed City Threshold?	No	No	No	No	N/A	No
SDAPCD Significance Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Exceed SDAPCD Threshold?	No	No	No	No	No	No
Site Preparation						
Fugitive Dust Emissions	--	--	--	--	6.02	3.31
Off-Road Emissions	2.38	25.09	18.36	0.02	1.51	1.39
On-Road Emissions	0.05	0.06	0.55	0.00	0.08	0.02
Total Emissions	**2.43**	**25.15**	**18.91**	**0.02**	**7.61**	**4.72**
City CEQA Significance Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Exceed City Threshold?	No	No	No	No	N/A	No
SDAPCD Significance Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Exceed SDAPCD Threshold?	No	No	No	No	No	No
Grading						
Fugitive Dust Emissions	--	--	--	--	7.05	3.44
Off-Road Emissions	3.44	36.04	23.33	0.02	2.12	1.95
On-Road Emissions	0.06	0.07	0.71	0.00	0.11	0.03
Total Emissions	**3.50**	**36.11**	**24.04**	**0.02**	**9.28**	**5.42**
City CEQA Significance Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Exceed City Threshold?	No	No	No	No	N/A	No
SDAPCD Significance Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Exceed SDAPCD Threshold?	No	No	No	No	No	No
Building Construction						
Off-Road Emissions	3.20	23.30	16.17	0.02	1.86	1.76
On-Road Emissions	0.04	0.16	0.44	0.00	0.05	0.02
Total Emissions	**3.24**	**23.46**	**16.61**	**0.02**	**1.91**	**1.78**
City CEQA Significance Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Exceed City Threshold?	No	No	No	No	N/A	No
SDAPCD Significance Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Exceed SDAPCD Threshold?	No	No	No	No	No	No
Paving						
Off-Road Emissions	2.00	21.00	12.67	0.02	1.26	1.16

Construction Activities	Estimated Maximum Daily Emissions (lbs/day)					
	VOC	NO_X	CO	SO_2	PM_{10}	$PM_{2.5}$
On-Road Emissions	0.09	0.11	1.10	0.00	0.17	0.04
Subtotal Emissions	*2.09*	*21.11*	*13.77*	*0.02*	*1.43*	*1.20*
Architectural Coatings						
Coatings	43.80	--	--	--	--	--
Off-Road Emissions	0.45	2.78	1.92	0.00	0.25	0.25
On-Road Emissions	0.00	0.01	0.05	0.00	0.01	0.00
Subtotal Emissions	*44.25*	*2.79*	*1.97*	*0.00*	*0.26*	*0.25*
Total Emissions	**46.34**	**23.90**	**15.74**	**0.02**	**1.69**	**1.45**
City CEQA Significance Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Exceed City Threshold?	No	No	No	No	N/A	No
SDAPCD Significance Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Exceed SDAPCD Threshold?	No	No	No	No	No	No

Note: N/A = non-applicable

It should also be noted that all construction projects in the SDAB would be required to comply with SDAPCD Rule 55 for controlling fugitive dust. Although the emissions reductions are not shown in Table 8 for the purpose of presenting a conservative analysis, the incorporation of Rule 55 into the proposed Project would be mandatory and would reduce the Project's total PM_{10} and $PM_{2.5}$ construction emissions.

Violation of Air Quality Standards – Operation

Implementation of the proposed Project would result in long-term regional emissions of criteria air pollutants and ozone precursors associated with area sources, such as natural gas consumption, landscaping, applications of architectural coatings, and consumer products, in addition to operational mobile emissions. According to the traffic impact analysis prepared for the Project, development of the 14 single-family residential dwelling units would result in 140 additional vehicle trips per day.

Operations emissions associated with the proposed Project were modeled using CalEEMod, where model defaults were adjusted to reflect Project-specific data, where available, including the size and type of the proposed land use. Modeled operations emissions are presented in **Table 9**.

As shown in Table 9, implementation of the proposed Project would result in long-term regional emissions of criteria air pollutants and ozone precursors that are below the City's CEQA significance thresholds. Therefore, the project's operational emissions would not result in or substantially contribute to emissions concentrations that exceed the NAAQS and CAAQS and no mitigation would be required. Additionally, the Project's operational emissions would also not exceed the SDAPCD's SLTs.

TABLE 9
PROPOSED PROJECT OPERATIONAL EMISSIONS

	Estimated Emissions (lbs/day)					
Emissions Source	**VOC**	**NO_X**	**CO**	**SO_2**	**PM_{10}**	**$PM_{2.5}$**
Area Sources	0.82	0.01	1.18	0.00	0.03	0.03
Energy Sources	0.01	0.10	0.04	0.00	0.01	0.01
Mobile Sources	0.71	1.66	7.40	0.01	0.91	0.26
Total Emissions	**1.54**	**1.77**	**8.62**	**0.01**	**0.95**	**0.30**
City CEQA Significance Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Exceed City Threshold?	No	No	No	No	N/A	No
SDAPCD Significance Threshold	*75*	*250*	*550*	*250*	*100*	*55*
Exceed SDAPCD Threshold?	No	No	No	No	No	No

Exposure of Sensitive Receptors to Pollutant Concentrations

Construction and operation of the proposed Project could potentially expose sensitive receptors located within and adjacent to the project site to CO hotspots and TACs from onsite sources during project construction as well as TACs from operational sources. Separate discussions are provided below analyzing the potential for sensitive receptors to be exposed to these pollutant sources.

CO Hotspots

CO concentration is a direct function of motor vehicle activity (e.g., idling time and traffic flow conditions), particularly during peak commute hours and certain meteorological conditions. Under specific meteorological conditions (e.g., stable conditions that result in poor dispersion), CO concentrations may reach unhealthy levels with respect to local sensitive land uses such as residential areas, schools, and hospitals.

An appropriate qualitative screening procedure is provided in the procedures and guidelines contained in Transportation Project-Level Carbon Monoxide Protocol (the Protocol) to determine whether a project poses the potential for a CO hotspot (UCD ITS, 1997). This is the protocol recommended by the California Department of Transportation (Caltrans) for project-level air quality analysis needed for federal conformity determinations, and is the standard method for project-level CO analysis used by Caltrans. A CO hotspot is an area of localized CO pollution that is caused by severe vehicle congestion on major roadways, typically near intersections. According to the Protocol, projects may worsen air quality if they increase the percentage of vehicles in cold start modes by two percent or more; significantly increase traffic volumes (by five percent or more) over existing volumes; or worsen traffic flow, defined for signalized intersections as increasing average delay at intersections operating at Level of Service (LOS) E or F, or causing an intersection that would operate at LOS D or better without the project to operate at LOS E or F.

Of the six study intersections analyzed in the traffic impact analysis for the proposed Project, one is signalized, one is a one-way stop controlled (OWSC) intersection, and the remaining are all all-way stop controlled (AWSC) intersections. The proposed Project's traffic impact analysis indicates that the one signalized intersection (N. Broadway and Vista Avenue) would continue to

operate at an acceptable LOS with the addition of the proposed Project. In addition, all the other intersections would continue to operate at their existing LOS levels with the addition of the Project. As such, because the addition of 140 average daily vehicle trips by the Project would not adversely affect the existing traffic conditions in the Project area, impacts associated with CO hotspots would be less than significant and no mitigation is required.

Localized Construction Air Quality Impacts – TACs

Project construction would result in short-term emissions of diesel PM, which is a TAC. The exhaust of off-road heavy-duty diesel equipment would emit diesel PM during site preparation (e.g., excavation, grading, and clearing); paving; installation of utilities, materials transport and handling; building construction; and other miscellaneous activities. SDAPCD has not adopted a methodology for analyzing such impacts and has not recommended that health risk assessments be completed for construction-related emissions of TACs.

The dose to which receptors are exposed is the primary factor used to determine health risk (i.e., the potential exposure to TACs to be compared to applicable standards). Dose is a function of the concentration of a substance or substances in the environment and the duration of exposure to the substance. Dose is positively correlated with time, meaning that a longer exposure period would result in a higher exposure level for the maximally exposed individual. Thus, the risks estimated for a maximally exposed individual are higher if a fixed exposure occurs over a longer period of time. According to the Office of Environmental Health Hazard Assessment (OEHHA), health risk assessments, which determine the exposure of sensitive receptors to TAC emissions, should be based on a 70-year exposure period; however, such assessments should be limited to the period or duration of activities associated with the proposed Project.

The construction period for the proposed Project would be much less than the 70-year period used for risk determination. Because off-road heavy-duty diesel equipment would be used only temporarily, project construction would not expose sensitive receptors to substantial emissions of TACs.

Project Operations – TACs

As the proposed Project would involve the development of single-family residential uses at the Project site, it would not introduce any new stationary sources of TACs, such as diesel-fueled backup generators that are more commonly associated with large commercial and industrial uses. Therefore, the Project would not expose surrounding sensitive receptors to TAC emissions.

CARB's Handbook includes the recommendation to avoid the siting of new sensitive land uses (e.g., residences, schools) within 500 feet of freeways, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day. The nearest freeway to the project site is, which is the Interstate 15, is located approximately one mile west of the Project site. In addition, based on the traffic impact analysis prepared for the proposed Project, all of the roadways adjacent to the Project site would have average daily traffic (ADT) volumes that are substantially less than CARB's specified criteria. Therefore, the location of the proposed sensitive uses would be in concurrence with CARB recommendations. Based on the criteria in the CARB guidance

document, it can be ascertained that the proposed Project would not have the potential to expose sensitive receptors to TACs from mobile sources to an extent that health risks could result.

Objectionable Odors

Land uses that are associated with odor complaints typically include agricultural uses, wastewater treatment plants, food processing plants, chemical plants, composting, refineries, landfills, dairies, and fiberglass molding. As a residential development, the proposed Project does not include any of these uses that have been identified as being associated with odors. Thus, the proposed Project is not expected to result in objectionable odors for future residents or for the neighboring uses.

During construction of the proposed Project, exhaust from equipment and activities associated with the application of architectural coatings and other interior and exterior finishes may produce discernible odors typical of most construction sites. Such odors would be a temporary source of nuisance to adjacent uses, but would not affect a substantial number of people. As odors associated with Project construction would be temporary and intermittent in nature, the odors would not be considered to be a significant environmental impact. Therefore, impacts associated with objectionable odors would be less than significant.

Cumulative Air Quality Impacts

A cumulative impact arises when two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts. Cumulative impacts can result from individually minor but collectively significant impacts, meaning that the project's incremental effects must be viewed in connection with the effects of past, current, and probable future projects.

Due to the non-attainment of federal and State ozone standards and the State PM_{10} and $PM_{2.5}$ standards in the SDAB, the generation of daily construction and operational emissions associated with cumulative development could result in a cumulative significant impact associated with the cumulative net increase of any criteria pollutant for which the region is in non-attainment. However, the approach for assessing the Project's contribution to cumulative impacts is based on the RAQS forecasts of attainment of ambient air quality standards in accordance with the requirements of the federal and State Clean Air Acts. As discussed previously, the proposed Project would provide housing to meet the projected population growth in the County and the San Diego region anticipated in SANDAG's 2050 Regional Growth Forecast. As such, the housing and population growth introduced by implementation of the proposed Project would be consistent with SANDAG forecasts as well as future updated RAQS forecasts. In addition, as discussed above and shown in Tables 8 and 9, the daily emissions generated during construction and operation by the Project would not exceed the City's CEQA significance thresholds that have been established as quality of life standards. Therefore, the Project's contribution to cumulative air quality impacts would be less than significant. Additionally, the Project's construction and operational emissions would also not exceed the County's SLTs.

Project-Generated GHG Emissions

The proposed Project would generate GHG emissions from a variety of sources. First, GHG emissions would be generated during construction of the Project. Once fully operational, the project's operations would generate GHG emissions from both area sources and mobile sources. Indirect source emissions associated with the proposed residential uses include electrical consumption, water and wastewater usage (transportation), and solid waste disposal. Mobile (direct) sources of air pollutants associated with the proposed Project would consist of motor vehicles trips generated by residents and visitors.

The proposed Project consists of the construction of 14 single-family residential dwelling units at the approximately 4.2-acre Project site. Based on a review of Appendix B of the *City of Escondido Greenhouse Gas Emissions Adopted CEQA Thresholds and Screening Tables* document, it is determined that it would generally require up to 86 single-family residential dwelling units in order to generate 2,500 MT CO_2e per year. Given that the proposed Project would only consist of the development of 14 single-family residential units, it is concluded that the GHG emissions generated by the Project would not exceed 2,500 MT CO_2e per year. Thus, the GHG emissions attributable to the Project would be less than significant.

Nonetheless, pursuant to full disclosure under CEQA, the estimated construction and operational GHG emissions associated with the Project have been quantified as part of this analysis to further confirm that the total annual emissions of the Project would not exceed 2,500 MT CO_2e per year. The Project's construction GHG emissions were estimated using the same assumptions and methodology as the air quality analysis and are shown in **Table 10**. As shown in Table 10, the total GHG emissions that are anticipated from construction of the proposed Project would be approximately 154 MT CO_2e.

During operations, area and indirect emissions sources associated with the proposed Project would primarily result from electricity and natural gas consumption, water and wastewater transport (the energy used to pump water and wastewater to and from the Project site, respectively), and solid waste generation. GHG emissions from electricity consumed onsite by the proposed Project would be generated offsite by fuel combustion at the electricity provider. GHG emissions from water and wastewater transport are also indirect emissions resulting from the energy required to transport water from its source, and the energy required to treat wastewater and transport it to its treated discharge point. In addition, the residential uses at the Project site would also generate mobile source emissions from motor vehicle trips generated by residents and visitors. The various operational GHG emissions associated with the proposed project are shown in Table 10. Overall, the proposed Project's total annual GHG emissions resulting from construction and operational activities would be 415 MT of CO_2e per year.

TABLE 10
ESTIMATED PROJECT CONSTRUCTION AND OPERATIONS-RELATED GHG EMISSIONS

Emission Source	Proposed Project Emissions CO_2e (MT/yr)
Construction	
Total	154
Operations	
Mobile Sources	182
Electricity Consumption	33
Natural Gas Consumption	21
Water Consumption	7
Solid Waste	7
Area Source	11
Subtotal	261
TOTAL ANNUAL PROJECT EMISSIONS	**415**[a]
City Screening Threshold	900
Significant Impact?	No

NOTES: CO_2e= carbon dioxide equivalent; MT/yr = metric tons per year; see Appendix A for CalEEMod model outputs.

[a] The total Project annual GHG emissions include both construction and operational emissions. It should be noted that construction emissions would only be temporary and would only occur in 2014 when the project is being constructed. After 2014, only the project's operational GHG emissions would be generated.

As shown in Table 10, the Project's construction and operational GHG emissions, which would occur together in 2014 only, would not exceed 2,500 MT of CO_2e per year. Thus, the proposed Project would not result in the generation of substantial levels of GHG emissions and would not result in emissions that would adversely affect the statewide attainment of GHG emission reduction goals of AB 32. This impact would be less than significant.

Furthermore, with respect to the County's interim approach to addressing climate change in CEQA documents, the County of San Diego Department of Planning and Land Use follows the recommendations by the South Coast Air Quality Management District (SCAQMD) in their interim guidance for evaluating GHGs under CEQA, where it is recommended that a project's construction emissions be amortized over 30 years and added to the project's operational emissions. Based on the total construction emissions shown in Table 10 (154 MT of CO_2e), the Project's construction-related GHG emissions would equal to approximately 5 MT of CO_2e per year after amortization over 30 years per County of San Diego DPLU methodology. When this annual amount of 5 MT of CO_2e is added to the Project's annual operational emissions of 261 MT of CO_2e, an annual total of 266 MT of CO_2e would result, which would not exceed the County's interim screening threshold of 900 MT of CO_2e per year. Thus, based on the County's interim approach to addressing climate change in CEQA documents, the proposed Project would not result in the generation of substantial levels of GHG emissions and would not result in emissions that would adversely affect the statewide attainment of GHG emission reduction goals of AB 32.

Consistency with GHG Emissions Reduction Plans or Policies

As discussed above, the GHG emissions generated by the proposed Project would not exceed the City's 2,500 MT of CO_2e per year screening threshold. As the 2,500 MT of CO_2e per year threshold has been developed as part of the E-CAP development review process, the Project would not interfere with implementation of the E-CAP. Additionally, the Project's annual GHG emissions would also not exceed the County's 900 MT of CO_2e per year screening threshold. Consequently, the implementation of the proposed Project would not hinder the ability of the State to achieve AB 32's goal of achieving 1990 levels of GHG emissions by 2020. In addition, once the energy and water consumption reductions from compliance with the mandatory requirements of CALGreen are accounted for, the GHG emissions associated with the proposed Project would be even lower.

Consistency with CARB Scoping Plan

Out of the Recommended Actions contained in CARB's Scoping Plan (see Table 4), the actions that are most applicable to the Project would be Actions E-1 and GB-1. CARB Scoping Plan Action E-1, together with Action GB-1 (Green Building), aims to reduce electricity demand by increased efficiency of Utility Energy Programs and adoption of more stringent building and appliance standards. The proposed Project would be required to include all mandatory green building measures for new residential developments under the CALGreen Code. Therefore, the proposed Project would be consistent with the Scoping Plan measures through incorporation of stricter building and appliance standards.

Consistency with City of Escondido Climate Action Plan

As discussed previously, the E-CAP serves as an implementation tool of the City General Plan to guide development in the City to meet the objectives of conserving resources and reducing GHG emissions. Following the State's adopted AB 32 GHG reduction target, the E-CAP sets a goal to reduce its GHG emissions back to 1990 levels by the year 2020. This target was calculated as a 15 percent decrease from 2005 levels, as recommended in the AB 32 Scoping Plan. In order to reduce its GHG emission emissions by 15 percent from 2005 levels by 2020, the City estimated the community-wide emissions for the year 2020, based on population and housing growth projections associated with the assumptions used in the City's General Plan Update, which was completed in 2012. Through this forecast, the City was able to determine the amount of GHG emissions that would need to be reduced in order for the City to reach its reduction target by 2020. Although the Project site would be annexed by the City prior to development, the City anticipates that requests for annexing unincorporated properties in the surrounding areas of the City will be considered during the planning horizon of the General Plan. As acknowledged in the Land Use and Community Form Chapter of the City General Plan, approximately half of the City's Planning Area involves territory that is located outside the City's municipal boundaries and governed by the County, and the transition of these properties into the City would require annexation through the Local Agency Formation Commission (LAFCO) and property owner involvement. The City's annexation policies are intended to ensure that the City's boundary expansions occur in a manner that are consistent with the General Plan's vision and meet Escondido's long term goals. Thus, because future annexation of surrounding properties by the City have been anticipated in the City's General Plan Land Use and Community Form Element,

the GHG emissions associated with the Project would not be in conflict with the City's future emissions forecast. As such, implementation of the proposed Project would be consistent with the E-CAP. Additionally, because the GHG emissions generated by the proposed Project would not exceed the 2,500 MT of CO_2e per year threshold established in the E-CAP, the Project would not hinder the City's ability to reduce its GHG emissions in accordance with AB 32 requirements. Therefore, implementation of the proposed Project would not adversely affect the statewide attainment of GHG emission reduction goals of AB 32.

Consistency with County of San Diego Climate Action Plan

Following the State's adopted AB 32 GHG reduction target, the County has set a goal to reduce its GHG emissions back to 1990 levels by the year 2020. This target was calculated as a 15 percent decrease from 2005 levels, as recommended in the AB 32 Scoping Plan. To achieve this goal, the County's CAP established GHG emissions-reducing measures that would be implemented by various responsible parties (e.g., local organizations, County staff, residents, and businesses, etc.). The GHG reduction measures were divided into the following sectors: Water, Energy, Land Use and Transportation, Agriculture, and Landscaping and Open Space. Out of the GHG reduction measures contained in the County's CAP, the ones that are most applicable to the Project would be Measures W-1 (Water Conservation) and E1 (Energy-Efficient New Development). The proposed Project would be required to include all mandatory green building measures for new residential developments under the CALGreen Code, which in turn would reduce water and energy consumption associated with the new residential units. Therefore, the proposed Project would be consistent with the County's CAP measures through incorporation of stricter building and appliance standards.

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APPENDIX A

Air Quality and Greenhouse Gas Emissions Calculations

Pickering Residential Project

San Diego County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	14.00	Dwelling Unit	4.20	25,200.00	40

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2014
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 4.2-acre project site.

Construction Phase - Anticipated constructon schedule for project.

Off-road Equipment -

Off-road Equipment - Anticipated equipment for building construction.

Off-road Equipment - Anticipated constructon equipment for demolition phase.

Off-road Equipment - Anticipated equipment for site grading.

Off-road Equipment -

Off-road Equipment - Anticipated equipment for site preparation.

Trips and VMT - No truck trips associated with soil import or export are anticipated during project construction.

Demolition - Anticipated 600 tons of debris total for demolition phase.

Grading - 4 acres to be disturbed daily at project site; Total grading quantity of 28,600 cy anticipated.

Vehicle Trips - Trip rates for project.

Woodstoves - No woodstoves for project; only natural gas fireplaces anticipated for project.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	106.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	PhaseEndDate	11/10/2014	10/15/2014
tblConstructionPhase	PhaseStartDate	10/16/2014	9/22/2014
tblConstructionPhase	PhaseStartDate	9/20/2014	9/22/2014
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	7.70	14.00
tblFireplaces	NumberNoFireplace	1.40	0.00
tblFireplaces	NumberWood	4.90	0.00
tblGrading	MaterialExported	0.00	28,600.00
tblLandUse	LotAcreage	4.55	4.20
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	3.00
tblTripsAndVMT	HaulingTripNumber	3,575.00	0.00
tblVehicleTrips	ST_TR	10.08	10.53
tblVehicleTrips	SU_TR	8.77	9.16
tblVehicleTrips	WD_TR	9.57	10.00
tblWoodstoves	NumberCatalytic	0.70	0.00
tblWoodstoves	NumberNoncatalytic	0.70	0.00
tblWoodstoves	WoodstoveDayYear	82.00	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

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					
2014	46.3311	49.3765	36.8264	0.0458	7.1615	2.5420	9.2853	3.4719	2.4073	5.4258	0.0000	4,667.4792	4,667.4792	0.8785	0.0000	4,685.9269
Total	**46.3311**	**49.3765**	**36.8264**	**0.0458**	**7.1615**	**2.5420**	**9.2853**	**3.4719**	**2.4073**	**5.4258**	**0.0000**	**4,667.4792**	**4,667.4792**	**0.8785**	**0.0000**	**4,685.9269**

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					
2014	46.3311	49.3765	36.8264	0.0458	2.8581	2.5420	4.9819	1.3713	2.4073	3.3252	0.0000	4,667.4792	4,667.4792	0.8785	0.0000	4,685.9269
Total	**46.3311**	**49.3765**	**36.8264**	**0.0458**	**2.8581**	**2.5420**	**4.9819**	**1.3713**	**2.4073**	**3.3252**	**0.0000**	**4,667.4792**	**4,667.4792**	**0.8785**	**0.0000**	**4,685.9269**

	ROG	NOx	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**	**60.09**	**0.00**	**46.35**	**60.50**	**0.00**	**38.71**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.8211	0.0140	1.1847	6.0000e-005		0.0251	0.0251		0.0249	0.0249	0.0000	298.5503	298.5503	7.9000e-003	5.4400e-003	300.4012
Energy	0.0114	0.0978	0.0416	6.2000e-004		7.9000e-003	7.9000e-003		7.9000e-003	7.9000e-003		124.7861	124.7861	2.3900e-003	2.2900e-003	125.5455
Mobile	0.6585	1.5660	7.0914	0.0132	0.8904	0.0233	0.9137	0.2377	0.0214	0.2590		1,214.0213	1,214.0213	0.0561		1,215.1991
Total	**1.4909**	**1.6778**	**8.3177**	**0.0139**	**0.8904**	**0.0562**	**0.9466**	**0.2377**	**0.0541**	**0.2918**	**0.0000**	**1,637.3577**	**1,637.3577**	**0.0664**	**7.7300e-003**	**1,641.1458**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.8211	0.0140	1.1847	6.0000e-005		0.0251	0.0251		0.0249	0.0249	0.0000	298.5503	298.5503	7.9000e-003	5.4400e-003	300.4012
Energy	0.0114	0.0978	0.0416	6.2000e-004		7.9000e-003	7.9000e-003		7.9000e-003	7.9000e-003		124.7861	124.7861	2.3900e-003	2.2900e-003	125.5455
Mobile	0.6585	1.5660	7.0914	0.0132	0.8904	0.0233	0.9137	0.2377	0.0214	0.2590		1,214.0213	1,214.0213	0.0561		1,215.1991
Total	**1.4909**	**1.6778**	**8.3177**	**0.0139**	**0.8904**	**0.0562**	**0.9466**	**0.2377**	**0.0541**	**0.2918**	**0.0000**	**1,637.3577**	**1,637.3577**	**0.0664**	**7.7300e-003**	**1,641.1458**

	ROG	NOx	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	4/1/2014	4/7/2014	5	5	
2	Site Preparation	Site Preparation	4/8/2014	4/14/2014	5	5	
3	Grading	Grading	4/15/2014	4/24/2014	5	8	
4	Building Construction	Building Construction	4/25/2014	9/19/2014	5	106	
5	Paving	Paving	9/22/2014	10/15/2014	5	18	
6	Architectural Coating	Architectural Coating	9/22/2014	10/15/2014	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 51,030; Residential Outdoor: 17,010; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	2	8.00	81	0.73
Demolition	Excavators	1	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Excavators	0	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	0	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20

Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Paving Equipment	2	6.00	130	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	59.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	5.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2014

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					2.5999	0.0000	2.5999	0.3937	0.0000	0.3937			0.0000			0.0000
Off-Road	4.5304	44.8116	33.2702	0.0356		2.4597	2.4597		2.3316	2.3316		3,634.3058	3,634.3058	0.8634		3,652.4381
Total	**4.5304**	**44.8116**	**33.2702**	**0.0356**	**2.5999**	**2.4597**	**5.0596**	**0.3937**	**2.3316**	**2.7254**		**3,634.3058**	**3,634.3058**	**0.8634**		**3,652.4381**

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	0.3023	4.4997	2.8423	8.8700e-003	0.2056	0.0814	0.2870	0.0563	0.0749	0.1312		912.1101	912.1101	8.3300e-003		912.2849
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	0.0549	0.0652	0.7139	1.3500e-003	0.1068	9.0000e-004	0.1077	0.0283	8.2000e-004	0.0291		121.0634	121.0634	6.6900e-003		121.2038
Total	**0.3572**	**4.5648**	**3.5562**	**0.0102**	**0.3124**	**0.0823**	**0.3947**	**0.0846**	**0.0757**	**0.1603**		**1,033.1735**	**1,033.1735**	**0.0150**		**1,033.4888**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0140	0.0000	1.0140	0.1536	0.0000	0.1536			0.0000			0.0000
Off-Road	4.5304	44.8116	33.2702	0.0356		2.4597	2.4597		2.3316	2.3316	0.0000	3,634.3057	3,634.3057	0.8634		3,652.4381

Total	**4.5304**	**44.8116**	**33.2702**	**0.0356**	**1.0140**	**2.4597**	**3.4736**	**0.1536**	**2.3316**	**2.4852**	**0.0000**	**3,634.3057**	**3,634.3057**	**0.8634**		**3,652.4381**

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	0.3023	4.4997	2.8423	8.8700e-003	0.2056	0.0814	0.2870	0.0563	0.0749	0.1312		912.1101	912.1101	8.3300e-003		912.2849
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	0.0549	0.0652	0.7139	1.3500e-003	0.1068	9.0000e-004	0.1077	0.0283	8.2000e-004	0.0291		121.0634	121.0634	6.6900e-003		121.2038
Total	**0.3572**	**4.5648**	**3.5562**	**0.0102**	**0.3124**	**0.0823**	**0.3947**	**0.0846**	**0.0757**	**0.1603**		**1,033.1735**	**1,033.1735**	**0.0150**		**1,033.4888**

3.3 Site Preparation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0221	0.0000	6.0221	3.3102	0.0000	3.3102			0.0000			0.0000
Off-Road	2.3778	25.0943	18.3580	0.0182		1.5084	1.5084		1.3878	1.3878		1,937.0722	1,937.0722	0.5724		1,949.0932
Total	**2.3778**	**25.0943**	**18.3580**	**0.0182**	**6.0221**	**1.5084**	**7.5305**	**3.3102**	**1.3878**	**4.6980**		**1,937.0722**	**1,937.0722**	**0.5724**		**1,949.0932**

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	0.0423	0.0501	0.5491	1.0400e-003	0.0822	6.9000e-004	0.0828	0.0218	6.3000e-004	0.0224		93.1257	93.1257	5.1500e-003		93.2337
Total	**0.0423**	**0.0501**	**0.5491**	**1.0400e-003**	**0.0822**	**6.9000e-004**	**0.0828**	**0.0218**	**6.3000e-004**	**0.0224**		**93.1257**	**93.1257**	**5.1500e-003**		**93.2337**

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					2.3486	0.0000	2.3486	1.2910	0.0000	1.2910			0.0000			0.0000
Off-Road	2.3778	25.0943	18.3580	0.0182		1.5084	1.5084		1.3878	1.3878	0.0000	1,937.0722	1,937.0722	0.5724		1,949.0932
Total	**2.3778**	**25.0943**	**18.3580**	**0.0182**	**2.3486**	**1.5084**	**3.8570**	**1.2910**	**1.3878**	**2.6787**	**0.0000**	**1,937.0722**	**1,937.0722**	**0.5724**		**1,949.0932**

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	0.0423	0.0501	0.5491	1.0400e-003	0.0822	6.9000e-004	0.0828	0.0218	6.3000e-004	0.0224		93.1257	93.1257	5.1500e-003		93.2337
Total	**0.0423**	**0.0501**	**0.5491**	**1.0400e-003**	**0.0822**	**6.9000e-004**	**0.0828**	**0.0218**	**6.3000e-004**	**0.0224**		**93.1257**	**93.1257**	**5.1500e-003**		**93.2337**

3.4 Grading - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0547	0.0000	7.0547	3.4436	0.0000	3.4436			0.0000			0.0000
Off-Road	3.4434	36.0434	23.3290	0.0245		2.1229	2.1229		1.9531	1.9531		2,601.2043	2,601.2043	0.7687		2,617.3466
Total	**3.4434**	**36.0434**	**23.3290**	**0.0245**	**7.0547**	**2.1229**	**9.1776**	**3.4436**	**1.9531**	**5.3966**		**2,601.2043**	**2,601.2043**	**0.7687**		**2,617.3466**

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	0.0549	0.0652	0.7139	1.3500e-003	0.1068	9.0000e-004	0.1077	0.0283	8.2000e-004	0.0291		121.0634	121.0634	6.6900e-003		121.2038
Total	**0.0549**	**0.0652**	**0.7139**	**1.3500e-003**	**0.1068**	**9.0000e-004**	**0.1077**	**0.0283**	**8.2000e-004**	**0.0291**		**121.0634**	**121.0634**	**6.6900e-003**		**121.2038**

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					2.7513	0.0000	2.7513	1.3430	0.0000	1.3430			0.0000			0.0000
Off-Road	3.4434	36.0434	23.3290	0.0245		2.1229	2.1229		1.9531	1.9531	0.0000	2,601.2043	2,601.2043	0.7687		2,617.3466
Total	**3.4434**	**36.0434**	**23.3290**	**0.0245**	**2.7513**	**2.1229**	**4.8742**	**1.3430**	**1.9531**	**3.2961**	**0.0000**	**2,601.2043**	**2,601.2043**	**0.7687**		**2,617.3466**

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	0.0549	0.0652	0.7139	1.3500e-003	0.1068	9.0000e-004	0.1077	0.0283	8.2000e-004	0.0291		121.0634	121.0634	6.6900e-003		121.2038
Total	**0.0549**	**0.0652**	**0.7139**	**1.3500e-003**	**0.1068**	**9.0000e-004**	**0.1077**	**0.0283**	**8.2000e-004**	**0.0291**		**121.0634**	**121.0634**	**6.6900e-003**		**121.2038**

3.5 Building Construction - 2014

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	3.1997	23.3036	16.1724	0.0219		1.8636	1.8636		1.7621	1.7621		2,185.5930	2,185.5930	0.5341		2,196.8098
Total	**3.1997**	**23.3036**	**16.1724**	**0.0219**		**1.8636**	**1.8636**		**1.7621**	**1.7621**		**2,185.5930**	**2,185.5930**	**0.5341**		**2,196.8098**

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	0.0137	0.1274	0.1342	2.4000e-004	6.6400e-003	2.4600e-003	9.1000e-003	1.8900e-003	2.2600e-003	4.1600e-003		24.4637	24.4637	2.5000e-004		24.4689
Worker	0.0211	0.0251	0.2746	5.2000e-004	0.0411	3.4000e-004	0.0414	0.0109	3.1000e-004	0.0112		46.5628	46.5628	2.5700e-003		46.6169
Total	**0.0348**	**0.1525**	**0.4088**	**7.6000e-004**	**0.0477**	**2.8000e-003**	**0.0505**	**0.0128**	**2.5700e-003**	**0.0154**		**71.0265**	**71.0265**	**2.8200e-003**		**71.0857**

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	3.1997	23.3036	16.1724	0.0219		1.8636	1.8636		1.7621	1.7621	0.0000	2,185.5930	2,185.5930	0.5341		2,196.8098

Total	**3.1997**	**23.3036**	**16.1724**	**0.0219**		**1.8636**	**1.8636**		**1.7621**	**1.7621**	**0.0000**	**2,185.5930**	**2,185.5930**	**0.5341**		**2,196.8098**

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	0.0137	0.1274	0.1342	2.4000e-004	6.6400e-003	2.4600e-003	9.1000e-003	1.8900e-003	2.2600e-003	4.1600e-003		24.4637	24.4637	2.5000e-004		24.4689
Worker	0.0211	0.0251	0.2746	5.2000e-004	0.0411	3.4000e-004	0.0414	0.0109	3.1000e-004	0.0112		46.5628	46.5628	2.5700e-003		46.6169
Total	**0.0348**	**0.1525**	**0.4088**	**7.6000e-004**	**0.0477**	**2.8000e-003**	**0.0505**	**0.0128**	**2.5700e-003**	**0.0154**		**71.0265**	**71.0265**	**2.8200e-003**		**71.0857**

3.6 Paving - 2014

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	1.9954	20.9999	12.6669	0.0186		1.2575	1.2575		1.1588	1.1588		1,940.2197	1,940.2197	0.5590		1,951.9579
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.9954**	**20.9999**	**12.6669**	**0.0186**		**1.2575**	**1.2575**		**1.1588**	**1.1588**		**1,940.2197**	**1,940.2197**	**0.5590**		**1,951.9579**

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	0.0845	0.1003	1.0983	2.0800e-003	0.1643	1.3800e-003	0.1657	0.0436	1.2600e-003	0.0448		186.2513	186.2513	0.0103		186.4674
Total	**0.0845**	**0.1003**	**1.0983**	**2.0800e-003**	**0.1643**	**1.3800e-003**	**0.1657**	**0.0436**	**1.2600e-003**	**0.0448**		**186.2513**	**186.2513**	**0.0103**		**186.4674**

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	1.9954	20.9999	12.6669	0.0186		1.2575	1.2575		1.1588	1.1588	0.0000	1,940.2197	1,940.2197	0.5590		1,951.9579
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.9954**	**20.9999**	**12.6669**	**0.0186**		**1.2575**	**1.2575**		**1.1588**	**1.1588**	**0.0000**	**1,940.2197**	**1,940.2197**	**0.5590**		**1,951.9579**

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	0.0845	0.1003	1.0983	2.0800e-003	0.1643	1.3800e-003	0.1657	0.0436	1.2600e-003	0.0448		186.2513	186.2513	0.0103		186.4674
Total	**0.0845**	**0.1003**	**1.0983**	**2.0800e-003**	**0.1643**	**1.3800e-003**	**0.1657**	**0.0436**	**1.2600e-003**	**0.0448**		**186.2513**	**186.2513**	**0.0103**		**186.4674**

3.7 Architectural Coating - 2014

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	43.8008					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4462	2.7773	1.9216	2.9700e-003		0.2452	0.2452		0.2452	0.2452		281.4481	281.4481	0.0401		282.2905
Total	**44.2470**	**2.7773**	**1.9216**	**2.9700e-003**		**0.2452**	**0.2452**		**0.2452**	**0.2452**		**281.4481**	**281.4481**	**0.0401**		**282.2905**

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	4.2300e-003	5.0100e-003	0.0549	1.0000e-004	8.2100e-003	7.0000e-005	8.2800e-003	2.1800e-003	6.0000e-005	2.2400e-003		9.3126	9.3126	5.1000e-004		9.3234
Total	**4.2300e-003**	**5.0100e-003**	**0.0549**	**1.0000e-004**	**8.2100e-003**	**7.0000e-005**	**8.2800e-003**	**2.1800e-003**	**6.0000e-005**	**2.2400e-003**		**9.3126**	**9.3126**	**5.1000e-004**		**9.3234**

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	43.8008					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4462	2.7773	1.9216	2.9700e-003		0.2452	0.2452		0.2452	0.2452	0.0000	281.4481	281.4481	0.0401		282.2905
Total	**44.2470**	**2.7773**	**1.9216**	**2.9700e-003**		**0.2452**	**0.2452**		**0.2452**	**0.2452**	**0.0000**	**281.4481**	**281.4481**	**0.0401**		**282.2905**

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	4.2300e-003	5.0100e-003	0.0549	1.0000e-004	8.2100e-003	7.0000e-005	8.2800e-003	2.1800e-003	6.0000e-005	2.2400e-003		9.3126	9.3126	5.1000e-004		9.3234
Total	**4.2300e-003**	**5.0100e-003**	**0.0549**	**1.0000e-004**	**8.2100e-003**	**7.0000e-005**	**8.2800e-003**	**2.1800e-003**	**6.0000e-005**	**2.2400e-003**		**9.3126**	**9.3126**	**5.1000e-004**		**9.3234**

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	0.6585	1.5660	7.0914	0.0132	0.8904	0.0233	0.9137	0.2377	0.0214	0.2590		1,214.0213	1,214.0213	0.0561		1,215.1991
Unmitigated	0.6585	1.5660	7.0914	0.0132	0.8904	0.0233	0.9137	0.2377	0.0214	0.2590		1,214.0213	1,214.0213	0.0561		1,215.1991

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	140.00	147.42	128.24	397,972	397,972
Total	140.00	147.42	128.24	397,972	397,972

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	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.509376	0.073655	0.192210	0.135105	0.037177	0.005354	0.012300	0.020284	0.001820	0.002092	0.006537	0.000620	0.003469

5.0 Energy Detail

4.4 Fleet Mix

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	0.0114	0.0978	0.0416	6.2000e-004		7.9000e-003	7.9000e-003		7.9000e-003	7.9000e-003		124.7861	124.7861	2.3900e-003	2.2900e-003	125.5455
NaturalGas Unmitigated	0.0114	0.0978	0.0416	6.2000e-004		7.9000e-003	7.9000e-003		7.9000e-003	7.9000e-003		124.7861	124.7861	2.3900e-003	2.2900e-003	125.5455

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	1060.68	0.0114	0.0978	0.0416	6.2000e-004		7.9000e-003	7.9000e-003		7.9000e-003	7.9000e-003		124.7861	124.7861	2.3900e-003	2.2900e-003	125.5455
Total		**0.0114**	**0.0978**	**0.0416**	**6.2000e-004**		**7.9000e-003**	**7.9000e-003**		**7.9000e-003**	**7.9000e-003**		**124.7861**	**124.7861**	**2.3900e-003**	**2.2900e-003**	**125.5455**

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	1.06068	0.0114	0.0978	0.0416	6.2000e-004		7.9000e-003	7.9000e-003		7.9000e-003	7.9000e-003		124.7861	124.7861	2.3900e-003	2.2900e-003	125.5455
Total		**0.0114**	**0.0978**	**0.0416**	**6.2000e-004**		**7.9000e-003**	**7.9000e-003**		**7.9000e-003**	**7.9000e-003**		**124.7861**	**124.7861**	**2.3900e-003**	**2.2900e-003**	**125.5455**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.8211	0.0140	1.1847	6.0000e-005		0.0251	0.0251		0.0249	0.0249	0.0000	298.5503	298.5503	7.9000e-003	5.4400e-003	300.4012
Unmitigated	0.8211	0.0140	1.1847	6.0000e-005		0.0251	0.0251		0.0249	0.0249	0.0000	298.5503	298.5503	7.9000e-003	5.4400e-003	300.4012

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					
Consumer Products	0.5393					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0272	0.0000	1.4800e-003	0.0000		0.0188	0.0188		0.0186	0.0186	0.0000	296.4706	296.4706	5.6800e-003	5.4400e-003	298.2749
Landscaping	0.0386	0.0140	1.1832	6.0000e-005		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003		2.0797	2.0797	2.2200e-003		2.1263
Architectural Coating	0.2160					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8211**	**0.0140**	**1.1847**	**6.0000e-005**		**0.0251**	**0.0251**		**0.0249**	**0.0249**	**0.0000**	**298.5503**	**298.5503**	**7.9000e-003**	**5.4400e-003**	**300.4012**

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					
Consumer Products	0.5393					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0272	0.0000	1.4800e-003	0.0000		0.0188	0.0188		0.0186	0.0186	0.0000	296.4706	296.4706	5.6800e-003	5.4400e-003	298.2749
Landscaping	0.0386	0.0140	1.1832	6.0000e-005		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003		2.0797	2.0797	2.2200e-003		2.1263
Architectural Coating	0.2160					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8211**	**0.0140**	**1.1847**	**6.0000e-005**		**0.0251**	**0.0251**		**0.0249**	**0.0249**	**0.0000**	**298.5503**	**298.5503**	**7.9000e-003**	**5.4400e-003**	**300.4012**

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 Vegetation

Pickering Residential Project

San Diego County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	14.00	Dwelling Unit	4.20	25,200.00	40

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2014
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 4.2-acre project site.

Construction Phase - Anticipated constructon schedule for project.

Off-road Equipment -

Off-road Equipment - Anticipated equipment for building construction.

Off-road Equipment - Anticipated constructon equipment for demolition phase.

Off-road Equipment - Anticipated equipment for site grading.

Off-road Equipment -

Off-road Equipment - Anticipated equipment for site preparation.

Trips and VMT - No truck trips associated with soil import or export are anticipated during project construction.

Demolition - Anticipated 600 tons of debris total for demolition phase.

Grading - 4 acres to be disturbed daily at project site; Total grading quantity of 28,600 cy anticipated.

Vehicle Trips - Trip rates for project.

Woodstoves - No woodstoves for project; only natural gas fireplaces anticipated for project.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	106.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	PhaseEndDate	11/10/2014	10/15/2014
tblConstructionPhase	PhaseStartDate	10/16/2014	9/22/2014
tblConstructionPhase	PhaseStartDate	9/20/2014	9/22/2014
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	7.70	14.00
tblFireplaces	NumberNoFireplace	1.40	0.00
tblFireplaces	NumberWood	4.90	0.00
tblGrading	MaterialExported	0.00	28,600.00
tblLandUse	LotAcreage	4.55	4.20
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	3.00
tblTripsAndVMT	HaulingTripNumber	3,575.00	0.00
tblVehicleTrips	ST_TR	10.08	10.53
tblVehicleTrips	SU_TR	8.77	9.16
tblVehicleTrips	WD_TR	9.57	10.00
tblWoodstoves	NumberCatalytic	0.70	0.00
tblWoodstoves	NumberNoncatalytic	0.70	0.00
tblWoodstoves	WoodstoveDayYear	82.00	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

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					
2014	46.3370	49.5301	37.5349	0.0457	7.1615	2.5423	9.2853	3.4719	2.4076	5.4258	0.0000	4,658.0008	4,658.0008	0.8786	0.0000	4,676.4503
Total	**46.3370**	**49.5301**	**37.5349**	**0.0457**	**7.1615**	**2.5423**	**9.2853**	**3.4719**	**2.4076**	**5.4258**	**0.0000**	**4,658.0008**	**4,658.0008**	**0.8786**	**0.0000**	**4,676.4503**

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					
2014	46.3370	49.5301	37.5349	0.0457	2.8581	2.5423	4.9819	1.3713	2.4076	3.3252	0.0000	4,658.0008	4,658.0008	0.8786	0.0000	4,676.4502
Total	**46.3370**	**49.5301**	**37.5349**	**0.0457**	**2.8581**	**2.5423**	**4.9819**	**1.3713**	**2.4076**	**3.3252**	**0.0000**	**4,658.0008**	**4,658.0008**	**0.8786**	**0.0000**	**4,676.4502**

	ROG	NOx	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**	**60.09**	**0.00**	**46.35**	**60.50**	**0.00**	**38.71**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.8211	0.0140	1.1847	6.0000e-005		0.0251	0.0251		0.0249	0.0249	0.0000	298.5503	298.5503	7.9000e-003	5.4400e-003	300.4012
Energy	0.0114	0.0978	0.0416	6.2000e-004		7.9000e-003	7.9000e-003		7.9000e-003	7.9000e-003		124.7861	124.7861	2.3900e-003	2.2900e-003	125.5455
Mobile	0.7065	1.6643	7.4013	0.0125	0.8904	0.0234	0.9138	0.2377	0.0215	0.2592		1,154.4257	1,154.4257	0.0561		1,155.6042
Total	**1.5390**	**1.7761**	**8.6276**	**0.0132**	**0.8904**	**0.0564**	**0.9468**	**0.2377**	**0.0543**	**0.2919**	**0.0000**	**1,577.7621**	**1,577.7621**	**0.0664**	**7.7300e-003**	**1,581.5509**

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	0.8211	0.0140	1.1847	6.0000e-005		0.0251	0.0251		0.0249	0.0249	0.0000	298.5503	298.5503	7.9000e-003	5.4400e-003	300.4012
Energy	0.0114	0.0978	0.0416	6.2000e-004		7.9000e-003	7.9000e-003		7.9000e-003	7.9000e-003		124.7861	124.7861	2.3900e-003	2.2900e-003	125.5455
Mobile	0.7065	1.6643	7.4013	0.0125	0.8904	0.0234	0.9138	0.2377	0.0215	0.2592		1,154.4257	1,154.4257	0.0561		1,155.6042
Total	**1.5390**	**1.7761**	**8.6276**	**0.0132**	**0.8904**	**0.0564**	**0.9468**	**0.2377**	**0.0543**	**0.2919**	**0.0000**	**1,577.7621**	**1,577.7621**	**0.0664**	**7.7300e-003**	**1,581.5509**

	ROG	NOx	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	4/1/2014	4/7/2014	5	5	
2	Site Preparation	Site Preparation	4/8/2014	4/14/2014	5	5	
3	Grading	Grading	4/15/2014	4/24/2014	5	8	
4	Building Construction	Building Construction	4/25/2014	9/19/2014	5	106	
5	Paving	Paving	9/22/2014	10/15/2014	5	18	
6	Architectural Coating	Architectural Coating	9/22/2014	10/15/2014	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 51,030; Residential Outdoor: 17,010; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	2	8.00	81	0.73
Demolition	Excavators	1	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Grading	Excavators	0	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	0	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20

Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Paving Equipment	2	6.00	130	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	59.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	5.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2014

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					2.5999	0.0000	2.5999	0.3937	0.0000	0.3937			0.0000			0.0000
Off-Road	4.5304	44.8116	33.2702	0.0356		2.4597	2.4597		2.3316	2.3316		3,634.3058	3,634.3058	0.8634		3,652.4381
Total	**4.5304**	**44.8116**	**33.2702**	**0.0356**	**2.5999**	**2.4597**	**5.0596**	**0.3937**	**2.3316**	**2.7254**		**3,634.3058**	**3,634.3058**	**0.8634**		**3,652.4381**

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	0.3367	4.6453	3.5654	8.8600e-003	0.2056	0.0817	0.2873	0.0563	0.0752	0.1314		909.9878	909.9878	8.4100e-003		910.1645
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	0.0586	0.0731	0.6993	1.2700e-003	0.1068	9.0000e-004	0.1077	0.0283	8.2000e-004	0.0291		113.7072	113.7072	6.6900e-003		113.8477
Total	**0.3952**	**4.7184**	**4.2647**	**0.0101**	**0.3124**	**0.0826**	**0.3950**	**0.0846**	**0.0760**	**0.1606**		**1,023.6951**	**1,023.6951**	**0.0151**		**1,024.0122**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.0140	0.0000	1.0140	0.1536	0.0000	0.1536			0.0000			0.0000
Off-Road	4.5304	44.8116	33.2702	0.0356		2.4597	2.4597		2.3316	2.3316	0.0000	3,634.3057	3,634.3057	0.8634		3,652.4381

Total	**4.5304**	**44.8116**	**33.2702**	**0.0356**	**1.0140**	**2.4597**	**3.4736**	**0.1536**	**2.3316**	**2.4852**	**0.0000**	**3,634.3057**	**3,634.3057**	**0.8634**		**3,652.4381**

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	0.3367	4.6453	3.5654	8.8600e-003	0.2056	0.0817	0.2873	0.0563	0.0752	0.1314		909.9878	909.9878	8.4100e-003		910.1645
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	0.0586	0.0731	0.6993	1.2700e-003	0.1068	9.0000e-004	0.1077	0.0283	8.2000e-004	0.0291		113.7072	113.7072	6.6900e-003		113.8477
Total	**0.3952**	**4.7184**	**4.2647**	**0.0101**	**0.3124**	**0.0826**	**0.3950**	**0.0846**	**0.0760**	**0.1606**		**1,023.6951**	**1,023.6951**	**0.0151**		**1,024.0122**

3.3 Site Preparation - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.0221	0.0000	6.0221	3.3102	0.0000	3.3102			0.0000			0.0000
Off-Road	2.3778	25.0943	18.3580	0.0182		1.5084	1.5084		1.3878	1.3878		1,937.0722	1,937.0722	0.5724		1,949.0932
Total	**2.3778**	**25.0943**	**18.3580**	**0.0182**	**6.0221**	**1.5084**	**7.5305**	**3.3102**	**1.3878**	**4.6980**		**1,937.0722**	**1,937.0722**	**0.5724**		**1,949.0932**

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	0.0451	0.0563	0.5379	9.8000e-004	0.0822	6.9000e-004	0.0828	0.0218	6.3000e-004	0.0224		87.4671	87.4671	5.1500e-003		87.5752
Total	**0.0451**	**0.0563**	**0.5379**	**9.8000e-004**	**0.0822**	**6.9000e-004**	**0.0828**	**0.0218**	**6.3000e-004**	**0.0224**		**87.4671**	**87.4671**	**5.1500e-003**		**87.5752**

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					2.3486	0.0000	2.3486	1.2910	0.0000	1.2910			0.0000			0.0000
Off-Road	2.3778	25.0943	18.3580	0.0182		1.5084	1.5084		1.3878	1.3878	0.0000	1,937.0722	1,937.0722	0.5724		1,949.0932
Total	**2.3778**	**25.0943**	**18.3580**	**0.0182**	**2.3486**	**1.5084**	**3.8570**	**1.2910**	**1.3878**	**2.6787**	**0.0000**	**1,937.0722**	**1,937.0722**	**0.5724**		**1,949.0932**

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	0.0451	0.0563	0.5379	9.8000e-004	0.0822	6.9000e-004	0.0828	0.0218	6.3000e-004	0.0224		87.4671	87.4671	5.1500e-003		87.5752
Total	**0.0451**	**0.0563**	**0.5379**	**9.8000e-004**	**0.0822**	**6.9000e-004**	**0.0828**	**0.0218**	**6.3000e-004**	**0.0224**		**87.4671**	**87.4671**	**5.1500e-003**		**87.5752**

3.4 Grading - 2014

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					7.0547	0.0000	7.0547	3.4436	0.0000	3.4436			0.0000			0.0000
Off-Road	3.4434	36.0434	23.3290	0.0245		2.1229	2.1229		1.9531	1.9531		2,601.2043	2,601.2043	0.7687		2,617.3466
Total	**3.4434**	**36.0434**	**23.3290**	**0.0245**	**7.0547**	**2.1229**	**9.1776**	**3.4436**	**1.9531**	**5.3966**		**2,601.2043**	**2,601.2043**	**0.7687**		**2,617.3466**

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	0.0586	0.0731	0.6993	1.2700e-003	0.1068	9.0000e-004	0.1077	0.0283	8.2000e-004	0.0291		113.7072	113.7072	6.6900e-003		113.8477
Total	**0.0586**	**0.0731**	**0.6993**	**1.2700e-003**	**0.1068**	**9.0000e-004**	**0.1077**	**0.0283**	**8.2000e-004**	**0.0291**		**113.7072**	**113.7072**	**6.6900e-003**		**113.8477**

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					2.7513	0.0000	2.7513	1.3430	0.0000	1.3430			0.0000			0.0000
Off-Road	3.4434	36.0434	23.3290	0.0245		2.1229	2.1229		1.9531	1.9531	0.0000	2,601.2043	2,601.2043	0.7687		2,617.3466
Total	**3.4434**	**36.0434**	**23.3290**	**0.0245**	**2.7513**	**2.1229**	**4.8742**	**1.3430**	**1.9531**	**3.2961**	**0.0000**	**2,601.2043**	**2,601.2043**	**0.7687**		**2,617.3466**

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	0.0586	0.0731	0.6993	1.2700e-003	0.1068	9.0000e-004	0.1077	0.0283	8.2000e-004	0.0291		113.7072	113.7072	6.6900e-003		113.8477
Total	**0.0586**	**0.0731**	**0.6993**	**1.2700e-003**	**0.1068**	**9.0000e-004**	**0.1077**	**0.0283**	**8.2000e-004**	**0.0291**		**113.7072**	**113.7072**	**6.6900e-003**		**113.8477**

3.5 Building Construction - 2014

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	3.1997	23.3036	16.1724	0.0219		1.8636	1.8636		1.7621	1.7621		2,185.5930	2,185.5930	0.5341		2,196.8098
Total	**3.1997**	**23.3036**	**16.1724**	**0.0219**		**1.8636**	**1.8636**		**1.7621**	**1.7621**		**2,185.5930**	**2,185.5930**	**0.5341**		**2,196.8098**

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	0.0158	0.1307	0.1753	2.4000e-004	6.6400e-003	2.4900e-003	9.1300e-003	1.8900e-003	2.2900e-003	4.1800e-003		24.2791	24.2791	2.5000e-004		24.2844
Worker	0.0225	0.0281	0.2690	4.9000e-004	0.0411	3.4000e-004	0.0414	0.0109	3.1000e-004	0.0112		43.7336	43.7336	2.5700e-003		43.7876
Total	**0.0384**	**0.1588**	**0.4442**	**7.3000e-004**	**0.0477**	**2.8300e-003**	**0.0506**	**0.0128**	**2.6000e-003**	**0.0154**		**68.0127**	**68.0127**	**2.8200e-003**		**68.0720**

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	3.1997	23.3036	16.1724	0.0219		1.8636	1.8636		1.7621	1.7621	0.0000	2,185.5930	2,185.5930	0.5341		2,196.8098

Total	**3.1997**	**23.3036**	**16.1724**	**0.0219**		**1.8636**	**1.8636**		**1.7621**	**1.7621**	**0.0000**	**2,185.5930**	**2,185.5930**	**0.5341**		**2,196.8098**

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	0.0158	0.1307	0.1753	2.4000e-004	6.6400e-003	2.4900e-003	9.1300e-003	1.8900e-003	2.2900e-003	4.1800e-003		24.2791	24.2791	2.5000e-004		24.2844
Worker	0.0225	0.0281	0.2690	4.9000e-004	0.0411	3.4000e-004	0.0414	0.0109	3.1000e-004	0.0112		43.7336	43.7336	2.5700e-003		43.7876
Total	**0.0384**	**0.1588**	**0.4442**	**7.3000e-004**	**0.0477**	**2.8300e-003**	**0.0506**	**0.0128**	**2.6000e-003**	**0.0154**		**68.0127**	**68.0127**	**2.8200e-003**		**68.0720**

3.6 Paving - 2014

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	1.9954	20.9999	12.6669	0.0186		1.2575	1.2575		1.1588	1.1588		1,940.2197	1,940.2197	0.5590		1,951.9579
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.9954**	**20.9999**	**12.6669**	**0.0186**		**1.2575**	**1.2575**		**1.1588**	**1.1588**		**1,940.2197**	**1,940.2197**	**0.5590**		**1,951.9579**

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	0.0901	0.1125	1.0758	1.9600e-003	0.1643	1.3800e-003	0.1657	0.0436	1.2600e-003	0.0448		174.9342	174.9342	0.0103		175.1503
Total	**0.0901**	**0.1125**	**1.0758**	**1.9600e-003**	**0.1643**	**1.3800e-003**	**0.1657**	**0.0436**	**1.2600e-003**	**0.0448**		**174.9342**	**174.9342**	**0.0103**		**175.1503**

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	1.9954	20.9999	12.6669	0.0186		1.2575	1.2575		1.1588	1.1588	0.0000	1,940.2197	1,940.2197	0.5590		1,951.9579
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.9954**	**20.9999**	**12.6669**	**0.0186**		**1.2575**	**1.2575**		**1.1588**	**1.1588**	**0.0000**	**1,940.2197**	**1,940.2197**	**0.5590**		**1,951.9579**

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	0.0901	0.1125	1.0758	1.9600e-003	0.1643	1.3800e-003	0.1657	0.0436	1.2600e-003	0.0448		174.9342	174.9342	0.0103		175.1503
Total	**0.0901**	**0.1125**	**1.0758**	**1.9600e-003**	**0.1643**	**1.3800e-003**	**0.1657**	**0.0436**	**1.2600e-003**	**0.0448**		**174.9342**	**174.9342**	**0.0103**		**175.1503**

3.7 Architectural Coating - 2014

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	43.8008					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4462	2.7773	1.9216	2.9700e-003		0.2452	0.2452		0.2452	0.2452		281.4481	281.4481	0.0401		282.2905
Total	**44.2470**	**2.7773**	**1.9216**	**2.9700e-003**		**0.2452**	**0.2452**		**0.2452**	**0.2452**		**281.4481**	**281.4481**	**0.0401**		**282.2905**

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	4.5000e-003	5.6300e-003	0.0538	1.0000e-004	8.2100e-003	7.0000e-005	8.2800e-003	2.1800e-003	6.0000e-005	2.2400e-003		8.7467	8.7467	5.1000e-004		8.7575
Total	**4.5000e-003**	**5.6300e-003**	**0.0538**	**1.0000e-004**	**8.2100e-003**	**7.0000e-005**	**8.2800e-003**	**2.1800e-003**	**6.0000e-005**	**2.2400e-003**		**8.7467**	**8.7467**	**5.1000e-004**		**8.7575**

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	43.8008					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.4462	2.7773	1.9216	2.9700e-003		0.2452	0.2452		0.2452	0.2452	0.0000	281.4481	281.4481	0.0401		282.2905
Total	**44.2470**	**2.7773**	**1.9216**	**2.9700e-003**		**0.2452**	**0.2452**		**0.2452**	**0.2452**	**0.0000**	**281.4481**	**281.4481**	**0.0401**		**282.2905**

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	4.5000e-003	5.6300e-003	0.0538	1.0000e-004	8.2100e-003	7.0000e-005	8.2800e-003	2.1800e-003	6.0000e-005	2.2400e-003		8.7467	8.7467	5.1000e-004		8.7575
Total	**4.5000e-003**	**5.6300e-003**	**0.0538**	**1.0000e-004**	**8.2100e-003**	**7.0000e-005**	**8.2800e-003**	**2.1800e-003**	**6.0000e-005**	**2.2400e-003**		**8.7467**	**8.7467**	**5.1000e-004**		**8.7575**

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	0.7065	1.6643	7.4013	0.0125	0.8904	0.0234	0.9138	0.2377	0.0215	0.2592		1,154.4257	1,154.4257	0.0561		1,155.6042
Unmitigated	0.7065	1.6643	7.4013	0.0125	0.8904	0.0234	0.9138	0.2377	0.0215	0.2592		1,154.4257	1,154.4257	0.0561		1,155.6042

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	140.00	147.42	128.24	397,972	397,972
Total	140.00	147.42	128.24	397,972	397,972

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	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.509376	0.073655	0.192210	0.135105	0.037177	0.005354	0.012300	0.020284	0.001820	0.002092	0.006537	0.000620	0.003469

5.0 Energy Detail

4.4 Fleet Mix

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	0.0114	0.0978	0.0416	6.2000e-004		7.9000e-003	7.9000e-003		7.9000e-003	7.9000e-003		124.7861	124.7861	2.3900e-003	2.2900e-003	125.5455
NaturalGas Unmitigated	0.0114	0.0978	0.0416	6.2000e-004		7.9000e-003	7.9000e-003		7.9000e-003	7.9000e-003		124.7861	124.7861	2.3900e-003	2.2900e-003	125.5455

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	1060.68	0.0114	0.0978	0.0416	6.2000e-004		7.9000e-003	7.9000e-003		7.9000e-003	7.9000e-003		124.7861	124.7861	2.3900e-003	2.2900e-003	125.5455
Total		**0.0114**	**0.0978**	**0.0416**	**6.2000e-004**		**7.9000e-003**	**7.9000e-003**		**7.9000e-003**	**7.9000e-003**		**124.7861**	**124.7861**	**2.3900e-003**	**2.2900e-003**	**125.5455**

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	1.06068	0.0114	0.0978	0.0416	6.2000e-004		7.9000e-003	7.9000e-003		7.9000e-003	7.9000e-003		124.7861	124.7861	2.3900e-003	2.2900e-003	125.5455
Total		**0.0114**	**0.0978**	**0.0416**	**6.2000e-004**		**7.9000e-003**	**7.9000e-003**		**7.9000e-003**	**7.9000e-003**		**124.7861**	**124.7861**	**2.3900e-003**	**2.2900e-003**	**125.5455**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.8211	0.0140	1.1847	6.0000e-005		0.0251	0.0251		0.0249	0.0249	0.0000	298.5503	298.5503	7.9000e-003	5.4400e-003	300.4012
Unmitigated	0.8211	0.0140	1.1847	6.0000e-005		0.0251	0.0251		0.0249	0.0249	0.0000	298.5503	298.5503	7.9000e-003	5.4400e-003	300.4012

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					
Consumer Products	0.5393					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0272	0.0000	1.4800e-003	0.0000		0.0188	0.0188		0.0186	0.0186	0.0000	296.4706	296.4706	5.6800e-003	5.4400e-003	298.2749
Landscaping	0.0386	0.0140	1.1832	6.0000e-005		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003		2.0797	2.0797	2.2200e-003		2.1263
Architectural Coating	0.2160					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8211**	**0.0140**	**1.1847**	**6.0000e-005**		**0.0251**	**0.0251**		**0.0249**	**0.0249**	**0.0000**	**298.5503**	**298.5503**	**7.9000e-003**	**5.4400e-003**	**300.4012**

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					
Consumer Products	0.5393					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0272	0.0000	1.4800e-003	0.0000		0.0188	0.0188		0.0186	0.0186	0.0000	296.4706	296.4706	5.6800e-003	5.4400e-003	298.2749
Landscaping	0.0386	0.0140	1.1832	6.0000e-005		6.2800e-003	6.2800e-003		6.2800e-003	6.2800e-003		2.0797	2.0797	2.2200e-003		2.1263
Architectural Coating	0.2160					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**0.8211**	**0.0140**	**1.1847**	**6.0000e-005**		**0.0251**	**0.0251**		**0.0249**	**0.0249**	**0.0000**	**298.5503**	**298.5503**	**7.9000e-003**	**5.4400e-003**	**300.4012**

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 Vegetation

Pickering Residential Project

San Diego County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Single Family Housing	14.00	Dwelling Unit	4.20	25,200.00	40

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.6	**Precipitation Freq (Days)**	40
Climate Zone	13			**Operational Year**	2014
Utility Company	San Diego Gas & Electric				
CO2 Intensity (lb/MWhr)	720.49	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics -

Land Use - 4.2-acre project site.

Construction Phase - Anticipated constructon schedule for project.

Off-road Equipment -

Off-road Equipment - Anticipated equipment for building construction.

Off-road Equipment - Anticipated constructon equipment for demolition phase.

Off-road Equipment - Anticipated equipment for site grading.

Off-road Equipment -

Off-road Equipment - Anticipated equipment for site preparation.

Trips and VMT - No truck trips associated with soil import or export are anticipated during project construction.

Demolition - Anticipated 600 tons of debris total for demolition phase.

Grading - 4 acres to be disturbed daily at project site; Total grading quantity of 28,600 cy anticipated.

Vehicle Trips - Trip rates for project.

Woodstoves - No woodstoves for project; only natural gas fireplaces anticipated for project.

Construction Off-road Equipment Mitigation -

Table Name	Column Name	Default Value	New Value
tblConstructionPhase	NumDays	230.00	106.00
tblConstructionPhase	NumDays	20.00	5.00
tblConstructionPhase	PhaseEndDate	11/10/2014	10/15/2014
tblConstructionPhase	PhaseStartDate	10/16/2014	9/22/2014
tblConstructionPhase	PhaseStartDate	9/20/2014	9/22/2014
tblFireplaces	FireplaceWoodMass	3,078.40	0.00
tblFireplaces	NumberGas	7.70	14.00
tblFireplaces	NumberNoFireplace	1.40	0.00
tblFireplaces	NumberWood	4.90	0.00
tblGrading	MaterialExported	0.00	28,600.00
tblLandUse	LotAcreage	4.55	4.20
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	2.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	1.00	0.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	3.00	1.00
tblOffRoadEquipment	OffRoadEquipmentUnitAmount	4.00	3.00
tblTripsAndVMT	HaulingTripNumber	3,575.00	0.00
tblVehicleTrips	ST_TR	10.08	10.53
tblVehicleTrips	SU_TR	8.77	9.16
tblVehicleTrips	WD_TR	9.57	10.00
tblWoodstoves	NumberCatalytic	0.70	0.00
tblWoodstoves	NumberNoncatalytic	0.70	0.00
tblWoodstoves	WoodstoveDayYear	82.00	0.00
tblWoodstoves	WoodstoveWoodMass	3,019.20	0.00

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					
2014	0.6208	1.7898	1.2577	1.6800e-003	0.0551	0.1311	0.1862	0.0245	0.1235	0.1480	0.0000	153.0537	153.0537	0.0369	0.0000	153.8289
Total	**0.6208**	**1.7898**	**1.2577**	**1.6800e-003**	**0.0551**	**0.1311**	**0.1862**	**0.0245**	**0.1235**	**0.1480**	**0.0000**	**153.0537**	**153.0537**	**0.0369**	**0.0000**	**153.8289**

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					
2014	0.6208	1.7898	1.2577	1.6800e-003	0.0248	0.1311	0.1559	0.0104	0.1235	0.1339	0.0000	153.0535	153.0535	0.0369	0.0000	153.8287
Total	**0.6208**	**1.7898**	**1.2577**	**1.6800e-003**	**0.0248**	**0.1311**	**0.1559**	**0.0104**	**0.1235**	**0.1339**	**0.0000**	**153.0535**	**153.0535**	**0.0369**	**0.0000**	**153.8287**

	ROG	NOx	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**	**55.06**	**0.00**	**16.30**	**57.42**	**0.00**	**9.50**	**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	tons/yr										MT/yr					
Area	0.1424	1.2600e-003	0.1066	1.0000e-005		1.3400e-003	1.3400e-003		1.3300e-003	1.3300e-003	0.0000	11.1969	11.1969	3.9000e-004	2.0000e-004	11.2678
Energy	2.0900e-003	0.0178	7.5900e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	53.2556	53.2556	1.7100e-003	6.5000e-004	53.4930
Mobile	0.1138	0.2852	1.2409	2.1700e-003	0.1496	4.0100e-003	0.1536	0.0400	3.6800e-003	0.0437	0.0000	181.4812	181.4812	8.7500e-003	0.0000	181.6649
Waste						0.0000	0.0000		0.0000	0.0000	3.3291	0.0000	3.3291	0.1967	0.0000	7.4606
Water						0.0000	0.0000		0.0000	0.0000	0.2894	5.9695	6.2589	0.0300	7.5000e-004	7.1211
Total	**0.2583**	**0.3043**	**1.3550**	**2.2900e-003**	**0.1496**	**6.7900e-003**	**0.1564**	**0.0400**	**6.4500e-003**	**0.0465**	**3.6184**	**251.9032**	**255.5216**	**0.2376**	**1.6000e-003**	**261.0074**

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	0.1424	1.2600e-003	0.1066	1.0000e-005		1.3400e-003	1.3400e-003		1.3300e-003	1.3300e-003	0.0000	11.1969	11.1969	3.9000e-004	2.0000e-004	11.2678
Energy	2.0900e-003	0.0178	7.5900e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	53.2556	53.2556	1.7100e-003	6.5000e-004	53.4930
Mobile	0.1138	0.2852	1.2409	2.1700e-003	0.1496	4.0100e-003	0.1536	0.0400	3.6800e-003	0.0437	0.0000	181.4812	181.4812	8.7500e-003	0.0000	181.6649
Waste						0.0000	0.0000		0.0000	0.0000	3.3291	0.0000	3.3291	0.1967	0.0000	7.4606
Water						0.0000	0.0000		0.0000	0.0000	0.2894	5.9695	6.2589	0.0300	7.5000e-004	7.1206

Total	**0.2583**	**0.3043**	**1.3550**	**2.2900e-003**	**0.1496**	**6.7900e-003**	**0.1564**	**0.0400**	**6.4500e-003**	**0.0465**	**3.6184**	**251.9032**	**255.5216**	**0.2376**	**1.6000e-003**	**261.0069**

	ROG	NOx	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	4/1/2014	4/7/2014	5	5	
2	Site Preparation	Site Preparation	4/8/2014	4/14/2014	5	5	
3	Grading	Grading	4/15/2014	4/24/2014	5	8	
4	Building Construction	Building Construction	4/25/2014	9/19/2014	5	106	
5	Paving	Paving	9/22/2014	10/15/2014	5	18	
6	Architectural Coating	Architectural Coating	9/22/2014	10/15/2014	5	18	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 4

Acres of Paving: 0

Residential Indoor: 51,030; Residential Outdoor: 17,010; Non-Residential Indoor: 0; Non-Residential Outdoor: 0 (Architectural Coating –

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	2	8.00	81	0.73
Demolition	Excavators	1	8.00	162	0.38
Demolition	Rubber Tired Dozers	2	8.00	255	0.40
Site Preparation	Rubber Tired Dozers	1	8.00	255	0.40
Site Preparation	Tractors/Loaders/Backhoes	3	8.00	97	0.37

Grading	Excavators	0	8.00	162	0.38
Grading	Graders	1	8.00	174	0.41
Grading	Rubber Tired Dozers	1	8.00	255	0.40
Grading	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Building Construction	Cranes	0	7.00	226	0.29
Building Construction	Forklifts	3	8.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	3	7.00	97	0.37
Building Construction	Welders	1	8.00	46	0.45
Paving	Cement and Mortar Mixers	2	6.00	9	0.56
Paving	Pavers	1	8.00	125	0.42
Paving	Paving Equipment	2	6.00	130	0.36
Paving	Rollers	2	6.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	59.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	5.00	1.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	8	20.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	1.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Reduce Vehicle Speed on Unpaved Roads

3.2 Demolition - 2014

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					6.5000e-003	0.0000	6.5000e-003	9.8000e-004	0.0000	9.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0113	0.1120	0.0832	9.0000e-005		6.1500e-003	6.1500e-003		5.8300e-003	5.8300e-003	0.0000	8.2425	8.2425	1.9600e-003	0.0000	8.2836
Total	**0.0113**	**0.1120**	**0.0832**	**9.0000e-005**	**6.5000e-003**	**6.1500e-003**	**0.0127**	**9.8000e-004**	**5.8300e-003**	**6.8100e-003**	**0.0000**	**8.2425**	**8.2425**	**1.9600e-003**	**0.0000**	**8.2836**

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	8.1000e-004	0.0117	8.3200e-003	2.0000e-005	5.0000e-004	2.0000e-004	7.1000e-004	1.4000e-004	1.9000e-004	3.3000e-004	0.0000	2.0666	2.0666	2.0000e-005	0.0000	2.0670
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	1.4000e-004	1.8000e-004	1.7300e-003	0.0000	2.6000e-004	0.0000	2.6000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2604	0.2604	2.0000e-005	0.0000	0.2608
Total	**9.5000e-004**	**0.0118**	**0.0101**	**2.0000e-005**	**7.6000e-004**	**2.0000e-004**	**9.7000e-004**	**2.1000e-004**	**1.9000e-004**	**4.0000e-004**	**0.0000**	**2.3271**	**2.3271**	**4.0000e-005**	**0.0000**	**2.3278**

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					2.5300e-003	0.0000	2.5300e-003	3.8000e-004	0.0000	3.8000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0113	0.1120	0.0832	9.0000e-005		6.1500e-003	6.1500e-003		5.8300e-003	5.8300e-003	0.0000	8.2425	8.2425	1.9600e-003	0.0000	8.2836
Total	**0.0113**	**0.1120**	**0.0832**	**9.0000e-005**	**2.5300e-003**	**6.1500e-003**	**8.6800e-003**	**3.8000e-004**	**5.8300e-003**	**6.2100e-003**	**0.0000**	**8.2425**	**8.2425**	**1.9600e-003**	**0.0000**	**8.2836**

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	8.1000e-004	0.0117	8.3200e-003	2.0000e-005	5.0000e-004	2.0000e-004	7.1000e-004	1.4000e-004	1.9000e-004	3.3000e-004	0.0000	2.0666	2.0666	2.0000e-005	0.0000	2.0670
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	1.4000e-004	1.8000e-004	1.7300e-003	0.0000	2.6000e-004	0.0000	2.6000e-004	7.0000e-005	0.0000	7.0000e-005	0.0000	0.2604	0.2604	2.0000e-005	0.0000	0.2608
Total	**9.5000e-004**	**0.0118**	**0.0101**	**2.0000e-005**	**7.6000e-004**	**2.0000e-004**	**9.7000e-004**	**2.1000e-004**	**1.9000e-004**	**4.0000e-004**	**0.0000**	**2.3271**	**2.3271**	**4.0000e-005**	**0.0000**	**2.3278**

3.3 Site Preparation - 2014

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					0.0151	0.0000	0.0151	8.2800e-003	0.0000	8.2800e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.9400e-003	0.0627	0.0459	5.0000e-005		3.7700e-003	3.7700e-003		3.4700e-003	3.4700e-003	0.0000	4.3932	4.3932	1.3000e-003	0.0000	4.4205

Total	**5.9400e-003**	**0.0627**	**0.0459**	**5.0000e-005**	**0.0151**	**3.7700e-003**	**0.0188**	**8.2800e-003**	**3.4700e-003**	**0.0118**	**0.0000**	**4.3932**	**4.3932**	**1.3000e-003**	**0.0000**	**4.4205**

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-004	1.4000e-004	1.3300e-003	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.2003	0.2003	1.0000e-005	0.0000	0.2006
Total	**1.0000e-004**	**1.4000e-004**	**1.3300e-003**	**0.0000**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.2003**	**0.2003**	**1.0000e-005**	**0.0000**	**0.2006**

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					5.8700e-003	0.0000	5.8700e-003	3.2300e-003	0.0000	3.2300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	5.9400e-003	0.0627	0.0459	5.0000e-005		3.7700e-003	3.7700e-003		3.4700e-003	3.4700e-003	0.0000	4.3932	4.3932	1.3000e-003	0.0000	4.4205
Total	**5.9400e-003**	**0.0627**	**0.0459**	**5.0000e-005**	**5.8700e-003**	**3.7700e-003**	**9.6400e-003**	**3.2300e-003**	**3.4700e-003**	**6.7000e-003**	**0.0000**	**4.3932**	**4.3932**	**1.3000e-003**	**0.0000**	**4.4205**

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-004	1.4000e-004	1.3300e-003	0.0000	2.0000e-004	0.0000	2.0000e-004	5.0000e-005	0.0000	5.0000e-005	0.0000	0.2003	0.2003	1.0000e-005	0.0000	0.2006
Total	**1.0000e-004**	**1.4000e-004**	**1.3300e-003**	**0.0000**	**2.0000e-004**	**0.0000**	**2.0000e-004**	**5.0000e-005**	**0.0000**	**5.0000e-005**	**0.0000**	**0.2003**	**0.2003**	**1.0000e-005**	**0.0000**	**0.2006**

3.4 Grading - 2014

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					0.0282	0.0000	0.0282	0.0138	0.0000	0.0138	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0138	0.1442	0.0933	1.0000e-004		8.4900e-003	8.4900e-003		7.8100e-003	7.8100e-003	0.0000	9.4391	9.4391	2.7900e-003	0.0000	9.4977
Total	**0.0138**	**0.1442**	**0.0933**	**1.0000e-004**	**0.0282**	**8.4900e-003**	**0.0367**	**0.0138**	**7.8100e-003**	**0.0216**	**0.0000**	**9.4391**	**9.4391**	**2.7900e-003**	**0.0000**	**9.4977**

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	2.2000e-004	2.9000e-004	2.7700e-003	1.0000e-005	4.2000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.4167	0.4167	2.0000e-005	0.0000	0.4172
Total	**2.2000e-004**	**2.9000e-004**	**2.7700e-003**	**1.0000e-005**	**4.2000e-004**	**0.0000**	**4.2000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.4167**	**0.4167**	**2.0000e-005**	**0.0000**	**0.4172**

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					0.0110	0.0000	0.0110	5.3700e-003	0.0000	5.3700e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.0138	0.1442	0.0933	1.0000e-004		8.4900e-003	8.4900e-003		7.8100e-003	7.8100e-003	0.0000	9.4391	9.4391	2.7900e-003	0.0000	9.4977
Total	**0.0138**	**0.1442**	**0.0933**	**1.0000e-004**	**0.0110**	**8.4900e-003**	**0.0195**	**5.3700e-003**	**7.8100e-003**	**0.0132**	**0.0000**	**9.4391**	**9.4391**	**2.7900e-003**	**0.0000**	**9.4977**

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	2.2000e-004	2.9000e-004	2.7700e-003	1.0000e-005	4.2000e-004	0.0000	4.2000e-004	1.1000e-004	0.0000	1.1000e-004	0.0000	0.4167	0.4167	2.0000e-005	0.0000	0.4172
Total	**2.2000e-004**	**2.9000e-004**	**2.7700e-003**	**1.0000e-005**	**4.2000e-004**	**0.0000**	**4.2000e-004**	**1.1000e-004**	**0.0000**	**1.1000e-004**	**0.0000**	**0.4167**	**0.4167**	**2.0000e-005**	**0.0000**	**0.4172**

3.5 Building Construction - 2014

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	0.1696	1.2351	0.8571	1.1600e-003		0.0988	0.0988		0.0934	0.0934	0.0000	105.0850	105.0850	0.0257	0.0000	105.6244
Total	**0.1696**	**1.2351**	**0.8571**	**1.1600e-003**		**0.0988**	**0.0988**		**0.0934**	**0.0934**	**0.0000**	**105.0850**	**105.0850**	**0.0257**	**0.0000**	**105.6244**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.9000e-004	6.9700e-003	8.5600e-003	1.0000e-005	3.4000e-004	1.3000e-004	4.8000e-004	1.0000e-004	1.2000e-004	2.2000e-004	0.0000	1.1725	1.1725	1.0000e-005	0.0000	1.1728
Worker	1.1000e-003	1.4700e-003	0.0141	3.0000e-005	2.1300e-003	2.0000e-005	2.1400e-003	5.6000e-004	2.0000e-005	5.8000e-004	0.0000	2.1236	2.1236	1.2000e-004	0.0000	2.1262
Total	**1.8900e-003**	**8.4400e-003**	**0.0227**	**4.0000e-005**	**2.4700e-003**	**1.5000e-004**	**2.6200e-003**	**6.6000e-004**	**1.4000e-004**	**8.0000e-004**	**0.0000**	**3.2961**	**3.2961**	**1.3000e-004**	**0.0000**	**3.2989**

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	0.1696	1.2351	0.8571	1.1600e-003		0.0988	0.0988		0.0934	0.0934	0.0000	105.0849	105.0849	0.0257	0.0000	105.6242
Total	**0.1696**	**1.2351**	**0.8571**	**1.1600e-003**		**0.0988**	**0.0988**		**0.0934**	**0.0934**	**0.0000**	**105.0849**	**105.0849**	**0.0257**	**0.0000**	**105.6242**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	7.9000e-004	6.9700e-003	8.5600e-003	1.0000e-005	3.4000e-004	1.3000e-004	4.8000e-004	1.0000e-004	1.2000e-004	2.2000e-004	0.0000	1.1725	1.1725	1.0000e-005	0.0000	1.1728
Worker	1.1000e-003	1.4700e-003	0.0141	3.0000e-005	2.1300e-003	2.0000e-005	2.1400e-003	5.6000e-004	2.0000e-005	5.8000e-004	0.0000	2.1236	2.1236	1.2000e-004	0.0000	2.1262
Total	**1.8900e-003**	**8.4400e-003**	**0.0227**	**4.0000e-005**	**2.4700e-003**	**1.5000e-004**	**2.6200e-003**	**6.6000e-004**	**1.4000e-004**	**8.0000e-004**	**0.0000**	**3.2961**	**3.2961**	**1.3000e-004**	**0.0000**	**3.2989**

3.6 Paving - 2014

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	0.0180	0.1890	0.1140	1.7000e-004		0.0113	0.0113		0.0104	0.0104	0.0000	15.8412	15.8412	4.5600e-003	0.0000	15.9371

Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0180**	**0.1890**	**0.1140**	**1.7000e-004**		**0.0113**	**0.0113**		**0.0104**	**0.0104**	**0.0000**	**15.8412**	**15.8412**	**4.5600e-003**	**0.0000**	**15.9371**

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	7.5000e-004	1.0000e-003	9.6000e-003	2.0000e-005	1.4400e-003	1.0000e-005	1.4600e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.4424	1.4424	8.0000e-005	0.0000	1.4442
Total	**7.5000e-004**	**1.0000e-003**	**9.6000e-003**	**2.0000e-005**	**1.4400e-003**	**1.0000e-005**	**1.4600e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.4424**	**1.4424**	**8.0000e-005**	**0.0000**	**1.4442**

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	0.0180	0.1890	0.1140	1.7000e-004		0.0113	0.0113		0.0104	0.0104	0.0000	15.8412	15.8412	4.5600e-003	0.0000	15.9371
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.0180**	**0.1890**	**0.1140**	**1.7000e-004**		**0.0113**	**0.0113**		**0.0104**	**0.0104**	**0.0000**	**15.8412**	**15.8412**	**4.5600e-003**	**0.0000**	**15.9371**

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	7.5000e-004	1.0000e-003	9.6000e-003	2.0000e-005	1.4400e-003	1.0000e-005	1.4600e-003	3.8000e-004	1.0000e-005	3.9000e-004	0.0000	1.4424	1.4424	8.0000e-005	0.0000	1.4442
Total	**7.5000e-004**	**1.0000e-003**	**9.6000e-003**	**2.0000e-005**	**1.4400e-003**	**1.0000e-005**	**1.4600e-003**	**3.8000e-004**	**1.0000e-005**	**3.9000e-004**	**0.0000**	**1.4424**	**1.4424**	**8.0000e-005**	**0.0000**	**1.4442**

3.7 Architectural Coating - 2014

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	0.3942					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0200e-003	0.0250	0.0173	3.0000e-005		2.2100e-003	2.2100e-003		2.2100e-003	2.2100e-003	0.0000	2.2979	2.2979	3.3000e-004	0.0000	2.3048
Total	**0.3982**	**0.0250**	**0.0173**	**3.0000e-005**		**2.2100e-003**	**2.2100e-003**		**2.2100e-003**	**2.2100e-003**	**0.0000**	**2.2979**	**2.2979**	**3.3000e-004**	**0.0000**	**2.3048**

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					

Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	5.0000e-005	4.8000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0721	0.0721	0.0000	0.0000	0.0722
Total	**4.0000e-005**	**5.0000e-005**	**4.8000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0721**	**0.0721**	**0.0000**	**0.0000**	**0.0722**

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	0.3942					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	4.0200e-003	0.0250	0.0173	3.0000e-005		2.2100e-003	2.2100e-003		2.2100e-003	2.2100e-003	0.0000	2.2979	2.2979	3.3000e-004	0.0000	2.3048
Total	**0.3982**	**0.0250**	**0.0173**	**3.0000e-005**		**2.2100e-003**	**2.2100e-003**		**2.2100e-003**	**2.2100e-003**	**0.0000**	**2.2979**	**2.2979**	**3.3000e-004**	**0.0000**	**2.3048**

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.0000e-005	5.0000e-005	4.8000e-004	0.0000	7.0000e-005	0.0000	7.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0721	0.0721	0.0000	0.0000	0.0722
Total	**4.0000e-005**	**5.0000e-005**	**4.8000e-004**	**0.0000**	**7.0000e-005**	**0.0000**	**7.0000e-005**	**2.0000e-005**	**0.0000**	**2.0000e-005**	**0.0000**	**0.0721**	**0.0721**	**0.0000**	**0.0000**	**0.0722**

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	0.1138	0.2852	1.2409	2.1700e-003	0.1496	4.0100e-003	0.1536	0.0400	3.6800e-003	0.0437	0.0000	181.4812	181.4812	8.7500e-003	0.0000	181.6649
Unmitigated	0.1138	0.2852	1.2409	2.1700e-003	0.1496	4.0100e-003	0.1536	0.0400	3.6800e-003	0.0437	0.0000	181.4812	181.4812	8.7500e-003	0.0000	181.6649

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Single Family Housing	140.00	147.42	128.24	397,972	397,972
Total	140.00	147.42	128.24	397,972	397,972

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-	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Single Family Housing	10.80	7.30	7.50	41.60	18.80	39.60	86	11	3

LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
0.509376	0.073655	0.192210	0.135105	0.037177	0.005354	0.012300	0.020284	0.001820	0.002092	0.006537	0.000620	0.003469

5.0 Energy Detail

4.4 Fleet Mix

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	32.5958	32.5958	1.3100e-003	2.7000e-004	32.7075
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	32.5958	32.5958	1.3100e-003	2.7000e-004	32.7075
NaturalGas Mitigated	2.0900e-003	0.0178	7.5900e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	20.6597	20.6597	4.0000e-004	3.8000e-004	20.7855
NaturalGas Unmitigated	2.0900e-003	0.0178	7.5900e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	20.6597	20.6597	4.0000e-004	3.8000e-004	20.7855

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	387149	2.0900e-003	0.0178	7.5900e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	20.6597	20.6597	4.0000e-004	3.8000e-004	20.7855
Total		**2.0900e-003**	**0.0178**	**7.5900e-003**	**1.1000e-004**		**1.4400e-003**	**1.4400e-003**		**1.4400e-003**	**1.4400e-003**	**0.0000**	**20.6597**	**20.6597**	**4.0000e-004**	**3.8000e-004**	**20.7855**

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	387149	2.0900e-003	0.0178	7.5900e-003	1.1000e-004		1.4400e-003	1.4400e-003		1.4400e-003	1.4400e-003	0.0000	20.6597	20.6597	4.0000e-004	3.8000e-004	20.7855
Total		**2.0900e-003**	**0.0178**	**7.5900e-003**	**1.1000e-004**		**1.4400e-003**	**1.4400e-003**		**1.4400e-003**	**1.4400e-003**	**0.0000**	**20.6597**	**20.6597**	**4.0000e-004**	**3.8000e-004**	**20.7855**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	99739.8	32.5958	1.3100e-003	2.7000e-004	32.7075
Total		**32.5958**	**1.3100e-003**	**2.7000e-004**	**32.7075**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Single Family Housing	99739.8	32.5958	1.3100e-003	2.7000e-004	32.7075

Total		**32.5958**	**1.3100e-003**	**2.7000e-004**	**32.7075**

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	0.1424	1.2600e-003	0.1066	1.0000e-005		1.3400e-003	1.3400e-003		1.3300e-003	1.3300e-003	0.0000	11.1969	11.1969	3.9000e-004	2.0000e-004	11.2678
Unmitigated	0.1424	1.2600e-003	0.1066	1.0000e-005		1.3400e-003	1.3400e-003		1.3300e-003	1.3300e-003	0.0000	11.1969	11.1969	3.9000e-004	2.0000e-004	11.2678

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	0.0394					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0984					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.1100e-003	0.0000	6.0000e-005	0.0000		7.7000e-004	7.7000e-004		7.6000e-004	7.6000e-004	0.0000	11.0271	11.0271	2.1000e-004	2.0000e-004	11.0942
Landscaping	3.4700e-003	1.2600e-003	0.1065	1.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004	0.0000	0.1698	0.1698	1.8000e-004	0.0000	0.1736

Total	**0.1424**	**1.2600e-003**	**0.1066**	**1.0000e-005**		**1.3400e-003**	**1.3400e-003**		**1.3300e-003**	**1.3300e-003**	**0.0000**	**11.1969**	**11.1969**	**3.9000e-004**	**2.0000e-004**	**11.2678**

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					
Consumer Products	0.0984					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	1.1100e-003	0.0000	6.0000e-005	0.0000		7.7000e-004	7.7000e-004		7.6000e-004	7.6000e-004	0.0000	11.0271	11.0271	2.1000e-004	2.0000e-004	11.0942
Landscaping	3.4700e-003	1.2600e-003	0.1065	1.0000e-005		5.7000e-004	5.7000e-004		5.7000e-004	5.7000e-004	0.0000	0.1698	0.1698	1.8000e-004	0.0000	0.1736
Architectural Coating	0.0394					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.1424**	**1.2600e-003**	**0.1066**	**1.0000e-005**		**1.3400e-003**	**1.3400e-003**		**1.3300e-003**	**1.3300e-003**	**0.0000**	**11.1969**	**11.1969**	**3.9000e-004**	**2.0000e-004**	**11.2678**

7.0 Water Detail

7.1 Mitigation Measures Water

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	6.2589	0.0300	7.5000e-004	7.1206
Unmitigated	6.2589	0.0300	7.5000e-004	7.1211

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0.912156 / 0.575055	6.2589	0.0300	7.5000e-004	7.1211
Total		**6.2589**	**0.0300**	**7.5000e-004**	**7.1211**

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Single Family Housing	0.912156 / 0.575055	6.2589	0.0300	7.5000e-004	7.1206
Total		**6.2589**	**0.0300**	**7.5000e-004**	**7.1206**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	3.3291	0.1967	0.0000	7.4606
Unmitigated	3.3291	0.1967	0.0000	7.4606

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	16.4	3.3291	0.1967	0.0000	7.4606
Total		**3.3291**	**0.1967**	**0.0000**	**7.4606**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Single Family Housing	16.4	3.3291	0.1967	0.0000	7.4606
Total		**3.3291**	**0.1967**	**0.0000**	**7.4606**

9.0 Operational Offroad

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

10.0 Vegetation

Appendix C
Habitat Assessment & Tree Inventory Survey

Habitat Assessment and Tree Survey

APN 224-142-01

Prepared for

Pacific Land Investors, LLC
27721 La Paz Road
Laguna Niguel, CA 92677
Phone: (949) 233-4086

Prepared by

VCS Environmental
30900 Rancho Viejo Road, Suite 100
San Juan Capistrano, CA 92675
Phone: (949) 489-2700, Fax: (949) 489-0309
Contact: Lennie Rae Cooke

December 2013
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EXHIBITS

Exhibit A Database Search Results
Exhibit B Photolocation Map and Site Photographs
Exhibit C Representative Photographs of On-site Trees

LIST OF ABBREVIATIONS AND ACRONYMS

CAGN	coastal California gnatcatcher
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CFGC	California Department of Fish and Game Code
CNDDB	California Natural Diversity Database
Clean Water Act	Federal Water Pollution Control Act
dbh	diameter at breast height
FESA	Federal Endangered Species Act
FPA	Focused Planning Area
MBTA	Migratory Bird Treaty Act
MHCP	Multiple Habitat Conservation Plan
MSCP	San Diego County Multiple Species Conservation Plan
NNG	annual non-native grassland
project	APN 224-142-01 Development Project
USFWS	United States Fish and Wildlife Service
VCS	VCS Environmental

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1.0 Introduction and Purpose

Pacific Land Investors, LLC proposes to construct a 14-unit single-family development on an approximately 4.2-acre site (the project). VCS Environmental (VCS) conducted a field study on July 31, 2013, to assess the biological resources on-site and identify potential biological limitations to development of the property. This General Biological Assessment and Tree Survey Report is prepared in support of the project and the associated annexation.

2.0 Project Site Information

The project is located on an approximately 4.2-acre project site located in an area currently within the County of San Diego and within the sphere of influence (SOI) of the City of Escondido. On December 11, 2013, the City took action to initiate annexation of the property and approximately 1.85 acres of adjacent roadway and private property. The approximately 4.2-acre site is a rectangular parcel aligned in a northwesterly-southeasterly direction, bordered by Stanley, Ash, and Lehner Avenues (Figures 1 and 2). The project site is surrounded primarily by a patchwork of open fields of non-native annual grassland, pasture, and residences on large lots; Rincon Middle School is located nearby (Figure 2).

The project site slopes downward at a low incline from the northwest to the southeast, tapering to a relatively flat section in the southeast portion of the property. One single-family residence is located in the northern portion of the site, along with fruit trees; an irrigated pasture, several sheds and corrals occupy the remainder of the property. A man-made pond is located in the southwestern portion of the property, next to the dense stands of eucalyptus (*Eucalyptus* sp.) and willow (*Salix* sp.).

3.0 Regulatory Background

The following list identifies the federal, state, regional, and local laws and regulations relevant to the analysis of impacts for this project.

- Federal Endangered Species Act (FESA)
- Federal Water Pollution Control Act (Clean Water Act) (1972)
- The Migratory Bird Treaty Act (MBTA) of 1918
- California Endangered Species Act (CESA)
- California Department of Fish and Game Code (CFGC)
- City of Escondido General Plan
- City of Escondido Zoning Ordinance
- Escondido Subarea Multiple Habitat Conservation Program (MHCP)
- San Diego County Multiple Species Conservation Program (MSCP)

The project is located within the SOI for the City of Escondido and outside the MSCP Study Area. Therefore, the analysis of impacts and proposed mitigation measures for the project are based on and consistent with the MHCP.

4.0 Methodology

A desktop study was performed prior to the field survey to identify occurrences of special status species within the project site and project vicinity. This study included a search of the California Natural Diversity Database (CNDDB), a California Department of Fish and Wildlife (CDFW) species account database that inventories status and locations of rare plants and wildlife in California, for at least a 1 mile radius area from the project site. Additionally, U.S. Fish and Wildlife Service (USFWS) Threatened and Endangered Species Final Critical Habitat data was reviewed using the USFWS online Critical Habitat Portal (USFWS 2013). The results of the database queries are provided in Exhibit A. The City of Escondido General Plan and the MHCP, a component of the MSCP was also consulted.

Lennie Rae Cooke and Erin Hayes of VCS visited the site on July 31, 2013, to conduct a general habitat assessment and tree survey of the project site. Google Earth, aerial photographs, and maps were used to assist in the identification of the general habitat. The study area is approximately 4.9 acres, which covers the project area and several feet beyond the property line as appropriate. The field survey involved walking throughout the entire project area and the areas expected to be disturbed by construction. Soil conditions, topography, vegetative communities, and habitat quality were observed and documented. All trees with a diameter at breast height (dbh) greater than or equal to 4 inches were recorded including species identification, a photograph, and a dbh[1] measurement. General photographs were taken to document existing conditions throughout the project site and are provided in Exhibit B.

5.0 Existing Conditions

5.1 General Habitat Description

The study area is approximately 4.9 acres and is comprised of the project site and off-site road improvements. The site primarily consists of different agricultural uses (pasture, equestrian corrals and pens, backyard orchard) as well as a single-family residence. While there are some native plant species on-site, the site does not contain any native habitat. Ornamental and native tree species are scattered throughout the property with dense canopy existing around the residential structures and along the southern edge of the property. Table 1 shows the habitat acreage within the project site and within the annexation area.

[1] dbh is measured approximately 4.5 feet from the surface of the ground.

Table 1. Habitat Types by Acreage

Habitat Type	Acreage within the Project Site	Acreage for Offsite Improvements and Proposed Annexation
Disturbed/Ruderal	0.13	0.26
Developed/Residential	0.69	
Developed/Agricultural	2.61	
Agricultural/Pasture	0.43	
Agricultural/Orchard	0.17	
Eucalyptus stand	0.09	
Willow stand	0.08	
Disturbed Non-native Grassland		1.27
Roadway		0.32
TOTAL	**4.2**	**1.85**

Each habitat type is described below and the locations are depicted on Figure 3.

Development Site

Disturbed/Ruderal

Disturbed habitat observed on-site includes the entire southern and western roadside edges of the property along Lehner Avenue and North Ash Street. The areas are compacted being occasionally subject to vehicle activity and include ruderal, non-native plant species such as ripgut brome (*Bromus diandrus*), oats (*Avena* sp.), Bermuda grass (*Cynodon dactylon*), wild radish (*Raphanus sativus*), and prickly lettuce (*Lactuca serriola*). Disturbed habitat observed in the proposed annexation area adjacent to the project site includes bare dirt ground.

Developed/Residential

This land cover includes residential and all associated areas that are considered disturbed or no longer natural as a result of the residential activities. Developed areas also include ornamental landscaping and grass lawns, and storage of equipment and vehicles. There are a few scattered native trees within this area, as identified on Table 3 and Figure 4.

Developed/Agricultural

Developed/Agricultural habitat is comprised of equestrian and other domestic animal land uses. This area consists of animal pens, corrals, and other facilities apparently utilized for the equestrian operation. Generally the ground is bare dirt with occasional ruderal, non-native species. There are some natural and some landscaped trees growing throughout the agricultural/developed portion of the site, as identified on Table 3 and Figure 4.

Agricultural/Pasture
Agricultural/Pasture land is pasture for the horses on-site. This area differs from the agricultural/developed portion of the site in that it appears to be irrigated with a relatively full cover of herbaceous plants including non-natives such as Bermuda grass, cheeseweed (*Malva parviflora*), and perennial ryegrass (*Festuca perennis*), and native alkali mallow (*Malvella leprosa*). The sprinkler system is visible; no surface water leading to this area was observed.

Agricultural/Orchard
The back yard of the residence contains a small citrus (*Citrus* sp.) orchard. The small orchard is located in the northern portion of the site and is surrounded by the rural residential development and Stanley Avenue.

Willow stand
A small isolated stand of native willow trees is found in the southern portion of the site. The understory is comprised of ruderal, non-native species such as ripgut brome, oat, and Bermuda grass, as found in the disturbed habitat adjacent to Lehner Avenue. No evidence of surface water or flow was observed.

Eucalyptus stand
The non-native, invasive stand of eucalyptus trees is found on the western edge in the southern portion of the property. The understory is comprised of ruderal, non-native species such as ripgut brome, oats, and Bermuda grass. The remaining non-native trees on-site were included as part of the other dominant land covers.

Disturbed Non-native Grassland/Non-native Vegetation
Disturbed non-native grassland habitat is found in the area proposed for annexation outsite of the project site. Non-native vegetation also includes a few ornamental trees, including a palm (*Washingtonia robustus*) in the annexation area. The few trees in the annexation area were therefore included as a part of the annual non-native grassland.

Roadway
This category includes the paved roadway surfaces as well as the compacted soils and swales associated with the roadways.

The Additional Annexation Area (approximately 1.53-acre area plus approximately 0.32 acre roadway)
The 1.53-acre undeveloped area proposed for annexation to the south of the proposed Project is comprised of 0.26 acres of disturbed ruderal and 1.27 acres of disturbed non-native grassland (NNG). See Table 4 and Figure 2. The off-site intersection improvements associated with this Project would occur in previously disturbed areas consisting primarily of dirt and non-native ground cover.

A list of the plant species, including ornamental trees observed on-site can be found in Table 2. The trees located throughout the site are described in more detail in Section 5.2, below.

Table 2. Plant Species Observed On-site

("*" designates non-native species. Native species are shown in bold text.)

Scientific Name	Common Name
Gymnosperms	
Araucariaceae	
*Araucaria heterophylla**	Norfolk island pine
Pinaceae	Pine Family
*Pinus sp.**	ornamental pine
Eudicots	
Adoxaceae	Muskroot Family
***Sambucus nigra* ssp. *caerula* (=*Sambucus mexicana*)**	**blue elderberry (Mexican elderberry)**
Anacardiaceae	Sumac or Cashew Family
*Schinus molle**	Peruvian pepper tree (California pepper tree)
Asteraceae (*Compositae*)	Sunflower Family
***Erigeron canadensis* (=*Conyza canadensis*)**	**horseweed (mare's tail)**
*Lactuca serriola**	prickly lettuce (wild lettuce)
Brassicaceae (Cruciferae)	Mustard Family
*Brassica nigra**	black mustard
*Raphanus sativus**	wild radish
Fagaceae	Oak Family
Quercus agrifolia	**coast live oak**
Malvaceae	Mallow Family
*Malva parviflora**	cheeseweed
Malvella leprosa	**alkali-mallow**
Myrtaceae	Myrtle Family
*Eucalyptus sp.**	eucalyptus
Oleaceae	Olive Family
*Olea europaea**	common olive

Scientific Name	Common Name
Rutaceae	Rue Family
*Citrus sp.**	citrus
Salicaceae	Willow Family
Salix sp.	**willow**
Monocots	
Arecaceae (Palmae)	Palm Family
*Washingtonia robusta**	Mexican fan palm
Poaceae	Grass Family
*Avena sp.**	oat
*Bromus diandrus**	ripgut grass
*Cynodon dactylon**	Bermuda grass
Festuca perennis (=*Lolium multiflorum* and *Lolium perenne*)*	Italian ryegrass

Few wildlife and domestic animal species/individuals or their signs were detected during the field survey. Species observed during the survey include birds (unidentified hawk, turkey vulture (*Cathartes aura*), and American crow (*Corvus brachyrhynchos*)), in addition to domesticated animals (dogs (*Canis familiaris*), horses (*Equus caballus*), and ducks). Photographs depicting the general conditions observed on the project site are attached as Exhibit B.

No sensitive plant or animal species were observed or detected on-site. No established native resident or migratory wildlife corridors exist on the site or have been identified by the City of Escondido or any other planning document.

5.2 Tree Inventory

A total of 72 trees with a dbh greater than or equal to 4 inches were observed on the project site. These trees are listed below in Table 3 and their locations are depicted on Figure 4. Representative photographs of the tree species are attached as Exhibit C. Forty three of these trees are considered "mature" pursuant to the City of Escondido (Zoning Code Article 55, Section 33-1060). *Q. agrifolia* with a dbh greater than 10 inches are considered "protected" (City of Escondido Municipal Code 33-1052). Of the 72 trees, 51 are mature and 1 is protected.

Table 3. List of Trees on Project Site with dbh ≥4 inches
(M=Mature tree; P=Protected tree)

Tree #	Common Name	Scientific Name	M/P	DBH (inches)
1	Mexican fan palm	*Washingtonia robusta*	M	23.4
2	willow	*Salix* sp.		4.5/4.7
3	Mexican fan palm	*W. robusta*	M	21
4	Mexican fan palm	*W. robusta*	M	21.7
5	Mexican fan palm	*W. robusta*	M	16.5
6	evergreen pear	*Pyrus kawakamii*		6.8
7	Mexican fan palm	*W. robusta*	M	20.5
8	Mexican fan palm	*W. robusta*	M	23.4
9	Mexican fan palm	*W. robusta*	M	17.1
10	Mexican fan palm	*W. robusta*	M	18.3
11	Mexican fan palm	*W. robusta*	M	17.3
12	Mexican fan palm	*W. robusta*	M	14.5
13	Mexican fan palm	*W. robusta*	M	19.2
14	Mexican fan palm	*W. robusta*	M	15.8
15	Mexican fan palm	*W. robusta*	M	17.8
16	Mexican fan palm	*W. robusta*	M	20
17	Mexican fan palm	*W. robusta*	M	21.8
18	Mexican fan palm	*W. robusta*	M	14/15
19	elderberry	*Sambucus nigra subsp. Canadensis (S. nigra)*		4.5
20	eucalyptus	*Eucalyptus* sp.	M	10
21	eucalyptus	*Eucalyptus* sp.	M	17
22	eucalyptus	*Eucalyptus* sp.	M	14
23	eucalyptus	*Eucalyptus* sp.	M	16
24	Mexican fan palm	*W. robusta*	M	24
25	Mexican fan palm	*W. robusta*	M	20
26	willow	*Salix* sp.	M	18
27	willow	*Salix* sp.	M	18
28	willow	*Salix* sp.	M	14/16
29	Mexican fan palm	*W. robusta*	M	13
30	elderberry	*S. nigra*		4.4
31	elderberry	*S. nigra*		4
32	elderberry	*S. nigra*		4
33	common olive	*Olea europaea*	M	7/8.5/7
34	common olive	*Olea europaea*		6
35	Mexican fan palm	*W. robusta*	M	9.6/7
36	Mexican fan palm	*W. robusta*		7.2/7.4/ 7.5

Tree #	Common Name	Scientific Name	M/P	DBH (inches)
37	Mexican fan palm	*W. robusta*	M	10.3/9.3
38	Mexican fan palm	*W. robusta*	M	9.5
39	Mexican fan palm	*W. robusta*	M	9.3/8.8
40	Mexican fan palm	*W. robusta*	M	21.6
41	Norfolk Pine	*Araucaria heterophylla*		5.2/5.2/5.4
42	Peruvian pepper	*Schinus molle*	M	10/9/17.7
43	eucalyptus	*Eucalyptus sp.*		7.5/6.7
44	Mexican fan palm	*W. robusta*	M	20.2
45	Mexican fan palm	*W. robusta*	M	18
46	Mexican fan palm	*W. robusta*	M	13.8
47	coast live oak	*Q. agrifolia*	M	5.5
48	coast live oak	*Q. agrifolia*	M	5.5
49	tree of heaven	*Ailanthus altissima*	M	8
50	coast live oak	*Q. agrifolia*	M	6/6
51	coast live oak	*Q. agrifolia*	M	6
52	coast live oak	*Q. agrifolia*	M	4
53	coast live oak	*Q. agrifolia*	M	6
54	coast live oak	*Q. agrifolia*	M	5.5
55	citrus	*Citrus* sp.		4
56	citrus	*Citrus* sp.		5/4
57	citrus	*Citrus* sp.		4/4
58	citrus	*Citrus* sp.		4/4
59	citrus	*Citrus* sp.		4
60	citrus	*Citrus* sp.		6/4/4
61	citrus	*Citrus* sp.		4
62	citrus	*Citrus* sp.		4
63	coast live oak	*Q. agrifolia*	M	4.1
64	citrus	*Citrus* sp.		4
65	citrus	*Citrus* sp.		4
66	pine	*Pinus* sp.	M	17
67	coast live oak	*Q. agrifolia*	P	12.6
68	common olive	*Olea europaea*	M	5.7/7.3/10
69	coast live oak	*Q. agrifolia*	M	6.6/7.0
70	Peruvian pepper	*Schinus molle*	M	51
71	Mexican fan palm	*W. robusta*	M	21.5
72	Mexican fan palm	*W. robusta*	M	18.8

5.3 Jurisdictional Waters

There was no evidence of surface water on the property. Storm water flows along the property boundary in earthen swales within the impact area that do not exhibit a bed-and-bank. In addition, these swales do not support native vegetation nor do they provide foraging or nesting habitat. It was concluded that the project would not result in impacts to Waters of the State.

5.4 Special Status Species

No CNDDB occurrences were found on the project site. The nearest CNDDB record, the coastal California gnatcatcher (*Polioptila californica californica*) [CAGN], occurs approximately 0.9 mile northwest of the project site and was observed in 2000. No critical habitat was identified on the project site. The nearest critical habitat is located approximately 0.7 mile to the northwest and northeast of the project site for the CAGN (Exhibit A). No suitable CAGN habitat or coastal sage scrub exists on the project site and no CAGN were observed during the field survey.

5.5 Raptor Habitat

No raptor nests were observed in the trees on the site. However, many trees on-site could support nesting raptors. No burrows which would indicate the presence of rodents (a source of prey for foraging raptors) were observed. The property is surrounded by a patchwork of non-native grassland habitat, large trees, and structures (residences and small storage buildings).

6.0 Impacts and Mitigation

Section 6, Subarea Plan Implementation Policies, of the Draft Escondido Subarea Plan discusses annexations of County property into City jurisdiction. Section 6.6 of the Escondido Subarea Plan states:

> 6.6 ANNEXATIONS
> …
> 2. If an approved county or other jurisdiction's subarea plan and implementation agreement exist for the area being annexed, the approved subarea plan applies and may be modified through the boundary adjustment process described in Section 6.5.

The Escondido Subarea Plan is not approved, however, it is generally accepted as the final document and it has been implemented by the City of Escondido on that basis. Therefore, the impacts associated with the development, implementation of the Development Agreement, and the annexation will be analyzed under the MHCP solely.

6.1 Direct Impacts

The project would directly impact 0.13 acre of Disturbed/Ruderal habitat, 0.69 acre of Developed/Residential habitat, 2.61 acre of Developed/Agricultural habitat, 0.43 acre of Agricultural/Pasture habitat, 0.17 acre of Agricultural/Orchard habitat, 0.09 acre of Eucalyptus stand, and 0.08 acre of Willow stand within the project site. Offsite road improvements will impact approximately 0.21 acre Disturbed/Ruderal habitat, 0.16 acre of Developed/Residential habitat, 0.12 acre of Developed/Agricultural habitat, 0.08 acre of Agricultural/Pasture habitat, 0.10 acre of Agricultural/Orchard habitat, 0.03 acre of Eucalyptus stand. For the remainder of the proposed annexation area, anticipated development would impact approximately 0.26 acre of Disturbed/Ruderal and 1.27 acre of Disturbed Non-native Grassland.

The project would also result in the removal of 51 mature trees and 1 protected tree. The protected tree would be replaced on-site at a 2:1 ratio. Mature trees would be replaced at a 1:1 ratio. The actual number, size, and species of replacement trees as well as the planting locations shall be determined through consultation with City staff. By mitigating for the tree removal in accordance with City regulations per Mitigation Measure BIO-1a and BIO-1b (Section 7 of this report), the loss of native and ornamental tree species would be brought to below significance.

The annexation area supports approximately 1.27 acres of NNG; impacts to the NNG from future development on the Additional Annexation Area would be offset by the implementation of Mitigation Measure BIO-2 which requires the purchase of credits at a reduced ratio of 0.5:1 from the Daley Ranch Mitigation Bank or other acceptable banking program.

No burrows indicating the presence of rodents or owls were observed on-site, and therefore, this site has little potential to provide foraging habitat for raptors. However, the eucalyptus trees and palm trees provide suitable nesting habitat. Impacts to raptors could occur if an active nest was abandoned or destroyed as a result of construction noise or direct impact. With the implementation of pre-construction nesting surveys, potential impacts to nesting birds would be reduced to below significance and no additional mitigation would be required. With the implementation of Mitigation Measures BIO-3 and BIO-4, these potential impacts would be brought to below significance.

6.2 Indirect Impacts

Construction noise could indirectly impact nesting or foraging raptors. With the implementation of pre-construction nesting surveys, this potential impact would be reduced to below significance. The project is located in an area that is largely developed, and no indirect impacts due to edge effects (e.g., habitat fragmentation, lighting, noise, urban runoff) would be expected to occur.

Indirect impacts would occur in the area outside the project footprint along Ash, Lehner, and Stanley Avenues. This area would be impacted due to construction of road and sewer

improvements. The downstream drainage infrastructure is capable of handling the additional runoff generated from the increased pavement from the roadway improvements (personal communication, John Boarman, LLG Engineering).

7.0 Mitigation Measures

Biological Resources Avoidance, Minimization, and Mitigation. The following mitigation measure would be implemented to minimize potential impacts:

BIO-1a: Impacts to 51 mature trees shall be mitigated by replacement of 51 mature trees at a one-to-one (1:1) ratio with a minimum size of a 24-inch box, and the 1 protected tree shall be replaced at a 2:1 ratio with a minimum size of a 24-inch box, or as otherwise determined by the City Planning Department.

BIO-1b: Any mature trees removed as part of the future development of the Additional Annexation Area would be replaced at a 1:1 ratio with a minimum size of a 24-inch box. If any protected trees are located in the Additional Annexation Area at the time of the future development, they will be replaced at a 2:1 ratio with a minimum size of a 24-inch box (Zoning Code Section 33-1069).

BIO-2: Impacts to NNG within the annexation area shall be mitigated at a reduced ratio of 0.5:1 through the acquisition of NNG credits from the Daley Ranch Bank or other approved mitigation bank.

BIO-3: A qualified biologist shall determine if any active raptor nests occur on or in the immediate vicinity of the Project Area if construction is set to commence or continue into the breeding seasons of raptors (January 1 to September 1). If active nests are found, their situation shall be assessed based on topography, line of site, existing disturbances, and proposed disturbance activities to determine an appropriate distance of temporal buffer.

BIO-4: If Project construction cannot be avoided during the period of January 1 through September 1, a qualified biologist will survey potential nesting vegetation within the Project Area for nesting birds, prior to commencing any Project activity. Surveys will be conducted at the appropriate time of day, no more than three days prior to vegetation removal and/or disturbance. Documentation of surveys and findings will be submitted to the City for review and concurrence prior to conducting Project activities. If no nesting birds were observed and concurrence was received, Project activities may begin. If an active bird nest is located, the nest site will be fenced a minimum of 200 feet (500 feet for special status species and raptors) in all directions, and this area will not be disturbed until after September 15 or until the nest becomes inactive. If threatened or endangered species are observed within 500 feet of the work area, no work will occur

during the breeding season (January 1 through September 1) to avoid direct or indirect (noise) take of listed species.

8.0 Cumulative Impacts

Although no direct or indirect significant effects have been identified, when combined with those caused by many projects in an area, the net effect may be considered cumulatively significant. The proposed project is surrounded by existing development (homes, schools, barns, streets, lights, etc.), and future development identified in the General Plan will reduce the availability of habitat found on the subject property. The project will not result in significant cumulative impacts to biological resources because the project site is located in a developed area and adequate protection of land to offset the cumulative impacts to biological resources exists in the vicinity of the project.

9.0 Conclusion

The proposed project will have no direct, indirect, or cumulative effect on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations. No impacts to Waters of the U.S. or Waters of the State would occur. The project does not conflict with the provisions of the City of Escondido's Tree Preservation Policy because replacement of 51 mature trees and 1 protected tree would occur consistent with the requirements of the City of Escondido. The project is consistent with adopted habitat conservation plans because the project does not impact any sensitive plant or animal species.

10.0 References

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Figures

13-Lot Residential Development and Annexation

Regional Map

VCS ENVIRONMENTAL
30900 Rancho Viejo Road, Suite 100
San Juan Capistrano, CA 92675
(949) 489-2700
Fax (949) 489-0309

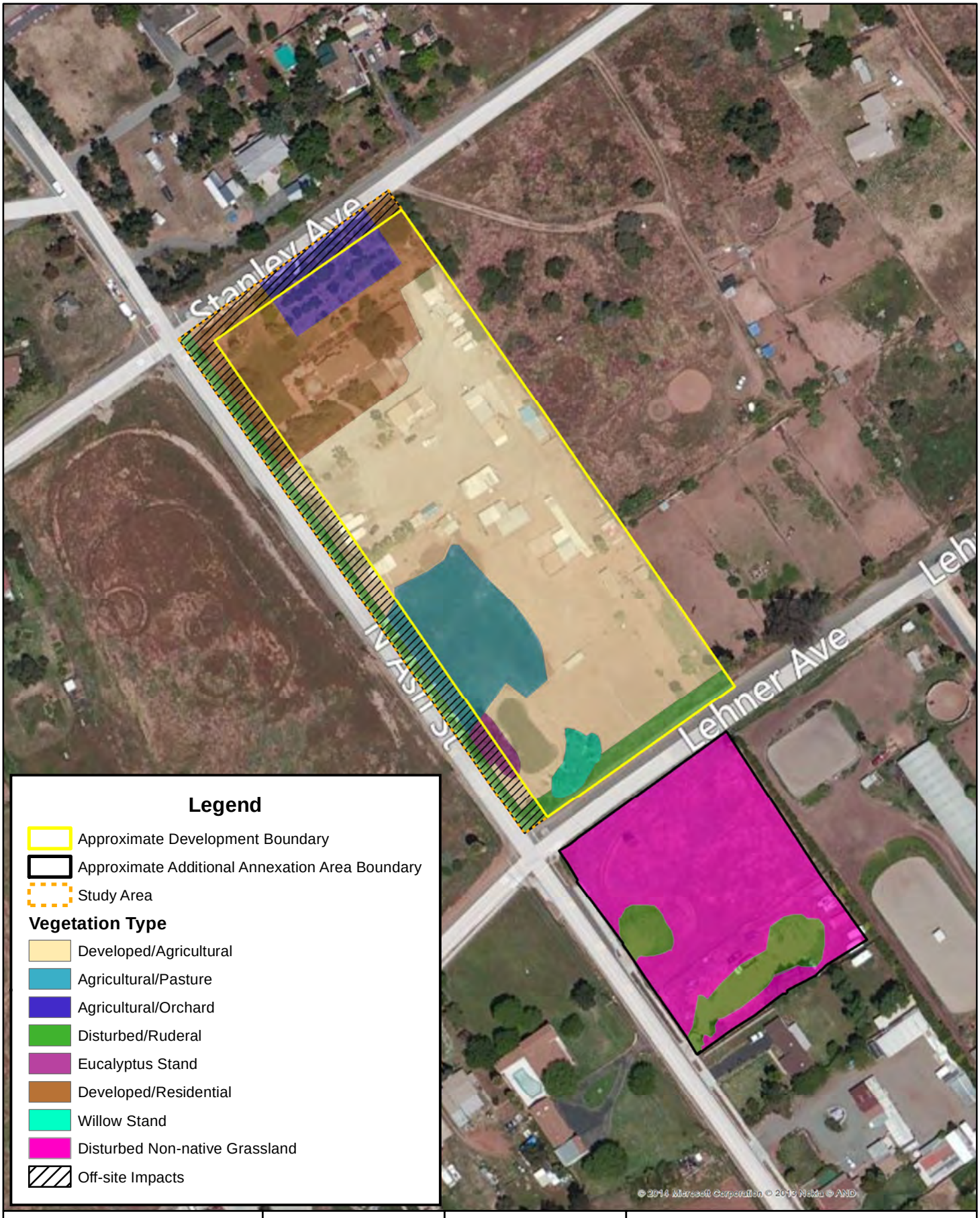
N

Not to scale

FIGURE 1

Prepared By: VCS Environmental	Map Created: 5/15/2014	0 50 100 200 Feet 1 inch = 200 feet	Data Sources: Bing Maps	**13-LOT RESIDENTIAL DEVELOPMENT AND ANNEXATION** Aerial Map

FIGURE 2



Legend

- Approximate Development Boundary
- Approximate Additional Annexation Area Boundary
- Study Area

Vegetation Type

- Developed/Agricultural
- Agricultural/Pasture
- Agricultural/Orchard
- Disturbed/Ruderal
- Eucalyptus Stand
- Developed/Residential
- Willow Stand
- Disturbed Non-native Grassland
- Off-site Impacts

Prepared By:
VCS Environmental

Map Created: 5/15/2014

0 25 50 100 150 Feet
1 inch = 150 feet

Data Sources: Bing Maps

APN 224-142-01
Vegetation Communities Map

FIGURE 3

Prepared By:
VCS Environmental

Map Created: 12/11/2013

0 25 50 100 Feet
1 inch = 100 feet

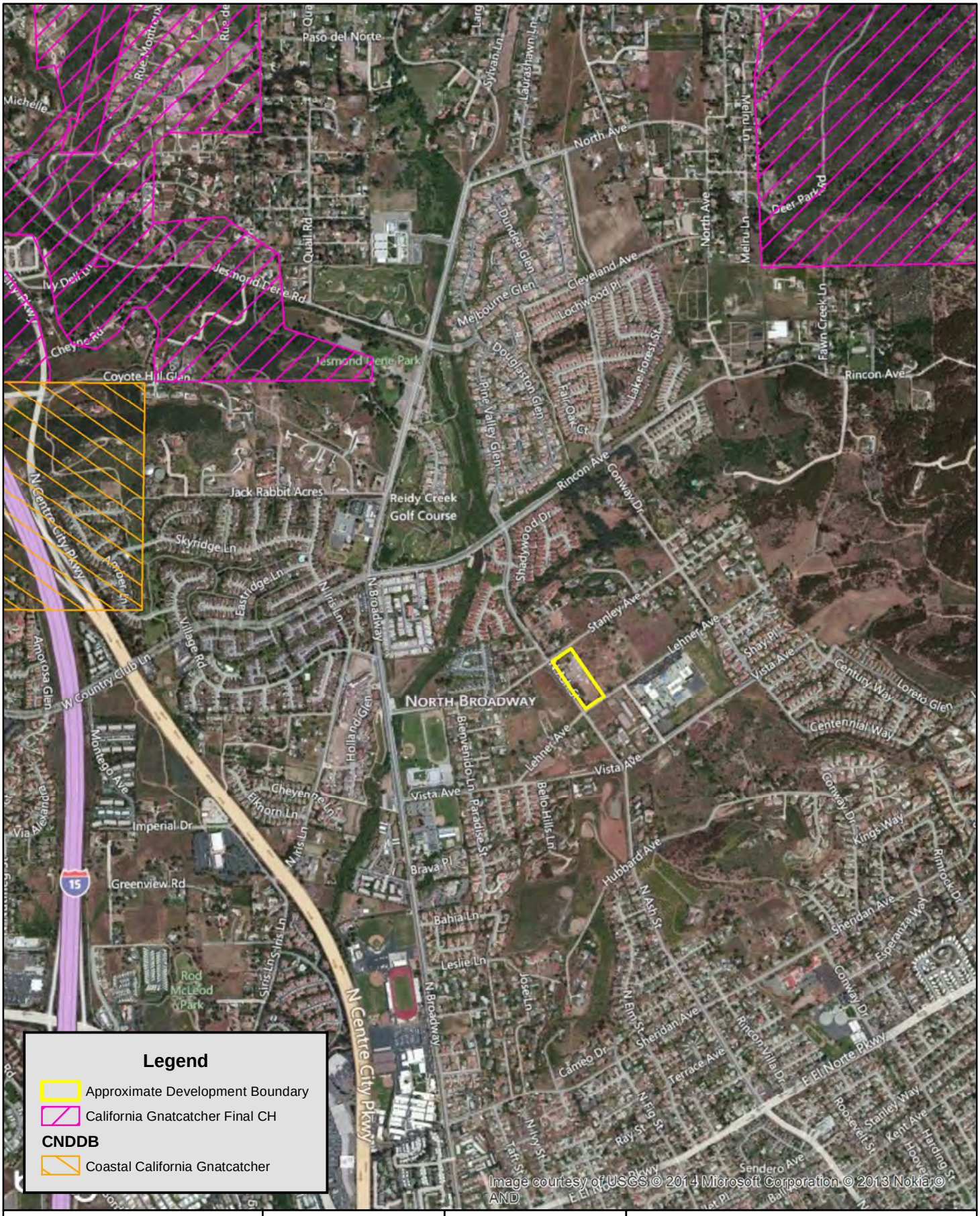
Data Sources: Bing Maps

APN 224-142-01
Tree Inventory Location Map

FIGURE 4

EXHIBIT A

Database Search Results



Prepared By:
VCS Environmental

Map Created: 12/11/2013

0 375 750 1,500 Feet
1 inch = 1,500 feet

Data Sources: Bing Maps
CNDDB
USFWS

APN 224-142-01
Database Search Results -
Critical Habitat and CNDDB

EXHIBIT A

EXHIBIT B

Photolocation Map and Site Photographs

Prepared By:
VCS Environmental

Map Created: 5/15/2014

1 inch = 100 feet

Data Sources: Bing Maps

APN 224-142-01
Photolocation Map

Photo station (PS) locations are shown on Exhibit B/Page 1

PS 1

PS 2

PS 3

PS 4

PS 5

PS 6

PS 7

PS 8

EXHIBIT C

Representative Photographs of On-site Trees

Willow

Mexican fan palm

Evergreen pear

Norfolk pine

Elderberry

Tree of heaven

Eucalyptus

Peruvian Pepper

Coast live oak

Citrus

Common olive

Pine

Appendix D
Cultural Resources Report

22 Socorro
Rancho Santa Margarita
California 92688
949-303-0420
Curt@DukeCRM.com

October 17, 2013

Lennie Rae Cooke
VCS Environmental, Inc.
30900 Rancho Viejo Road, Suite 100
San Juan Capistrano, CA 92675

Subject: Draft Cultural and Paleontological Resources Assessment for APN-224-142-01, City of Escondido, California (DUKE CRM Project No. C-0127)

Dear Ms. Cooke:

DUKE CRM was retained by VCS Environmental, Inc (VCS) to conduct a cultural and paleontological resources assessment for APN-224-142-01 (the study area), located in the City of Escondido (City), San Diego County, California. The parcel is rectangular shaped and contains approximately 4.2-acres of land, located west of Conway Road and east of Ash Street between Stanley Avenue on the north and Lehner Avenue on the south. Specifically, the proposed project is depicted on the United States Geological Survey (USGS) *Valley Center, California* 7.5-minute topographic quadrangle, in an unsectioned area of Township 12 South; Range 2 West (projected Section 3). See project maps in Attachment 1 of this letter. The cultural and paleontological resources assessments described and summarized in this letter report places the project in compliance with the pertinent sections of the California Environmental Quality Act (CEQA) Public Resources Code and the City of Escondido Municipal Code.

PROJECT DESCRIPTION

The proposed project would construct 16 new single-family detached residences on the approximately 4.2-acre site. The project site is designated under City of Escondido R-1-10 zoning standards (Single-Family Residential – 10,000 square feet minimum lot size). The project is 75-80% covered by different components of a contemporary horse ranch. The project site slopes uphill from Lehner Avenue to the northwest boundary of the property at Stanley Avenue. See photographs in Attachment 2.

METHODS

Records searches were obtained from the South Coastal Information Center (SCIC) at San Diego State University (SDSU) and at the Department of Paleontology at the San Diego Natural History Museum. DUKE CRM also consulted Section 4.5 (Cultural and Paleontological Resources) of the City of Escondido General Plan, Downtown Specific Plan and Climate Action Plan EIR (2012).

Following the records searches, an intensive-level field survey was conducted over the study area. The entire property was walked in order to identify any previously unknown cultural resources.

RESULTS

Research

Information from the SCIC indicated that 23 previous cultural resources investigations have been conducted within ½ mile of the project and that one study included the current project boundaries (Kyle 2006). In 2006, Kyle surveyed three parcels to the east of the current parcel, between the current parcel and Conway Drive. She did not identify any cultural resources on the current project. She recommended that no additional work be conducted. The SCIC identified seven previously recorded cultural resources within ½ mile of the project, as described below.

- CA-SDI-1050, the closest of these resources, is a Pauma Complex site with scattered chipping waste and 5 manos, but no midden, approximately 500 feet from the NE corner of the project, on the top of the hill across Stanley Avenue. The site was originally recorded by Del True in 1962. In addition to noting the lack of a midden deposit he recommended that no recheck or further work was necessary. This site has been destroyed.
- CA-SDI-1049, a lightly scattered temporary campsite with a sub-surface component.
- CA-SDI-1057, a San Luis Rey I-II village, with possible Pauma Complex materials added.
- CA-SDI-1058, a Pauma Complex village with no midden.
- CA-SDI-1245, a milling station with a midden, remains of an adobe house, and another historic house; and
- CA-SDI-15357, a large bedrock outcrop with milling features.

None of these resources were previously recorded in the study area. A map of historic roads (1769-1885 in San Diego County) shows a northwest to southeast trending trail that also marks the route of the San Diego Aqueduct in later maps that is approximately 750 feet northeast of the project. This same trail is shown on the San Diego County Map of 1872.

Published geological maps (Kennedy and Tan 2005) describe the underlying geology as Mesozoic-age metamorphic rocks. Site records housed in the Department of Paleontology at the San Diego Natural History Museum indicate that no fossil localities occur within the vicinity of the project site, and the nearest fossil locality is approximately 10 miles to the west. The paucity of fossil localities is mostly due to the abundance of Mesozoic-age igneous and metamorphic rocks in the vicinity of the project. These rock types have zero paleontological sensitivity because the high temperatures and/or pressures they form at are not conducive to fossil preservation.

Field Survey

The field survey was conducted by Dr. Frederick W. Lange on September 19, 2013. The property is highly disturbed by the corrals and related residences and barns of a small horse ranch. At the time of the survey 75-80% of the property was covered by various elements of the contemporary horse ranch. Visibility was good (Figure 2, Attachment 2).

FINDINGS AND CONCLUSIONS

A cultural and paleontological resources assessment was conducted of APN-224-142-01. Our research and field survey indicate a low sensitivity for cultural resources and a low sensitivity for paleontological resources in the project.

Under CEQA a finding of no impact to cultural resources and no impact to paleontological resources is appropriate. Therefore, no recommendations are made for further investigation on the subject property. If cultural resources are discovered during the construction phase of the project a qualified archaeologist shall be retained to assess the nature and significance of the find.
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 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.

Thank you for contacting DUKE CRM on this project. If you have any questions or comments, you can contact me at (949) 303-0420 or by e-mail at curt@dukecrm.com.

Sincerely,

DUKE CULTURAL RESOURCES MANAGEMENT, LLC

Dr. Frederick W. Lange, PhD/RPA
Senior Archaeologist

Curt Duke, M.A., RPA
President/Archaeologist

Attachments
1. Project Maps
2. Project Photographs
3. SCIC Letter
4. SDNHM Letter

REFERENCES

City of Escondido
2012 Escondido General Plan, Downtown Specific Plan, and Climate Action Plan EIR.

Deméré, T.A. and S.L. Walsh
1993 Paleontological Resources, County of San Diego. Prepared for the San Diego Planning Commission 1-68.

Kennedy, M.P. and Tan, S.S.
2005 Geologic map of the Oceanside 30' x 60' quadrangle, California: A digital database: California Geological Survey, Preliminary Geologic Maps, scale 1:100,000.

Kyle Consulting
2006 Cultural Resource Survey for Approximately 13 Acres Located in the City of Escondido, California. San Diego State University, SCIC (NADB#06-322).

Attachment 1
Maps

1- USGS 7.5' Quadrangle
2- Street and Aerial Map

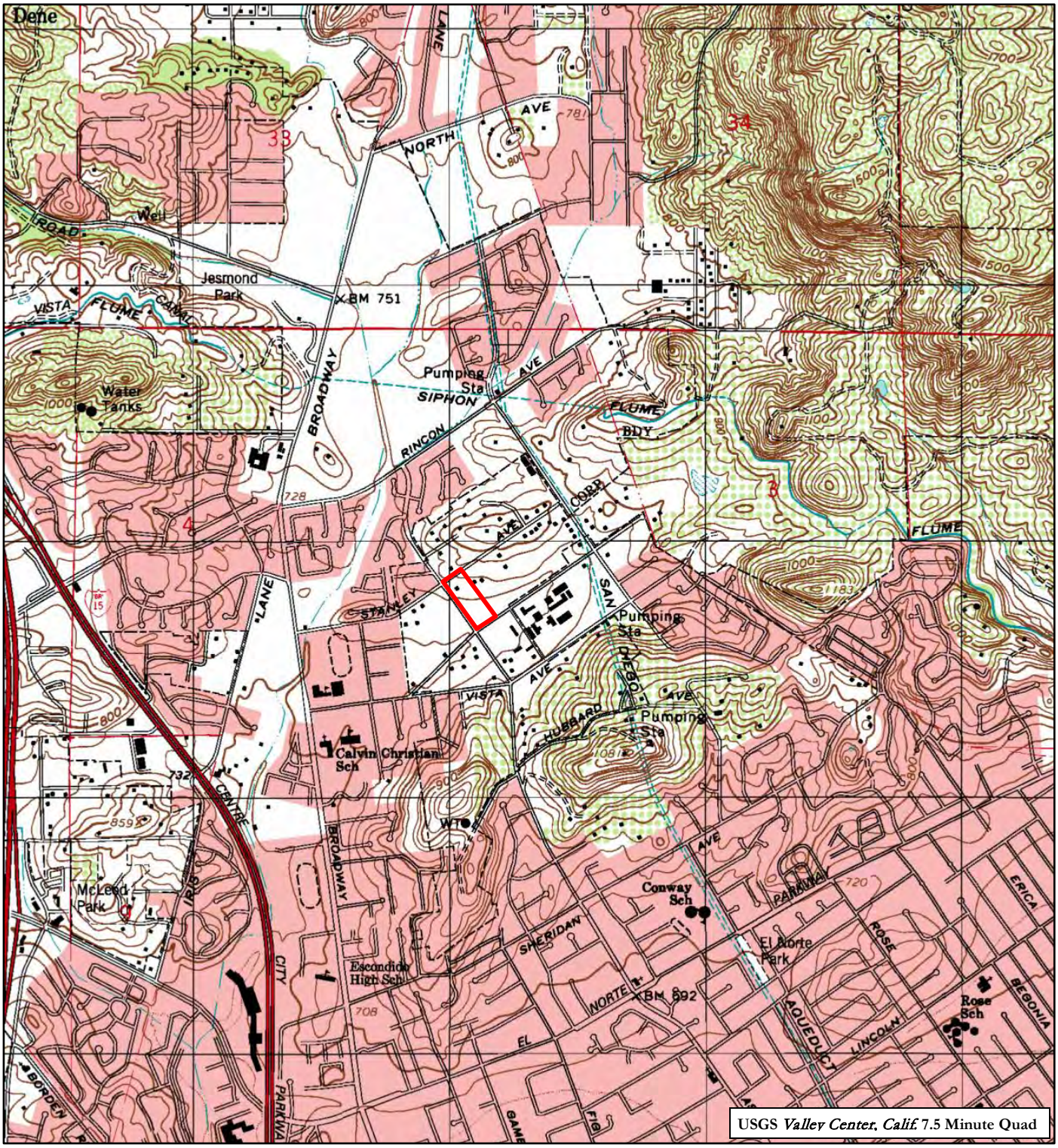


Figure 1: Project Location Map
Project: APN-224-142-01

0 1000 2000 FEET
500 1500

North

DUKE CRM

Figure 2: Street and Aerial Map
Project: APN-224-142-01

Attachment 2
Photographs

Figure 1: Overview of project site. View to northwest.

Attachment 3
SCIC Letter

South Coastal Information Center
4283 El Cajon Blvd., Suite 250
San Diego, CA 92105
Office: (619) 594-5682
Fax: (619) 594-4483
www.scic.org
nick@scic.org

CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM RECORDS SEARCH

Company: DUKE CULTURAL RESOURCES MANAGEMENT, LLC

Company Representative: Frederick W. Lange, PhD., RPA

Date Processed: 9/11/2013

Project Identification: 3 Tracts Escondido

Search Radius: 1/2 mile

Historical Resources: NJD

Trinomial and Primary site maps have been reviewed. All sites within the project boundaries and the specified radius of the project area have been plotted. Copies of the site record forms have been included for all recorded sites.

Previous Survey Report Boundaries: NJD

Project boundary maps have been reviewed. National Archaeological Database (NADB) citations for reports within the project boundaries and within the specified radius of the project area have been included.

Historic Addresses: NJD

A map and database of historic properties (formerly Geofinder) has been included.

Historic Maps: NJD

The historic maps on file at the South Coastal Information Center have been reviewed, and copies have been included.

Summary of SHRC Approved CHRIS IC Records Search Elements	
RSID:	0
RUSH:	no
Hours:	1
Spatial Features:	34
Address-Mapped Shapes:	no
Digital Database Records:	0
Quads:	1
Aerial Photos:	0
PDFs:	Yes
PDF Pages:	81

This is not an invoice. Please pay from the monthly billing statement

Attachment 4
SDNHM Letter

SAN DIEGO NATURAL HISTORY MUSEUM
BALBOA PARK - SAN DIEGO SOCIETY OF NATURAL HISTORY - ESTABLISHED 1874

11 September 2013

Dr. Frederick W. Lange
Duke Cultural Resources Management, LLC
22 Socorro
Rancho Santa Margarita, CA 92688

RE: Paleontological Record Search – 3 Tracts Escondido Project

Dear Dr. Lange:

This letter summarizes the results of a review of the paleontological locality and specimen records held in the Department of Paleontology at the San Diego Natural History Museum (SDNHM) for the 3 Tracts Escondido project. The project area encompasses three sites located in the City of Escondido, San Diego County, California. Specifically, the project area is bound to the north by Stanley Avenue, to the south by Vista Avenue, to the west by North Broadway, and to the East by Ash Street.

Published geological maps (Kennedy and Tan, 2005) describe the underlying geology of the three sites within the 3 Tracts Escondido project area. The two eastern sites are underlain by Mesozoic-age metamorphic rocks, and the southwestern site is underlain by Mesozoic aged-metamorphic rocks in the north, and Late to Middle Pleistocene-age older alluvial flood plain deposits in the south. Site records housed in the Department of Paleontology at the San Diego Natural History Museum indicate that no fossil localities occur within the vicinity of the project site, and the nearest fossil locality is approximately 10 miles to the west. The paucity of fossil localities is mostly due to the abundance of Mesozoic-age igneous and metamorphic rocks in the vicinity of the 3 Tracts Escondido project area. These rock types have zero paleontological sensitivity because the high temperatures and/or pressures they form at are not conducive to fossil preservation.

The sedimentary origin of the old alluvial flood plain deposits located in the southwestern portion of this project area suggests the potential for paleontological resources (e.g., fossil material). Though no known SDNHM fossil collecting localities are known within a one mile radius of the project area, scientifically significant fossils have been discovered in old alluvial flood plain deposits elsewhere in northern San Diego County, and have yielded remains of "Ice Age" terrestrial vertebrates (e.g., horses, proboscideans). Based on these fossil discoveries, Deméré and Walsh (1993) have assigned the old alluvial flood plain deposits a moderate paleontological sensitivity. The moderate sensitivity rating for the Pleistocene-age older alluvial river deposits would suggest the implementation of a standard paleontological avoidance program wherever these deposits occur (southern portion of the southwest site). The paleontological avoidance program should consist of excavation monitoring, fossil recovery, specimen preparation, and curation, and production of a final report. Implementation of such a program will avoid impacts of the project on paleontological resources.

The information contained within this paleontological record search should be considered private and is the sole property of the San Diego Natural History Museum. Any use or reprocessing of information contained within this document beyond the scope of the 3 Tracts Escondido project is prohibited.

If you have any questions concerning these findings please feel free to contact me at 619-255-0301 or sdonohue@sdnhm.org.

Sincerely,

Shelly Donohue
Report Writer
Department of PaleoServices

References Cited:

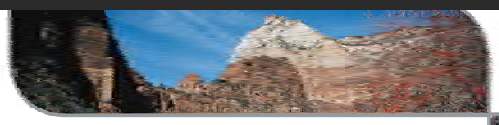
Deméré, T.A. and S.L. Walsh. 1993. Paleontological Resources, County of San Diego. Prepared for the San Diego Planning Commission 1-68.

Kennedy, M.P. and Tan, S.S. 2005. Geologic map of the Oceanside 30' x 60' quadrangle, California: A digital database: California Geological Survey, Preliminary Geologic Maps, scale 1:100000.

Appendix E
Geology & Soils
Technical Report

PETRA GEOTECHNICAL, INC.
LOS ANGELES COUNTY

25050 Avenue Kearny, Suite 110A
Valencia, CA 91355
T: 661.255.5790 F: 661.255.5242



past + present + future
it's in our science

Engineers, Geologists
Environmental Scientists

December 17, 2013
J.N. 13-445

Mr. Peter Carlson
VCS ENVIRONMENTAL
30900 Rancho Viejo Road, Suite 100
San Juan Capistrano, California 92675

Subject: **Geotechnical Plan Review, Proposed Single Family Residential Development, 2056 North Ash Street, (APN 224-142-01), Located Northeast of the Intersection of Stanley Avenue and North Ash Street, City of Escondido, California**

References: See attached list

Dear Mr. Carlson:

At your request, Petra Geotechnical, Inc. (Petra) is providing herewith our geotechnical plan review of the proposed 13 single family residential lots located at 2056 North Ash Street in the City of Escondido, California. This report is based on our review of the current rough grading plan prepared by BHA, Inc, (plan date August 28, 2013), the requirements of the 2010 California Building Code (CBC) and the City of Escondido Building Department, as well as our engineering judgment and professional opinion. This report is also based on our geotechnical investigation of the site which included research, field investigation and laboratory testing, as well as our geotechnical review and recommendations for similar projects on adjacent or nearby parcels. The purpose of this report is to present geotechnical recommendations for site grading and the design and construction of the foundations for the proposed residential structures and other site improvements that are based on the current grading plans and the 2010 California Building Code.

GEOTECHNICAL ASSESSMENT

Site Description

The rectangular shaped, 4.2± acre site is located between Stanley Avenue and Lehner Avenue, at the southeast corner of the intersection of Stanley Avenue and N. Ash Street in the City of Escondido, San Diego County, California. An aerial photo map showing the site location is included as Figure 1.

Topographically, the site consists of gently-sloping terrain that slopes to the south-southwest. Site elevations range from approximately 764± feet above mean sea level (msl) within the northeast portion of the site along Stanley Avenue to approximately 728± feet msl within the southwest portion of the site adjacent the intersection of N. Ash Street and Lehner Avenue. Thus, overall site relief is on the order of 36± feet. The site is developed and includes two houses, mobile homes, a workshop, storage sheds, RV trailers, and horse trailers in the north portion and horse corrals and covered shade areas in the southern portion. A small grove/orchard is located in the north portion of the site and numerous mature trees are scattered around the property. Scattered debris was observed throughout the site. The debris was mostly vegetation debris and household trash along with pieces of PVC pipe.

An approximately 80 foot by 40 foot drained pond is located in the southwest corner of the site. One well was observed within the south-central portion of the site just north of Lehner Avenue.

SUBSURFACE EXPLORATION

Our subsurface exploration was performed on October 6, 2013 and consisted of the excavation of four backhoe test pits to depths of 6 to 9 feet below the existing ground surfaces. Soils encountered were visually classified and logged in accordance with the Unified Soil Classification System. Representative samples of soil were also obtained for laboratory testing. Relatively undisturbed samples of subsurface soil were obtained with a hand-driven, split-spoon sampler. The approximate locations of the test pits are shown on the enclosed Site Plan (Figure 2) and the exploration logs are presented in Appendix A.

LABORATORY TESTING

To evaluate the engineering properties of site soils, several laboratory tests were performed on selected samples considered representative of those encountered during our investigation of the site. Laboratory tests included the determination of expansion potential, maximum compaction and optimum moisture content per ASTM D-1557, consolidation testing, and in-place moisture and density. A description of laboratory test procedures is given in Appendix B, and test data are summarized in the exploration logs and on Plate B-1. An evaluation of the test data is reflected throughout the "Conclusions and Recommendations" section of this report.

GEOLOGIC CONDITIONS

Regional Geology

The subject site is located on the western slopes of the Peninsular Range Geomorphic Province which is characterized by a line of north-south mountain ranges which extend from Baja California, north to San Bernardino County, California. These mountains are underlain by plutonic (primarily granitic) bedrock which was formed at depth and has been uplifted, eroded and exposed at or near surface grades. Surficial soils and stream laid deposits mantle much of the bedrock. The main structural elements of these ranges are the Elsinore and San Jacinto Fault Systems which are a series of en echelon (stepping), strike slip faults.

Geology and Subsurface Conditions

Based on the exploratory test pits, the site is mantled by a 3 to 7+ foot section of soil and alluvial materials, which are composed of loose silty sand and to a lesser extent clayey sand. Bedrock underlies the soil/alluvium to the depths explored (9+ feet). The granite/diorite bedrock is moderately to highly weathered bedrock and is characterized by well graded sands which are likely the "coronas" of granitic corestones. The weathered bedrock was hard and difficult to excavate with a "standard" backhoe.

Groundwater

Groundwater was not encountered during the field exploration activities to a maximum depth of 9+ feet below grade. Review of groundwater data for the general area indicates that the granitic bedrock is not a local water bearing unit. Groundwater is not anticipated to affect the proposed development. Minor seepage as the result of surface water migration could be encountered during periods of heavy rainfall.

Faulting

Based on our review of the published geologic maps and literature, no active or potentially active faults are known to project through the property. Furthermore, the site does not lie within the boundaries of an "Earthquake Fault Zone" as defined by the State of California in the Alquist-Priolo Earthquake Fault Zoning Act (Bryant and Hart, 2007). The Alquist-Priolo Earthquake Fault Zoning Act (AP Act) defines an *active fault* as one that has had surface displacement within Holocene time (about the last 11,000 years). The primary objective of the AP Act is to prevent the construction of structures for human occupancy over the traces of active faults that could displace the ground surface and result in loss of life and property.

According to published maps of known active fault near-source zones (ICBO, 1998), the active Elsinore fault zone (Julian segment - design fault for the project), is located approximately 12± to 14± miles northeast of the site. The Elsinore fault, which is approximately 180 km in length (not including the Whittier, Chino, and Laguna Salada segments), is a right lateral strike slip fault. The Julian segment of the Elsinore fault zone has an estimated Moment Magnitude (Mw) of 7.5.

Seismic Hazard Zones

Through the Seismic Hazards Mapping Act, the CGS, formerly known as the California Division of Mines and Geology (CDMG), has established Seismic Hazard Zones that depict areas considered susceptible to earthquake-induced soil liquefaction and landsliding within the more densely populated portions of southern and northern California. The State has not yet zoned the subject area. However, given the shallow depth to firm, dense bedrock materials, the possibility of earthquake induced soil liquefaction, which requires loose granular soils, is considered nil. The possibility of earthquake induced landsliding is considered negligible due to the subdued topography in the locale area.

Seismic-Induced Flooding

Seismically induced flooding which might be considered a potential hazard to a particular site normally includes flooding due to a tsunami (seismic sea wave), a seiche, or failure of a major reservoir retention structure upstream of the site. The site is over 14 miles inland from the Pacific Ocean at an approximate elevation of 800 feet, and does not lie in close proximity of an enclosed body of water or downstream of a major reservoir retention structure. Therefore the probability of flooding from a tsunami, seiche or dam-break is considered to be negligible.

ROUGH GRADING PLAN REVIEW

Proposed Grading and Construction

Based on the grading plan prepared by BHA, Inc. (Figure 2), the proposed development will include 13 building pads for single-family residences. It is assumed that the single-family residences will be of wood-frame construction with first floor slabs constructed on-grade.

Design cuts and fills are generally on the order 1 to 3 feet from existing grade. The maximum design fill and cut is located on Lot 1 and is approximately 7 and 5 feet, respectively. Sideyard slopes varying from 1 to 8± feet are proposed.

CONCLUSIONS AND RECOMMENDATIONS

Feasibility

Based on our understanding of the current rough grading design, the recent subsurface investigation and laboratory testing program, and our experience on similar projects in the local area, the proposed residential construction within the site is considered to be feasible and practical from a geotechnical standpoint if accomplished in accordance with the applicable CBC and City of Escondido building codes and the following recommendations.

Site Preparation and Rough Grading

Clearing and Grubbing

Prior to site grading all unsuitable materials including grasses and weeds are to be removed and hauled from the site. The project geotechnical consultant should be notified at the appropriate times to provide observation and testing services during clearing operations. In addition, should any buried structures or unusual or adverse soil conditions be encountered during clearing operations or during grading that are not described or anticipated herein, these conditions should be brought to the immediate attention of the geotechnical consultant.

Removal of Unsuitable Soil and Alluvium

Based on the recent field investigation/test pit exposures, the site is mantled by 3 to 7+ feet of loose soil and alluvial material which is underlain by dense/firm well graded sand that is representative of weathered bedrock materials. Due to the inherent nature of pressure distribution through particulate media (e.g., soils), the compressibility of the soil and alluvium, if left in-place, would contribute significantly to overall foundation settlement. Therefore, it is recommended that all soil and alluvium be removed to expose dense native bedrock material. It should be noted that deeper removals may be required in the drained pond area where saturated and highly weathered bedrock materials may be encountered.

As a minimum the removals should extend 3 feet below the bottom of proposed footings. The removals should extend beyond the building footprint a minimum horizontal distance of 5 feet or a distance equal to the depth of removal, whichever is greater. In hardscape and driveway areas a 2 foot removal below existing grade is recommended. The resulting voids should be replaced with properly compacted soils.

It must be noted that the depths of remedial grading provided herein are estimates only and are based on conditions observed at the test pit locations. Subsurface conditions can and usually do vary between points of exploration. For this reason, the actual removal depths will have to be determined on the basis of in-grading observations and testing performed by a representative of the project geotechnical consultant. The Client, civil engineer and project grading contractor should allow contingencies for additional earthwork quantities should deeper removals be required.

Overexcavation of Cut/Fill Transitions

The proposed grading will create "stepped" lots with sideyard slopes on the order of 5 to 12 feet in height. The northern side of the building pads will be design cut and the southern half are design fills. In order to mitigate the detrimental effects of differential settlement across the cut/fill transition, it is recommended that the cut portions of the lot be overexcavated to a depth that is a minimum of 3 feet below the bottom of footings. A typical cut-fill transition detail is presented in Appendix C, Standard Grading Recommendations.

Approval of Removal/Overexcavation Bottoms and Placement of Compacted Fill

Exposed bottom surfaces areas to receive compacted fill should be observed and approved by the project geotechnical consultant prior to fill placement. No fill should be placed without prior approval from the geotechnical consultant. The project geotechnical consultant should also be present on site during grading operations to document proper placement and adequate compaction of fill, as well as to observe compliance with the other recommendations presented herein.

All fills should be placed in 6- to 8-inch-thick maximum lifts, watered or air dried as necessary to achieve slightly above-optimum moisture conditions, and then compacted to a minimum relative compaction of 90 percent. The laboratory maximum dry density and optimum moisture content for each change in soil type should be determined in accordance with Test Method ASTM D 1557.

Suitability of Onsite Soils for Fill

All onsite soils consisting of "clean" undocumented fill and native alluvial deposits are considered suitable for use as engineered fill provided they are free of organics, demolition debris, or other deleterious materials.

Sideyard Slope Construction

Sideyard fill over cut slopes are proposed between the building pads at slope ratios of 2:1, horizontal to vertical. These slopes vary in height from 1 to 8± feet. Slopes constructed to these heights with on-site soil and/or bedrock materials will be grossly stable. The fill portions of the slopes should be constructed as recommended below.

Fill Keys

Due to the proposed depth of removals and the relatively low height of the sideyard slopes, it is anticipated that the slopes will be built as fill slopes. Fill keys will be required at the toe of slopes exceeding three feet in height and should be excavated into competent bedrock or competent bearing soils. The fill keys should be excavated to a minimum depth of 2 feet into competent materials and have a minimum width of 15 feet. The bottoms of the fill keys should be tilted back at a minimum of 2 percent towards the heel of the key. A typical fill key detail is presented in the Appendix.

Surface Compaction

The finish surfaces of all fill slopes should be compacted to a minimum relative compaction of 90 percent. Final surface compaction should be achieved by overfilling the slopes during construction, backrolling the overfilled slope surfaces at vertical intervals not exceeding 4 to 5 feet, and then trimming the slopes back to the compacted inner core. Where this procedure may not be practical, surface compaction should be obtained by backrolling during construction to achieve at least 90 percent relative compaction within 6 to 8 inches of the finish surfaces. This initial back-rolling should be performed at vertical intervals not exceeding 4 to 5 feet. Final surface compaction should then be achieved by rolling the slope surface with a cable-lowered sheepsfoot and then re-rolling with a grid roller. During final surface compaction, it is critical that the moisture content of the surface soils be maintained at near optimum moisture content or slightly higher.

FOUNDATION DESIGN CONSIDERATIONS

2010 CBC Seismic Design Coefficients

Structures within the site should be designed and constructed to resist the effects of seismic ground motions as provided in Section 1613 of the 2010 CBC. The method of design is dependent on the seismic zoning, site characteristics, occupancy category, building configuration, type of structural system and on the building height. For structural design in accordance with the 2010 CBC, a computer program, Earthquake Ground Motion Parameters Version 5.1.0, developed by the United States Geological Survey (USGS, 2007) was utilized to provide ground motion parameters for the subject lots. The program includes hazard curves, uniform hazard response spectra and design parameters for sites in the 50 United States, Puerto Rico and the United States Virgin Islands. Based on the latitude, longitude and site classifications, seismic design parameters and spectral response for both short periods and 1-second periods are calculated including Mapped Spectral Response Acceleration Parameter, Site Coefficient, Adjusted Maximum Considered Earthquake Spectral Response Acceleration Parameter and Design Spectral Response Acceleration Parameter. The program is based on USGS research and publications in cooperation with the California Geological Survey for evaluation of California faulting and seismicity (USGS, 1996a; 1996b; 2002; 2007).

The following 2010 CBC seismic design coefficients should be used for the proposed structures. These criteria are based on the site class as determined by existing subsurface geologic conditions, on the proximity of the site to the nearby fault and on the maximum moment magnitude and slip rate of the nearby fault.

2010 CBC Section 1613 Seismic Design Coefficients	
Site Latitude	33.1576
Site Longitude	-117.0850
Mapped Spectral Response Acceleration Parameter, S_s (Figure 1613.5(3) for 0.2 second)	1.118
Mapped Spectral Response Acceleration Parameter, S_1 (Figure 1613.5(4) for 1.0 second)	0.420
Site Class Definition (Table 1613.5.2)	B
Site Coefficient, F_a (Table 1613.5.3(1) short period)	1.0
Site Coefficient, F_v (Table 1613.5.3(2) 1-second period)	1.0
Adjusted Maximum Considered Earthquake Spectral Response Acceleration Parameter, S_{MS} (Eq. 16-37)	1.118
Adjusted Maximum Considered Earthquake Spectral Response Acceleration Parameter, S_{M1} (Eq. 16-38)	0.420
Design Spectral Response Acceleration Parameter, S_{DS} (Eq. 16-39)	0.745
Design Spectral Response Acceleration Parameter, S_{D1} (Eq. 16-40)	0.280

Allowable Soil Bearing Capacities

An allowable soil bearing capacity of 1,500 pounds per square foot, including dead and live loads, may be utilized for design of 12 inch-wide continuous footings founded at a minimum depth of 12 inches below the lowest adjacent final grade. This value may be increased by 20 percent for each additional foot of width and/or depth, to a maximum value of 2,500 pounds per square foot. Recommended allowable bearing values include both dead and live loads, and may be increased by one-third for short duration wind and seismic forces.

Static and Dynamic Settlement Potential

Based on the allowable bearing values, total static settlement of the footings is anticipated to be less than 1 inch and static differential settlement is expected to be less than ¾ of an inch over a span of 40 feet. The majority of these settlements are likely to take place immediately after placement of the footing loads.

Based on our evaluation, total dynamic settlement of the footings during a major seismic event is anticipated to be on the order of 1 inch and differential settlement is expected to be less than 1 inch over a distance of 40 feet.

Lateral Resistance

A passive earth pressure of 250 pounds per square foot, per foot of depth, to a maximum value of 2,500 pounds per square foot may be used to determine lateral bearing resistance for footings. The above values may be increased by one-third when designing for short duration wind or seismic forces. In addition, a coefficient of friction of 0.35 times the dead load forces may be used between concrete and the supporting soils to determine lateral sliding resistance. The above values are based on footings placed directly against compacted fill. In cases where the footing sides are formed, all backfill placed against the footings should be compacted to at least 90 percent of maximum dry density.

Expansive Soil Conditions

Laboratory testing of a representative site material sample indicates that surficial site soils have a Very Low expansion potential (Plate B-1). However, all test pits on this parcel contain clayey soils, which are prone to expansion upon wetting. Prior reports (Petra, 2013a and 2013b) prepared for adjacent or nearby parcels have reported soils of medium expansion potential based on expansion testing of similar clayey soils. Therefore, Petra recommends designing for soils exhibiting medium expansion potential.

Footing and Slab-on-Grade Design and Construction Considerations

As stated above, laboratory test results indicate that the material that are expected to be within the near surface zone will likely exhibit expansion potentials that vary from low to medium range (E.I. from 51 to 90). For preliminary design purposes, the following recommendations for design and construction of slabs on-grade assume a medium expansion potential for finish grade materials. As such, the site soils are classified as "expansive" as defined in Section 1803.5.3 of the 2010 CBC. The design of foundations and slabs-on-ground should therefore be performed in accordance with the procedures outlined in Sections 1808.6.1 and 1808.6.2 of the 2010 CBC, respectively.

General

Briefly, Section 1808.6.1 of the 2010 CBC requires that foundations placed on or within the active zone of expansive soils shall be designed to resist differential volume changes and to prevent structural damage to the supported structure. Section 1808.6.2 of the 2010 CBC requires that non-prestressed slabs-on-grade or mat foundations constructed on expansive soils be designed in accordance with *WRI/CRSI Design of Slab-on-Ground Foundations.* The CBC also requires that post-tensioned slabs-on-grade or mat foundations placed on expansive soils be designed in accordance with *PTI Standard Requirements for Design of Shallow Post-Tensioned Concrete Foundation on Expansive Soils* with the provision that the analyses used to determination of moments, shears and deflections are performed accordingly. It should be noted that, under certain conditions, the 2010 CBC allows for alternative, rational methods of analysis and design of such slabs provided that these methods account for soil-structure interaction, the deformed shape of the soil support, plate or stiffened plate action of the slab, as well as both center lift and edge lift conditions.

The design and construction recommendations that follow are based on the above soil conditions and may be considered for reducing the effects of variability in composition and behavior within the site soils and long-term differential settlement. These recommendations have been developed on the basis of the previous experience of this firm on projects with similar soil conditions. Although construction performed in accordance with these recommendations has been found to reduce post-construction movement and/or distress, they generally do not positively eliminate all potential effects of variability in soils characteristics and future settlement.

It should also be noted that the recommendations for reinforcement provided herein are performance-based and intended only as guidelines to achieve adequate performance under the anticipated soil conditions. The project structural engineer, architect and/or civil engineer

should make appropriate adjustments to reinforcement type, size and spacing to account for internal concrete forces (e.g., thermal, shrinkage and expansion) as well as external forces (e.g., applied loads) as deemed necessary. Consideration should also be given to minimum design criteria as dictated by local building code requirements.

Conventional Slabs-on-Grade System

Given the assumed medium expansion potential of the onsite soils, we recommend that footings and floor slabs be designed and constructed in accordance with the following minimum criteria. As stated above, onsite soils within the subject site should be considered to be expansive per Section 1803.5.3 of the 2010 CBC. Section 1808.6.2 of the 2010 CBC specifies that nonprestressed slab-on-grade foundations (floor slabs) constructed on expansive materials should be designed in accordance with the latest edition of the Wire Reinforcement Institute (WRI) publication "Design of Slab-on-Ground Foundations". The design procedures outlined in the WRI publication are based on the weighted plasticity index of the various soil layers existing within the upper 15 feet of the building site.

A weighted plasticity index of 25 can be assumed for the subject site. The WRI publication states that the weighted plasticity index of each building site should be modified (multiplied) by correction factors that compensate for the effects of sloping ground and the unconfined compressive strength of the supporting soil or bedrock materials. Since the buildings will be constructed on level building pads, and in consideration of the estimated unconfined compressive strength of the on-site soils, it is recommended that the weighted plasticity index (25) be multiplied by a factor of 1.2 in order to determine the value of the effective plasticity index (per Figure 9 of the WRI publication). In summary, it is recommended that an effective plasticity index of 30 be utilized by the project structural engineer to design slabs-on-ground with an interior grade beam system in accordance with the WRI publication.

Footings

1. Exterior continuous footings supporting one- and two-story structures should be founded at a minimum depth of 18 inches below the lowest adjacent final grade, respectively. Interior continuous footings may be founded at a minimum depth of 12 inches below the tops of the adjacent finish floor slabs.

2. All continuous footings should have minimum widths of 12 and 15 inches for one- and two-story construction, respectively. All continuous footings should be reinforced with a minimum of four No. 4 bars, two top and two bottom.

3. A minimum 12-inch-wide grade beam founded at the same depth as adjacent footings should be provided across garage entrances or similar openings (such as large doors or bay windows). The grade beam should be reinforced with a similar manner as provided above.

4. Interior isolated pad footings, if required, should be a minimum of 24 and 30 inches square for one and two-story structures, respectively. Interior pad footings should be spaced be not more than six feet on center. They should be founded at a minimum depth of 12 inches below the bottoms of the adjacent floor slabs. Pad footings should be reinforced with No. 4 bars spaced a maximum of 18 inches on centers, both ways, placed near the bottoms of the footings. Exterior isolated pad footings may need to connect to adjacent pad and/or continuous footings via tie beams at the discretion of the project structural engineer.

5. Exterior isolated pad footings intended for support of roof overhangs such as second-story decks, patio covers and similar construction should be a minimum of 24 inches square and founded at a minimum depth of 18 inches below the lowest adjacent final grade. The pad footings should be reinforced with No. 4 bars spaced a maximum of 18 inches on centers, both ways, placed near the bottoms of the footings. Exterior isolated pad footings may need to be connected to adjacent pad and/or continuous footings via tie beams at the discretion of the project structural engineer.

6. The spacing and layout of the interior concrete grade beam system required below floor slabs should be determined by the project architect or structural engineer in accordance with the WRI publication using the effective plasticity index value provided previously.

7. The minimum footing dimensions and reinforcement recommended herein may be modified (increased or decreased subject to the constraints of Chapter 18 of the 2010 CBC) by the structural engineer responsible for foundation design based on his/her calculations, engineering experience and judgment.

Building Floor Slabs

1. Concrete floor slabs should be a minimum 4 inches thick and reinforced with No. 3 bars spaced a maximum of 18 inches on centers for subgrade soils with an effective plasticity index (PI) of less than 20 and 15 inches on centers for subgrade soils with an effective plasticity index (PI) of 20 or greater, both ways. As an alternate, for conditions where the effective plasticity index of subgrade soils is less than 20, the structural engineer may recommend the use of prefabricated welded wire mesh for slab reinforcement. For this condition, the welded wire mesh should be of sheet type (not rolled) and should consist of 6x6/W2.9xW2.9 (per the Wire Reinforcement Institute [WRI] designation) or stronger. The use of prefabricated welded wire mesh is not recommended for conditions where subgrade soils effective plasticity index (PI) is equal or greater than 20. All slab reinforcement should be supported on concrete chairs or brick to ensure the desired placement near mid-depth. Care should be exercised to prevent warping of the welded wire mesh between the chairs in order to ensure its placement at the desired mid-slab position.

2. Living area concrete floor slabs and areas to receive moisture sensitive floor covering should be underlain with a moisture vapor retarder consisting of a minimum 10-mil-thick polyethylene or polyolefin membrane that meets the minimum requirements of ASTM E96 and ASTM E1745 for vapor retarders (such as Husky Orange Guard®, Stego® Wrap, or equivalent). All laps within the membrane should be sealed, and at least 2 inches of clean sand should be placed over the membrane to promote uniform curing of the concrete. To reduce the potential for punctures, the membrane

should be placed on a pad surface that has been graded smooth without any sharp protrusions. If a smooth surface cannot be achieved by grading, consideration should be given to lowering the pad finished grade an additional inch and then placing a 1-inch-thick leveling course of sand across the pad surface prior to the placement of the membrane.

At the present time, some slab designers, geotechnical professionals and concrete experts view the sand layer below the slab (blotting sand) as a place for entrapment of excess moisture that could adversely impact moisture-sensitive floor coverings. As a preventive measure, the potential for moisture intrusion into the concrete slab could be reduced if the concrete is placed directly on the vapor retarder. However, if this sand layer is omitted, appropriate curing methods must be implemented to ensure that the concrete slab cures uniformly. A qualified materials engineer with experience in slab design and construction should provide recommendations for alternative methods of curing and supervise the construction process to ensure uniform slab curing. Additional steps would also need to be taken to prevent puncturing of the vapor retarder during concrete placement.

3. Garage floor slabs should be a minimum 4 inches thick and reinforced in a similar manner as living area floor slabs. Garage slabs should also be poured separately from adjacent wall footings with a positive separation maintained using ¾-inch-minimum felt expansion joint material. To control the propagation of shrinkage cracks, garage floor slabs should be quartered with weakened plane joints.

4. Presaturation of the subgrade below floor slabs will not be required; however, prior to placing concrete, the subgrade below all dwelling and garage floor slab areas should be prewatered to achieve a moisture content that is at least 1.3 times the optimum moisture content. This moisture content should penetrate to a minimum depth of 18 inches below the bottoms of the slabs.

5. The minimum dimensions and reinforcement recommended herein for building floor slabs may be modified (increased or decreased subject to the constraints of Chapter 18 of the 2010 CBC) by the structural engineer responsible for foundation design based on his/her calculations, engineering experience and judgment.

Post-Tensioned Slabs-on-Grade System

As stated above, onsite soils within the subject site should be considered to be expansive per Section 1803.5.3 of the 2010 CBC. Section 1808.6.2 of the 2010 CBC specifies that post-tensioned slab-on-ground foundations (floor slabs) resting on expansive materials should be designed in accordance with the latest edition of the Post-Tensioning Institute (PTI) publication "Standard Requirements for Design of Shallow Post-Tensioned Concrete Foundations on Expansive Soils."

To comply with Section 1808.6.2 of the 2010 CBC and the PTI publication, in addition to performing appropriate tests on representative samples of site soils, certain assumptions regarding the site environmental condition and the composition of the subsurface soils were made. The following table presents our recommendations for soil and environmental parameters for design of post-tensioned slabs-

on-grade based on our laboratory testing, engineering analysis, as well as our engineering judgment and experience on similar sites.

Design Parameters for PTI Procedure

Soil Information	
Liquid Limit (LL)	45
Plastic Limit (PL)	20
Plasticity Index (PI)	25
Percent Passing No. 200 Sieve (% < #200)	48.9
Percent Less than 2 Microns (% < 0.002 mm)	30
Percent Fine Clay	30
Expansion Index (EI)	58
Summary of Design Parameters	
Approximate Depth of Constant Suction, feet	9
Approximate Soil Suction, pF	3.9
Inferred Thornthwaite Index:	-20
Average Edge Moisture Variation Distance, e_m in feet: Center Lift Edge Lift	 9.0 4.7
Anticipated Swell, y_m in inches: Center Lift Edge Lift	 -0.255 0.706

Modulus of Subgrade Reaction

The modulus of subgrade reaction for design of load bearing partitions may be assumed to be 100 pounds per cubic inch.

Minimum Design Recommendations

The soil values provided above may be utilized by the project structural engineer to design post-tensioned slabs-on-ground in accordance with Section 1808.6.2 of the 2010 CBC and the PTI publication. Thicker floor slabs and larger footing sizes may be required for structural reasons and should govern the design if more restrictive than the minimum recommendations provided below:

1. Perimeter footings for both one-story and two-story structures should be founded at a minimum depth of 15 inches below the lowest adjacent finished ground surface. Interior footings may be founded at a minimum depth of 12 inches below the tops of the adjacent finish floor slabs. All continuous footings should be reinforced with a minimum of four No. 4 bars, two top and two bottom. Alternatively, post-tensioned tendons may be utilized in the perimeter continuous footings in lieu of the reinforcement bars.

2. A minimum 12-inch-wide grade beam founded at the same depth as adjacent footings should be provided across the garage entrances or similar openings (such as large doors or bay windows). The grade beam should be reinforced in a similar manner as provided above.

3. Exterior isolated pad footings intended for support of roof overhangs such as second-story decks, patio covers and similar construction should be a minimum of 24 inches square and founded at a minimum depth of 18 inches below the lowest adjacent final grade. The pad footings should be reinforced with No. 4 bars spaced a maximum of 18 inches on centers, both ways, placed near the bottoms of the footings. Exterior isolated pad footings may need to be connected to adjacent pad and/or continuous footings via tie beams at the discretion of the project structural engineer.

4. The thickness of the floor slabs should be determined by the project structural engineer with consideration given to the expansion potential of the onsite soils; however; we recommend that a minimum slab thickness of 4 inches be considered.

5. As an alternative to designing 4-inch-thick post-tensioned slabs with perimeter footings as described in Items 1 and 2 above, the structural engineer may design the foundation system using a thickened slab design. The minimum thickness of this uniformly thick slab should be 10 inches. The engineer in charge of post-tensioned slab design may also opt to use any combination of slab thickness and footing embedment depth as deemed appropriate based on their engineering experience and judgment.

6. Living area concrete floor slabs and areas to receive moisture sensitive floor covering should be underlain with a moisture vapor retarder consisting of a minimum 10-mil-thick polyethylene or polyolefin membrane that meets the minimum requirements of ASTM E96 and ASTM E1745 for vapor retarders (such as Husky Orange Guard®, Stego® Wrap, or equivalent). All laps within the membrane should be sealed, and at least 2 inches of clean sand should be placed over the membrane to promote uniform curing of the concrete. To reduce the potential for punctures, the membrane should be placed on a pad surface that has been graded smooth without any sharp protrusions. If a smooth surface cannot be achieved by grading, consideration should be given to lowering the pad finished grade an additional inch and then placing a 1-inch-thick leveling course of sand across the pad surface prior to the placement of the membrane.

   At the present time, some slab designers, geotechnical professionals and concrete experts view the sand layer below the slab (blotting sand) as a place for entrapment of excess moisture that could adversely impact moisture-sensitive floor coverings. As a preventive measure, the potential for moisture intrusion into the concrete slab could be reduced if the concrete is placed directly on the vapor retarder. However, if this sand layer is omitted, appropriate curing methods must be implemented to ensure that the concrete slab cures uniformly. A qualified materials engineer with experience in slab design and construction should provide recommendations for alternative methods of curing and supervise the construction process to ensure uniform slab curing. Additional steps would also need to be taken to prevent puncturing of the vapor retarder during concrete placement.

7. Presaturation of the subgrade below floor slabs will not be required; however, prior to placing concrete, the subgrade below all dwelling and garage floor slab areas should be thoroughly moistened to achieve a moisture content that is at least equal to or slightly greater than optimum moisture content. This moisture content should penetrate to a minimum depth of 18 inches below the bottoms of the slabs.

8. The minimum footing dimensions and reinforcement recommended herein may be modified (increased or decreased subject to the constraints of Chapter 18 of the 2010 CBC) by the structural engineer responsible for foundation design based on his/her calculations, engineering experience and judgment.

Foundation Excavation Observations

Foundation Excavation Observations

Foundation excavations should be observed by a representative of Petra to document that they have been excavated into competent bearing soils prior to the placement of forms, reinforcement or concrete. The excavations should be trimmed neat, level and square. All loose, sloughed or moisture-softened soils and/or any construction debris should be removed prior to placing of concrete. Excavated soils derived from footing and/or utility trenches should not be placed in building slab-on-grade areas or exterior concrete flatwork areas unless the soils are compacted to at least 90 percent of maximum dry density.

Masonry Block Screen Walls

Footings for masonry block walls may be designed in accordance with the bearing and lateral resistance values provided previously for building footings. However, as a minimum, the wall footings should be embedded at a minimum depth of 12 inches below the lowest adjacent final grade. The footings should also be reinforced with a minimum of two No. 4 bars, one top and one bottom. In order to minimize the potential for unsightly cracking related to the possible effects of differential settlement and/or expansion, positive separations (construction joints) should also be provided in the block walls at each corner and at horizontal intervals of approximately 20 to 25 feet. The separations should be provided in the blocks and not extend through the footings. The footings should be poured monolithically with continuous reinforcement bars to serve as effective "grade beams" below the walls.

GENERAL CORROSIVITY COMMENTS

Petra does not practice corrosion engineering. We recommend that the project design professionals (i.e., the architect and/or structural engineer) consider recommending a qualified corrosion engineer to conduct sampling and testing of near-surface soils during the final stages of site grading to provide an assessment of soil corrosivity. Recommendations to mitigate the detrimental effects of corrosive soils on buried metallic building materials such as copper and ductile iron, concrete in contact with soils and other building materials should be provided by the corrosion engineer as deemed appropriate.

CONCRETE FLATWORK

General

Near-surface compacted fill soils within the site are variable in expansion behavior and are expected to exhibit low to medium expansion potential. Due to typical project scheduling constraints, it may not be feasible to collect additional samples of subgrade soils for testing to verify their expansion potential

immediately prior to placing concrete. For this reason, we recommend that all exterior concrete flatwork such as sidewalks, patio slabs, large decorative slabs, concrete subslabs that will be covered with decorative pavers, private and/or public vehicular driveways and/or access roads within and adjacent to the site be designed by the project architect and/or structural engineer with consideration given to mitigating the potential cracking and uplift that can develop in soils exhibiting expansion index values that fall in the low category.

The guidelines that follow should be considered as minimums and are subject to review and revision by the project architect, structural engineer and/or landscape consultant as deemed appropriate. If sufficient time will be allowed in the project schedule for verification sampling and testing prior to the concrete pour, the test results generated may dictate that a somewhat less conservative design could be used.

Thickness and Joint Spacing

To reduce the potential of unsightly cracking, concrete walkways, patio-type slabs, large decorative slabs and concrete subslabs to be covered with decorative pavers should be at least 4 inches thick and provided with construction joints or expansion joints every 6 feet or less. Private driveways that will be designed for the use of passenger cars for access to private garages should also be at least 4 inches thick and provided with construction joints or expansion joints every 10 feet or less. Concrete pavement that will be designed based on an unlimited number of applications of an 18-kip single-axle load in public access areas, segments of road that will be paved with concrete (such as bus stops and cross-walks) or access roads and driveways, which serve multiple residential units or garages, that will be subject to heavy truck loadings should have a minimum thickness of 5 inches and be provided with control joints spaced at maximum 10-foot intervals. A modulus of subgrade reaction of 100 pounds per cubic foot may be used for design of the public and access roads.

Reinforcement

All concrete walkways, patio-type slabs, large decorative slabs, concrete subslabs to be covered with decorative pavers and private driveways that will be designed for the use of passenger cars for access to private garages should be reinforced with a minimum of No. 3 bars spaced 24 inches on centers, both ways. Alternatively, the slab reinforcement may consist of welded wire mesh of the sheet type (not rolled) with 6x6/W1.4xW1.4 designation in accordance with the Wire Reinforcement Institute (WRI). Concrete pavement that will be designed based on an unlimited number of applications of an 18-kip single-axle load in public access areas, segments of road that will be paved with concrete (such as bus

stops and cross-walks) or access roads that will be subject to heavy truck loadings should be reinforced with a minimum of No. 3 bars spaced 18 inches on centers, both ways. Alternatively, the slab reinforcement may consist of welded wire mesh of the sheet type with 6x6/W2.9xW2.9 designation in accordance with the Wire Reinforcement Institute (WRI). The reinforcement should be properly positioned near the middle of the slabs.

The reinforcement recommendations provided herein are intended as guidelines to achieve adequate performance for anticipated soil conditions. The project architect, civil and/or structural engineer should make appropriate adjustments in reinforcement type, size and spacing to account for concrete internal (e.g., shrinkage and thermal) and external (e.g., applied loads) forces as deemed necessary.

Edge Beams (Optional)

Where the outer edges of concrete flatwork are to be bordered by landscaping, it is recommended that consideration be given to the use of edge beams (thickened edges) to prevent excessive infiltration and accumulation of water under the slabs. Edge beams, if used, should be 6 to 8 inches wide, extend 8 inches below the tops of the finish slab surfaces. Edge beams are not mandatory; however, their inclusion in flatwork construction adjacent to landscaped areas is intended to reduce the potential for vertical and horizontal movement and subsequent cracking of the flatwork related to uplift forces that can develop in expansive soils.

Subgrade Preparation

Compaction - To reduce the potential for distress to concrete flatwork, the subgrade soils below concrete flatwork areas to a minimum depth of 15 inches (or deeper, as either prescribed elsewhere in this report or determined in the field) should be moisture conditioned to at least equal to, or slightly greater than, the optimum moisture content and then compacted to a minimum relative compaction of 90 percent. Where concrete public roads, concrete segments of roads and/or concrete access driveways are proposed, the upper 6 inches of subgrade soil should be compacted to a minimum 95 percent relative compaction.

Pre-Moistening - As a further measure to reduce the potential for concrete flatwork cracking, subgrade soils should be thoroughly moistened prior to placing concrete. The moisture content of the soils should be at least 1.2 times the optimum moisture content and penetrate to a minimum depth of 15 inches into the subgrade. Flooding or ponding of the subgrade is not considered feasible to achieve the above moisture conditions since this method would likely require construction of numerous earth berms to

contain the water. Therefore, moisture conditioning should be achieved with sprinklers or a light spray applied to the subgrade over a period of few to several days just prior to pouring concrete. Pre-watering of the soils is intended to promote uniform curing of the concrete, reduce the development of shrinkage cracks and reduce the potential for differential expansion pressure on freshly poured flatwork. A representative of the project geotechnical consultant should observe and verify the density and moisture content of the soils, and the depth of moisture penetration prior to pouring concrete.

Drainage

Drainage from patios and other flatwork areas should be directed to local area drains and/or graded earth swales designed to carry runoff water to the adjacent streets or other approved drainage structures. The concrete flatwork should be sloped at a minimum gradient of one percent, or as prescribed by project civil engineer or local codes, away from building foundations, retaining walls, masonry garden walls and slope areas.

Tree Wells

Tree wells are not recommended in concrete flatwork areas since they introduce excessive water into the subgrade soils and allow root invasion, both of which can cause heaving and cracking of the flatwork.

FUTURE IMPROVEMENTS AND/OR GRADING

If additional site improvements are considered in the future, our firm should be notified so that we may provide design recommendations to mitigate movement, settlement and/or tilting of the structures. Construction of additional improvements is particularly critical on or near the tops of descending slopes. Potential problems can develop when drainage on the pads and slopes is altered in any way such as placement of fill and construction of new walkways, patios, landscape walls, swimming pools, spas and/or planters. Therefore, it is recommended that we be engaged to review the final design drawings, specifications and grading plan prior to any new construction. If we are not provided the opportunity to review these documents with respect to the geotechnical aspects of new construction and grading, it should not be assumed that the recommendations provided herein are wholly or in part applicable to the proposed improvements.

Post Grading Observations and Testing

Petra should be notified at the appropriate times in order that we may provide the following observation and testing services during the various phases of construction and precise grading.

1. Building Construction

- Observe all footing trenches when first excavated to verify adequate depth and competent bearing conditions.
- Re-observe all footing trenches, if necessary, if trenches are found to be excavated to inadequate depth and/or found to contain significant slough, saturated or compressible materials.

2. Concrete Flatwork Construction

- Observe and test subgrade soils below all concrete flatwork areas to verify adequate compaction, moisture content and moisture penetration prior to pouring concrete.

3. Utility Trench Backfill

- Observe and test placement of all utility trench backfill to verify adequate compaction.

4. Precise Grading

- Observe and test placement of any fill to be placed on the subject lots to verify adequate compaction.

5. Wall Footings

- Observe all retaining wall and screen wall footing trenches when first excavated to verify adequate depth and competent bearing conditions.

REPORT LIMITATIONS

This report is based on the proposed project and geotechnical data as described herein. The materials encountered on the project site, described in other literature, and utilized in our laboratory investigation are believed representative of the project area, and the conclusions and recommendations contained in this report are presented on that basis. However, soil and bedrock materials can vary in characteristics between points of exploration, both laterally and vertically, and those variations could affect the conclusions and recommendations contained herein. As such, observation and testing by a geotechnical consultant during the grading and construction phases of the project are essential to confirming the basis of this report. To provide the greatest degree of continuity between the design and construction phases, consideration should be given to retaining Petra Geotechnical, Inc., for construction services.

This report has been prepared consistent with the level of care being provided by other professionals providing similar services at the same locale and time period. The contents of this report are professional opinions and as such, are not to be considered a guarantee or warranty. This report should be reviewed and updated after a period of one year or if the project concept changes from that described herein. This report has not been prepared for use by parties or projects other than those named or described herein. This report may not contain sufficient information for other parties or other purposes.

This opportunity to be of service is sincerely appreciated. Please call if you have any questions pertaining to this report.

Respectfully submitted,

PETRA GEOTECHNICAL, INC.

Theodore M. Wolfe, CEG 1626
Senior Associate Geologist

Kenton Buzbee, RGE 2692
Associate Engineer

TW/KB

Attachments: References
Test Pit Logs
Laboratory Data
Standard Grading Specifications
Figure 1 – Aerial Photo
Figure 2 – Grading Plan with Test Pit Locations

Distribution: (3) Addressee (electronic copy, 2 hard copies)

REFERENCES

California Geological Survey, 2002, Probabilistic Seismic Hazard Assessment for the State of California, Open-File Report 96-08, Revised 2002 California Seismic Shaking Analysis, , Appendix A.

Cao, T., et al., 2003, Revised 2002 California Probabilistic Seismic Hazard Maps, June 2003: California Geological Survey.

International Conference of Building Officials, 2010, 2010 California Building Code, California Code of Regulations, Title 24, Par 2, Volume 2 of 2, California Building Standards Commission, Title 24, Par 8, 2010 California Existing Building Code, Title 24, Part 10.

Petra Geotechnical, Inc., 2013a, Geotechnical Plan Review, Proposed Single Family Residential Development, Portion of Lot J in Block 418, Tract 1520 (APN 224-142-04), Located between Stanley Avenue and Lehner Avenue, City of Escondido, California, dated September 3, 2013, Job Number 13-445.

Petra Geotechnical, Inc., 2013b, Geotechnical Plan Review, Proposed Single Family Residential Development, Lot 4 – Baker Property (APNs 224-142-13 and -14), Located between Stanley Avenue and Lehner Avenue, City of Escondido, California, dated November 18, 2013, Job Number 13-445.

United States Geologic Survey (U.S.G.S.), 1996a, Probabilistic Seismic Hazard Assessment for the State of California, Open-File Report 96-706.

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Wire Reinforcement Institute (WRI), 1996, Design of Slabs on Ground.

PETRA GEOTECHNICAL, INC.
3190 AIRPORT LOOP DRIVE, SUITE J-1
COSTA MESA, CALIFORNIA 92626
PHONE: (714) 549-8921
COSTA MESA MURRIETA PALM DESERT SANTA CLARITA

AERIAL EXHIBIT

LOT 2, PICKERING PROPERTY
ESCONDIDO, CALIFORNIA

DATE: Dec., 2013	J.N.: 13-445	**Figure 1**
DWG BY: SSR	SCALE:	

From: GOOGLE EARTH

CITY OF ESCONDIDO TRACT NO.
TENTATIVE SUBDIVISION MAP

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

TP-4
1 10,010 SF PAD=755
2 10,000 SF PAD=747
3 10,000 SF PAD=742
4 10,000 SF PAD=739
5 10,094 SF PAD=734.5
6 11,769 SF PAD=733.7
TP-1
7 13,789 SF PAD=732.5
TP-3
13 10,103 SF PAD=752
12 10,001 SF PAD=744
11 10,001 SF PAD=739
10 10,001 SF PAD=735
9 10,014 SF PAD=733.5
8 10,107 SF PAD=733
TP-2
4,594 SF 728.0 FG 726.0 BG

PROPOSED MODIFIED D-25 SIDEWALK UNDERDRAIN

PROP CURB INLET W/24" PIPE TO CONNECT TO EXIST 66" SD

EX. 66" SD (722.28±)

EX. 66" SD (722.15± IE)

STANLEY AVENUE

LEHNER AVENUE

ASH STREET

LEGEND

TP-4 APPROXIMATE TEST PIT LOCATION

PETRA GEOTECHNICAL, INC.
3190 AIRPORT LOOP DRIVE, SUITE J-1
COSTA MESA, CALIFORNIA 92626
PHONE: (714) 549-8921
COSTA MESA MURRIETA PALM DESERT SANTA CLARITA

SITE LOCATION MAP / GRADING PLAN

LOT 2, PICKERING PROPERTY
ESCONDIDO, CALIFORNIA

DATE: Dec., 2013	J.N.: 13-445	Figure 2
DWG BY: SSR	SCALE:	

bHA, Inc.
land planning, civil engineering, surveying
5115 AVENIDA ENCINAS
SUITE "L"
CARLSBAD, CA. 92008-4387
(760) 931-8700

APPENDIX A

EXPLORATION LOGS

PETRA

LOG OF TEST PITS
JN-13-445 DATE EXCAVATED 10/16/13

Test Pit 1 (TP-1)
0- ½ foot- Artificial Fill (Af)- Silty Sand (SM), dark yellow brown, dry to moist, loose, manure.
@ ½ foot- Young Alluvial Deposits (Qal)- Silty Sand (SM)- dark yellow brown, moist, loose to medium dense, fine to medium sand, moderate porosity, red brown at 2 feet.
@3 ½ feet- Clayey Sand (SC)- red brown, moist, medium dense, fine to medium sand.
@5 feet- Silty Sand (SM)- medium brown, moist, medium dense, fine to medium sand, trace clay.
@7 ½ feet- Bedrock- Granite/Diorite- olive grey, moist, hard, extremely weathered, breaks down to silty sand.
Total Depth 9 feet
No Groundwater, No Caving
Drive Sample- 3 feet
Dry Density- 94.9 pcf, Moisture Content- 7.7%
Drive Sample- 3 ½ feet
Dry Density- 101.9 pcf, Moisture Content- 10.1%
Drive Sample- 5-1/2 feet
Dry Density- 111.3 pcf, Moisture Content- 13.8%

Test Pit 2 (TP-2)
0-7 ½ feet- Young Alluvial Deposits (Qal)- Silty Sand (SM), dark yellow brown, dry to moist, loose, fine to medium sand, moderate porosity, red brown at 2 feet, lenses of silt
@ 2 feet- Clayey Sand (SC)- red brown, moist, medium dense, fine to medium sand.
@7 feet- Silty Sand (SM)- red brown, moist, dense, fine to coarse sand with gravel, slight clay content, slight to moderate porosity.
@7 ½ feet- Bedrock- Granite/Diorite- olive grey, moist, very hard, breaks down to sitly sand with gravel.
Total Depth 9 feet
No Groundwater, No Caving

Test Pit 3 (TP-3)
0-5 feet- Young Alluvial Deposits (Qal)- Silty Sand (SM), dark yellow brown, dry to moist, loose, fine to medium sand, moderate porosity.
@ 2 feet- Clayey Sand (SC)- red brown, moist, medium dense, fine to medium sand.
@5 feet- Bedrock- Granite- olive grey, moist, hard, breaks down to sitly sand.
Total Depth 6 feet
No Groundwater, No Caving

Test Pit 4 (TP-4)
0-3 ½ feet- Young Alluvial Deposits (Qal)- Silty Sand (SM), yellow brown, dry, loose, fine to medium sand.
@ 1 ½ feet- Clayey Sand (SC)- red brown, slightly moist, medium dense, fine to medium sand.
@3 ½ feet- Bedrock- Granite- yellow brown, dry, very hard, breaks down to sitly sand.
Total Depth 4 ½ feet
No Groundwater, No Caving

PETRA

APPENDIX B

LABORATORY TEST DATA

LABORATORY TEST PROCEDURES

Soil Classification

Soil materials encountered within the property were classified and described using the visual-manual procedures of the Unified Soil Classification System and the Engineering Geology Field Manual by the U.S. Department of the Interior, Bureau of Reclamation, respectively, and in general accordance with Test Method ASTM D 2488. The assigned group symbols are presented in the exploration logs, Appendix A.

In Situ Moisture and Density

Moisture content and unit dry density of the in place soil materials were determined in representative strata. Test data are presented in the exploration logs, Appendix A.

Expansion Potential

Expansion index tests were performed on representative samples of the on-site soils in accordance with test method ASTM D 4829. The test results are presented on Plate B-1.

Consolidation

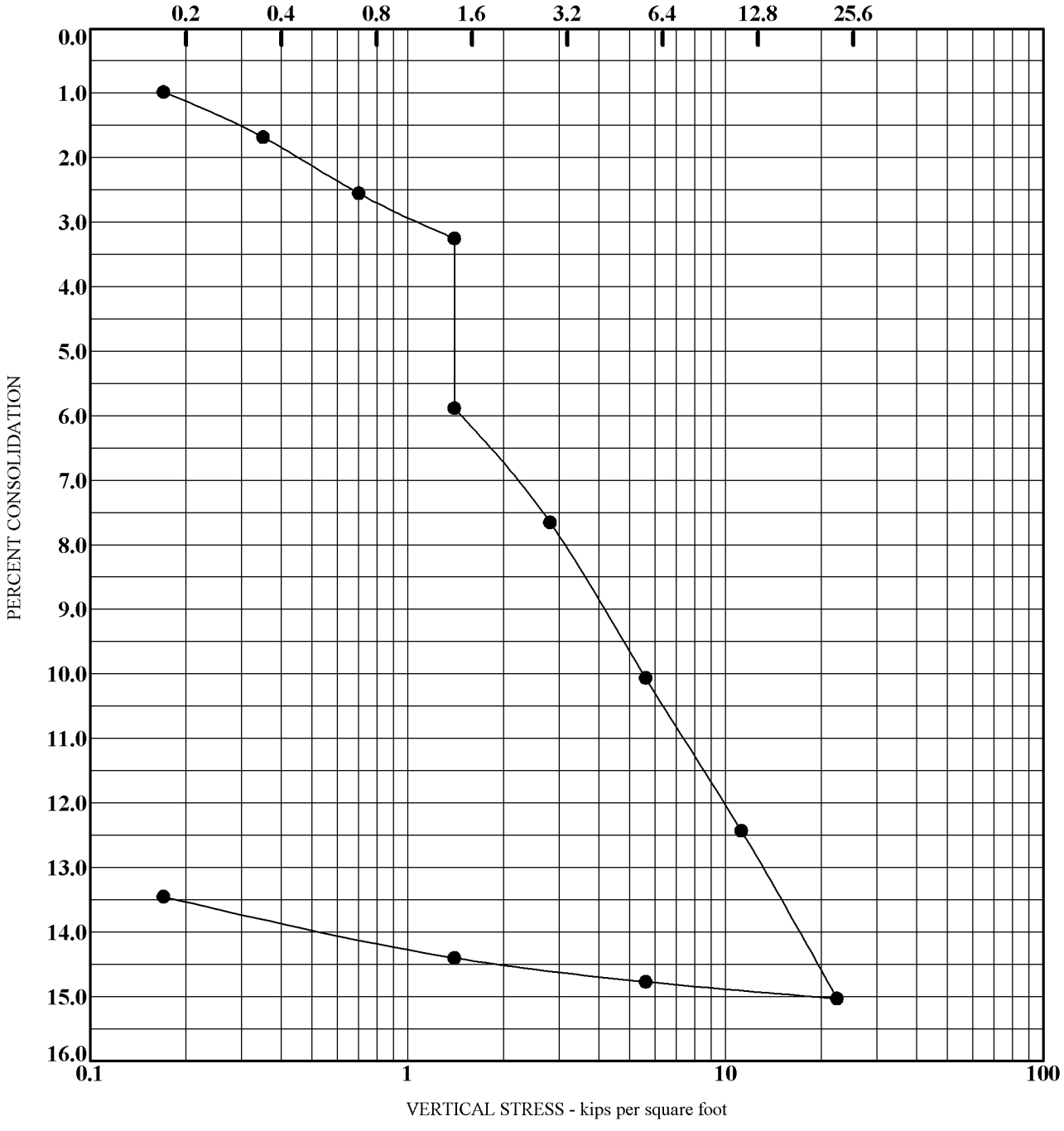
Volume change (settlement or heave) characteristics of an undisturbed soil sample was determined by one-dimensional consolidation tests. The tests was performed in general accordance with the current version of the Test Method ASTM D 2435-04. Axial loads were applied in several increments to laterally restrained 1-inch-high samples. The resulting deformations were recorded at selected time intervals. The test sample was inundated at the approximate in-situ and/or anticipated design overburden pressure in order to evaluate the effect of an increase in moisture content, e.g., hydro-consolidation potential or heave. Results are graphically presented on Plates B-3.

Table B-1

LABORATORY DATA SUMMARY										
Boring Number	**Sample Depth (ft)**	**Soil Description**	**Max. Dry Density [1] (pcf)**	**Optimum Moisture[1] (%)**	**Expansion Index[2]**	**Expansion Potential**	**Sulfate Content[3] (%)**	**Chloride Content[4] (ppm)**	**PH[5]**	**Minimum Resistivity[6] (Ohm-cm)**
TP-1	1-3	Silty Sandy, SM	125.5	11.0	0	Very Low				

Test Procedures:
[1] Per California Test Method 417
[2] Per ASTM D 4839
[3] Per California Test Method No. 417
[4] Per California Test Method No. 622
[5] Per California Test Method No. 532
[6] Per California Test Method No. 643

SAMPLE LOCATION	MATERIAL DESCRIPTION	INITIAL			INUNDATED
		DENSITY (pcf)	MOISTURE (%)	SATURATION (%)	LOAD (ksf)
● Lot 2 @ 3.0	Clayey Sand (SC)	102.3	10.1		1.40



J.N. 13-445	CONSOLIDATION TEST RESULTS	December, 2013
PETRA GEOTECHNICAL, INC.		PLATE B-2

CONSOLIDATION - STRAIN 13-445.GPJ PETRA.GDT 12/13/13

APPENDIX C

STANDARD GRADING SPECIFICATIONS

STANDARD GRADING SPECIFICATIONS

These specifications present the usual and minimum requirements for projects on which Petra Geotechnical, Inc. is the geotechnical consultant. No deviation from these specifications will be allowed, except where specifically superseded in the preliminary geology and soils report, or in other written communication signed by the Soils Engineer and Engineering Geologist of record (Geotechnical Consultant).

I. GENERAL

A. The Geotechnical Consultant is the Owner's or Builder's representative on the project. For the purpose of these specifications, participation by the Geotechnical Consultant includes that observation performed by any person or persons employed by, and responsible to, the licensed Soils Engineer and Engineering Geologist signing the soils report.

B. The contractor should prepare and submit to the Owner and Geotechnical Consultant a work plan that indicates the sequence of earthwork grading, the number of "spreads" and the estimated quantities of daily earthwork to be performed prior to the commencement of grading. This work plan should be reviewed by the Geotechnical Consultant to schedule personnel to perform the appropriate level of observation, mapping, and compaction testing as necessary.

C. All clearing, site preparation, or earthwork performed on the project shall be conducted by the Contractor in accordance with the recommendations presented in the geotechnical report and under the observation of the Geotechnical Consultant.

D. It is the Contractor's responsibility to prepare the ground surface to receive the fills to the satisfaction of the Geotechnical Consultant and to place, spread, mix, water, and compact the fill in accordance with the specifications of the Geotechnical Consultant. The Contractor shall also remove all material considered unsatisfactory by the Geotechnical Consultant.

E. It is the Contractor's responsibility to have suitable and sufficient compaction equipment on the job site to handle the amount of fill being placed. If necessary, excavation equipment will be shut down to permit completion of compaction to project specifications. Sufficient watering apparatus will also be provided by the Contractor, with due consideration for the fill material, rate of placement, and time of year.

F. After completion of grading a report will be submitted by the Geotechnical Consultant.

II. SITE PREPARATION

A. Clearing and Grubbing

1. All vegetation such as trees, brush, grass, roots, and deleterious material shall be disposed of offsite. This removal shall be concluded prior to placing fill.

2. Any underground structures such as cesspools, cisterns, mining shafts, tunnels, septic tanks, wells, pipe lines, etc., are to be removed or treated in a manner prescribed by the Geotechnical Consultant.

STANDARD GRADING SPECIFICATIONS

III. FILL AREA PREPARATION

A. Remedial Removals/Overexcavations

1. Remedial removals, as well as overexcavation for remedial purposes, shall be evaluated by the Geotechnical Consultant. Remedial removal depths presented in the geotechnical report and shown on the geotechnical plans are estimates only. The actual extent of removal should be determined by the Geotechnical Consultant based on the conditions exposed during grading. All soft, loose, dry, saturated, spongy, organic-rich, highly fractured or otherwise unsuitable ground shall be overexcavated to competent ground as determined by the Geotechnical Consultant.

2. Soil, alluvium, or bedrock materials determined by the Soils Engineer as being unsuitable for placement in compacted fills shall be removed from the site. Any material incorporated as a part of a compacted fill must be approved by the Geotechnical Consultant.

3. Should potentially hazardous materials be encountered, the Contractor should stop work in the affected area. An environmental consultant specializing in hazardous materials should be notified immediately for evaluation and handling of these materials prior to continuing work in the affected area.

B. 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 sufficient survey control for determining locations and elevations of processed areas, keys, and benches.

C. Processing

After the ground surface to receive fill has been declared satisfactory for support of fill by the Geotechnical Consultant, it shall be scarified to a minimum depth of 6 inches and until the ground surface is uniform and free from ruts, hollows, hummocks, or other uneven features which may prevent uniform compaction.

The scarified ground surface shall then be brought to optimum moisture, mixed as required, and compacted to a minimum relative compaction of 90 percent.

D. Subdrains

Subdrainage devices shall be constructed in compliance with the ordinances of the controlling governmental agency, and/or with the recommendations of the Geotechnical Consultant.

E. Cut/Fill & Deep Fill/Shallow Fill Transitions

In order to provide uniform bearing conditions in cut/fill and deep fill/shallow fill transition lots, the cut and shallow fill portions of the lot should be overexcavated to the depths and the horizontal limits discussed in the approved geotechnical report and replaced with compacted fill. (Typical details are given on Plate SG-1.)

IV. COMPACTED FILL MATERIAL

A. General

Materials excavated on the property may be utilized in the fill, provided each material has been determined to be suitable by the Geotechnical Consultant. Material to be used for fill shall be essentially free of organic material and other deleterious substances. Roots, tree branches, and other matter missed during clearing shall be removed from the fill as recommended by the Geotechnical Consultant. Material that is spongy, subject to decay, or otherwise considered unsuitable shall not be used in the compacted fill.

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.

B. Oversize Materials

Oversize material defined as rock, or other irreducible material with a maximum dimension greater than 12 inches in diameter, shall be taken offsite or placed in accordance with the recommendations of the Geotechnical Consultant in areas designated as suitable for rock disposal.

Rock fragments less than 12 inches in diameter may be utilized in the fill provided, they are not nested or placed in concentrated pockets; they are surrounded by compacted fine grained soil material and the distribution of rocks is approved by the Geotechnical Consultant.

C. Laboratory Testing

Representative samples of materials to be utilized as compacted fill shall be analyzed by the laboratory of the Geotechnical Consultant to determine their physical properties. If any material other than that previously tested is encountered during grading, the appropriate analysis of this material shall be conducted by the Geotechnical Consultant as soon as possible.

D. Import

If importing of fill material is required for grading, proposed import material should meet the requirements of the previous section. The import source shall be given to the Geotechnical Consultant at least 2 working days prior to importing so that appropriate tests can be performed and its suitability determined.

STANDARD GRADING SPECIFICATIONS

V. FILL PLACEMENT AND COMPACTION

A. Fill Layers

Material used in the compacting process shall be evenly spread, watered, processed, and compacted in thin lifts not to exceed 6 inches in thickness to obtain a uniformly dense layer. The fill shall be placed and compacted on a horizontal plane, unless otherwise approved by the Geotechnical Consultant.

B. 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 above optimum moisture content.

C. Compaction

Each layer shall be compacted to 90 percent of the maximum density in compliance with the testing method specified by the controlling governmental agency. (In general, the most recent version of ASTM D 1557 will be used.)

If compaction to a lesser percentage is authorized by the controlling governmental agency because of a specific land use or expansive soils condition, the area to received fill compacted to less than 90 percent shall either be delineated on the grading plan or appropriate reference made to the area in the soils report.

D. Failing Areas

If the moisture content or relative density varies from that required by the Geotechnical Consultant, the Contractor shall rework the fill until it is approved by the Geotechnical Consultant.

E. Benching

All fills shall be keyed and benched through all topsoil, colluvium, alluvium or creep material, into sound bedrock or firm material where the slope receiving fill exceeds a ratio of 5 horizontal to 1 vertical, in accordance with the recommendations of the Geotechnical Consultant.

VI. SLOPES

A. Fill Slopes

The contractor will be required to obtain a minimum relative compaction of 90 percent out to the finish slope face of fill slopes, buttresses, and stabilization fills. This may be achieved by either overbuilding the slope and cutting back to the compacted core, or by direct compaction of the slope face with suitable equipment, or by any other procedure that produces the required compaction.

B. Side Hill Fills

The key for side hill fills shall be a minimum of 15 feet within bedrock or firm materials, unless

otherwise specified in the soils report.

C. Fill-Over-Cut Slopes

Fill-over-cut slopes shall be properly keyed through topsoil, colluvium or creep material into rock or firm materials, and the transition shall be stripped of all soils prior to placing fill. (see detail on Plate SG-2).

D. Landscaping

All fill slopes should be planted or protected from erosion by other methods specified in the soils report.

E. Cut Slopes

1. The Geotechnical Consultant should observe all cut slopes at vertical intervals not exceeding 10 feet.

2. If any conditions not anticipated in the preliminary report such as perched water, seepage, lenticular or confined strata of a potentially adverse nature, unfavorably inclined bedding, joints or fault planes are encountered during grading, these conditions shall be evaluated by the Geotechnical Consultant, and recommendations shall be made to treat these problems.

3. Cut slopes that face in the same direction as the prevailing drainage shall be protected from slope wash by a non-erodible interceptor swale placed at the top of the slope.

4. Unless otherwise specified in the soils and geological report, no cut slopes shall be excavated higher or steeper than that allowed by the ordinances of controlling governmental agencies.

5. Drainage terraces shall be constructed in compliance with the ordinances of controlling governmental agencies, or with the recommendations of the Geotechnical Consultant.

VII. GRADING OBSERVATION

A. General

All cleanouts, processed ground to receive fill, key excavations, subdrains, and rock disposals must be observed and approved by the Geotechnical Consultant prior to placing any fill. It shall be the Contractor's responsibility to notify the Geotechnical Consultant when such areas are ready.

B. Compaction Testing

Observation of the fill placement shall be provided by the Geotechnical Consultant during the progress of grading. Location and frequency of tests shall be at the Consultants discretion based on field conditions encountered. Compaction test locations will not necessarily be selected on a random basis. Test locations may be selected to verify adequacy of compaction levels in areas that are judged to be susceptible to inadequate compaction.

C. Frequency of Compaction Testing

In general, density tests should be made at intervals not exceeding 2 feet of fill height or every 1000 cubic yards of fill placed. This criteria will vary depending on soil conditions and the size of the job. In any event, an adequate number of field density tests shall be made to verify that the required compaction is being achieved.

VIII. CONSTRUCTION CONSIDERATIONS

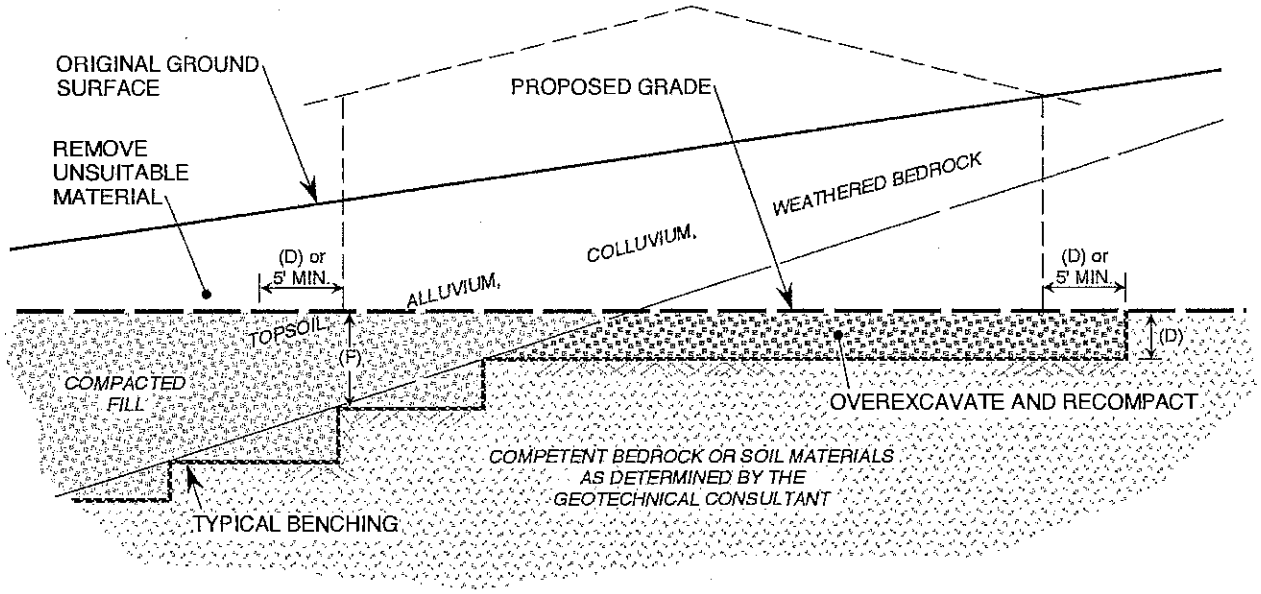
A. Erosion control measures, when necessary, shall be provided by the Contractor during grading and prior to the completion and construction of permanent drainage controls.

B. Upon completion of grading and termination of observations by the Geotechnical Consultant, no further filling or excavating, including that necessary for footings, foundations, large tree wells, retaining walls, or other features shall be performed without the approval of the Geotechnical Consultant.

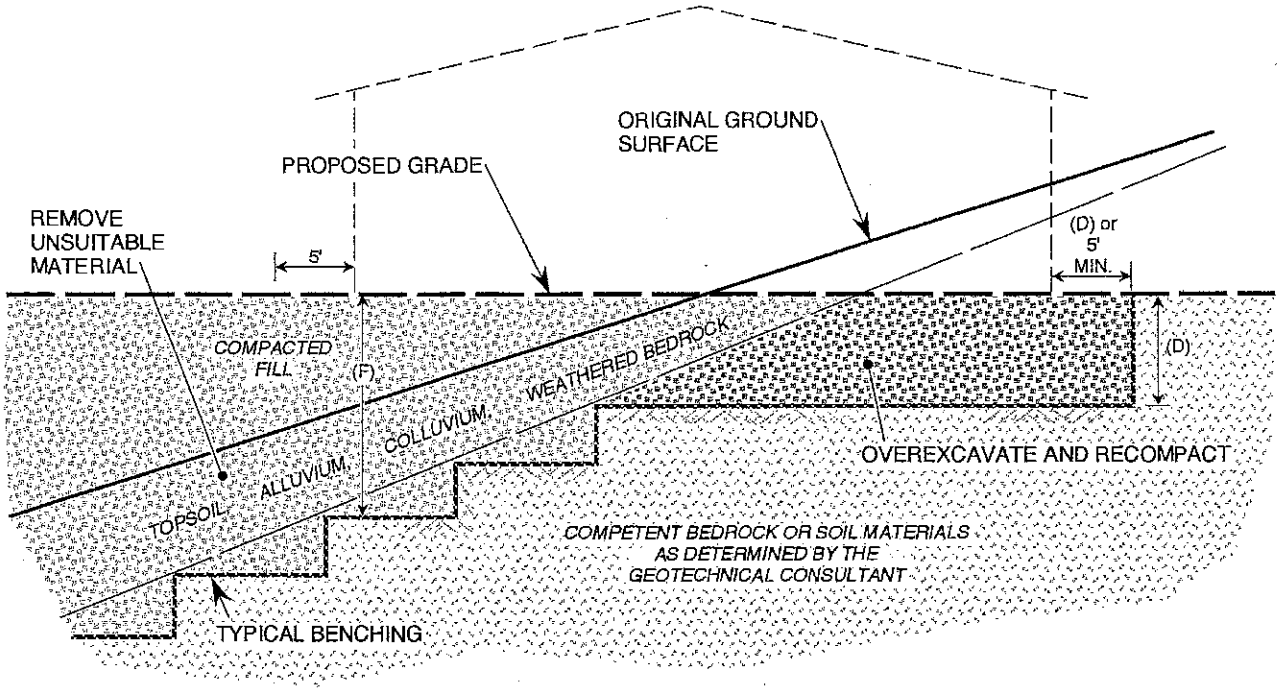
C. Care shall be taken by the Contractor during final grading to preserve any berms, drainage terraces, interceptor swales, or other devices of permanent nature on or adjacent to the property.

CUT LOT

UNSUITABLE MATERIAL EXPOSED IN PORTION OF CUT PAD

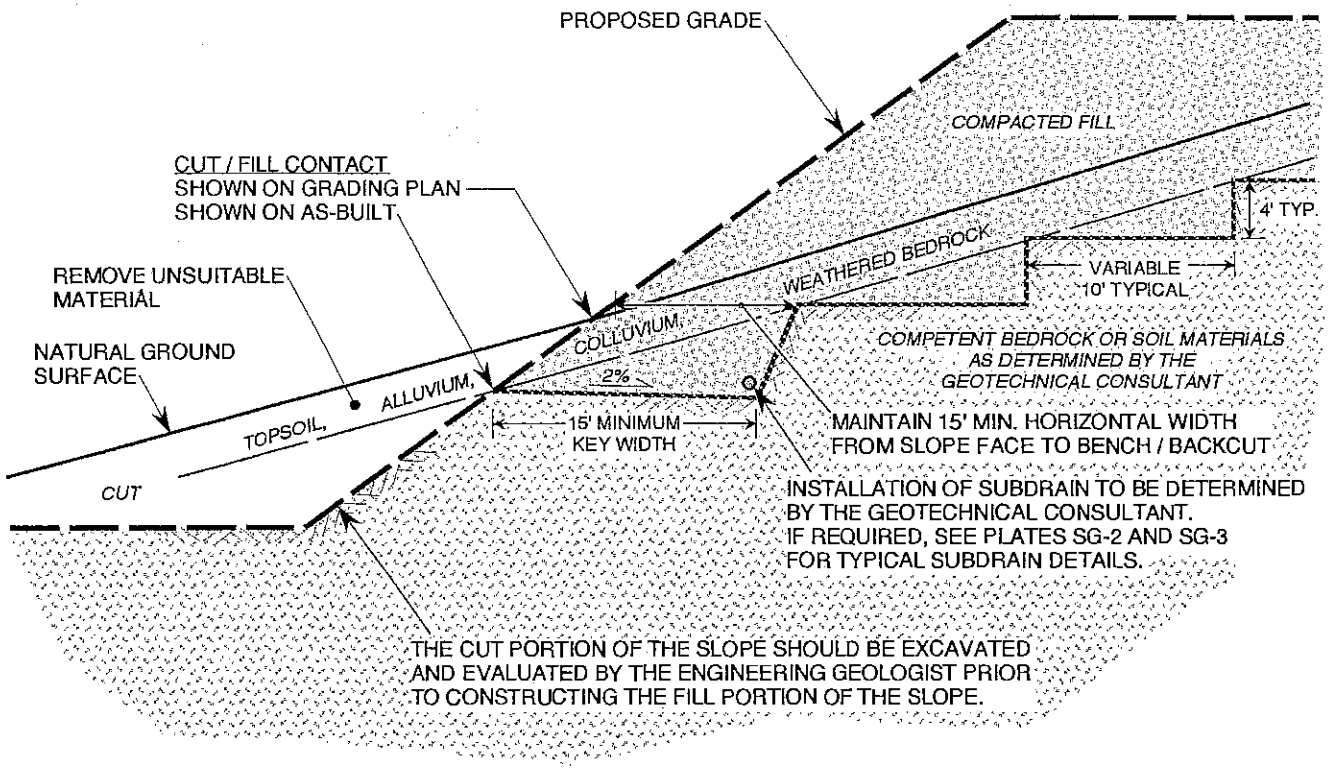


CUT-FILL TRANSITION LOT



MAXIMUM FILL THICKNESS (F)	DEPTH OF OVEREXCAVATION (D)
FOOTING DEPTH TO 3 FEET	EQUAL DEPTH
3 TO 6 FEET	3 FEET
GREATER THAN 6 FEET	1/2 THE THICKNESS OF DEEPEST FILL PLACED WITHIN THE "FILL" PORTION (F) TO 15 FEET MAXIMUM

PETRA	CUT LOTS AND CUT-FILL TRANSITION LOTS	PLATE SG- 1



PETRA	FILL SLOPE ABOVE CUT SLOPE	PLATE SG- 2

Appendix F
Hazardous Materials Technical Report

PETRA

PHASE I ENVIRONMENTAL SITE ASSESSMENT ASSESSOR PARCEL NUMBER (APN) 224-142-01 TRACT 2 (PICKERING PROJECT) STANLEY AVENUE, CITY OF ESCONDIDO SAN DIEGO COUNTY, CALIFORNIA.

VCS ENVIRONMENTAL

DECEMBER 26, 2013
J.N. 13-445

PETRA GEOTECHNICAL, INC.
RIVERSIDE COUNTY

40880 County Center Drive, Suite R
Temecula, CA 92591
T: 951.600.9271 F: 951.719.1499

past + present + future
it's in our science

Engineers, Geologists
Environmental Scientists

December 26, 2013
J.N. 13-445

Ms. Lennie Rae Cooke, M.S.
VCS ENVIRONMENTAL
30900 Rancho Viejo Road, Suite 100
San Juan, CA 92675

Subject: **Phase I Environmental Site Assessment, Assessor Parcel Number (APN) 224-142-01, Tract 2 (Pickering *Project)*, Stanley Avenue, City of Escondido, San Diego County, California.**

Dear Ms. Cooke:

The Environmental Division of Petra Geotechnical, Inc. (Petra) is pleased to present this Phase I Environmental Site Assessment for the above-referenced site. This investigation has been conducted in accordance with VCS Environmental Proposal No. dated July 24, 2013, and in general conformance with the scope and limitations of the standards set forth in the American Society for Testing and Materials (ASTM) Practice E 1527-13 and the EPA's All Appropriate Inquiry (AAI) regulations 40 CFR Part 312. This assessment has revealed no recognized environmental conditions on the subject site.

This opportunity to be of service to you is sincerely appreciated. Please do not hesitate to call this office if you have questions pertaining to this report.

Respectfully submitted,

Petra Geotechnical, Inc.
ENVIRONMENTAL DIVISION

Jonathan Cain
Associate Geologist

Siamak Jafroudi, PhD, GE2024
President, Senior Principal Engineer

EXECUTIVE SUMMARY

PHASE I ENVIRONMENTAL SITE ASSESSMENT

Tract 2 (Pickering Project),
APN# 224-142-01,
Stanley Avenue, City of Escondido
San Diego County, California

INTRODUCTION

The information presented in this report includes the results of our recent site reconnaissance, a review of pertinent literature, and recent federal, state, and local government agency records. Our field reconnaissance with data gathering and compilation was performed by Mr. Jonathan Cain, Senior Project Geologist, with oversight by Dr. Siamak Jafroudi President and Principal Engineer.

SITE DESCRIPTION AND GENERAL INFORMATION

1. The subject site (proposed Tract 2) is located between Stanley Avenue and Lehner Avenue, at the southeast corner of the intersection of Stanley Avenue and N. Ash Street in the City of Escondido, San Diego County, California. A map showing the general site location is included as Figure 1.

2. Tract 2 is comprised of one parcel at 2056 N. Ash Street, with Assessor Parcel Number (APN) 224-142-01, which encompasses approximately 4.2± acres of land.

3. Tract 2 is a rectangular shaped property that gently slopes to the south-southwest toward the intersection of N. Ash Street and Lehner Avenue. Tract 2 is proposed to be developed with 14 single-family residential homes, an access road, along with associated underground utility improvements.

4. Topographically, the site consists of gently-sloping terrain. Site elevations range from approximately 764± feet above mean sea level (msl) within the northeast portion of the site along Stanley Avenue to approximately 728± feet msl within the southwest portion of the site adjacent the intersection of N. Ash Street and Lehner Avenue. Thus, overall site relief is on the order of 36± feet.

5. Several buildings are located within the northern portion of the site which includes two houses, mobile homes, workshop, storage sheds, RV trailers and horse trailers. The southern covered shade areas within the corrals. Several vehicles, concrete pumps and scaffolding were also located outside the workshop area. The workshop contained compressors, lawn mowers, containers of oil and gas, paint cans along with various tools and equipment. Staining was noted on a portion of the concrete slab.

6. Based on information obtained during this investigation, the site appears to have been native (raw) land, until at least 1939. Sometime between 1939 and 1947 a residential structure, long structures (stables) and a small grove/orchard was constructed within the northern portion of the site. The southern portion of the site remained as native (raw) land. Sometime between 1953 and 1963 the grove/orchard within the north portion of the site was removed. Sometime between 1980 and 1990 a small grove/orchard was planted within the north portion of the site. The site remains as a rural residential property with horse corrals within the southern portion of the site.

7. Site vegetation consists of several mature trees, citrus trees and grass within the northern quarter of the site and a few mature trees within the southwest corner of the site.

8. A single pole-mounted transformer was observed within the right of way along Stanley Avenue and the northern portion of the property. No staining was observed on, or below the transformer.

9. One well was observed onsite within the south-centeral portion of the site just north of Lehner Avenue.

10. Scattered debris was observed throughout the site. The debris was mostly vegetation debris, household trash which consists of plastic bottles, bags and wood scraps along with pieces of pvc pipe, and minor amounts of windblown trash.

11. No sites were identified in our search of various government agency database records, which appear to have impacted the soils or groundwater beneath the subject site.

12. Other than the small watering pond within the southwest corner of the site there was no evidence of sumps, pits, pools, or lagoons identified during our site inspection.

RECOGNIZED ENVIRONMENTAL CONDITIONS

Recognized environmental conditions are defined by the American Society of Testing and Materials (ASTM) as any hazardous substance or petroleum product under conditions that indicate an existing, past, or material threat of release into the structures, ground, groundwater, or surface water at the subject site. If the presences of recognized environmental conditions are identified on a subject site, it may warrant additional research, site investigation, and/or action.

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527 of Tract 2 Pickering Project. Any exceptions to, or deletions from, this practice are described in section titled data gaps of this report. This assessment has revealed no evidence of recognized environmental conditions in connection with the property except for the following:

- Because of the site's historical agricultural land use there is a potential that pesticides and herbicides persistent in the environment were applied and residual concentrations may remain in soil within the northern portion of the site.

SITE CONSIDERATIONS

The following items are not considered recognized environmental conditions in accordance with ASTM 1527-13. However, these items may warrant considerations in conjunction with any planned development activities. The information regarding possible actions relative to these items has been provided as guidance.

1. If the pole-mounted transformer is to be removed, it is recommended that the removal be completed by a licensed contractor or the utility company responsible for the transformer.

2. It is unknown if there are any septic tanks or leach fields on the site. If any are encountered during site development, it is recommended that they be removed in accordance with current regulations.

3. One water well was observed within the site. In the event the wells are not intended for future use, it is recommended that they be abandoned in accordance with the California Well Standards as published by the California Department of Water Resources (Bulletin 74-81 and 74-90), with oversight provided by the appropriate agencies.

4. It is recommended that all trash and debris observed on the site be removed and disposed in accordance with current regulations.

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PHASE I ENVIRONMENTAL SITE ASSESSMENT

Tract 2 (Pickering Project),
APN# 224-142-01,
Stanley Avenue, City of Escondido
San Diego County, California

INTRODUCTION

The information presented in this report includes the results of our recent field reconnaissance, a review of various federal, state, and local government agency records, a review of previous reports for the site, and a review of historic aerial photographs and topographic maps for the site vicinity. This report includes a summary of our findings, our opinion as to the current environmental condition of the site, and recommendations for additional work, if needed.

Purpose

This investigation was conducted to determine if any recognized environmental conditions exist on the subject site. Recognized environmental conditions are defined by the American Society for Testing and Materials (ASTM) as any hazardous substance or petroleum product under conditions that indicate an existing, past, or material threat of release into the structures, ground, groundwater, or surface water at the subject site.

This investigation is also intended to satisfy the requirement for conducting all appropriate inquiries into the previous ownership and uses of a property for the purposes of meeting the all appropriate inquiries provisions necessary to qualify for certain landowner liability protections under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

We have performed this investigation in conformance with the scope and limitations of the standards set forth in the ASTM Practice E 1527-05 and the EPA's All Appropriate Inquiry (AAI) regulations 40 CFR Part 312.

Involved Parties

This report was prepared by the Environmental Division of Petra Geotechnical, Inc. (Petra), at the request of VCS Environmental, for their exclusive use. Use of this report or reliance thereon by other parties or projects is not authorized. The report may not be suitable for other parties or other purposes.

SCOPE OF INVESTIGATION

The scope of this investigation included the following:

1. Performing a site reconnaissance to identify the current conditions and land use of the subject site and adjoining properties, during which visual evidence of prior uses of the subject site and adjoining properties were noted. The site reconnaissance included an observation of the site surface and the site perimeter.

2. Researching historical land use of the subject site and vicinity by reviewing available historical aerial photographs, United States Geologic Survey (USGS) topographic maps, fire insurance maps, city directories, and other reasonably ascertainable maps and data.

3. Conducting a search for environmental liens and Activities and Use Limitations (AULs) for the property.

4. Performing a literature study to identify local and regional geological conditions.

5. Obtaining and reviewing a search of pertinent federal, state, and local regulatory agency databases concerning environmental conditions on and in the vicinity of the site. As specified in the ASTM and AAI standards, the following databases were searched using, at a minimum, the recommended search radius:

    - Federal National Priority List (NPL) site list,
    - Federal Delisted NPL site list,
    - Federal Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) site list,
    - Federal CERCLIS- No Further Remedial Action Planned (CERC-NFRAP) site list,
    - Federal Resource Conservation and Recovery Act Information (RCRA) Corrective Action Report (CORRACTS) facilities list,
    - Federal RCRA non-CORRACTS Treat, Store and Dispose (RCRA-TSD) facilities list,
    - Federal RCRA generators list,
    - Federal institutional control/engineering control registries,
    - Federal Emergency Response Notification System (ERNS) list,
    - State and tribal lists of hazardous waste sites identified for investigation or remediation including: State- and tribal-equivalent NPL, State, and tribal-equivalent CERCLIS lists,
    - State and tribal landfill and/or solid waste disposal site lists,
    - State and tribal leaking storage tank lists,
    - State and tribal registered storage tank lists,
    - State and tribal institutional control/engineering control registries,
    - State and tribal voluntary cleanup sites, and
    - State and tribal Brownfield sites.

    In the interest of thoroughness, numerous non-ASTM and non-AAI required databases were also searched. These databases are listed and discussed in the database search included within this report.

6. Contacting and interviewing knowledgeable persons, such as property owners, managers, and representatives of local government agencies regarding historical site use and current site conditions, if possible.

7. Evaluating the presence of recognized environmental conditions at the subject site through visual observation and research of reasonably ascertainable records. Recognized environmental conditions may include the presence of hazardous materials, petroleum products, underground storage tanks, above ground storage tanks, drums, chemical containers, polychlorinated biphenyls, liquid or solid wastes, oil wells, and areas indicative of potential contamination including stained soils and/or pavement, stressed vegetation, drains, sumps, pits, ponds, lagoons, and odors.

8. Preparing a report presenting the results of our investigation.

Unless listed above, this investigation does not include any testing or sampling of materials (such as an assessment for the potential presence of methane or radon, asbestos or lead-based paints, or the sampling and testing of soil, air, surface water, or groundwater). This investigation does not include evaluating the site for the presence of wetlands, regulatory compliance, or other items beyond the scope of ASTM E 1527-05 or 40 CFR Part 312, nor is it an assessment for vapor intrusion as defined by ASTM E 2600-08.

SITE OVERVIEW

According to the Division of Oil, Gas, and Geothermal Resources (DOGGR) Online Mapping System (2013), the site is located in western portion of Section 3, Township 12 South, Range 2 West of the San Bernardino Base and Meridian. Site elevations range from approximately 764± feet above mean sea level (msl) within the northeast portion of the site along Stanley Avenue to approximately 728± feet msl within the southwest portion of the site adjacent the intersection of N. Ash Street and Lehner Avenue. Thus, overall site relief is on the order of 36± feet. A site location map is included as Figure 1.

The subject site (proposed Tract 2) is located between Stanley Avenue and Lehner Avenue, at the southeast corner of the intersection of Stanley Avenue and N. Ash Street in the City of Escondido, San Diego County, California. The subject site is comprised of one parcel at 2056 N. Ash Street, with Assessor Parcel Number (APN) 224-142-01, which encompasses approximately 4.2± acres of land. Tract 2 is a rectangular shaped property that gently slopes to the south-southwest toward the intersection of N. Ash Street and Lehner Avenue. Topographically, the site consists of gently-sloping terrain. A plan showing the current configuration of the site is included as Figure 2.

PREVIOUS LAND USE

Based on information obtained during this investigation, the site appears to have been native (raw) land, until at least 1939. Sometime between 1939 and 1947 a residential structure, long structures (stables) and a small grove/orchard was constructed within the northern portion of the site. The southern portion of the site remained as native (raw) land. Sometime between 1953 and 1963 the grove/orchard within the north portion of the site was removed. Sometime between 1980 and 1990 a small grove/orchard was planted within the north portion of the site. The site remains as a rural residential property with horse corrals within the southern portion of the site. Historical information reviewed during this investigation includes aerial photographs (dating back to 1939), USGS topographical maps (dating back to 1893), and interviews.

It should be noted that EDR reports that there is no Sanborn™ Map coverage for the site vicinity.

PREVIOUS REPORTS

No previous reports were provided to Petra for review during this investigation.

ENVIRONMENTAL SETTING

The following section provides an overview of the regional and local geologic setting and includes information pertaining to groundwater conditions in the vicinity of the subject site. Geotechnical hazard information (faults, landslides, etc.) is not part of this investigation. This section does not constitute a geotechnical investigation of the subject site and should not be taken as such.

Geology

Geologically, the site lies within the northern portion of the Peninsular Ranges Geomorphic Province. The Peninsular Range region extends from the tip of Baja California to the Transverse Ranges and the Los Angeles Basin and is characterized by northwest trending mountain ranges separated by subparallel fault zones. In general, the province is underlain primarily of plutonic rock of the Southern California Batholith. These rocks formed from the cooling of molten magma deep within the earth's crust. Intense heat associated with these plutonic magma metamorphosed the ancient sedimentary rocks into which the plutons intruded. The Peninsular Range Geomorphic Province is generally characterized by alluviated basins and elevated erosion surfaces.

More specifically, the subject site lies within the rolling foothills east of Escondido. According to the 7.5' Minute Geologic Map of the Valley Center Quadrangle (Kennedy 1999), Quaternary-age Older Alluvial Flood Plain Deposits, Cretaceous-age Granitic rocks of the Southern California Batholith, and Cretaceous- and Jurassic-age metavolcanic and metasedimentary rocks underlie the site.

Elsinore Fault

The closest known active earthquake fault is the Elsinore fault zone which has been mapped approximately 12± miles northeast of the site (Kennedy and Tan, 2005). The project site does not lie within an Alquist-Priolo Earthquake Fault Zone (Bryant and Hart, 2007).

Surface Water

No indication of surface water was observed on the site at the time of this investigation. The small pond located in the southwest corner of the site was dry at the time of our reconnaissance.

Groundwater

The site is located within what is now known as the Escondido Valley Groundwater Basin, (California Department of Water Resources, [CDWR], 2004). One historic groundwater well was listed within the subject site on the CDWR water data library (CDWR, 2013). Based on our review, historic groundwater levels within the vicinity range between 2± and 28± feet below the ground surface. In general, groundwater depth varies within the area and though flow direction beneath the subject site is unknown, it is believed to be toward the west-southwest.

RESULTS OF INVESTIGATION

The results of our site reconnaissance and inspection of adjacent sites, agency database review, and historical land use study are presented in the following sections.

Site Inspection

Petra conducted a reconnaissance of the subject site on September 20, 2013. Site photographs are included as Appendix A. Our site observations are summarized below.

- The subject site (proposed Tract 2) is located between Stanley Avenue and Lehner Avenue, at the southeast corner of the intersection of Stanley Avenue and N. Ash Street in the City of Escondido, San Diego County, California. A map showing the general site location is included as Figure 1.

- Tract 2 is comprised of one parcel at 2056 N. Ash Street, with Assessor Parcel Number (APN) 224-142-01, which encompasses approximately 4.2± acres of land.

- Tract 2 is a rectangular shaped property that gently slopes to the south-southwest toward the intersection of N. Ash Street and Lehner Avenue. Tract 2 is proposed to be developed with 14 single-family residential homes, an access road, along with associated underground utility improvements.

- Topographically, the site consists of gently-sloping terrain. Site elevations range from approximately 764± feet above mean sea level (msl) within the northeast portion of the site along Stanley Avenue to approximately 728± feet msl within the southwest portion of the site adjacent the intersection of N. Ash Street and Lehner Avenue. Thus, overall site relief is on the order of 36± feet.

- Several buildings are located within the northern portion of the site which includes two houses, mobile homes, workshop, storage sheds, RV trailers and horse trailers. The southern covered shade areas within the corrals. Several vehicles, concrete pumps and scaffolding were also located outside the workshop area. The workshop contained compressors, lawn mowers, containers of oil and gas, paint cans along with various tools and equipment. Staining was noted on a portion of the concrete slab.

- Site vegetation consists of several mature trees, citrus trees and grass within the northern quarter of the site and a few mature trees within the southwest corner of the site.

- A single pole-mounted transformer was observed within the right of way along Stanley Avenue and the northern portion of the property. No staining was observed on, or below the transformer.

- One well was observed onsite within the south-centeral portion of the site just north of Lehner Avenue.

- Scattered debris was observed throughout the site. The debris was mostly vegetation debris, household trash which consists of plastic bottles, bags and wood scraps along with pieces of pvc pipe, and minor amounts of windblown trash.

- No sites were identified in our search of various government agency database records, which appear to have impacted the soils or groundwater beneath the subject site.

- Other than the small watering pond within the southwest corner of the site there was no evidence of sumps, pits, pools, or lagoons identified during our site inspection.

Adjacent Site and Vicinity Observations

The site is situated in a residential and commercial land use area. Our specific observations are noted below:

North To the north of the subject site is Stanley Avenue with rural residential development and residential track housing beyond.

East To the east of the subject site is rural residential development and vacant land.

South To the south of the subject site is Lehner Avenue with rural residential development beyond.

West To the west of the subject site is N. Ash Street with vacant land and rural residential development beyond.

Government Agency Database Research

A search of federal, state, and local government listings was performed by Environmental Data Resources, Inc. (EDR) for the purposes of this report. The search radius used for all government databases meets or exceeds the standard search distance adopted by ASTM and AAI.

Results of Agency Records Search

A data search of the various government agency records listed in Appendix B revealed no listing for the subject site. The EDR report mapped one surrounding site within the requested search radii. Thirteen orphan sites (sites with inadequate address information to be mapped by EDR) were identified during the agency database search. Refer to the EDR Report in Appendix C for the search radii completed for this investigation. A brief description of the sites listed in the EDR report, which are of potential concern due to the nature of the listing or their proximity to the site, is provided below:

Site 1, Springtime/Reidy Creek Elementary, 2747 North Broadway, Escondido, CA. 92026

This site is located between 1/2 and 1 of a mile northwest of and at a higher elevation than the subject site and is listed on the School Property Evaluation (SCH) and State- and tribal – equivalent CERCLIS (ENVIROSTOR) databases. The site type is for school investigation with the Department of Toxic Substance Control (DTSC) as the lead agency for site mitigation and brownfield reuse program due to past use for agricultural – row crops. The site status is currently reported as a No Further Action site. No releases or violations are reported. This listing does not currently appear to represent a recognized environmental condition with regards to the subject site.

All site listings in the EDR report do not currently appear to represent a recognized environmental condition with regards to the subject site, due to the nature of the listings, the oversight agency having granted closure, the site being down gradient from the subject site and/or their distance from the subject site.

Orphan Sites

Orphan sites are unable to be located due to lack of complete address information. Thirteen orphan sites are listed in the EDR report. Orphan sites may appear on more than one database. None of the orphan sites listed in the EDR reports are considered recognized environmental conditions, with regards to the subject site, due to the nature of the listings and/or their distance from the subject site.

Local Agencies

Petra reviewed information held by the agencies listed below during the course of this investigation.

A. San Diego County

The San Diego County Department of Environmental Health maintains Environmental Case Listings related to underground storage tanks and tank cleanup sites in the County of San Diego. Records held by this agency were accessed by EDR during the government database search. No listings for the subject site were reported by EDR.

B. California Regional Water Quality Control Board

The California Regional Water Quality Control Board-San Diego Region (RWQCB) maintains records of leaking underground storage tank sites and groundwater cleanups for sites in the County of San Diego. Records held by the RWQCB were accessed by EDR during the government database search. No listings for the subject site were reported by EDR.

C. GeoTracker

The GeoTracker website maintains a record of environmental data for regulated facilities in California. No database listings for the subject site were reported on Geotracker. The printout documenting this inquiry is included in Appendix B.

D. California Division of Oil, Gas, and Geothermal Resources

According to the California Division of Oil, Gas, and Geothermal Resources (DOGGR), Map W 1-7 there are no active oil, or gas wells located on the subject site. Further, there were no indications of any such wells found during our reconnaissance of the subject site. A copy of this map is included in Appendix B.

Evaluation of Records Search Results

In summary, no sites were identified in our search of various government agency database records, which may have impacted the soils or groundwater beneath the subject site.

Results of Aerial Photo Analysis

Although aerial photographs can often be a valuable source of information in the assessment of historical land usage, it should be understood that information extrapolated from photographic images is strictly interpretation and not necessarily fact. For this reason, it may not be appropriate to draw conclusions regarding previous site activities based solely upon aerial photograph analysis.

In order to provide a complete updated assessment of historical land usage on and in the vicinity of the subject site, aerial photographs with coverage of the subject site and vicinity were obtained from EDR and viewed by a representative of this firm. Photographs from the years 1939, 1947, 1953, 1963, 1974, 1980, 1990, 1995, 2005, 2009, 2010 and 2012 were provided by EDR. A summary of the information obtained during the aerial photograph review follows. Copies of the aerial photographs obtained from EDR are included in Appendix C.

1939 Photograph

In the 1939 photograph, the subject site is raw (native) land. The adjacent properties are either raw land or rural residential properties with groves/orchards. Stanley Avenue, Lehner Avenue and N. Ash Street appear as dirt roads.

1947 Photograph

In the 1947 photograph, the residential structure and several long structures (stables) with driveways are located within the northern portion of the site. A small orchard appears along the north of the residential structure. The southern half of the property is vacant with what appears to be a fence bisecting the southeast and southwest portions. A drainage channel exists along the southern portion of the property adjacent Lehner Avenue. The scar of the San Diego Aqueduct trench appears approximately 1,500± feet to the east-southeast of the site. The adjacent properties are either raw land or rural residential properties with groves/orchards.

1953 Photograph

In the 1953 photograph, the subject site and surrounding areas appear basically the same as in the previous photograph. The orchard in the north portion of the site is now sparse. The southern half of the property still appears as raw (native) land.

1963 Photograph

In the 1963 photograph, the subject site appears basically the same as in the previous photograph. The orchard within the north portion of the site has been completely removed. There are several other long structures now south of the residential structure. Rural residential development with livestock or groves/orchards continues to be developed throughout the area.

1974 Photographs

In the 1974 photograph, the subject site appears basically the same as in the previous photograph. The long structures south of the residential structures have been removed. Stanley Avenue, Lehner Avenue and N. Ash Street appear to have been improved. Rural residential development with livestock or groves/orchards continues to be developed throughout the area.

1980 Photograph

In the 1980 photograph, the subject site appears basically the same as in the previous photograph. A second small structure appears south of the residence. The remainder of the site appears to be overgrown with brush. Urban sprawl continues throughout the area. Residential tract housing appears to the north, southwest and south.

1990 and 1995 Photographs

In the 1990 and 1995 photographs, the subject site appears basically the same as in the previous photograph. The present day workshop and some covered corrals appear within the central east-central portion of the site. A small orchard appears within the north portion of the site. The present day pond appears in the southwest corner of the site. Rincon middle school has been constructed southeast of the site across Lehner Avenue. Calvin Christian High School appears southwest of the site. Residential housing tracts now appear east of the subject site.

2005 Photograph

In the 2005 photograph, the subject site appears basically the same as in the previous photograph. Reidy Creek Golf Course appears to the northwest of the site. Residential housing tracts continue to be constructed throughout the area.

2009, 2010 and 2012 Photographs

In the 2009, 2010 and 2012 photographs, the site appears basically the same as in the previous photograph. Urban sprawl continues throughout the area.

Historical USGS Topographic Maps

Petra reviewed the historical USGS topographic maps of the site and vicinity provided by EDR (Target Quad's: 1893, 1901, 1904, 1947, 1949, 1968, 1975 and 1996. No land use is shown for the subject site on the 1893 through 1904 Historical Topographic Maps provided by EDR. Structures are shown on the 1947 through 1996 Historical Topographic Maps provided by EDR. These maps generally support observations made from the aerial photographs reviewed. Copies of the maps reviewed are provided in Appendix C.

Environmental Liens & Activity and Use Limitations

Environmental Liens and Activity and Use Limitations (AUL) indicate restrictions on a property, which may represent a recognized environmental condition for the subject site. A search for Environmental Liens and AULs was conducted by EDR as part of this investigation using a single Assessor Parcel Number (APN). The APN number used for this report was APN 224-142-01. The results from this search indicated that there were no recorded Environmental Liens or AULs listed for the parcel. The quitclaim deed provided with this lien search shows the title is vested in Peggy L. Lehrke Trustee, recorded on May 1, 2013. A copy of the lien and AUL search report is provided in Appendix C.

Fire Insurance Maps and City Directories

Fire Insurance Maps provide information on structure locations and operations, which were present at the time of the survey. These maps were completed for most major cities and metropolitan areas, dating from 1867, and provide information into past usage of buildings and how commercial and industrial zoning has changed over time. Sanborn™ Fire Insurance maps were requested for this study. EDR reports that no Sanborn™ Fire Insurance map coverage is available for the site. The memorandum documenting this inquiry is included in Appendix C.

City Directories provide information for a specific address at a specific time. A search of city directories, dating back to 1903 was conducted by EDR for this investigation. The search was conducted for the target property and adjoining properties. No listings, which would indicate a potential concern for the

subject site based on the name of the listing, was included in the EDR city directory abstract. A copy of this search is presented in Appendix C.

Building Permits

Building Permit data provides information to identify current and/or former operations and structures/features which may represent a recognized environmental condition for the subject site. A search of building permits, dating back to 2003 was conducted by EDR for this investigation. There were no permits found for the target property and no adjoining property listings which would indicate a potential concern for the subject site based on the type of the listing and proximity to the site. A copy of this search is presented in Appendix C.

Interviews

An interview with someone knowledgeable of past usage of the site has not been completed at the time this report was prepared. If any information changes our conclusions or recommendations for the subject site, Petra will provide this information within an amendment.

Client Knowledge

In compliance with AAI, Petra interviewed the client, Mr. John Kaye for Pacific Land Investors, LLC, regarding his knowledge of the subject site. A summary of the questions is provided below.

1. According to the client, he does not have any specialized knowledge or experience related to the property or nearby properties.

2. According to the client, he is not aware of commonly known or reasonably ascertainable information about the property that would help identify conditions indicative of hazardous materials/chemical releases or threatened releases.

3. According to the client, based on his knowledge and experience related to the property, there are no obvious indicators that point to the presence of likely presence of contamination at the property.

A copy of the complete client questionnaire is provided in Appendix D.

Data Failures and Data Gaps

In the event that data gaps are identified, the Environmental Professional (EP) will endeavor to comment on the significance of those data gaps. However, the EP cannot, and does not warrant or guarantee that no significant events, releases, or conditions arose, during periods such as data gaps.

Petra reviewed several sources for historical information regarding the subject site. These sources included a government agency database search, a city directory search, a review of historical aerial photographs and historical USGS topographic maps, and interviews. No fire insurance maps are reported to be available for the site.

Data gaps exist in the historic information reviewed. These gaps are due to the limited resources available, which are reasonably ascertainable and practically reviewable in the local area. However, it is our opinion that if additional historic information were to become available, it is not likely to change the conclusions or recommendations of this assessment.

DISCUSSION OF POTENTIAL ENVIRONMENTAL CONCERNS

The following discussions of potential environmental concerns are presented to inform the client as to the existence, or lack thereof, of recognized environmental conditions present on the subject site.

Regulatory Actions

Based upon a thorough search of available federal, state, and local records, no known current regulatory action is pending with respect to the subject site

Adjacent and Nearby Properties

No information has been obtained during this investigation which would indicate the presence of recognized environmental conditions adjacent to the subject site that are considered likely to pose a significant impact to soils or groundwater beneath the subject site.

Polychlorinated Biphenyls

A single pole-mounted transformer was observed within the right of way along Stanley Avenue and the northern portion of the property. Likely due to possible age no staining was observed below the pole-

mounted transformer. If the transformer is to be removed, it is recommended that the removal be completed by a licensed contractor or the utility company responsible for the transformers.

Underground Storage Tanks

No information has been obtained during this investigation, which would indicate fuel underground storage tanks (USTs) to be located on the subject site currently nor are USTs reported to have been located on the site in the past. Further, no surface indications of USTs were observed on the subject site during the site reconnaissance.

Above Ground Storage Tanks

No information has been obtained during this investigation, which would indicate above ground fuel storage tanks (ASTs) to be located on the subject site currently, nor are ASTs reported to have been located on the site in the past.

Storm Water/Waste Water Discharge

At this time, storm water/waste water discharge from the site appears to be limited to surface water runoff.

Pesticide and Herbicide Residues

Based on information obtained during this investigation, sometime between 1939 and 1947 a small orchard was constructed within the northern portion of the site. Sometime between 1953 and 1963 the orchard within the north portion of the site was removed and then reestablished sometime between 1980 and 1990 and remains at present. However, site specific information regarding pesticide use could not be obtained during this investigation.

Asbestos-Containing Materials

It is unknown if asbestos-containing materials are present in the structures located on the site. Based on the age of the site buildings, it is recommended that the buildings be assessed for asbestos-containing materials prior to any demolition. If present, asbestos-containing materials should be abated prior to demolition in accordance with current regulations.

Lead-Based Paints

It is unknown if lead-based paints are present in the structures located on the site. Based on the age of the site buildings, it is recommended that the buildings be assessed for lead-based paints prior to any demolition. If present, lead-based paints should be abated prior to demolition in accordance with current regulations.

Landfills

The EDR report does not list any known landfills within the subject site, or nearby the site. EDR report does list three waste sites within the Orphan Summary. However, these waste sites appear to be a considerable distance from the property. Therefore, landfills do not appear to represent a recognized environmental condition with regards to the subject site.

Water Supplies

Based on our site reconnaissance, one well was observed onsite. If the well is not intended for future use, the wells should be abandoned in accordance with current regulations with oversight by the appropriate regulatory agency.

Waste Generation and Storage

Scattered debris was observed throughout the site. The debris was mostly vegetation debris, household trash which consists of plastic bottles, bags and wood scraps along with pieces of pvc pipe, and minor amounts of windblown trash. It is recommended that the debris be removed and disposed, in accordance with current regulations.

CONCLUSIONS

General Site Information

1. The subject site (proposed Tract 2) is located between Stanley Avenue and Lehner Avenue, at the southeast corner of the intersection of Stanley Avenue and N. Ash Street in the City of Escondido, San Diego County, California. A map showing the general site location is included as Figure 1.

2. Tract 2 is comprised of one parcel at 2056 N. Ash Street, with Assessor Parcel Number (APN) 224-142-01, which encompasses approximately 4.2± acres of land.

3. Tract 2 is a rectangular shaped property that gently slopes to the south-southwest toward the intersection of N. Ash Street and Lehner Avenue. Tract 2 is proposed to be developed with 14 single-family residential homes, an access road, along with associated underground utility improvements.

4. Topographically, the site consists of gently-sloping terrain. Site elevations range from approximately 764± feet above mean sea level (msl) within the northeast portion of the site along Stanley Avenue to approximately 728± feet msl within the southwest portion of the site adjacent the intersection of N. Ash Street and Lehner Avenue. Thus, overall site relief is on the order of 36± feet.

5. Several buildings are located within the northern portion of the site which includes two houses, mobile homes, workshop, storage sheds, RV trailers and horse trailers. The southern covered shade areas within the corrals. Several vehicles, concrete pumps and scaffolding were also located outside the workshop area. The workshop contained compressors, lawn mowers, containers of oil and gas, paint cans along with various tools and equipment. Staining was noted on a portion of the concrete slab.

6. Based on information obtained during this investigation, the site appears to have been native (raw) land, until at least 1939. Sometime between 1939 and 1947 a residential structure, long structures (stables) and a small grove/orchard was constructed within the northern portion of the site. The southern portion of the site remained as native (raw) land. Sometime between 1953 and 1963 the grove/orchard within the north portion of the site was removed. Sometime between 1980 and 1990 a small grove/orchard was planted within the north portion of the site. The site remains as a rural residential property with horse corrals within the southern portion of the site.

7. Site vegetation consists of several mature trees, citrus trees and grass within the northern quarter of the site and a few mature trees within the southwest corner of the site.

8. A single pole-mounted transformer was observed within the right of way along Stanley Avenue and the northern portion of the property. No staining was observed on, or below the transformer.

9. One well was observed onsite within the south-centeral portion of the site just north of Lehner Avenue.

10. Scattered debris was observed throughout the site. The debris was mostly vegetation debris, household trash which consists of plastic bottles, bags and wood scraps along with pieces of pvc pipe, and minor amounts of windblown trash.

11. No sites were identified in our search of various government agency database records, which appear to have impacted the soils or groundwater beneath the subject site.

12. Other than the small watering pond within the southwest corner of the site there was no evidence of sumps, pits, pools, or lagoons identified during our site inspection.

RECOGNIZED ENVIRONMENTAL CONDITIONS

Recognized environmental conditions are defined by the American Society of Testing and Materials (ASTM) as any hazardous substance or petroleum product under conditions that indicate an existing, past, or material threat of release into the structures, ground, groundwater, or surface water at the subject site.

If the presences of recognized environmental conditions are identified on a subject site, it may warrant additional research, site investigation, and/or action.

We have performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM Practice E 1527 of Tract 2 Pickering Project. Any exceptions to, or deletions from, this practice are described in section titled data gaps of this report. This assessment has revealed no evidence of recognized environmental conditions in connection with the property except for the following:

- Because of the site's historical agricultural land use there is a potential that pesticides and herbicides persistent in the environment were applied and residual concentrations may remain in soil within the northern portion of the site.

SITE CONSIDERATIONS

The following items are not considered recognized environmental conditions in accordance with ASTM 1527-13. However, these items may warrant considerations in conjunction with any planned development activities. The information regarding possible actions relative to these items has been provided as guidance.

1. If the pole-mounted transformer is to be removed, it is recommended that the removal be completed by a licensed contractor or the utility company responsible for the transformer.

2. It is unknown if there are any septic tanks or leach fields on the site. If any are encountered during site development, it is recommended that they be removed in accordance with current regulations.

3. One water well was observed within the site. In the event the wells are not intended for future use, it is recommended that they be abandoned in accordance with the California Well Standards as published by the California Department of Water Resources (Bulletin 74-81 and 74-90), with oversight provided by the appropriate agencies.

4. It is recommended that all trash and debris observed on the site be removed and disposed in accordance with current regulations.

LIMITATIONS

This investigation is based upon the project as described and the environmental data obtained from the field reconnaissance and research performed as outlined in this report. This report has not been prepared

for use by parties or projects other than those named or described in this report, additional studies may be required.

Since our investigation is based upon a review of available data and visual inspection of the site, without any invasive investigation, the conclusions presented herein are professional opinions. These opinions have been derived in accordance with current standards of practice, and no warranty is expressed or implied.

This firm's evaluation of previous reports and/or subconsultant reports focuses on the completeness of the information presented in the document, in accordance with applicable rules and regulations, and does not include the establishment of data sufficiency or accuracy.

QUALIFICATIONS

Resumes for the staff who contributed to this report are presented in Appendix E.

"We the undersigned declare that, to the best of our professional knowledge and belief, we meet the definition of Environmental Professional as defined in § 312.10 of 40 CFR 312. We have the specific qualification based on education, training, and experience to assess a property of the nature, history, and setting of the subject site. We have developed and performed the all appropriate inquiries in conformance with the standards and practices set forth in 40 CFR Part 312."

Jonathan Cain
Associate Geologist

Siamak Jafroudi, PhD, GE2024
President, Senior Principal Engineer

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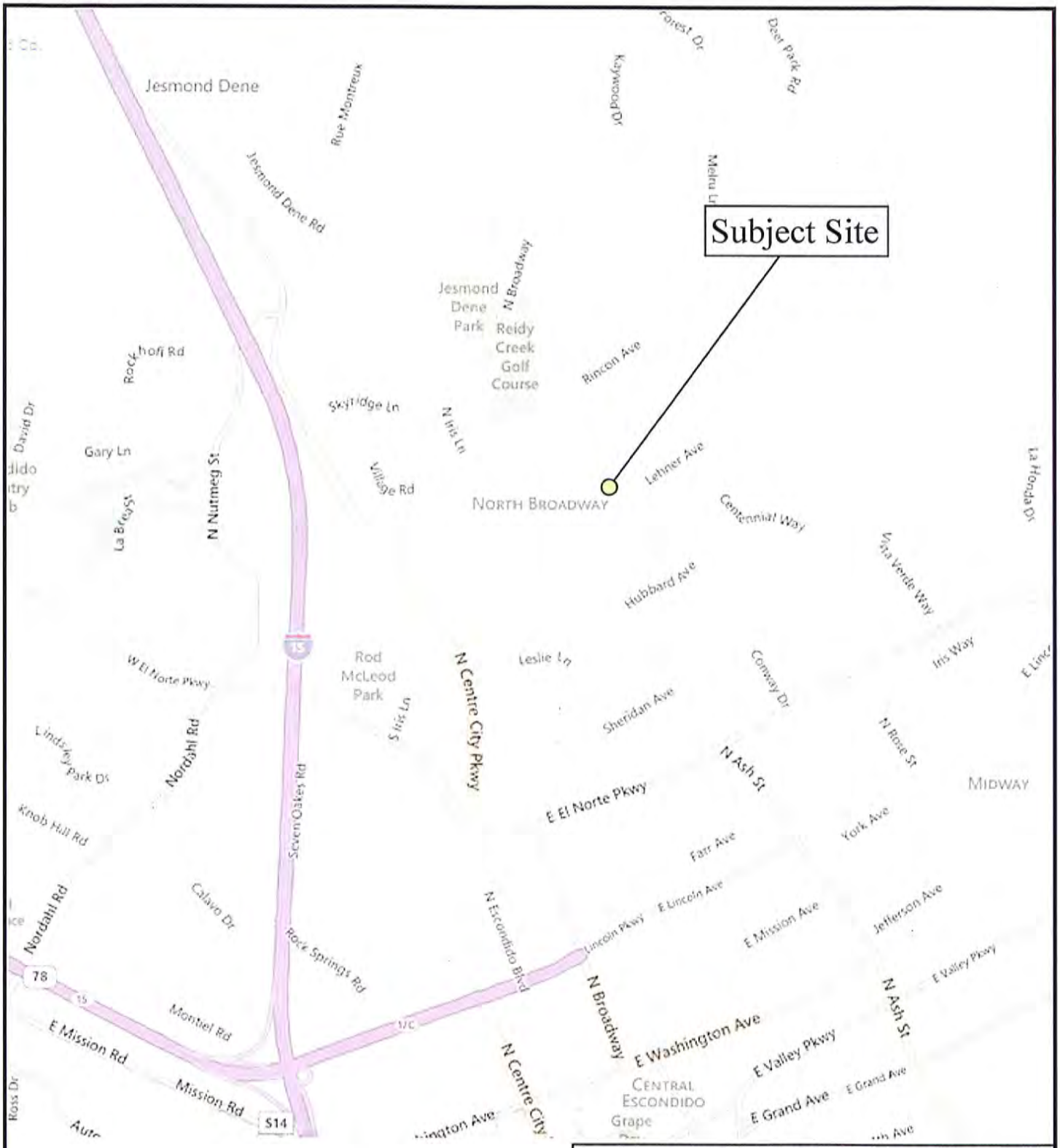
FIGURES

PETRA



Reference: Bing Maps

PETRA GEOTECHNICAL, INC.
40880 County Center Drive, Suite R
Temecula, California 92591
PHONE: (951) 600-9271
COSTA MESA TEMECULA PALM DESERT SAN DIEGO SANTA CLARITA

SITE LOCATION MAP

VCS Environmental
Tract 2 Pickering
City of Escondido, CA

DATE: Dec 2013	J.N. 13-445	Figure 1
DWG BY: LH	SCALE: NTS	

EXPLANATION

Approximate Location of Site Boundary

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W E
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Reference: Google Earth

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Temecula, California 92591
PHONE: (951) 600-9271
COSTA MESA TEMECULA PALM DESERT SAN DIEGO SANTA CLARITA

SITE PLAN

VCS Environmental
Tract 2 Pickering
City of Escondido, CA

DATE: Dec 2013	J.N. 13-445	Figure 2
DWG BY: LH	SCALE: NTS	

APPENDIX A

SITE PHOTOGRAPHS

PETRA

View to the north of stables and residence in background

Southwest corner of the property with small pond and water well

Storaged shed in central portion of property

RV and horse trailers in west-central portion of the property

Work shop in east-central portion of the site

Equipment and assorted tools within work shop

Vehicles with concrete pump in central portion of property

View south along the eastern portion of the property

Paint cans and assorted supplies in work shop

Main Residence

Secon residence south of main residence

Storage shed, vehicles and concrete pump in northeaast portion of the site

RV, scaffolding and assorted construction equipment in northeast portion of the site

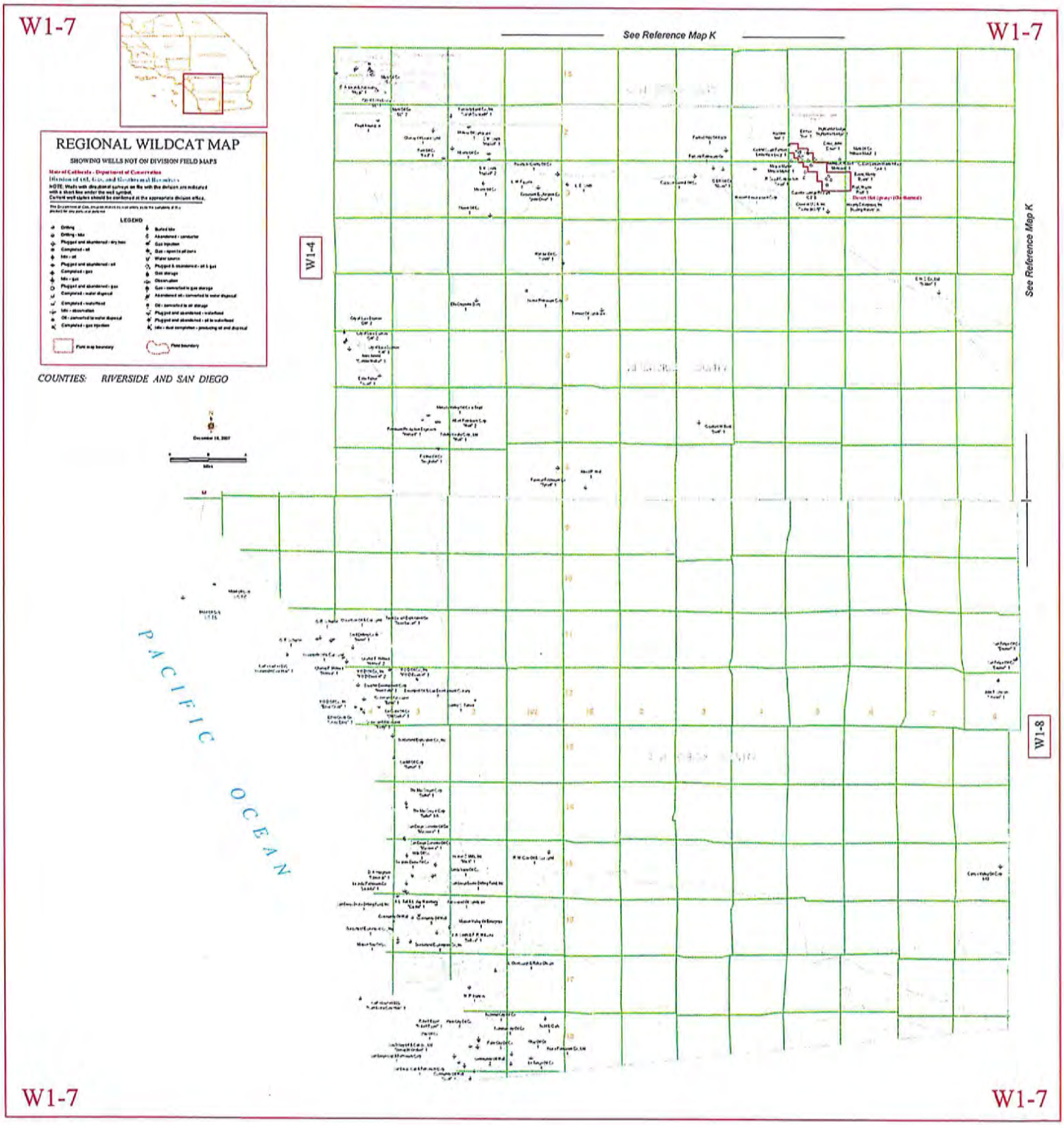
Storage area and RV's in northeast portion of the site

Orchard in northern portion of the site with single pole-mounted transformer in background along Stanley Avenue

APPENDIX B

AGENCY SEARCH RESULTS

PETRA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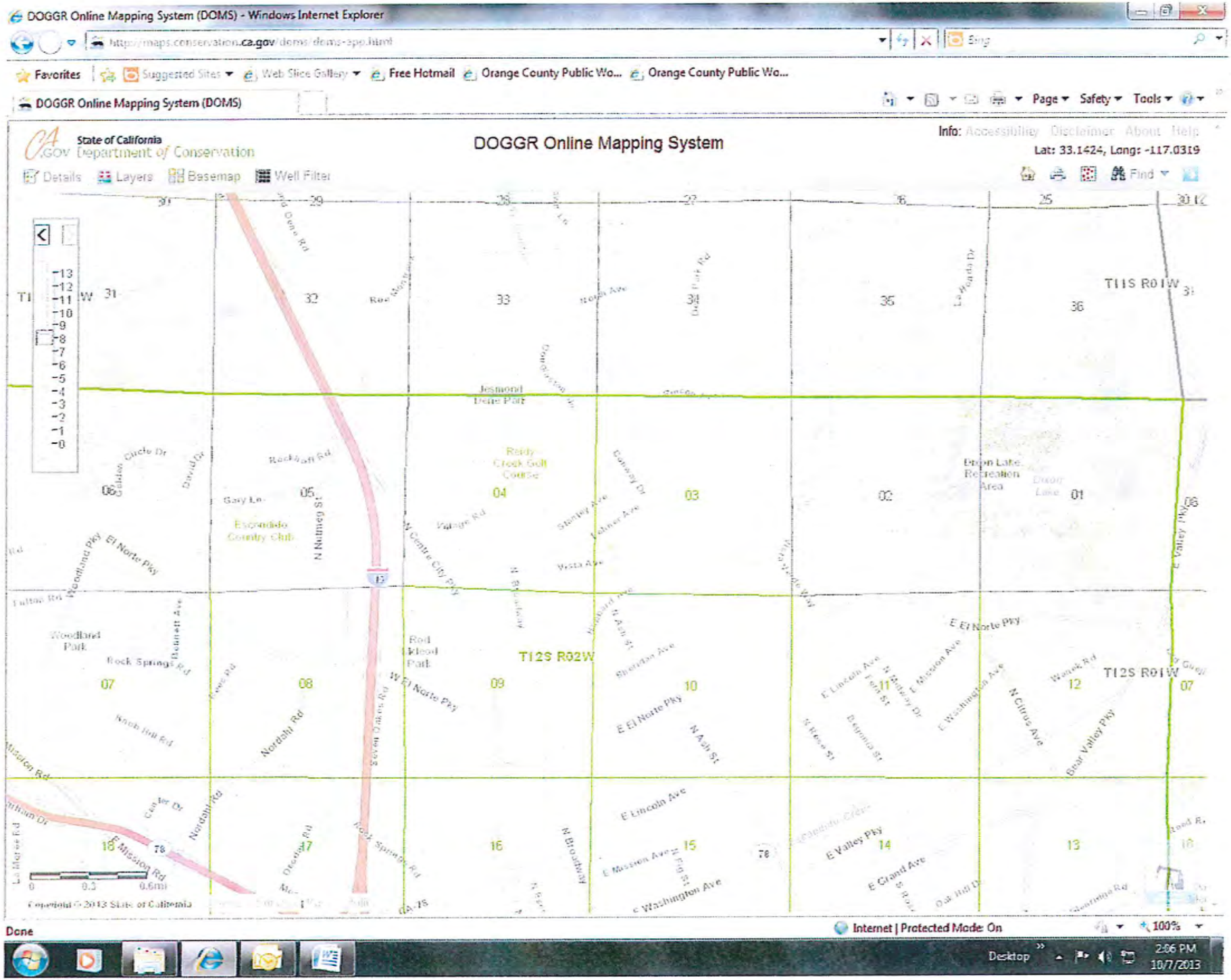
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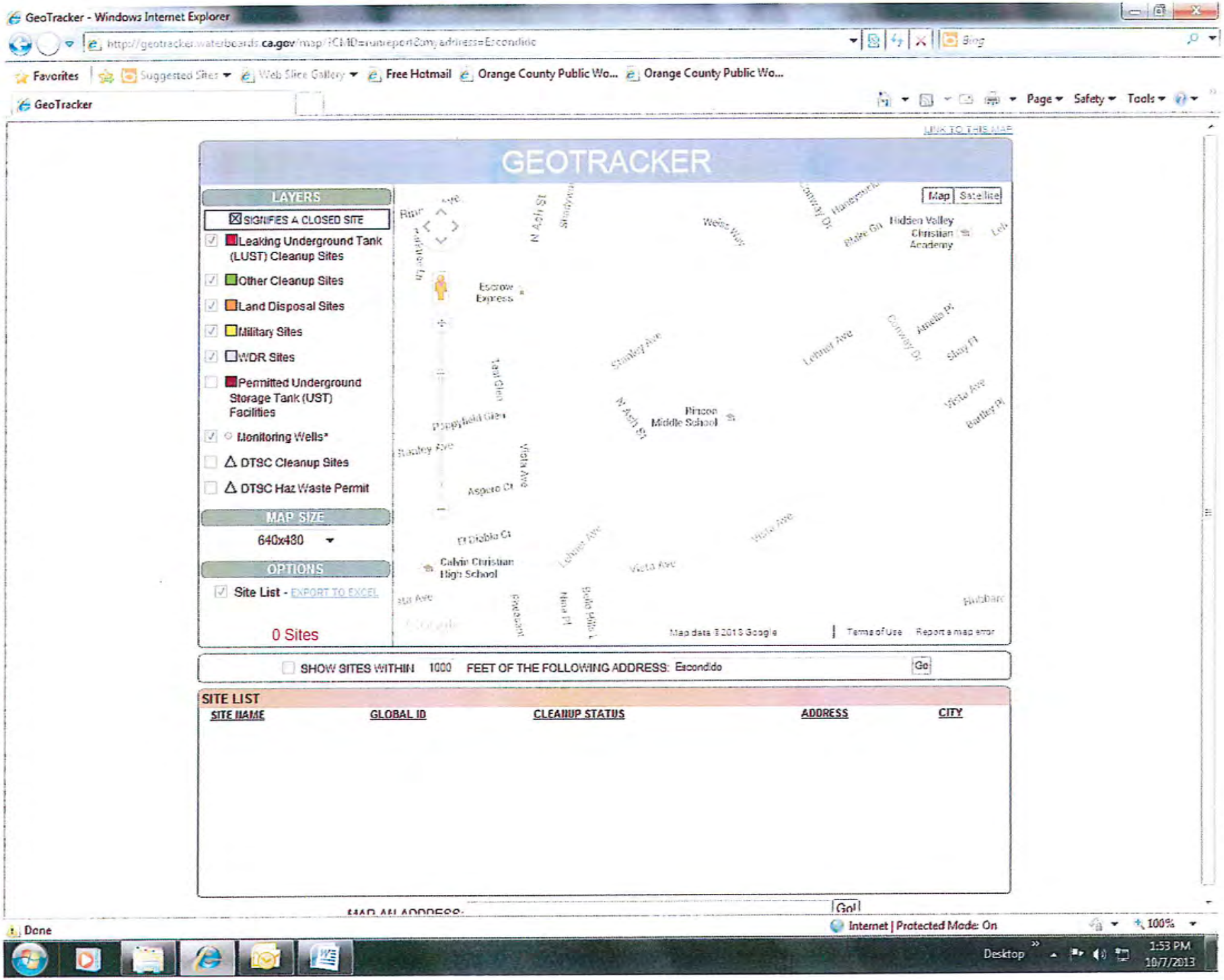
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Hidden Valley Christian Academy
Escrow Express
Princeton Middle School
Calvin Christian High School
Map data ©2013 Google
Terms of Use
Report a map error
SHOW SITES WITHIN 1000 FEET OF THE FOLLOWING ADDRESS: Escondido
Go
SITE LIST
SITE NAME
GLOBAL ID
CLEANUP STATUS
ADDRESS
CITY
Go!
Done
Internet | Protected Mode: On
100%
Desktop
1:53 PM
10/7/2013

Water Data Library Home - Windows Internet Explorer

http://www.water.ca.gov/waterdatalibrary/

Favorites | Suggested Sites | Web Slice Gallery | Free Hotmail | Orange County Public Wo... | Orange County Public Wo...

Water Data Library Home

Page | Safety | Tools

- Water Data Library Home
- Groundwater Level Data
- Water Quality Data
- Continuous Data
- Historical Information
- Contact Information

Water Data Library

Use the map below to locate monitoring stations. You can find an area of interest if you zoom and pan the map. Quickly find an area searching for named features on a map such as the name of a city, park, landmark, lake, water feature, or zip code within California. Once at the area of interest, select the desired Site Type and click the "Refresh Map" button to show monitoring stations in the area. Additional searches by data type are possible by clicking the links on the left. For help on these and other ways to find your data click here.

WDL STATION MAP

Location Search

To find monitoring stations for a specific area, enter the placename or zip code into the text box below

Site Type

Select the desired site type using the checkboxes

- [x] Groundwater Level
- [ ] Water Quality
  - [ ] Include Historic Data
- [ ] Continuous Data

= Multi-parameter site

= Cluster, showing number of stations

Cursor Coordinates (WGS84)

Lat: -117.084, Long: 33.152

0 0.15 0.3mi

Select Basemap

Rady Creek Golf Course

Sabal Ave

Mercy Rd

Carmel Mountain Rd

Camino Del Sur

Black Mountain Rd

Pomerado Rd

Scripps Ranch Blvd

Spring Hill

Lake Murray Blvd

Castle Gate

Fortuna Ave

Rancho Penasquitos Blvd

Rancho Penasquitos

Park Village Rd

Park Village Ct

Alta Ln

Carmel Valley Rd

Del Mar Heights Rd

Carmel Country Rd

Torrey Pines Rd

Portofino Dr

Torrey Pines

Sorrento Valley Rd

Sorrento Valley

Camino Del Mar

Flanders Dr

Gilman Dr

Myers Dr

Fairmont Ave

Chollas Pkwy

Euclid Ave

Imperial Ave

Logan Ave

Market St

Main St

Palm Ave

Coronado

Imperial Beach

Otay Mesa

Otay Mesa Rd

Otay Valley Rd

Otay Lakes Rd

Proctor Valley Rd

Jamacha Rd

Campo Rd

Sweetwater Rd

Bonita

Bonita Rd

Chula Vista

Telegraph Canyon Rd

Otay Ranch

Eastlake

Eastlake Pkwy

Olympic Pkwy

Lane Ave

Sunbow

Sunbow II

Salt Creek

Rancho Del Rey

Rancho Del Rey Middle

Rancho Del Rey Elementary

Hilltop Middle

Hilltop

Hilltop Dr

Hilltop Senior High

Hilltop Senior

Hilltop Ave

Hilltop Park

Hilltop Park Dr

Hilltop Park Ct

Hilltop Park Ln

Hilltop Park Pl

Hilltop Park Way

Hilltop Park Cir

Hilltop Park Terrace

Hilltop Park Trail

Hilltop Park Path

Hilltop Park Walk

Hilltop Park Loop

Hilltop Park Circle

Hilltop Park Court

Hilltop Park Lane

Hilltop Park Place

Hilltop Park Way

APPENDIX C

EDR HISTORICAL REPORTS

PETRA

Tract 2 Pickering Project
Stanley Avenue
Escondido, CA 92026

Inquiry Number: 03741994.2r
September 27, 2013

The EDR Radius Map™ Report with GeoCheck®

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
Toll Free: 800.352.0050
www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EXECUTIVE SUMMARY

A search of available environmental records was conducted by Environmental Data Resources, Inc (EDR). The report was designed to assist parties seeking to meet the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05) or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

TARGET PROPERTY INFORMATION

ADDRESS

STANLEY AVENUE
ESCONDIDO, CA 92026

COORDINATES

Latitude (North):	33.1576000 - 33° 9' 27.36"
Longitude (West):	117.0851000 - 117° 5' 6.36"
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	492064.3
UTM Y (Meters):	3668570.2
Elevation:	739 ft. above sea level

USGS TOPOGRAPHIC MAP ASSOCIATED WITH TARGET PROPERTY

Target Property Map:	33117-B1 VALLEY CENTER, CA
Most Recent Revision:	2000

AERIAL PHOTOGRAPHY IN THIS REPORT

Photo Year:	2012
Source:	USDA

TARGET PROPERTY SEARCH RESULTS

The target property was not listed in any of the databases searched by EDR.

DATABASES WITH NO MAPPED SITES

No mapped sites were found in EDR's search of available ("reasonably ascertainable ") government records either on the target property or within the search radius around the target property for the following databases:

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL..... National Priority List

EXECUTIVE SUMMARY

Proposed NPL..... Proposed National Priority List Sites
NPL LIENS..... Federal Superfund Liens

Federal Delisted NPL site list

Delisted NPL..... National Priority List Deletions

Federal CERCLIS list

CERCLIS..... Comprehensive Environmental Response, Compensation, and Liability Information System
FEDERAL FACILITY..... Federal Facility Site Information listing

Federal CERCLIS NFRAP site List

CERC-NFRAP..... CERCLIS No Further Remedial Action Planned

Federal RCRA CORRACTS facilities list

CORRACTS..... Corrective Action Report

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF..... RCRA - Treatment, Storage and Disposal

Federal RCRA generators list

RCRA-LQG..... RCRA - Large Quantity Generators
RCRA-SQG..... RCRA - Small Quantity Generators
RCRA-CESQG..... RCRA - Conditionally Exempt Small Quantity Generator

Federal institutional controls / engineering controls registries

US ENG CONTROLS..... Engineering Controls Sites List
US INST CONTROL..... Sites with Institutional Controls
LUCIS..... Land Use Control Information System

Federal ERNS list

ERNS..... Emergency Response Notification System

State- and tribal - equivalent NPL

RESPONSE..... State Response Sites

State and tribal landfill and/or solid waste disposal site lists

SWF/LF..... Solid Waste Information System

State and tribal leaking storage tank lists

LUST..... Geotracker's Leaking Underground Fuel Tank Report
SLIC..... Statewide SLIC Cases
SAN DIEGO CO. SAM..... Environmental Case Listing
INDIAN LUST..... Leaking Underground Storage Tanks on Indian Land

State and tribal registered storage tank lists

UST..... Active UST Facilities

AST..... Aboveground Petroleum Storage Tank Facilities
INDIAN UST..... Underground Storage Tanks on Indian Land
FEMA UST..... Underground Storage Tank Listing

State and tribal voluntary cleanup sites

VCP..... Voluntary Cleanup Program Properties
INDIAN VCP..... Voluntary Cleanup Priority Listing

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS..... A Listing of Brownfields Sites

Local Lists of Landfill / Solid Waste Disposal Sites

ODI..... Open Dump Inventory
DEBRIS REGION 9..... Torres Martinez Reservation Illegal Dump Site Locations
WMUDS/SWAT..... Waste Management Unit Database
SWRCY..... Recycler Database
HAULERS..... Registered Waste Tire Haulers Listing
INDIAN ODI..... Report on the Status of Open Dumps on Indian Lands

Local Lists of Hazardous waste / Contaminated Sites

US CDL..... Clandestine Drug Labs
HIST Cal-Sites..... Historical Calsites Database
SCH..... School Property Evaluation Program
Toxic Pits..... Toxic Pits Cleanup Act Sites
CDL..... Clandestine Drug Labs
San Diego Co. HMMD..... Hazardous Materials Management Division Database
US HIST CDL..... National Clandestine Laboratory Register

Local Lists of Registered Storage Tanks

CA FID UST..... Facility Inventory Database
HIST UST..... Hazardous Substance Storage Container Database
SWEEPS UST..... SWEEPS UST Listing

Local Land Records

LIENS 2..... CERCLA Lien Information
LIENS..... Environmental Liens Listing
DEED..... Deed Restriction Listing

Records of Emergency Release Reports

HMIRS..... Hazardous Materials Information Reporting System
CHMIRS..... California Hazardous Material Incident Report System
LDS..... Land Disposal Sites Listing
MCS..... Military Cleanup Sites Listing
SPILLS 90..... SPILLS 90 data from FirstSearch

Other Ascertainable Records

RCRA NonGen / NLR..... RCRA - Non Generators

EXECUTIVE SUMMARY

DOT OPS	Incident and Accident Data
DOD	Department of Defense Sites
FUDS	Formerly Used Defense Sites
CONSENT	Superfund (CERCLA) Consent Decrees
ROD	Records Of Decision
UMTRA	Uranium Mill Tailings Sites
US MINES	Mines Master Index File
TRIS	Toxic Chemical Release Inventory System
TSCA	Toxic Substances Control Act
FTTS	FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
HIST FTTS	FIFRA/TSCA Tracking System Administrative Case Listing
SSTS	Section 7 Tracking Systems
ICIS	Integrated Compliance Information System
PADS	PCB Activity Database System
MLTS	Material Licensing Tracking System
RADINFO	Radiation Information Database
FINDS	Facility Index System/Facility Registry System
RAATS	RCRA Administrative Action Tracking System
RMP	Risk Management Plans
CA BOND EXP. PLAN	Bond Expenditure Plan
UIC	UIC Listing
NPDES	NPDES Permits Listing
Cortese	"Cortese" Hazardous Waste & Substances Sites List
HIST CORTESE	Hazardous Waste & Substance Site List
CUPA Listings	CUPA Resources List
Notify 65	Proposition 65 Records
DRYCLEANERS	Cleaner Facilities
WIP	Well Investigation Program Case List
ENF	Enforcement Action Listing
HAZNET	Facility and Manifest Data
EMI	Emissions Inventory Data
INDIAN RESERV	Indian Reservations
SCRD DRYCLEANERS	State Coalition for Remediation of Drycleaners Listing
MWMP	Medical Waste Management Program Listing
COAL ASH DOE	Steam-Electric Plant Operation Data
COAL ASH EPA	Coal Combustion Residues Surface Impoundments List
HWT	Registered Hazardous Waste Transporter Database
HWP	EnviroStor Permitted Facilities Listing
Financial Assurance	Financial Assurance Information Listing
LEAD SMELTERS	Lead Smelter Sites
2020 COR ACTION	2020 Corrective Action Program List
US AIRS	Aerometric Information Retrieval System Facility Subsystem
PRP	Potentially Responsible Parties
WDS	Waste Discharge System
EPA WATCH LIST	EPA WATCH LIST
US FIN ASSUR	Financial Assurance Information
PCB TRANSFORMER	PCB Transformer Registration Database
PROC	Certified Processors Database

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

EDR MGP	EDR Proprietary Manufactured Gas Plants

EXECUTIVE SUMMARY

EDR US Hist Auto Stat..... EDR Exclusive Historic Gas Stations
EDR US Hist Cleaners..... EDR Exclusive Historic Dry Cleaners

SURROUNDING SITES: SEARCH RESULTS

Surrounding sites were identified in the following databases.

Elevations have been determined from the USGS Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified. Sites with an elevation equal to or higher than the target property have been differentiated below from sites with an elevation lower than the target property.
Page numbers and map identification numbers refer to the EDR Radius Map report where detailed data on individual sites can be reviewed.

Sites listed in ***bold italics*** are in multiple databases.

Unmappable (orphan) sites are not considered in the foregoing analysis.

STANDARD ENVIRONMENTAL RECORDS

State- and tribal - equivalent CERCLIS

ENVIROSTOR: The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

A review of the ENVIROSTOR list, as provided by EDR, and dated 08/05/2013 has revealed that there is 1 ENVIROSTOR site within approximately 1 mile of the target property.

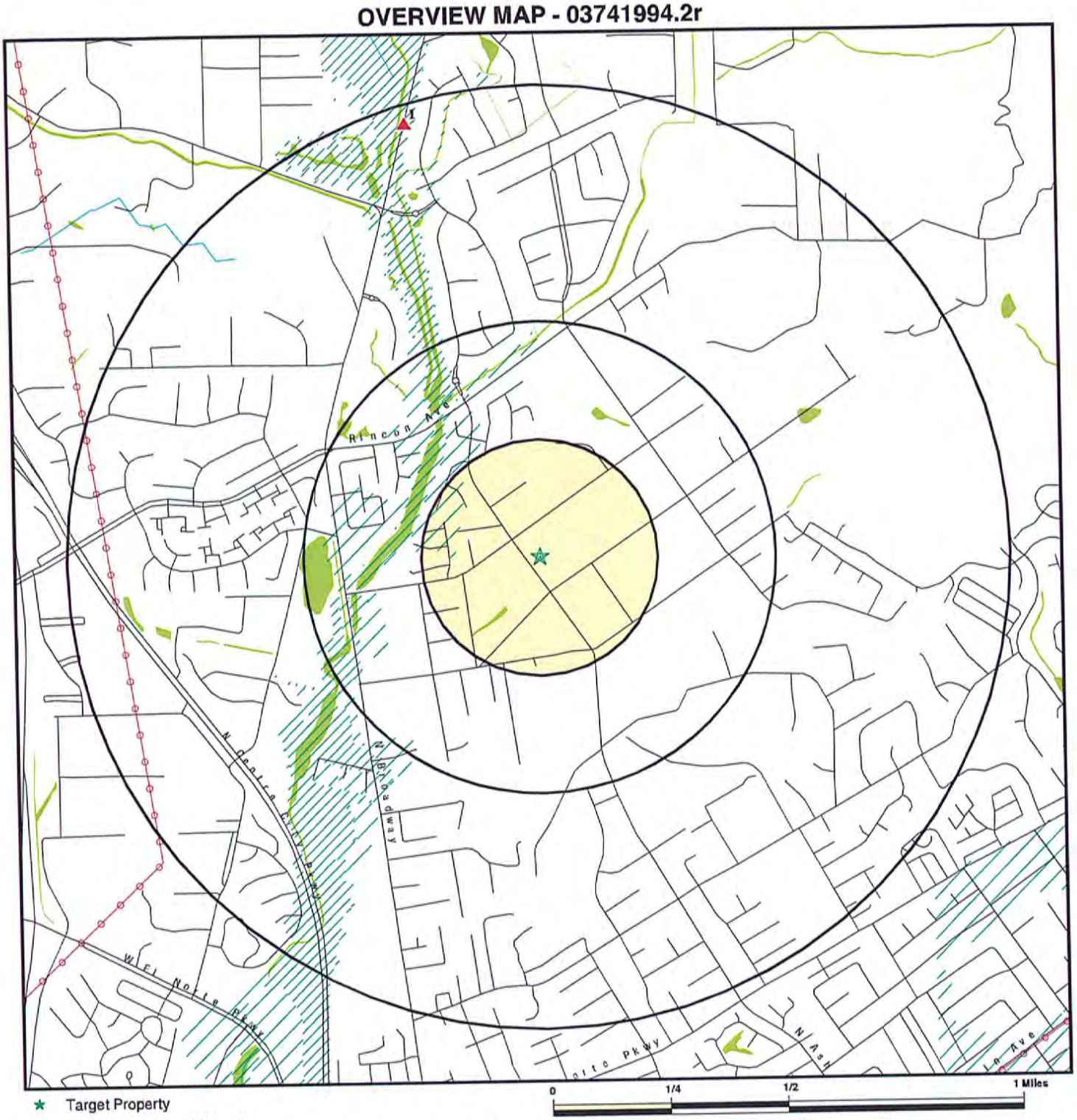
Equal/Higher Elevation	Address	Direction / Distance	Map ID	Page
SPRINGTIME/REIDY CREEK ELEMENT	***2747 NORTH BROADWAY***	***NNW 1/2 - 1 (0.962 mi.)***	*1*	*8*
Status: No Further Action				

EXECUTIVE SUMMARY

Due to poor or inadequate address information, the following sites were not mapped. Count: 13 records.

Site Name	Database(s)
PROJECT 6956	NPDES
WOOD TO STEEL POLE REPLACEMENT PRO	NPDES
RIMROCK ESTATES AREA 2 & 3	NPDES
DIXON DAM	SWF/LF
MAYHEW DUMP (ESCONDIDO I)	SWF/LF
BENTON DUMP	SWF/LF
MILE POST 264.2	ERNS
MILEPOST 229.2	ERNS
2 MILES OFF SILVER STRAND STATE BE	ERNS
NAVY BASE SAN DIEGO PIER 2	ERNS
SDG&E 16 TM LA HONDA PROJECT	WDS
WESTERN SALT CO	US MINES
WESTERN SALT CO	US MINES

OVERVIEW MAP - 03741994.2r



- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- Manufactured Gas Plants
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Power transmission lines
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Tract 2 Pickering Project ADDRESS: Stanley Avenue Escondido CA 92026 LAT/LONG: 33.1576 / 117.0851	CLIENT: Petra Geotechnical Inc CONTACT: Jon Cain INQUIRY #: 03741994.2r DATE: September 27, 2013 1:58 pm

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DETAIL MAP - 03741994.2r

- ★ Target Property
- ▲ Sites at elevations higher than or equal to the target property
- ◆ Sites at elevations lower than the target property
- Manufactured Gas Plants
- Sensitive Receptors
- National Priority List Sites
- Dept. Defense Sites
- Indian Reservations BIA
- Oil & Gas pipelines from USGS
- 100-year flood zone
- 500-year flood zone
- National Wetland Inventory
- Areas of Concern

This report includes Interactive Map Layers to display and/or hide map information. The legend includes only those icons for the default map view.

SITE NAME: Tract 2 Pickering Project	CLIENT: Petra Geotechnical Inc
ADDRESS: Stanley Avenue Escondido CA 92026	CONTACT: Jon Cain
LAT/LONG: 33.1576 / 117.0851	INQUIRY #: 03741994.2r DATE: September 27, 2013 2:00 pm

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MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
STANDARD ENVIRONMENTAL RECORDS								
Federal NPL site list								
NPL	1.000		0	0	0	0	NR	0
Proposed NPL	1.000		0	0	0	0	NR	0
NPL LIENS	TP		NR	NR	NR	NR	NR	0
Federal Delisted NPL site list								
Delisted NPL	1.000		0	0	0	0	NR	0
Federal CERCLIS list								
CERCLIS	0.500		0	0	0	NR	NR	0
FEDERAL FACILITY	0.500		0	0	0	NR	NR	0
Federal CERCLIS NFRAP site List								
CERC-NFRAP	0.500		0	0	0	NR	NR	0
Federal RCRA CORRACTS facilities list								
CORRACTS	1.000		0	0	0	0	NR	0
Federal RCRA non-CORRACTS TSD facilities list								
RCRA-TSDF	0.500		0	0	0	NR	NR	0
Federal RCRA generators list								
RCRA-LQG	0.250		0	0	NR	NR	NR	0
RCRA-SQG	0.250		0	0	NR	NR	NR	0
RCRA-CESQG	0.250		0	0	NR	NR	NR	0
Federal institutional controls / engineering controls registries								
US ENG CONTROLS	0.500		0	0	0	NR	NR	0
US INST CONTROL	0.500		0	0	0	NR	NR	0
LUCIS	0.500		0	0	0	NR	NR	0
Federal ERNS list								
ERNS	TP		NR	NR	NR	NR	NR	0
State- and tribal - equivalent NPL								
RESPONSE	1.000		0	0	0	0	NR	0
State- and tribal - equivalent CERCLIS								
ENVIROSTOR	1.000		0	0	0	1	NR	1
State and tribal landfill and/or solid waste disposal site lists								
SWF/LF	0.500		0	0	0	NR	NR	0
State and tribal leaking storage tank lists								
LUST	0.500		0	0	0	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
SLIC	0.500		0	0	0	NR	NR	0
SAN DIEGO CO. SAM	0.500		0	0	0	NR	NR	0
INDIAN LUST	0.500		0	0	0	NR	NR	0
State and tribal registered storage tank lists								
UST	0.250		0	0	NR	NR	NR	0
AST	0.250		0	0	NR	NR	NR	0
INDIAN UST	0.250		0	0	NR	NR	NR	0
FEMA UST	0.250		0	0	NR	NR	NR	0
State and tribal voluntary cleanup sites								
VCP	0.500		0	0	0	NR	NR	0
INDIAN VCP	0.500		0	0	0	NR	NR	0
ADDITIONAL ENVIRONMENTAL RECORDS								
Local Brownfield lists								
US BROWNFIELDS	0.500		0	0	0	NR	NR	0
Local Lists of Landfill / Solid Waste Disposal Sites								
ODI	0.500		0	0	0	NR	NR	0
DEBRIS REGION 9	0.500		0	0	0	NR	NR	0
WMUDS/SWAT	0.500		0	0	0	NR	NR	0
SWRCY	0.500		0	0	0	NR	NR	0
HAULERS	TP		NR	NR	NR	NR	NR	0
INDIAN ODI	0.500		0	0	0	NR	NR	0
Local Lists of Hazardous waste / Contaminated Sites								
US CDL	TP		NR	NR	NR	NR	NR	0
HIST Cal-Sites	1.000		0	0	0	0	NR	0
SCH	0.250		0	0	NR	NR	NR	0
Toxic Pits	1.000		0	0	0	0	NR	0
CDL	TP		NR	NR	NR	NR	NR	0
San Diego Co. HMMD	TP		NR	NR	NR	NR	NR	0
US HIST CDL	TP		NR	NR	NR	NR	NR	0
Local Lists of Registered Storage Tanks								
CA FID UST	0.250		0	0	NR	NR	NR	0
HIST UST	0.250		0	0	NR	NR	NR	0
SWEEPS UST	0.250		0	0	NR	NR	NR	0
Local Land Records								
LIENS 2	TP		NR	NR	NR	NR	NR	0
LIENS	TP		NR	NR	NR	NR	NR	0
DEED	0.500		0	0	0	NR	NR	0
Records of Emergency Release Reports								
HMIRS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
CHMIRS	TP		NR	NR	NR	NR	NR	0
LDS	TP		NR	NR	NR	NR	NR	0
MCS	TP		NR	NR	NR	NR	NR	0
SPILLS 90	TP		NR	NR	NR	NR	NR	0
Other Ascertainable Records								
RCRA NonGen / NLR	0.250		0	0	NR	NR	NR	0
DOT OPS	TP		NR	NR	NR	NR	NR	0
DOD	1.000		0	0	0	0	NR	0
FUDS	1.000		0	0	0	0	NR	0
CONSENT	1.000		0	0	0	0	NR	0
ROD	1.000		0	0	0	0	NR	0
UMTRA	0.500		0	0	0	NR	NR	0
US MINES	0.250		0	0	NR	NR	NR	0
TRIS	TP		NR	NR	NR	NR	NR	0
TSCA	TP		NR	NR	NR	NR	NR	0
FTTS	TP		NR	NR	NR	NR	NR	0
HIST FTTS	TP		NR	NR	NR	NR	NR	0
SSTS	TP		NR	NR	NR	NR	NR	0
ICIS	TP		NR	NR	NR	NR	NR	0
PADS	TP		NR	NR	NR	NR	NR	0
MLTS	TP		NR	NR	NR	NR	NR	0
RADINFO	TP		NR	NR	NR	NR	NR	0
FINDS	TP		NR	NR	NR	NR	NR	0
RAATS	TP		NR	NR	NR	NR	NR	0
RMP	TP		NR	NR	NR	NR	NR	0
CA BOND EXP. PLAN	1.000		0	0	0	0	NR	0
UIC	TP		NR	NR	NR	NR	NR	0
NPDES	TP		NR	NR	NR	NR	NR	0
Cortese	0.500		0	0	0	NR	NR	0
HIST CORTESE	0.500		0	0	0	NR	NR	0
CUPA Listings	0.250		0	0	NR	NR	NR	0
Notify 65	1.000		0	0	0	0	NR	0
DRYCLEANERS	0.250		0	0	NR	NR	NR	0
WIP	0.250		0	0	NR	NR	NR	0
ENF	TP		NR	NR	NR	NR	NR	0
HAZNET	TP		NR	NR	NR	NR	NR	0
EMI	TP		NR	NR	NR	NR	NR	0
INDIAN RESERV	1.000		0	0	0	0	NR	0
SCRD DRYCLEANERS	0.500		0	0	0	NR	NR	0
MWMP	0.250		0	0	NR	NR	NR	0
COAL ASH DOE	TP		NR	NR	NR	NR	NR	0
COAL ASH EPA	0.500		0	0	0	NR	NR	0
HWT	0.250		0	0	NR	NR	NR	0
HWP	1.000		0	0	0	0	NR	0
Financial Assurance	TP		NR	NR	NR	NR	NR	0
LEAD SMELTERS	TP		NR	NR	NR	NR	NR	0
2020 COR ACTION	0.250		0	0	NR	NR	NR	0
US AIRS	TP		NR	NR	NR	NR	NR	0
PRP	TP		NR	NR	NR	NR	NR	0
WDS	TP		NR	NR	NR	NR	NR	0

MAP FINDINGS SUMMARY

Database	Search Distance (Miles)	Target Property	< 1/8	1/8 - 1/4	1/4 - 1/2	1/2 - 1	> 1	Total Plotted
EPA WATCH LIST	TP		NR	NR	NR	NR	NR	0
US FIN ASSUR	TP		NR	NR	NR	NR	NR	0
PCB TRANSFORMER	TP		NR	NR	NR	NR	NR	0
PROC	0.500		0	0	0	NR	NR	0
EDR HIGH RISK HISTORICAL RECORDS								
EDR Exclusive Records								
EDR MGP	1.000		0	0	0	0	NR	0
EDR US Hist Auto Stat	0.250		0	0	NR	NR	NR	0
EDR US Hist Cleaners	0.250		0	0	NR	NR	NR	0

NOTES:

TP = Target Property

NR = Not Requested at this Search Distance

Sites may be listed in more than one database

1
NNW
1/2-1
0.962 mi.
5077 ft.

SPRINGTIME/REIDY CREEK ELEMENTARY
2747 NORTH BROADWAY
ESCONDIDO, CA 92026

SCH **S107737397**
ENVIROSTOR **N/A**

Relative:
Higher

Actual:
754 ft.

SCH:

Facility ID:	37010002
Site Type:	School Investigation
Site Type Detail:	School
Site Mgmt. Req.:	NONE SPECIFIED
Acres:	33
National Priorities List:	NO
Cleanup Oversight Agencies:	DTSC
Lead Agency:	DTSC
Lead Agency Description:	* DTSC
Project Manager:	Not reported
Supervisor:	* Rebecca Chou
Division Branch:	Southern California Schools & Brownfields Outreach
Site Code:	404016
Assembly:	75
Senate:	38
Special Program Status:	Not reported
Status:	No Further Action
Status Date:	05/12/2000
Restricted Use:	NO
Funding:	School District
Latitude:	33.17257
Longitude:	-117.0886
APN:	NONE SPECIFIED
Past Use:	AGRICULTURAL - ROW CROPS
Potential COC:	DDD, DDE, DDT, Lead, Polynuclear aromatic hydrocarbons (PAHs
Confirmed COC:	Polynuclear aromatic hydrocarbons (PAHs, Lead
Potential Description:	SOIL
Alias Name:	ESCONDIDO USD-PROP. SPRINGTIME/REIDY/VCA
Alias Type:	Alternate Name
Alias Name:	SPRINGTIME/REIDY CREEK ELEM. SCHOOL
Alias Type:	Alternate Name
Alias Name:	404016
Alias Type:	Project Code (Site Code)
Alias Name:	37010002
Alias Type:	Envirostor ID Number

Completed Info:

Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Site Inspections/Visit (Non LUR)
Completed Date:	02/02/2000
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Environmental Oversight Agreement
Completed Date:	01/10/2000
Comments:	Not reported
Completed Area Name:	PROJECT WIDE
Completed Sub Area Name:	Not reported
Completed Document Type:	Preliminary Endangerment Assessment Report

SPRINGTIME/REIDY CREEK ELEMENTARY (Continued) **S107737397**

Completed Date: 03/21/2000
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 05/12/2000
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

ENVIROSTOR:
Site Type: School Investigation
Site Type Detailed: School
Acres: 33
NPL: NO
Regulatory Agencies: DTSC
Lead Agency: DTSC
Program Manager: Not reported
Supervisor: * Rebecca Chou
Division Branch: Southern California Schools & Brownfields Outreach
Facility ID: 37010002
Site Code: 404016
Assembly: 75
Senate: 38
Special Program: Not reported
Status: No Further Action
Status Date: 05/12/2000
Restricted Use: NO
Site Mgmt. Req.: NONE SPECIFIED
Funding: School District
Latitude: 33.17257
Longitude: -117.0886
APN: NONE SPECIFIED
Past Use: AGRICULTURAL - ROW CROPS
Potential COC: DDD, DDE, DDT, Lead, Polynuclear aromatic hydrocarbons (PAHs
Confirmed COC: DDD, DDE, DDT, Lead, Polynuclear aromatic hydrocarbons (PAHs, Polynuclear aromatic hydrocarbons (PAHs, Lead
Potential Description: SOIL
Alias Name: ESCONDIDO USD-PROP. SPRINGTIME/REIDY/VCA
Alias Type: Alternate Name
Alias Name: SPRINGTIME/REIDY CREEK ELEM. SCHOOL
Alias Type: Alternate Name
Alias Name: 404016
Alias Type: Project Code (Site Code)
Alias Name: 37010002
Alias Type: Envirostor ID Number

Completed Info:

SPRINGTIME/REIDY CREEK ELEMENTARY (Continued) **S107737397**

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Site Inspections/Visit (Non LUR)
Completed Date: 02/02/2000
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Environmental Oversight Agreement
Completed Date: 01/10/2000
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 03/21/2000
Comments: Not reported

Completed Area Name: PROJECT WIDE
Completed Sub Area Name: Not reported
Completed Document Type: Preliminary Endangerment Assessment Report
Completed Date: 05/12/2000
Comments: Not reported

Future Area Name: Not reported
Future Sub Area Name: Not reported
Future Document Type: Not reported
Future Due Date: Not reported
Schedule Area Name: Not reported
Schedule Sub Area Name: Not reported
Schedule Document Type: Not reported
Schedule Due Date: Not reported
Schedule Revised Date: Not reported

Count: 13 records.

ORPHAN SUMMARY

City	EDR ID	Site Name	Site Address	Zip	Database(s)
ESCONDIDO	S109349420	DIXON DAM	DIXON DM & LAKE DIXON SPILLWA		SWF/LF
ESCONDIDO	S109821542	MAYHEW DUMP (ESCONDIDO I)	GREENWOOD PL		SWF/LF
ESCONDIDO	S111828706	PROJECT 6956	MISSION AVE	92026	NPDES
ESCONDIDO	S111216915	WOOD TO STEEL POLE REPLACEMENT PRO	W PORTION OF ESCONDIDO CITY &		NPDES
ESCONDIDO	S106105420	SDG&E 16 TM LA HONDA PROJECT	RANCHO LOTOA LANE INTERSECTION	0	WDS
ESCONDIDO	S109349416	BENTON DUMP	STILWATER GLN		SWF/LF
SAN DIEGO	S110735653	RIMROCK ESTATES AREA 2 & 3	WELK VIEW DRIVE LENNON LN	92026	NPDES
SAN DIEGO COUNTY	M300002489	WESTERN SALT CO	CHULA VISTA PLANT		US MINES
SAN DIEGO COUNTY	M300002765	WESTERN SALT CO	CHULA VISTA PLANT		US MINES
SAN DIEGO COUNTY	2006793143	MILE POST 264.2	MILE POST 264.2		ERNS
SAN DIEGO COUNTY	2006785293	MILEPOST 229.2	MILEPOST 229.2		ERNS
SAN DIEGO COUNTY	2011980714	2 MILES OFF SILVER STRAND STATE BE	2 MILES OFF SILVER STRAND STAT		ERNS
SAN DIEGO COUNTY	2010959516	NAVY BASE SAN DIEGO PIER 2	NAVY BASE SAN DIEGO PIER 2		ERNS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

To maintain currency of the following federal and state databases, EDR contacts the appropriate governmental agency on a monthly or quarterly basis, as required.

Number of Days to Update: Provides confirmation that EDR is reporting records that have been updated within 90 days from the date the government agency made the information available to the public.

STANDARD ENVIRONMENTAL RECORDS

Federal NPL site list

NPL: National Priority List
National Priorities List (Superfund). The NPL is a subset of CERCLIS and identifies over 1,200 sites for priority cleanup under the Superfund Program. NPL sites may encompass relatively large areas. As such, EDR provides polygon coverage for over 1,000 NPL site boundaries produced by EPA's Environmental Photographic Interpretation Center (EPIC) and regional EPA offices.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 05/09/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 62

Source: EPA
Telephone: N/A
Last EDR Contact: 07/12/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Quarterly

NPL Site Boundaries

Sources:

EPA's Environmental Photographic Interpretation Center (EPIC)
Telephone: 202-564-7333

EPA Region 1
Telephone 617-918-1143

EPA Region 6
Telephone: 214-655-6659

EPA Region 3
Telephone 215-814-5418

EPA Region 7
Telephone: 913-551-7247

EPA Region 4
Telephone 404-562-8033

EPA Region 8
Telephone: 303-312-6774

EPA Region 5
Telephone 312-886-6686

EPA Region 9
Telephone: 415-947-4246

EPA Region 10
Telephone 206-553-8665

Proposed NPL: Proposed National Priority List Sites
A site that has been proposed for listing on the National Priorities List through the issuance of a proposed rule in the Federal Register. EPA then accepts public comments on the site, responds to the comments, and places on the NPL those sites that continue to meet the requirements for listing.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 05/09/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 62

Source: EPA
Telephone: N/A
Last EDR Contact: 07/12/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Quarterly

NPL LIENS: Federal Superfund Liens
Federal Superfund Liens. Under the authority granted the USEPA by CERCLA of 1980, the USEPA has the authority to file liens against real property in order to recover remedial action expenditures or when the property owner received notification of potential liability. USEPA compiles a listing of filed notices of Superfund Liens.

Date of Government Version: 10/15/1991
Date Data Arrived at EDR: 02/02/1994
Date Made Active in Reports: 03/30/1994
Number of Days to Update: 56

Source: EPA
Telephone: 202-564-4267
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal Delisted NPL site list

DELISTED NPL: National Priority List Deletions

The National Oil and Hazardous Substances Pollution Contingency Plan (NCP) establishes the criteria that the EPA uses to delete sites from the NPL. In accordance with 40 CFR 300.425.(e), sites may be deleted from the NPL where no further response is appropriate.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 05/09/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 62

Source: EPA
Telephone: N/A
Last EDR Contact: 07/12/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Quarterly

Federal CERCLIS list

CERCLIS: Comprehensive Environmental Response, Compensation, and Liability Information System

CERCLIS contains data on potentially hazardous waste sites that have been reported to the USEPA by states, municipalities, private companies and private persons, pursuant to Section 103 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). CERCLIS contains sites which are either proposed to or on the National Priorities List (NPL) and sites which are in the screening and assessment phase for possible inclusion on the NPL.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 05/29/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 72

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 09/27/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Quarterly

FEDERAL FACILITY: Federal Facility Site Information listing

A listing of National Priority List (NPL) and Base Realignment and Closure (BRAC) sites found in the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) Database where EPA Federal Facilities Restoration and Reuse Office is involved in cleanup activities.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 10/09/2012
Date Made Active in Reports: 12/20/2012
Number of Days to Update: 72

Source: Environmental Protection Agency
Telephone: 703-603-8704
Last EDR Contact: 07/08/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Varies

Federal CERCLIS NFRAP site List

CERCLIS-NFRAP: CERCLIS No Further Remedial Action Planned

Archived sites are sites that have been removed and archived from the inventory of CERCLIS sites. Archived status indicates that, to the best of EPA's knowledge, assessment at a site has been completed and that EPA has determined no further steps will be taken to list this site on the National Priorities List (NPL), unless information indicates this decision was not appropriate or other considerations require a recommendation for listing at a later time. This decision does not necessarily mean that there is no hazard associated with a given site; it only means that, based upon available information, the location is not judged to be a potential NPL site.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 05/29/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 72

Source: EPA
Telephone: 703-412-9810
Last EDR Contact: 09/27/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Quarterly

Federal RCRA CORRACTS facilities list

CORRACTS: Corrective Action Report

CORRACTS identifies hazardous waste handlers with RCRA corrective action activity.

Date of Government Version: 07/11/2013
Date Data Arrived at EDR: 08/08/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 36

Source: EPA
Telephone: 800-424-9346
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

Federal RCRA non-CORRACTS TSD facilities list

RCRA-TSDF: RCRA - Treatment, Storage and Disposal

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Transporters are individuals or entities that move hazardous waste from the generator offsite to a facility that can recycle, treat, store, or dispose of the waste. TSDFs treat, store, or dispose of the waste.

Date of Government Version: 07/11/2013
Date Data Arrived at EDR: 08/08/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

Federal RCRA generators list

RCRA-LQG: RCRA - Large Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Large quantity generators (LQGs) generate over 1,000 kilograms (kg) of hazardous waste, or over 1 kg of acutely hazardous waste per month.

Date of Government Version: 07/11/2013
Date Data Arrived at EDR: 08/08/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

RCRA-SQG: RCRA - Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Small quantity generators (SQGs) generate between 100 kg and 1,000 kg of hazardous waste per month.

Date of Government Version: 07/11/2013
Date Data Arrived at EDR: 08/08/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Conditionally exempt small quantity generators (CESQGs) generate less than 100 kg of hazardous waste, or less than 1 kg of acutely hazardous waste per month.

Date of Government Version: 07/11/2013
Date Data Arrived at EDR: 08/08/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Federal institutional controls / engineering controls registries

US ENG CONTROLS: Engineering Controls Sites List

A listing of sites with engineering controls in place. Engineering controls include various forms of caps, building foundations, liners, and treatment methods to create pathway elimination for regulated substances to enter environmental media or effect human health.

Date of Government Version: 03/14/2013
Date Data Arrived at EDR: 03/29/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 09/10/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Varies

US INST CONTROL: Sites with Institutional Controls

A listing of sites with institutional controls in place. Institutional controls include administrative measures, such as groundwater use restrictions, construction restrictions, property use restrictions, and post remediation care requirements intended to prevent exposure to contaminants remaining on site. Deed restrictions are generally required as part of the institutional controls.

Date of Government Version: 03/14/2013
Date Data Arrived at EDR: 03/29/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 703-603-0695
Last EDR Contact: 09/10/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Varies

LUCIS: Land Use Control Information System

LUCIS contains records of land use control information pertaining to the former Navy Base Realignment and Closure properties.

Date of Government Version: 12/09/2005
Date Data Arrived at EDR: 12/11/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 31

Source: Department of the Navy
Telephone: 843-820-7326
Last EDR Contact: 08/15/2013
Next Scheduled EDR Contact: 09/02/2013
Data Release Frequency: Varies

Federal ERNS list

ERNS: Emergency Response Notification System

Emergency Response Notification System. ERNS records and stores information on reported releases of oil and hazardous substances.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/17/2013
Date Made Active in Reports: 02/15/2013
Number of Days to Update: 29

Source: National Response Center, United States Coast Guard
Telephone: 202-267-2180
Last EDR Contact: 07/01/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Annually

State- and tribal - equivalent NPL

RESPONSE: State Response Sites

Identifies confirmed release sites where DTSC is involved in remediation, either in a lead or oversight capacity. These confirmed release sites are generally high-priority and high potential risk.

Date of Government Version: 08/05/2013
Date Data Arrived at EDR: 08/05/2013
Date Made Active in Reports: 08/27/2013
Number of Days to Update: 22

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 09/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Quarterly

State- and tribal - equivalent CERCLIS

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ENVIROSTOR: EnviroStor Database

The Department of Toxic Substances Control's (DTSC's) Site Mitigation and Brownfields Reuse Program's (SMBRP's) EnviroStor database identifes sites that have known contamination or sites for which there may be reasons to investigate further. The database includes the following site types: Federal Superfund sites (National Priorities List (NPL)); State Response, including Military Facilities and State Superfund; Voluntary Cleanup; and School sites. EnviroStor provides similar information to the information that was available in CalSites, and provides additional site information, including, but not limited to, identification of formerly-contaminated properties that have been released for reuse, properties where environmental deed restrictions have been recorded to prevent inappropriate land uses, and risk characterization information that is used to assess potential impacts to public health and the environment at contaminated sites.

Date of Government Version: 08/05/2013
Date Data Arrived at EDR: 08/05/2013
Date Made Active in Reports: 08/27/2013
Number of Days to Update: 22

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 09/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Quarterly

State and tribal landfill and/or solid waste disposal site lists

SWF/LF (SWIS): Solid Waste Information System

Active, Closed and Inactive Landfills. SWF/LF records typically contain an inve ntory of solid waste disposal facilities or landfills. These may be active or i nactive facilities or open dumps that failed to meet RCRA Section 4004 criteria for solid waste landfills or disposal sites.

Date of Government Version: 05/20/2013
Date Data Arrived at EDR: 05/21/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 35

Source: Department of Resources Recycling and Recovery
Telephone: 916-341-6320
Last EDR Contact: 08/19/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Quarterly

State and tribal leaking storage tank lists

LUST REG 8: Leaking Underground Storage Tanks

California Regional Water Quality Control Board Santa Ana Region (8). For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/14/2005
Date Data Arrived at EDR: 02/15/2005
Date Made Active in Reports: 03/28/2005
Number of Days to Update: 41

Source: California Regional Water Quality Control Board Santa Ana Region (8)
Telephone: 909-782-4496
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Varies

LUST REG 7: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Imperial, Riverside, San Diego, Santa Barbara counties.

Date of Government Version: 02/26/2004
Date Data Arrived at EDR: 02/26/2004
Date Made Active in Reports: 03/24/2004
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Colorado River Basin Region (7)
Telephone: 760-776-8943
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

LUST REG 6V: Leaking Underground Storage Tank Case Listing

Leaking Underground Storage Tank locations. Inyo, Kern, Los Angeles, Mono, San Bernardino counties.

Date of Government Version: 06/07/2005
Date Data Arrived at EDR: 06/07/2005
Date Made Active in Reports: 06/29/2005
Number of Days to Update: 22

Source: California Regional Water Quality Control Board Victorville Branch Office (6)
Telephone: 760-241-7365
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST REG 6L: Leaking Underground Storage Tank Case Listing
For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/09/2003
Date Data Arrived at EDR: 09/10/2003
Date Made Active in Reports: 10/07/2003
Number of Days to Update: 27

Source: California Regional Water Quality Control Board Lahontan Region (6)
Telephone: 530-542-5572
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: No Update Planned

LUST REG 5: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Alameda, Alpine, Amador, Butte, Colusa, Contra Costa, Calveras, El Dorado, Fresno, Glenn, Kern, Kings, Lake, Lassen, Madera, Mariposa, Merced, Modoc, Napa, Nevada, Placer, Plumas, Sacramento, San Joaquin, Shasta, Solano, Stanislaus, Sutter, Tehama, Tulare, Tuolumne, Yolo, Yuba counties.

Date of Government Version: 07/01/2008
Date Data Arrived at EDR: 07/22/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 9

Source: California Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-4834
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: No Update Planned

LUST REG 4: Underground Storage Tank Leak List
Los Angeles, Ventura counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6710
Last EDR Contact: 09/06/2011
Next Scheduled EDR Contact: 12/19/2011
Data Release Frequency: No Update Planned

LUST REG 3: Leaking Underground Storage Tank Database
Leaking Underground Storage Tank locations. Monterey, San Benito, San Luis Obispo, Santa Barbara, Santa Cruz counties.

Date of Government Version: 05/19/2003
Date Data Arrived at EDR: 05/19/2003
Date Made Active in Reports: 06/02/2003
Number of Days to Update: 14

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-542-4786
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: No Update Planned

LUST REG 2: Fuel Leak List
Leaking Underground Storage Tank locations. Alameda, Contra Costa, Marin, Napa, San Francisco, San Mateo, Santa Clara, Solano, Sonoma counties.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: California Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-622-2433
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

LUST REG 1: Active Toxic Site Investigation
Del Norte, Humboldt, Lake, Mendocino, Modoc, Siskiyou, Sonoma, Trinity counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 02/01/2001
Date Data Arrived at EDR: 02/28/2001
Date Made Active in Reports: 03/29/2001
Number of Days to Update: 29

Source: California Regional Water Quality Control Board North Coast (1)
Telephone: 707-570-3769
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

LUST: Geotracker's Leaking Underground Fuel Tank Report
Leaking Underground Storage Tank Incident Reports. LUST records contain an inventory of reported leaking underground storage tank incidents. Not all states maintain these records, and the information stored varies by state. For more information on a particular leaking underground storage tank sites, please contact the appropriate regulatory agency.

Date of Government Version: 07/26/2013
Date Data Arrived at EDR: 07/26/2013
Date Made Active in Reports: 08/26/2013
Number of Days to Update: 31

Source: State Water Resources Control Board
Telephone: see region list
Last EDR Contact: 09/17/2013
Next Scheduled EDR Contact: 12/30/2013
Data Release Frequency: Quarterly

LUST REG 9: Leaking Underground Storage Tank Report
Orange, Riverside, San Diego counties. For more current information, please refer to the State Water Resources Control Board's LUST database.

Date of Government Version: 03/01/2001
Date Data Arrived at EDR: 04/23/2001
Date Made Active in Reports: 05/21/2001
Number of Days to Update: 28

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-637-5595
Last EDR Contact: 09/26/2011
Next Scheduled EDR Contact: 01/09/2012
Data Release Frequency: No Update Planned

SLIC: Statewide SLIC Cases
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 07/26/2013
Date Data Arrived at EDR: 07/26/2013
Date Made Active in Reports: 08/26/2013
Number of Days to Update: 31

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/17/2013
Next Scheduled EDR Contact: 12/30/2013
Data Release Frequency: Varies

SLIC REG 1: Active Toxic Site Investigations
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2003
Date Data Arrived at EDR: 04/07/2003
Date Made Active in Reports: 04/25/2003
Number of Days to Update: 18

Source: California Regional Water Quality Control Board, North Coast Region (1)
Telephone: 707-576-2220
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 2: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/30/2004
Date Data Arrived at EDR: 10/20/2004
Date Made Active in Reports: 11/19/2004
Number of Days to Update: 30

Source: Regional Water Quality Control Board San Francisco Bay Region (2)
Telephone: 510-286-0457
Last EDR Contact: 09/19/2011
Next Scheduled EDR Contact: 01/02/2012
Data Release Frequency: Quarterly

SLIC REG 3: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/18/2006
Date Data Arrived at EDR: 05/18/2006
Date Made Active in Reports: 06/15/2006
Number of Days to Update: 28

Source: California Regional Water Quality Control Board Central Coast Region (3)
Telephone: 805-549-3147
Last EDR Contact: 07/18/2011
Next Scheduled EDR Contact: 10/31/2011
Data Release Frequency: Semi-Annually

SLIC REG 4: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/17/2004
Date Data Arrived at EDR: 11/18/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 47

Source: Region Water Quality Control Board Los Angeles Region (4)
Telephone: 213-576-6600
Last EDR Contact: 07/01/2011
Next Scheduled EDR Contact: 10/17/2011
Data Release Frequency: Varies

SLIC REG 5: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/01/2005
Date Data Arrived at EDR: 04/05/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 16

Source: Regional Water Quality Control Board Central Valley Region (5)
Telephone: 916-464-3291
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 6V: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 05/24/2005
Date Data Arrived at EDR: 05/25/2005
Date Made Active in Reports: 06/16/2005
Number of Days to Update: 22

Source: Regional Water Quality Control Board, Victorville Branch
Telephone: 619-241-6583
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: Semi-Annually

SLIC REG 6L: SLIC Sites
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/07/2004
Date Data Arrived at EDR: 09/07/2004
Date Made Active in Reports: 10/12/2004
Number of Days to Update: 35

Source: California Regional Water Quality Control Board, Lahontan Region
Telephone: 530-542-5574
Last EDR Contact: 08/15/2011
Next Scheduled EDR Contact: 11/28/2011
Data Release Frequency: No Update Planned

SLIC REG 7: SLIC List
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 11/24/2004
Date Data Arrived at EDR: 11/29/2004
Date Made Active in Reports: 01/04/2005
Number of Days to Update: 36

Source: California Regional Quality Control Board, Colorado River Basin Region
Telephone: 760-346-7491
Last EDR Contact: 08/01/2011
Next Scheduled EDR Contact: 11/14/2011
Data Release Frequency: No Update Planned

SLIC REG 8: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 04/03/2008
Date Data Arrived at EDR: 04/03/2008
Date Made Active in Reports: 04/14/2008
Number of Days to Update: 11

Source: California Region Water Quality Control Board Santa Ana Region (8)
Telephone: 951-782-3298
Last EDR Contact: 09/12/2011
Next Scheduled EDR Contact: 12/26/2011
Data Release Frequency: Semi-Annually

SLIC REG 9: Spills, Leaks, Investigation & Cleanup Cost Recovery Listing
The SLIC (Spills, Leaks, Investigations and Cleanup) program is designed to protect and restore water quality from spills, leaks, and similar discharges.

Date of Government Version: 09/10/2007
Date Data Arrived at EDR: 09/11/2007
Date Made Active in Reports: 09/28/2007
Number of Days to Update: 17

Source: California Regional Water Quality Control Board San Diego Region (9)
Telephone: 858-467-2980
Last EDR Contact: 08/08/2011
Next Scheduled EDR Contact: 11/21/2011
Data Release Frequency: Annually

INDIAN LUST R10: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Alaska, Idaho, Oregon and Washington.

Date of Government Version: 02/05/2013
Date Data Arrived at EDR: 02/06/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 65

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Quarterly

INDIAN LUST R1: Leaking Underground Storage Tanks on Indian Land
A listing of leaking underground storage tank locations on Indian Land.

Date of Government Version: 09/28/2012
Date Data Arrived at EDR: 11/01/2012
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 162

Source: EPA Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/02/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

INDIAN LUST R8: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Colorado, Montana, North Dakota, South Dakota, Utah and Wyoming.

Date of Government Version: 08/27/2012
Date Data Arrived at EDR: 08/28/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 49

Source: EPA Region 8
Telephone: 303-312-6271
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Quarterly

INDIAN LUST R6: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in New Mexico and Oklahoma.

Date of Government Version: 09/12/2011
Date Data Arrived at EDR: 09/13/2011
Date Made Active in Reports: 11/11/2011
Number of Days to Update: 59

Source: EPA Region 6
Telephone: 214-665-6597
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

INDIAN LUST R4: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Florida, Mississippi and North Carolina.

Date of Government Version: 02/06/2013
Date Data Arrived at EDR: 02/08/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 63

Source: EPA Region 4
Telephone: 404-562-8677
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Semi-Annually

INDIAN LUST R7: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Iowa, Kansas, and Nebraska

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 02/28/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 43

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

INDIAN LUST R9: Leaking Underground Storage Tanks on Indian Land
LUSTs on Indian land in Arizona, California, New Mexico and Nevada

Date of Government Version: 03/01/2013
Date Data Arrived at EDR: 03/01/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 42

Source: Environmental Protection Agency
Telephone: 415-972-3372
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Quarterly

State and tribal registered storage tank lists

UST: Active UST Facilities
Active UST facilities gathered from the local regulatory agencies

Date of Government Version: 07/26/2013
Date Data Arrived at EDR: 07/26/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 25

Source: SWRCB
Telephone: 916-341-5851
Last EDR Contact: 09/17/2013
Next Scheduled EDR Contact: 12/30/2013
Data Release Frequency: Semi-Annually

AST: Aboveground Petroleum Storage Tank Facilities
Registered Aboveground Storage Tanks.

Date of Government Version: 08/01/2009
Date Data Arrived at EDR: 09/10/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 21

Source: State Water Resources Control Board
Telephone: 916-327-5092
Last EDR Contact: 07/03/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Quarterly

INDIAN UST R10: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 10 (Alaska, Idaho, Oregon, Washington, and Tribal Nations).

Date of Government Version: 02/05/2013
Date Data Arrived at EDR: 02/06/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 65

Source: EPA Region 10
Telephone: 206-553-2857
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Quarterly

INDIAN UST R9: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 9 (Arizona, California, Hawaii, Nevada, the Pacific Islands, and Tribal Nations).

Date of Government Version: 02/21/2013
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 45

Source: EPA Region 9
Telephone: 415-972-3368
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Quarterly

INDIAN UST R8: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 8 (Colorado, Montana, North Dakota, South Dakota, Utah, Wyoming and 27 Tribal Nations).

Date of Government Version: 08/27/2012
Date Data Arrived at EDR: 08/28/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 49

Source: EPA Region 8
Telephone: 303-312-6137
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Quarterly

INDIAN UST R7: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 7 (Iowa, Kansas, Missouri, Nebraska, and 9 Tribal Nations).

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 02/28/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 43

Source: EPA Region 7
Telephone: 913-551-7003
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

INDIAN UST R6: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 6 (Louisiana, Arkansas, Oklahoma, New Mexico, Texas and 65 Tribes).

Date of Government Version: 05/10/2011
Date Data Arrived at EDR: 05/11/2011
Date Made Active in Reports: 06/14/2011
Number of Days to Update: 34

Source: EPA Region 6
Telephone: 214-665-7591
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Semi-Annually

INDIAN UST R5: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 5 (Michigan, Minnesota and Wisconsin and Tribal Nations).

Date of Government Version: 08/02/2012
Date Data Arrived at EDR: 08/03/2012
Date Made Active in Reports: 11/05/2012
Number of Days to Update: 94

Source: EPA Region 5
Telephone: 312-886-6136
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

INDIAN UST R4: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 4 (Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee and Tribal Nations)

Date of Government Version: 02/06/2013
Date Data Arrived at EDR: 02/08/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 63

Source: EPA Region 4
Telephone: 404-562-9424
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Semi-Annually

INDIAN UST R1: Underground Storage Tanks on Indian Land
The Indian Underground Storage Tank (UST) database provides information about underground storage tanks on Indian land in EPA Region 1 (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont and ten Tribal Nations).

Date of Government Version: 09/28/2012
Date Data Arrived at EDR: 11/07/2012
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 156

Source: EPA, Region 1
Telephone: 617-918-1313
Last EDR Contact: 08/02/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

FEMA UST: Underground Storage Tank Listing
A listing of all FEMA owned underground storage tanks.

Date of Government Version: 01/01/2010
Date Data Arrived at EDR: 02/16/2010
Date Made Active in Reports: 04/12/2010
Number of Days to Update: 55

Source: FEMA
Telephone: 202-646-5797
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Varies

State and tribal voluntary cleanup sites

INDIAN VCP R7: Voluntary Cleanup Priority Lisitng
A listing of voluntary cleanup priority sites located on Indian Land located in Region 7.

Date of Government Version: 03/20/2008
Date Data Arrived at EDR: 04/22/2008
Date Made Active in Reports: 05/19/2008
Number of Days to Update: 27

Source: EPA, Region 7
Telephone: 913-551-7365
Last EDR Contact: 04/20/2009
Next Scheduled EDR Contact: 07/20/2009
Data Release Frequency: Varies

VCP: Voluntary Cleanup Program Properties
Contains low threat level properties with either confirmed or unconfirmed releases and the project proponents have request that DTSC oversee investigation and/or cleanup activities and have agreed to provide coverage for DTSC's costs.

Date of Government Version: 08/05/2013
Date Data Arrived at EDR: 08/05/2013
Date Made Active in Reports: 08/27/2013
Number of Days to Update: 22

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 09/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Quarterly

INDIAN VCP R1: Voluntary Cleanup Priority Listing
A listing of voluntary cleanup priority sites located on Indian Land located in Region 1.

Date of Government Version: 09/28/2012
Date Data Arrived at EDR: 10/02/2012
Date Made Active in Reports: 10/16/2012
Number of Days to Update: 14

Source: EPA, Region 1
Telephone: 617-918-1102
Last EDR Contact: 07/02/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

ADDITIONAL ENVIRONMENTAL RECORDS

Local Brownfield lists

US BROWNFIELDS: A Listing of Brownfields Sites
Brownfields are real property, the expansion, redevelopment, or reuse of which may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant. Cleaning up and reinvesting in these properties takes development pressures off of undeveloped, open land, and both improves and protects the environment. Assessment, Cleanup and Redevelopment Exchange System (ACRES) stores information reported by EPA Brownfields grant recipients on brownfields properties assessed or cleaned up with grant funding as well as information on Targeted Brownfields Assessments performed by EPA Regions. A listing of ACRES Brownfield sites is obtained from Cleanups in My Community. Cleanups in My Community provides information on Brownfields properties for which information is reported back to EPA, as well as areas served by Brownfields grant programs.

Date of Government Version: 06/24/2013
Date Data Arrived at EDR: 06/25/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 45

Source: Environmental Protection Agency
Telephone: 202-566-2777
Last EDR Contact: 09/24/2013
Next Scheduled EDR Contact: 01/08/2014
Data Release Frequency: Semi-Annually

Local Lists of Landfill / Solid Waste Disposal Sites

ODI: Open Dump Inventory
An open dump is defined as a disposal facility that does not comply with one or more of the Part 257 or Part 258 Subtitle D Criteria.

Date of Government Version: 06/30/1985
Date Data Arrived at EDR: 08/09/2004
Date Made Active in Reports: 09/17/2004
Number of Days to Update: 39

Source: Environmental Protection Agency
Telephone: 800-424-9346
Last EDR Contact: 06/09/2004
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

DEBRIS REGION 9: Torres Martinez Reservation Illegal Dump Site Locations
A listing of illegal dump sites location on the Torres Martinez Indian Reservation located in eastern Riverside County and northern Imperial County, California.

Date of Government Version: 01/12/2009
Date Data Arrived at EDR: 05/07/2009
Date Made Active in Reports: 09/21/2009
Number of Days to Update: 137

Source: EPA, Region 9
Telephone: 415-947-4219
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: No Update Planned

WMUDS/SWAT: Waste Management Unit Database
Waste Management Unit Database System. WMUDS is used by the State Water Resources Control Board staff and the Regional Water Quality Control Boards for program tracking and inventory of waste management units. WMUDS is composed of the following databases: Facility Information, Scheduled Inspections Information, Waste Management Unit Information, SWAT Program Information, SWAT Report Summary Information, SWAT Report Summary Data, Chapter 15 (formerly Subchapter 15) Information, Chapter 15 Monitoring Parameters, TPCA Program Information, RCRA Program Information, Closure Information, and Interested Parties Information.

Date of Government Version: 04/01/2000
Date Data Arrived at EDR: 04/10/2000
Date Made Active in Reports: 05/10/2000
Number of Days to Update: 30

Source: State Water Resources Control Board
Telephone: 916-227-4448
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: No Update Planned

SWRCY: Recycler Database
A listing of recycling facilities in California.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/17/2013
Date Made Active in Reports: 08/16/2013
Number of Days to Update: 60

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/16/2013
Next Scheduled EDR Contact: 12/30/2013
Data Release Frequency: Quarterly

HAULERS: Registered Waste Tire Haulers Listing
A listing of registered waste tire haulers.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 04/26/2013
Date Made Active in Reports: 05/16/2013
Number of Days to Update: 20

Source: Integrated Waste Management Board
Telephone: 916-341-6422
Last EDR Contact: 09/10/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Varies

INDIAN ODI: Report on the Status of Open Dumps on Indian Lands
Location of open dumps on Indian land.

Date of Government Version: 12/31/1998
Date Data Arrived at EDR: 12/03/2007
Date Made Active in Reports: 01/24/2008
Number of Days to Update: 52

Source: Environmental Protection Agency
Telephone: 703-308-8245
Last EDR Contact: 07/31/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Varies

Local Lists of Hazardous waste / Contaminated Sites

US CDL: Clandestine Drug Labs
A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 03/04/2013
Date Data Arrived at EDR: 03/12/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 59

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 09/04/2013
Next Scheduled EDR Contact: 12/16/2013
Data Release Frequency: Quarterly

HIST CAL-SITES: Calsites Database

The Calsites database contains potential or confirmed hazardous substance release properties. In 1996, California EPA reevaluated and significantly reduced the number of sites in the Calsites database. No longer updated by the state agency. It has been replaced by ENVIROSTOR.

Date of Government Version: 08/08/2005
Date Data Arrived at EDR: 08/03/2006
Date Made Active in Reports: 08/24/2006
Number of Days to Update: 21

Source: Department of Toxic Substance Control
Telephone: 916-323-3400
Last EDR Contact: 02/23/2009
Next Scheduled EDR Contact: 05/25/2009
Data Release Frequency: No Update Planned

SCH: School Property Evaluation Program

This category contains proposed and existing school sites that are being evaluated by DTSC for possible hazardous materials contamination. In some cases, these properties may be listed in the CalSites category depending on the level of threat to public health and safety or the environment they pose.

Date of Government Version: 08/05/2013
Date Data Arrived at EDR: 08/05/2013
Date Made Active in Reports: 08/27/2013
Number of Days to Update: 22

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 09/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Quarterly

TOXIC PITS: Toxic Pits Cleanup Act Sites

Toxic PITS Cleanup Act Sites. TOXIC PITS identifies sites suspected of containing hazardous substances where cleanup has not yet been completed.

Date of Government Version: 07/01/1995
Date Data Arrived at EDR: 08/30/1995
Date Made Active in Reports: 09/26/1995
Number of Days to Update: 27

Source: State Water Resources Control Board
Telephone: 916-227-4364
Last EDR Contact: 01/26/2009
Next Scheduled EDR Contact: 04/27/2009
Data Release Frequency: No Update Planned

CDL: Clandestine Drug Labs

A listing of drug lab locations. Listing of a location in this database does not indicate that any illegal drug lab materials were or were not present there, and does not constitute a determination that the location either requires or does not require additional cleanup work.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 04/03/2013
Date Made Active in Reports: 05/14/2013
Number of Days to Update: 41

Source: Department of Toxic Substances Control
Telephone: 916-255-6504
Last EDR Contact: 09/03/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

US HIST CDL: National Clandestine Laboratory Register

A listing of clandestine drug lab locations. The U.S. Department of Justice ("the Department") provides this web site as a public service. It contains addresses of some locations where law enforcement agencies reported they found chemicals or other items that indicated the presence of either clandestine drug laboratories or dumpsites. In most cases, the source of the entries is not the Department, and the Department has not verified the entry and does not guarantee its accuracy. Members of the public must verify the accuracy of all entries by, for example, contacting local law enforcement and local health departments.

Date of Government Version: 09/01/2007
Date Data Arrived at EDR: 11/19/2008
Date Made Active in Reports: 03/30/2009
Number of Days to Update: 131

Source: Drug Enforcement Administration
Telephone: 202-307-1000
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Local Lists of Registered Storage Tanks

CA FID UST: Facility Inventory Database

The Facility Inventory Database (FID) contains a historical listing of active and inactive underground storage tank locations from the State Water Resource Control Board. Refer to local/county source for current data.

Date of Government Version: 10/31/1994
Date Data Arrived at EDR: 09/05/1995
Date Made Active in Reports: 09/29/1995
Number of Days to Update: 24

Source: California Environmental Protection Agency
Telephone: 916-341-5851
Last EDR Contact: 12/28/1998
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

UST MENDOCINO: Mendocino County UST Database

A listing of underground storage tank locations in Mendocino County.

Date of Government Version: 09/23/2009
Date Data Arrived at EDR: 09/23/2009
Date Made Active in Reports: 10/01/2009
Number of Days to Update: 8

Source: Department of Public Health
Telephone: 707-463-4466
Last EDR Contact: 09/03/2013
Next Scheduled EDR Contact: 12/16/2013
Data Release Frequency: Annually

HIST UST: Hazardous Substance Storage Container Database

The Hazardous Substance Storage Container Database is a historical listing of UST sites. Refer to local/county source for current data.

Date of Government Version: 10/15/1990
Date Data Arrived at EDR: 01/25/1991
Date Made Active in Reports: 02/12/1991
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-341-5851
Last EDR Contact: 07/26/2001
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

SWEEPS UST: SWEEPS UST Listing

Statewide Environmental Evaluation and Planning System. This underground storage tank listing was updated and maintained by a company contacted by the SWRCB in the early 1990's. The listing is no longer updated or maintained. The local agency is the contact for more information on a site on the SWEEPS list.

Date of Government Version: 06/01/1994
Date Data Arrived at EDR: 07/07/2005
Date Made Active in Reports: 08/11/2005
Number of Days to Update: 35

Source: State Water Resources Control Board
Telephone: N/A
Last EDR Contact: 06/03/2005
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Local Land Records

LIENS 2: CERCLA Lien Information

A Federal CERCLA ('Superfund') lien can exist by operation of law at any site or property at which EPA has spent Superfund monies. These monies are spent to investigate and address releases and threatened releases of contamination. CERCLIS provides information as to the identity of these sites and properties.

Date of Government Version: 02/06/2013
Date Data Arrived at EDR: 04/25/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 15

Source: Environmental Protection Agency
Telephone: 202-564-6023
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

LIENS: Environmental Liens Listing

A listing of property locations with environmental liens for California where DTSC is a lien holder.

Date of Government Version: 06/14/2013
Date Data Arrived at EDR: 06/17/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 65

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 09/23/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Varies

DEED: Deed Restriction Listing

Site Mitigation and Brownfields Reuse Program Facility Sites with Deed Restrictions & Hazardous Waste Management Program Facility Sites with Deed / Land Use Restriction. The DTSC Site Mitigation and Brownfields Reuse Program (SMBRP) list includes sites cleaned up under the program's oversight and generally does not include current or former hazardous waste facilities that required a hazardous waste facility permit. The list represents deed restrictions that are active. Some sites have multiple deed restrictions. The DTSC Hazardous Waste Management Program (HWMP) has developed a list of current or former hazardous waste facilities that have a recorded land use restriction at the local county recorder's office. The land use restrictions on this list were required by the DTSC HWMP as a result of the presence of hazardous substances that remain on site after the facility (or part of the facility) has been closed or cleaned up. The types of land use restriction include deed notice, deed restriction, or a land use restriction that binds current and future owners.

Date of Government Version: 06/10/2013
Date Data Arrived at EDR: 06/11/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 71

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 09/11/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Semi-Annually

Records of Emergency Release Reports

HMIRS: Hazardous Materials Information Reporting System

Hazardous Materials Incident Report System. HMIRS contains hazardous material spill incidents reported to DOT.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 55

Source: U.S. Department of Transportation
Telephone: 202-366-4555
Last EDR Contact: 07/01/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Annually

CHMIRS: California Hazardous Material Incident Report System

California Hazardous Material Incident Reporting System. CHMIRS contains information on reported hazardous material incidents (accidental releases or spills).

Date of Government Version: 03/12/2013
Date Data Arrived at EDR: 05/01/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 55

Source: Office of Emergency Services
Telephone: 916-845-8400
Last EDR Contact: 08/02/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

LDS: Land Disposal Sites Listing

The Land Disposal program regulates of waste discharge to land for treatment, storage and disposal in waste management units.

Date of Government Version: 07/26/2013
Date Data Arrived at EDR: 07/26/2013
Date Made Active in Reports: 08/26/2013
Number of Days to Update: 31

Source: State Water Qualilty Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/17/2013
Next Scheduled EDR Contact: 12/30/2013
Data Release Frequency: Quarterly

MCS: Military Cleanup Sites Listing

The State Water Resources Control Board and nine Regional Water Quality Control Boards partner with the Department of Defense (DoD) through the Defense and State Memorandum of Agreement (DSMOA) to oversee the investigation and remediation of water quality issues at military facilities.

Date of Government Version: 07/26/2013
Date Data Arrived at EDR: 07/26/2013
Date Made Active in Reports: 08/26/2013
Number of Days to Update: 31

Source: State Water Resources Control Board
Telephone: 866-480-1028
Last EDR Contact: 09/17/2013
Next Scheduled EDR Contact: 12/30/2013
Data Release Frequency: Quarterly

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

SPILLS 90: SPILLS90 data from FirstSearch

Spills 90 includes those spill and release records available exclusively from FirstSearch databases. Typically, they may include chemical, oil and/or hazardous substance spills recorded after 1990. Duplicate records that are already included in EDR incident and release records are not included in Spills 90.

Date of Government Version: 06/06/2012
Date Data Arrived at EDR: 01/03/2013
Date Made Active in Reports: 02/22/2013
Number of Days to Update: 50

Source: FirstSearch
Telephone: N/A
Last EDR Contact: 01/03/2013
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

Other Ascertainable Records

RCRA NonGen / NLR: RCRA - Non Generators

RCRAInfo is EPA's comprehensive information system, providing access to data supporting the Resource Conservation and Recovery Act (RCRA) of 1976 and the Hazardous and Solid Waste Amendments (HSWA) of 1984. The database includes selective information on sites which generate, transport, store, treat and/or dispose of hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA). Non-Generators do not presently generate hazardous waste.

Date of Government Version: 07/11/2013
Date Data Arrived at EDR: 08/08/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 36

Source: Environmental Protection Agency
Telephone: (415) 495-8895
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

DOT OPS: Incident and Accident Data

Department of Transporation, Office of Pipeline Safety Incident and Accident data.

Date of Government Version: 07/31/2012
Date Data Arrived at EDR: 08/07/2012
Date Made Active in Reports: 09/18/2012
Number of Days to Update: 42

Source: Department of Transporation, Office of Pipeline Safety
Telephone: 202-366-4595
Last EDR Contact: 08/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Varies

DOD: Department of Defense Sites

This data set consists of federally owned or administered lands, administered by the Department of Defense, that have any area equal to or greater than 640 acres of the United States, Puerto Rico, and the U.S. Virgin Islands.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 11/10/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 62

Source: USGS
Telephone: 888-275-8747
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Semi-Annually

FUDS: Formerly Used Defense Sites

The listing includes locations of Formerly Used Defense Sites properties where the US Army Corps of Engineers is actively working or will take necessary cleanup actions.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 03/13/2013
Number of Days to Update: 15

Source: U.S. Army Corps of Engineers
Telephone: 202-528-4285
Last EDR Contact: 09/10/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Varies

CONSENT: Superfund (CERCLA) Consent Decrees

Major legal settlements that establish responsibility and standards for cleanup at NPL (Superfund) sites. Released periodically by United States District Courts after settlement by parties to litigation matters.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 01/15/2013
Date Made Active in Reports: 03/13/2013
Number of Days to Update: 57

Source: Department of Justice, Consent Decree Library
Telephone: Varies
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

ROD: Records Of Decision

Record of Decision. ROD documents mandate a permanent remedy at an NPL (Superfund) site containing technical and health information to aid in the cleanup.

Date of Government Version: 12/18/2012
Date Data Arrived at EDR: 03/13/2013
Date Made Active in Reports: 04/12/2013
Number of Days to Update: 30

Source: EPA
Telephone: 703-416-0223
Last EDR Contact: 09/13/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Annually

UMTRA: Uranium Mill Tailings Sites

Uranium ore was mined by private companies for federal government use in national defense programs. When the mills shut down, large piles of the sand-like material (mill tailings) remain after uranium has been extracted from the ore. Levels of human exposure to radioactive materials from the piles are low; however, in some cases tailings were used as construction materials before the potential health hazards of the tailings were recognized.

Date of Government Version: 09/14/2010
Date Data Arrived at EDR: 10/07/2011
Date Made Active in Reports: 03/01/2012
Number of Days to Update: 146

Source: Department of Energy
Telephone: 505-845-0011
Last EDR Contact: 05/28/2013
Next Scheduled EDR Contact: 09/09/2013
Data Release Frequency: Varies

US MINES: Mines Master Index File

Contains all mine identification numbers issued for mines active or opened since 1971. The data also includes violation information.

Date of Government Version: 02/05/2013
Date Data Arrived at EDR: 04/18/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 22

Source: Department of Labor, Mine Safety and Health Administration
Telephone: 303-231-5959
Last EDR Contact: 09/05/2013
Next Scheduled EDR Contact: 12/16/2013
Data Release Frequency: Semi-Annually

TRIS: Toxic Chemical Release Inventory System

Toxic Release Inventory System. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/31/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 44

Source: EPA
Telephone: 202-566-0250
Last EDR Contact: 08/30/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Annually

TSCA: Toxic Substances Control Act

Toxic Substances Control Act. TSCA identifies manufacturers and importers of chemical substances included on the TSCA Chemical Substance Inventory list. It includes data on the production volume of these substances by plant site.

Date of Government Version: 12/31/2006
Date Data Arrived at EDR: 09/29/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 64

Source: EPA
Telephone: 202-260-5521
Last EDR Contact: 09/24/2013
Next Scheduled EDR Contact: 01/08/2014
Data Release Frequency: Every 4 Years

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

FTTS: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
FTTS tracks administrative cases and pesticide enforcement actions and compliance activities related to FIFRA, TSCA and EPCRA (Emergency Planning and Community Right-to-Know Act). To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA/Office of Prevention, Pesticides and Toxic Substances
Telephone: 202-566-1667
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Quarterly

FTTS INSP: FIFRA/ TSCA Tracking System - FIFRA (Federal Insecticide, Fungicide, & Rodenticide Act)/TSCA (Toxic Substances Control Act)
A listing of FIFRA/TSCA Tracking System (FTTS) inspections and enforcements.

Date of Government Version: 04/09/2009
Date Data Arrived at EDR: 04/16/2009
Date Made Active in Reports: 05/11/2009
Number of Days to Update: 25

Source: EPA
Telephone: 202-566-1667
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Quarterly

HIST FTTS: FIFRA/TSCA Tracking System Administrative Case Listing
A complete administrative case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2007
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

HIST FTTS INSP: FIFRA/TSCA Tracking System Inspection & Enforcement Case Listing
A complete inspection and enforcement case listing from the FIFRA/TSCA Tracking System (FTTS) for all ten EPA regions. The information was obtained from the National Compliance Database (NCDB). NCDB supports the implementation of FIFRA (Federal Insecticide, Fungicide, and Rodenticide Act) and TSCA (Toxic Substances Control Act). Some EPA regions are now closing out records. Because of that, and the fact that some EPA regions are not providing EPA Headquarters with updated records, it was decided to create a HIST FTTS database. It included records that may not be included in the newer FTTS database updates. This database is no longer updated.

Date of Government Version: 10/19/2006
Date Data Arrived at EDR: 03/01/2007
Date Made Active in Reports: 04/10/2007
Number of Days to Update: 40

Source: Environmental Protection Agency
Telephone: 202-564-2501
Last EDR Contact: 12/17/2008
Next Scheduled EDR Contact: 03/17/2008
Data Release Frequency: No Update Planned

SSTS: Section 7 Tracking Systems
Section 7 of the Federal Insecticide, Fungicide and Rodenticide Act, as amended (92 Stat. 829) requires all registered pesticide-producing establishments to submit a report to the Environmental Protection Agency by March 1st each year. Each establishment must report the types and amounts of pesticides, active ingredients and devices being produced, and those having been produced and sold or distributed in the past year.

Date of Government Version: 12/31/2009
Date Data Arrived at EDR: 12/10/2010
Date Made Active in Reports: 02/25/2011
Number of Days to Update: 77

Source: EPA
Telephone: 202-564-4203
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

ICIS: Integrated Compliance Information System

The Integrated Compliance Information System (ICIS) supports the information needs of the national enforcement and compliance program as well as the unique needs of the National Pollutant Discharge Elimination System (NPDES) program.

Date of Government Version: 07/20/2011
Date Data Arrived at EDR: 11/10/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 61

Source: Environmental Protection Agency
Telephone: 202-564-5088
Last EDR Contact: 07/01/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Quarterly

PADS: PCB Activity Database System

PCB Activity Database. PADS Identifies generators, transporters, commercial storers and/or brokers and disposers of PCB's who are required to notify the EPA of such activities.

Date of Government Version: 11/01/2012
Date Data Arrived at EDR: 01/16/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 114

Source: EPA
Telephone: 202-566-0500
Last EDR Contact: 07/17/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Annually

MLTS: Material Licensing Tracking System

MLTS is maintained by the Nuclear Regulatory Commission and contains a list of approximately 8,100 sites which possess or use radioactive materials and which are subject to NRC licensing requirements. To maintain currency, EDR contacts the Agency on a quarterly basis.

Date of Government Version: 03/14/2013
Date Data Arrived at EDR: 03/20/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 112

Source: Nuclear Regulatory Commission
Telephone: 301-415-7169
Last EDR Contact: 09/10/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Quarterly

RADINFO: Radiation Information Database

The Radiation Information Database (RADINFO) contains information about facilities that are regulated by U.S. Environmental Protection Agency (EPA) regulations for radiation and radioactivity.

Date of Government Version: 04/09/2013
Date Data Arrived at EDR: 04/11/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 29

Source: Environmental Protection Agency
Telephone: 202-343-9775
Last EDR Contact: 07/12/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Quarterly

FINDS: Facility Index System/Facility Registry System

Facility Index System. FINDS contains both facility information and 'pointers' to other sources that contain more detail. EDR includes the following FINDS databases in this report: PCS (Permit Compliance System), AIRS (Aerometric Information Retrieval System), DOCKET (Enforcement Docket used to manage and track information on civil judicial enforcement cases for all environmental statutes), FURS (Federal Underground Injection Control), C-DOCKET (Criminal Docket System used to track criminal enforcement actions for all environmental statutes), FFIS (Federal Facilities Information System), STATE (State Environmental Laws and Statutes), and PADS (PCB Activity Data System).

Date of Government Version: 03/08/2013
Date Data Arrived at EDR: 03/21/2013
Date Made Active in Reports: 07/10/2013
Number of Days to Update: 111

Source: EPA
Telephone: (415) 947-8000
Last EDR Contact: 09/11/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Quarterly

RAATS: RCRA Administrative Action Tracking System

RCRA Administration Action Tracking System. RAATS contains records based on enforcement actions issued under RCRA pertaining to major violators and includes administrative and civil actions brought by the EPA. For administration actions after September 30, 1995, data entry in the RAATS database was discontinued. EPA will retain a copy of the database for historical records. It was necessary to terminate RAATS because a decrease in agency resources made it impossible to continue to update the information contained in the database.

Date of Government Version: 04/17/1995
Date Data Arrived at EDR: 07/03/1995
Date Made Active in Reports: 08/07/1995
Number of Days to Update: 35

Source: EPA
Telephone: 202-564-4104
Last EDR Contact: 06/02/2008
Next Scheduled EDR Contact: 09/01/2008
Data Release Frequency: No Update Planned

RMP: Risk Management Plans

When Congress passed the Clean Air Act Amendments of 1990, it required EPA to publish regulations and guidance for chemical accident prevention at facilities using extremely hazardous substances. The Risk Management Program Rule (RMP Rule) was written to implement Section 112(r) of these amendments. The rule, which built upon existing industry codes and standards, requires companies of all sizes that use certain flammable and toxic substances to develop a Risk Management Program, which includes a(n): Hazard assessment that details the potential effects of an accidental release, an accident history of the last five years, and an evaluation of worst-case and alternative accidental releases; Prevention program that includes safety precautions and maintenance, monitoring, and employee training measures; and Emergency response program that spells out emergency health care, employee training measures and procedures for informing the public and response agencies (e.g the fire department) should an accident occur.

Date of Government Version: 05/08/2012
Date Data Arrived at EDR: 05/25/2012
Date Made Active in Reports: 07/10/2012
Number of Days to Update: 46

Source: Environmental Protection Agency
Telephone: 202-564-8600
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

BRS: Biennial Reporting System

The Biennial Reporting System is a national system administered by the EPA that collects data on the generation and management of hazardous waste. BRS captures detailed data from two groups: Large Quantity Generators (LQG) and Treatment, Storage, and Disposal Facilities.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 02/26/2013
Date Made Active in Reports: 04/19/2013
Number of Days to Update: 52

Source: EPA/NTIS
Telephone: 800-424-9346
Last EDR Contact: 08/26/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Biennially

CA BOND EXP. PLAN: Bond Expenditure Plan

Department of Health Services developed a site-specific expenditure plan as the basis for an appropriation of Hazardous Substance Cleanup Bond Act funds. It is not updated.

Date of Government Version: 01/01/1989
Date Data Arrived at EDR: 07/27/1994
Date Made Active in Reports: 08/02/1994
Number of Days to Update: 6

Source: Department of Health Services
Telephone: 916-255-2118
Last EDR Contact: 05/31/1994
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

NPDES: NPDES Permits Listing

A listing of NPDES permits, including stormwater.

Date of Government Version: 05/20/2013
Date Data Arrived at EDR: 05/21/2013
Date Made Active in Reports: 06/12/2013
Number of Days to Update: 22

Source: State Water Resources Control Board
Telephone: 916-445-9379
Last EDR Contact: 08/19/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Quarterly

UIC: UIC Listing

A listing of underground control injection wells.

Date of Government Version: 03/05/2013
Date Data Arrived at EDR: 03/19/2013
Date Made Active in Reports: 03/27/2013
Number of Days to Update: 8

Source: Deaprtment of Conservation
Telephone: 916-445-2408
Last EDR Contact: 09/17/2013
Next Scheduled EDR Contact: 12/30/2013
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CORTESE: "Cortese" Hazardous Waste & Substances Sites List
The sites for the list are designated by the State Water Resource Control Board (LUST), the Integrated Waste Board (SWF/LS), and the Department of Toxic Substances Control (Cal-Sites).

Date of Government Version: 07/05/2013
Date Data Arrived at EDR: 07/05/2013
Date Made Active in Reports: 08/26/2013
Number of Days to Update: 52

Source: CAL EPA/Office of Emergency Information
Telephone: 916-323-3400
Last EDR Contact: 07/05/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

HIST CORTESE: Hazardous Waste & Substance Site List
The sites for the list are designated by the State Water Resource Control Board [LUST], the Integrated Waste Board [SWF/LS], and the Department of Toxic Substances Control [CALSITES]. This listing is no longer updated by the state agency.

Date of Government Version: 04/01/2001
Date Data Arrived at EDR: 01/22/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 76

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 01/22/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

NOTIFY 65: Proposition 65 Records
Listings of all Proposition 65 incidents reported to counties by the State Water Resources Control Board and the Regional Water Quality Control Board. This database is no longer updated by the reporting agency.

Date of Government Version: 10/21/1993
Date Data Arrived at EDR: 11/01/1993
Date Made Active in Reports: 11/19/1993
Number of Days to Update: 18

Source: State Water Resources Control Board
Telephone: 916-445-3846
Last EDR Contact: 09/23/2013
Next Scheduled EDR Contact: 01/08/2014
Data Release Frequency: No Update Planned

DRYCLEANERS: Cleaner Facilities
A list of drycleaner related facilities that have EPA ID numbers. These are facilities with certain SIC codes: power laundries, family and commercial; garment pressing and cleaner's agents; linen supply; coin-operated laundries and cleaning; drycleaning plants, except rugs; carpet and upholster cleaning; industrial launderers; laundry and garment services.

Date of Government Version: 12/11/2012
Date Data Arrived at EDR: 12/12/2012
Date Made Active in Reports: 01/04/2013
Number of Days to Update: 23

Source: Department of Toxic Substance Control
Telephone: 916-327-4498
Last EDR Contact: 09/10/2013
Next Scheduled EDR Contact: 12/24/2012
Data Release Frequency: Annually

WIP: Well Investigation Program Case List
Well Investigation Program case in the San Gabriel and San Fernando Valley area.

Date of Government Version: 07/03/2009
Date Data Arrived at EDR: 07/21/2009
Date Made Active in Reports: 08/03/2009
Number of Days to Update: 13

Source: Los Angeles Water Quality Control Board
Telephone: 213-576-6726
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

ENF: Enforcement Action Listing
A listing of Water Board Enforcement Actions. Formal is everything except Oral/Verbal Communication, Notice of Violation, Expedited Payment Letter, and Staff Enforcement Letter.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 04/29/2013
Date Made Active in Reports: 05/16/2013
Number of Days to Update: 17

Source: State Water Resoruces Control Board
Telephone: 916-445-9379
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

HAZNET: Facility and Manifest Data

Facility and Manifest Data. The data is extracted from the copies of hazardous waste manifests received each year by the DTSC. The annual volume of manifests is typically 700,000 - 1,000,000 annually, representing approximately 350,000 - 500,000 shipments. Data are from the manifests submitted without correction, and therefore many contain some invalid values for data elements such as generator ID, TSD ID, waste category, and disposal method.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 07/16/2013
Date Made Active in Reports: 08/26/2013
Number of Days to Update: 41

Source: California Environmental Protection Agency
Telephone: 916-255-1136
Last EDR Contact: 07/16/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Annually

EMI: Emissions Inventory Data

Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies.

Date of Government Version: 12/31/2010
Date Data Arrived at EDR: 06/25/2013
Date Made Active in Reports: 08/22/2013
Number of Days to Update: 58

Source: California Air Resources Board
Telephone: 916-322-2990
Last EDR Contact: 09/27/2013
Next Scheduled EDR Contact: 01/08/2014
Data Release Frequency: Varies

INDIAN RESERV: Indian Reservations

This map layer portrays Indian administered lands of the United States that have any area equal to or greater than 640 acres.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 12/08/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 34

Source: USGS
Telephone: 202-208-3710
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Semi-Annually

SCRD DRYCLEANERS: State Coalition for Remediation of Drycleaners Listing

The State Coalition for Remediation of Drycleaners was established in 1998, with support from the U.S. EPA Office of Superfund Remediation and Technology Innovation. It is comprised of representatives of states with established drycleaner remediation programs. Currently the member states are Alabama, Connecticut, Florida, Illinois, Kansas, Minnesota, Missouri, North Carolina, Oregon, South Carolina, Tennessee, Texas, and Wisconsin.

Date of Government Version: 03/07/2011
Date Data Arrived at EDR: 03/09/2011
Date Made Active in Reports: 05/02/2011
Number of Days to Update: 54

Source: Environmental Protection Agency
Telephone: 615-532-8599
Last EDR Contact: 08/01/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Varies

US FIN ASSUR: Financial Assurance Information

All owners and operators of facilities that treat, store, or dispose of hazardous waste are required to provide proof that they will have sufficient funds to pay for the clean up, closure, and post-closure care of their facilities.

Date of Government Version: 03/04/2013
Date Data Arrived at EDR: 03/15/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 56

Source: Environmental Protection Agency
Telephone: 202-566-1917
Last EDR Contact: 09/27/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Quarterly

PCB TRANSFORMER: PCB Transformer Registration Database

The database of PCB transformer registrations that includes all PCB registration submittals.

Date of Government Version: 02/01/2011
Date Data Arrived at EDR: 10/19/2011
Date Made Active in Reports: 01/10/2012
Number of Days to Update: 83

Source: Environmental Protection Agency
Telephone: 202-566-0517
Last EDR Contact: 08/02/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PROC: Certified Processors Database
A listing of certified processors.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/17/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 65

Source: Department of Conservation
Telephone: 916-323-3836
Last EDR Contact: 09/16/2013
Next Scheduled EDR Contact: 12/30/2013
Data Release Frequency: Quarterly

MWMP: Medical Waste Management Program Listing
The Medical Waste Management Program (MWMP) ensures the proper handling and disposal of medical waste by permitting and inspecting medical waste Offsite Treatment Facilities (PDF) and Transfer Stations (PDF) throughout the state. MWMP also oversees all Medical Waste Transporters.

Date of Government Version: 05/02/2013
Date Data Arrived at EDR: 06/13/2013
Date Made Active in Reports: 07/24/2013
Number of Days to Update: 41

Source: Department of Public Health
Telephone: 916-558-1784
Last EDR Contact: 09/11/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Varies

COAL ASH DOE: Steam-Electric Plan Operation Data
A listing of power plants that store ash in surface ponds.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 08/07/2009
Date Made Active in Reports: 10/22/2009
Number of Days to Update: 76

Source: Department of Energy
Telephone: 202-586-8719
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Varies

COAL ASH EPA: Coal Combustion Residues Surface Impoundments List
A listing of coal combustion residues surface impoundments with high hazard potential ratings.

Date of Government Version: 08/17/2010
Date Data Arrived at EDR: 01/03/2011
Date Made Active in Reports: 03/21/2011
Number of Days to Update: 77

Source: Environmental Protection Agency
Telephone: N/A
Last EDR Contact: 09/13/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Varies

HWT: Registered Hazardous Waste Transporter Database
A listing of hazardous waste transporters. In California, unless specifically exempted, it is unlawful for any person to transport hazardous wastes unless the person holds a valid registration issued by DTSC. A hazardous waste transporter registration is valid for one year and is assigned a unique registration number.

Date of Government Version: 07/15/2013
Date Data Arrived at EDR: 07/16/2013
Date Made Active in Reports: 08/12/2013
Number of Days to Update: 27

Source: Department of Toxic Substances Control
Telephone: 916-440-7145
Last EDR Contact: 07/16/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Quarterly

HWP: EnviroStor Permitted Facilities Listing
Detailed information on permitted hazardous waste facilities and corrective action ("cleanups") tracked in EnviroStor.

Date of Government Version: 05/28/2013
Date Data Arrived at EDR: 05/29/2013
Date Made Active in Reports: 06/27/2013
Number of Days to Update: 29

Source: Department of Toxic Substances Control
Telephone: 916-323-3400
Last EDR Contact: 08/27/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Quarterly

Financial Assurance 2: Financial Assurance Information Listing
A listing of financial assurance information for solid waste facilities. Financial assurance is intended to ensure that resources are available to pay for the cost of closure, post-closure care, and corrective measures if the owner or operator of a regulated facility is unable or unwilling to pay.

Date of Government Version: 05/21/2013
Date Data Arrived at EDR: 05/22/2013
Date Made Active in Reports: 06/27/2013
Number of Days to Update: 36

Source: California Integrated Waste Management Board
Telephone: 916-341-6066
Last EDR Contact: 08/15/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Varies

Financial Assurance 1: Financial Assurance Information Listing
Financial Assurance information

Date of Government Version: 06/30/2013
Date Data Arrived at EDR: 08/08/2013
Date Made Active in Reports: 08/27/2013
Number of Days to Update: 19

Source: Department of Toxic Substances Control
Telephone: 916-255-3628
Last EDR Contact: 08/26/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

LEAD SMELTER 1: Lead Smelter Sites
A listing of former lead smelter site locations.

Date of Government Version: 01/29/2013
Date Data Arrived at EDR: 02/14/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 13

Source: Environmental Protection Agency
Telephone: 703-603-8787
Last EDR Contact: 09/24/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Varies

LEAD SMELTER 2: Lead Smelter Sites
A list of several hundred sites in the U.S. where secondary lead smelting was done from 1931and 1964. These sites may pose a threat to public health through ingestion or inhalation of contaminated soil or dust

Date of Government Version: 04/05/2001
Date Data Arrived at EDR: 10/27/2010
Date Made Active in Reports: 12/02/2010
Number of Days to Update: 36

Source: American Journal of Public Health
Telephone: 703-305-6451
Last EDR Contact: 12/02/2009
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

2020 COR ACTION: 2020 Corrective Action Program List
The EPA has set ambitious goals for the RCRA Corrective Action program by creating the 2020 Corrective Action Universe. This RCRA cleanup baseline includes facilities expected to need corrective action. The 2020 universe contains a wide variety of sites. Some properties are heavily contaminated while others were contaminated but have since been cleaned up. Still others have not been fully investigated yet, and may require little or no remediation. Inclusion in the 2020 Universe does not necessarily imply failure on the part of a facility to meet its RCRA obligations.

Date of Government Version: 11/11/2011
Date Data Arrived at EDR: 05/18/2012
Date Made Active in Reports: 05/25/2012
Number of Days to Update: 7

Source: Environmental Protection Agency
Telephone: 703-308-4044
Last EDR Contact: 08/16/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Varies

FEDLAND: Federal and Indian Lands
Federally and Indian administrated lands of the United States. Lands included are administrated by: Army Corps of Engineers, Bureau of Reclamation, National Wild and Scenic River, National Wildlife Refuge, Public Domain Land, Wilderness, Wilderness Study Area, Wildlife Management Area, Bureau of Indian Affairs, Bureau of Land Management, Department of Justice, Forest Service, Fish and Wildlife Service, National Park Service.

Date of Government Version: 12/31/2005
Date Data Arrived at EDR: 02/06/2006
Date Made Active in Reports: 01/11/2007
Number of Days to Update: 339

Source: U.S. Geological Survey
Telephone: 888-275-8747
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: N/A

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

PRP: Potentially Responsible Parties
A listing of verified Potentially Responsible Parties

Date of Government Version: 04/15/2013
Date Data Arrived at EDR: 07/03/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 72

Source: EPA
Telephone: 202-564-6023
Last EDR Contact: 07/03/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

WDS: Waste Discharge System
Sites which have been issued waste discharge requirements.

Date of Government Version: 06/19/2007
Date Data Arrived at EDR: 06/20/2007
Date Made Active in Reports: 06/29/2007
Number of Days to Update: 9

Source: State Water Resources Control Board
Telephone: 916-341-5227
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Quarterly

US AIRS (AFS): Aerometric Information Retrieval System Facility Subsystem (AFS)
The database is a sub-system of Aerometric Information Retrieval System (AIRS). AFS contains compliance data on air pollution point sources regulated by the U.S. EPA and/or state and local air regulatory agencies. This information comes from source reports by various stationary sources of air pollution, such as electric power plants, steel mills, factories, and universities, and provides information about the air pollutants they produce. Action, air program, air program pollutant, and general level plant data. It is used to track emissions and compliance data from industrial plants.

Date of Government Version: 01/23/2013
Date Data Arrived at EDR: 01/30/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-5962
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Annually

US AIRS MINOR: Air Facility System Data
A listing of minor source facilities.

Date of Government Version: 01/23/2013
Date Data Arrived at EDR: 01/30/2013
Date Made Active in Reports: 05/10/2013
Number of Days to Update: 100

Source: EPA
Telephone: 202-564-5962
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Annually

EPA WATCH LIST: EPA WATCH LIST
EPA maintains a "Watch List" to facilitate dialogue between EPA, state and local environmental agencies on enforcement matters relating to facilities with alleged violations identified as either significant or high priority. Being on the Watch List does not mean that the facility has actually violated the law only that an investigation by EPA or a state or local environmental agency has led those organizations to allege that an unproven violation has in fact occurred. Being on the Watch List does not represent a higher level of concern regarding the alleged violations that were detected, but instead indicates cases requiring additional dialogue between EPA, state and local agencies - primarily because of the length of time the alleged violation has gone unaddressed or unresolved.

Date of Government Version: 06/30/2013
Date Data Arrived at EDR: 08/13/2013
Date Made Active in Reports: 09/13/2013
Number of Days to Update: 31

Source: Environmental Protection Agency
Telephone: 617-520-3000
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Quarterly

EDR HIGH RISK HISTORICAL RECORDS

EDR Exclusive Records

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

EDR MGP: EDR Proprietary Manufactured Gas Plants

The EDR Proprietary Manufactured Gas Plant Database includes records of coal gas plants (manufactured gas plants) compiled by EDR's researchers. Manufactured gas sites were used in the United States from the 1800's to 1950's to produce a gas that could be distributed and used as fuel. These plants used whale oil, rosin, coal, or a mixture of coal, oil, and water that also produced a significant amount of waste. Many of the byproducts of the gas production, such as coal tar (oily waste containing volatile and non-volatile chemicals), sludges, oils and other compounds are potentially hazardous to human health and the environment. The byproduct from this process was frequently disposed of directly at the plant site and can remain or spread slowly, serving as a continuous source of soil and groundwater contamination.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: No Update Planned

EDR US Hist Auto Stat: EDR Exclusive Historic Gas Stations

EDR has searched selected national collections of business directories and has collected listings of potential gas station/filling station/service station sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include gas station/filling station/service station establishments. The categories reviewed included, but were not limited to gas, gas station, gasoline station, filling station, auto, automobile repair, auto service station, service station, etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Exclusive Historic Dry Cleaners

EDR has searched selected national collections of business directories and has collected listings of potential dry cleaner sites that were available to EDR researchers. EDR's review was limited to those categories of sources that might, in EDR's opinion, include dry cleaning establishments. The categories reviewed included, but were not limited to dry cleaners, cleaners, laundry, laundromat, cleaning/laundry, wash & dry etc. This database falls within a category of information EDR classifies as "High Risk Historical Records", or HRHR. EDR's HRHR effort presents unique and sometimes proprietary data about past sites and operations that typically create environmental concerns, but may not show up in current government records searches.

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: EDR, Inc.
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Cleaners: EDR Proprietary Historic Dry Cleaners - Cole

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: N/A
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

EDR US Hist Auto Stat: EDR Proprietary Historic Gas Stations - Cole

Date of Government Version: N/A
Date Data Arrived at EDR: N/A
Date Made Active in Reports: N/A
Number of Days to Update: N/A

Source: N/A
Telephone: N/A
Last EDR Contact: N/A
Next Scheduled EDR Contact: N/A
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

COUNTY RECORDS

ALAMEDA COUNTY:

Contaminated Sites

A listing of contaminated sites overseen by the Toxic Release Program (oil and groundwater contamination from chemical releases and spills) and the Leaking Underground Storage Tank Program (soil and ground water contamination from leaking petroleum USTs).

Date of Government Version: 07/25/2013
Date Data Arrived at EDR: 07/26/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 14

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 06/28/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Semi-Annually

Underground Tanks

Underground storage tank sites located in Alameda county.

Date of Government Version: 07/25/2013
Date Data Arrived at EDR: 07/26/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 25

Source: Alameda County Environmental Health Services
Telephone: 510-567-6700
Last EDR Contact: 06/28/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Semi-Annually

AMADOR COUNTY:

CUPA Facility List

Cupa Facility List

Date of Government Version: 06/20/2013
Date Data Arrived at EDR: 06/21/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 61

Source: Amador County Environmental Health
Telephone: 209-223-6439
Last EDR Contact: 09/10/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Varies

BUTTE COUNTY:

CUPA Facility Listing

Cupa facility list.

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 08/02/2013
Date Made Active in Reports: 08/22/2013
Number of Days to Update: 20

Source: Public Health Department
Telephone: 530-538-7149
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Varies

CALVERAS COUNTY:

CUPA Facility Listing

Cupa Facility Listing

Date of Government Version: 06/30/2013
Date Data Arrived at EDR: 07/24/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 16

Source: Calveras County Environmental Health
Telephone: 209-754-6399
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

COLUSA COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List
Cupa facility list.

Date of Government Version: 06/20/2013
Date Data Arrived at EDR: 07/01/2013
Date Made Active in Reports: 08/09/2013
Number of Days to Update: 39

Source: Health & Human Services
Telephone: 530-458-0396
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Varies

CONTRA COSTA COUNTY:

Site List
List includes sites from the underground tank, hazardous waste generator and business plan/2185 programs.

Date of Government Version: 06/10/2013
Date Data Arrived at EDR: 06/11/2013
Date Made Active in Reports: 07/24/2013
Number of Days to Update: 43

Source: Contra Costa Health Services Department
Telephone: 925-646-2286
Last EDR Contact: 08/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Semi-Annually

DEL NORTE COUNTY:

CUPA Facility List
Cupa Facility list

Date of Government Version: 01/09/2013
Date Data Arrived at EDR: 01/10/2013
Date Made Active in Reports: 02/25/2013
Number of Days to Update: 46

Source: Del Norte County Environmental Health Division
Telephone: 707-465-0426
Last EDR Contact: 09/20/2013
Next Scheduled EDR Contact: 08/19/2013
Data Release Frequency: Varies

EL DORADO COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 05/20/2013
Date Data Arrived at EDR: 05/21/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 35

Source: El Dorado County Environmental Management Department
Telephone: 530-621-6623
Last EDR Contact: 08/05/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Varies

FRESNO COUNTY:

CUPA Resources List
Certified Unified Program Agency. CUPA's are responsible for implementing a unified hazardous materials and hazardous waste management regulatory program. The agency provides oversight of businesses that deal with hazardous materials, operate underground storage tanks or aboveground storage tanks.

Date of Government Version: 06/30/2013
Date Data Arrived at EDR: 07/16/2013
Date Made Active in Reports: 07/24/2013
Number of Days to Update: 8

Source: Dept. of Community Health
Telephone: 559-445-3271
Last EDR Contact: 07/15/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Semi-Annually

HUMBOLDT COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List
CUPA facility list.

Date of Government Version: 08/09/2013
Date Data Arrived at EDR: 08/09/2013
Date Made Active in Reports: 08/22/2013
Number of Days to Update: 13

Source: Humboldt County Environmental Health
Telephone: N/A
Last EDR Contact: 08/09/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

IMPERIAL COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 07/26/2013
Date Data Arrived at EDR: 08/09/2013
Date Made Active in Reports: 08/22/2013
Number of Days to Update: 13

Source: San Diego Border Field Office
Telephone: 760-339-2777
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

INYO COUNTY:

CUPA Facility List
Cupa facility list.

Date of Government Version: 06/26/2012
Date Data Arrived at EDR: 06/27/2012
Date Made Active in Reports: 08/17/2012
Number of Days to Update: 51

Source: Inyo County Environmental Health Services
Telephone: 760-878-0238
Last EDR Contact: 09/10/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

KERN COUNTY:

Underground Storage Tank Sites & Tank Listing
Kern County Sites and Tanks Listing.

Date of Government Version: 08/31/2010
Date Data Arrived at EDR: 09/01/2010
Date Made Active in Reports: 09/30/2010
Number of Days to Update: 29

Source: Kern County Environment Health Services Department
Telephone: 661-862-8700
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Quarterly

KINGS COUNTY:

CUPA Facility List
A listing of sites included in the county?s Certified Unified Program Agency database. California?s Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 06/20/2013
Date Data Arrived at EDR: 06/24/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 58

Source: Kings County Department of Public Health
Telephone: 559-584-1411
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

LAKE COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List
Cupa facility list

Date of Government Version: 01/23/2013
Date Data Arrived at EDR: 01/25/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 33

Source: Lake County Environmental Health
Telephone: 707-263-1164
Last EDR Contact: 07/18/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Varies

LOS ANGELES COUNTY:

San Gabriel Valley Areas of Concern
San Gabriel Valley areas where VOC contamination is at or above the MCL as designated by region 9 EPA office.

Date of Government Version: 03/30/2009
Date Data Arrived at EDR: 03/31/2009
Date Made Active in Reports: 10/23/2009
Number of Days to Update: 206

Source: EPA Region 9
Telephone: 415-972-3178
Last EDR Contact: 09/23/2013
Next Scheduled EDR Contact: 01/08/2014
Data Release Frequency: No Update Planned

HMS: Street Number List
Industrial Waste and Underground Storage Tank Sites.

Date of Government Version: 03/28/2013
Date Data Arrived at EDR: 06/17/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 65

Source: Department of Public Works
Telephone: 626-458-3517
Last EDR Contact: 07/15/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Semi-Annually

List of Solid Waste Facilities
Solid Waste Facilities in Los Angeles County.

Date of Government Version: 07/22/2013
Date Data Arrived at EDR: 07/22/2013
Date Made Active in Reports: 08/26/2013
Number of Days to Update: 35

Source: La County Department of Public Works
Telephone: 818-458-5185
Last EDR Contact: 07/22/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Varies

City of Los Angeles Landfills
Landfills owned and maintained by the City of Los Angeles.

Date of Government Version: 03/05/2009
Date Data Arrived at EDR: 03/10/2009
Date Made Active in Reports: 04/08/2009
Number of Days to Update: 29

Source: Engineering & Construction Division
Telephone: 213-473-7869
Last EDR Contact: 07/17/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Varies

Site Mitigation List
Industrial sites that have had some sort of spill or complaint.

Date of Government Version: 01/30/2013
Date Data Arrived at EDR: 02/21/2013
Date Made Active in Reports: 03/25/2013
Number of Days to Update: 32

Source: Community Health Services
Telephone: 323-890-7806
Last EDR Contact: 07/17/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Annually

City of El Segundo Underground Storage Tank
Underground storage tank sites located in El Segundo city.

Date of Government Version: 07/31/2013
Date Data Arrived at EDR: 08/01/2013
Date Made Active in Reports: 08/27/2013
Number of Days to Update: 26

Source: City of El Segundo Fire Department
Telephone: 310-524-2236
Last EDR Contact: 07/18/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Semi-Annually

City of Long Beach Underground Storage Tank

Underground storage tank sites located in the city of Long Beach.

Date of Government Version: 03/28/2003
Date Data Arrived at EDR: 10/23/2003
Date Made Active in Reports: 11/26/2003
Number of Days to Update: 34

Source: City of Long Beach Fire Department
Telephone: 562-570-2563
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Annually

City of Torrance Underground Storage Tank

Underground storage tank sites located in the city of Torrance.

Date of Government Version: 07/15/2013
Date Data Arrived at EDR: 07/18/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 33

Source: City of Torrance Fire Department
Telephone: 310-618-2973
Last EDR Contact: 07/15/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Semi-Annually

MADERA COUNTY:

CUPA Facility List

A listing of sites included in the county?s Certified Unified Program Agency database. California?s Secretary for Environmental Protection established the unified hazardous materials and hazardous waste regulatory program as required by chapter 6.11 of the California Health and Safety Code. The Unified Program consolidates the administration, permits, inspections, and enforcement activities.

Date of Government Version: 04/15/2013
Date Data Arrived at EDR: 04/16/2013
Date Made Active in Reports: 05/17/2013
Number of Days to Update: 31

Source: Madera County Environmental Health
Telephone: 559-675-7823
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

MARIN COUNTY:

Underground Storage Tank Sites

Currently permitted USTs in Marin County.

Date of Government Version: 11/26/2012
Date Data Arrived at EDR: 11/28/2012
Date Made Active in Reports: 01/21/2013
Number of Days to Update: 54

Source: Public Works Department Waste Management
Telephone: 415-499-6647
Last EDR Contact: 07/18/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Semi-Annually

MERCED COUNTY:

CUPA Facility List

CUPA facility list.

Date of Government Version: 05/28/2013
Date Data Arrived at EDR: 05/29/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 27

Source: Merced County Environmental Health
Telephone: 209-381-1094
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

MONO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

CUPA Facility List
CUPA Facility List

Date of Government Version: 06/04/2013
Date Data Arrived at EDR: 06/05/2013
Date Made Active in Reports: 07/15/2013
Number of Days to Update: 40

Source: Mono County Health Department
Telephone: 760-932-5580
Last EDR Contact: 09/03/2013
Next Scheduled EDR Contact: 12/16/2013
Data Release Frequency: Varies

MONTEREY COUNTY:

CUPA Facility Listing
CUPA Program listing from the Environmental Health Division.

Date of Government Version: 06/21/2013
Date Data Arrived at EDR: 06/21/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 61

Source: Monterey County Health Department
Telephone: 831-796-1297
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

NAPA COUNTY:

Sites With Reported Contamination
A listing of leaking underground storage tank sites located in Napa county.

Date of Government Version: 12/05/2011
Date Data Arrived at EDR: 12/06/2011
Date Made Active in Reports: 02/07/2012
Number of Days to Update: 63

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 09/03/2013
Next Scheduled EDR Contact: 12/16/2013
Data Release Frequency: No Update Planned

Closed and Operating Underground Storage Tank Sites
Underground storage tank sites located in Napa county.

Date of Government Version: 01/15/2008
Date Data Arrived at EDR: 01/16/2008
Date Made Active in Reports: 02/08/2008
Number of Days to Update: 23

Source: Napa County Department of Environmental Management
Telephone: 707-253-4269
Last EDR Contact: 09/03/2013
Next Scheduled EDR Contact: 12/16/2013
Data Release Frequency: No Update Planned

NEVADA COUNTY:

CUPA Facility List
CUPA facility list.

Date of Government Version: 05/29/2013
Date Data Arrived at EDR: 05/30/2013
Date Made Active in Reports: 07/15/2013
Number of Days to Update: 46

Source: Community Development Agency
Telephone: 530-265-1467
Last EDR Contact: 08/15/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Varies

ORANGE COUNTY:

List of Industrial Site Cleanups
Petroleum and non-petroleum spills.

Date of Government Version: 05/01/2013
Date Data Arrived at EDR: 05/15/2013
Date Made Active in Reports: 06/12/2013
Number of Days to Update: 28

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Annually

List of Underground Storage Tank Cleanups
Orange County Underground Storage Tank Cleanups (LUST).

Date of Government Version: 05/01/2013
Date Data Arrived at EDR: 05/15/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 41

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Quarterly

List of Underground Storage Tank Facilities
Orange County Underground Storage Tank Facilities (UST).

Date of Government Version: 05/01/2013
Date Data Arrived at EDR: 05/15/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 41

Source: Health Care Agency
Telephone: 714-834-3446
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Quarterly

PLACER COUNTY:

Master List of Facilities
List includes aboveground tanks, underground tanks and cleanup sites.

Date of Government Version: 03/12/2013
Date Data Arrived at EDR: 03/13/2013
Date Made Active in Reports: 03/27/2013
Number of Days to Update: 14

Source: Placer County Health and Human Services
Telephone: 530-745-2363
Last EDR Contact: 08/20/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Semi-Annually

RIVERSIDE COUNTY:

Listing of Underground Tank Cleanup Sites
Riverside County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 07/18/2013
Date Data Arrived at EDR: 07/18/2013
Date Made Active in Reports: 07/24/2013
Number of Days to Update: 6

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/23/2013
Next Scheduled EDR Contact: 01/08/2014
Data Release Frequency: Quarterly

Underground Storage Tank Tank List
Underground storage tank sites located in Riverside county.

Date of Government Version: 07/18/2013
Date Data Arrived at EDR: 07/18/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 33

Source: Department of Environmental Health
Telephone: 951-358-5055
Last EDR Contact: 09/23/2013
Next Scheduled EDR Contact: 01/08/2014
Data Release Frequency: Quarterly

SACRAMENTO COUNTY:

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Toxic Site Clean-Up List
List of sites where unauthorized releases of potentially hazardous materials have occurred.

Date of Government Version: 05/03/2013
Date Data Arrived at EDR: 07/08/2013
Date Made Active in Reports: 07/24/2013
Number of Days to Update: 16

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/05/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Quarterly

Master Hazardous Materials Facility List
Any business that has hazardous materials on site - hazardous material storage sites, underground storage tanks, waste generators.

Date of Government Version: 05/03/2013
Date Data Arrived at EDR: 07/08/2013
Date Made Active in Reports: 08/23/2013
Number of Days to Update: 46

Source: Sacramento County Environmental Management
Telephone: 916-875-8406
Last EDR Contact: 07/05/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Quarterly

SAN BERNARDINO COUNTY:

Hazardous Material Permits
This listing includes underground storage tanks, medical waste handlers/generators, hazardous materials handlers, hazardous waste generators, and waste oil generators/handlers.

Date of Government Version: 05/30/2013
Date Data Arrived at EDR: 05/31/2013
Date Made Active in Reports: 07/15/2013
Number of Days to Update: 45

Source: San Bernardino County Fire Department Hazardous Materials Division
Telephone: 909-387-3041
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Quarterly

SAN DIEGO COUNTY:

Hazardous Materials Management Division Database
The database includes: HE58 - This report contains the business name, site address, business phone number, establishment 'H' permit number, type of permit, and the business status. HE17 - In addition to providing the same information provided in the HE58 listing, HE17 provides inspection dates, violations received by the establishment, hazardous waste generated, the quantity, method of storage, treatment/disposal of waste and the hauler, and information on underground storage tanks. Unauthorized Release List - Includes a summary of environmental contamination cases in San Diego County (underground tank cases, non-tank cases, groundwater contamination, and soil contamination are included.)

Date of Government Version: 08/17/2012
Date Data Arrived at EDR: 08/20/2012
Date Made Active in Reports: 10/03/2012
Number of Days to Update: 44

Source: Hazardous Materials Management Division
Telephone: 619-338-2268
Last EDR Contact: 09/23/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Quarterly

Solid Waste Facilities
San Diego County Solid Waste Facilities.

Date of Government Version: 10/31/2012
Date Data Arrived at EDR: 11/06/2012
Date Made Active in Reports: 11/30/2012
Number of Days to Update: 24

Source: Department of Health Services
Telephone: 619-338-2209
Last EDR Contact: 07/24/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Environmental Case Listing
The listing contains all underground tank release cases and projects pertaining to properties contaminated with hazardous substances that are actively under review by the Site Assessment and Mitigation Program.

Date of Government Version: 03/23/2010
Date Data Arrived at EDR: 06/15/2010
Date Made Active in Reports: 07/09/2010
Number of Days to Update: 24

Source: San Diego County Department of Environmental Health
Telephone: 619-338-2371
Last EDR Contact: 09/10/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: No Update Planned

SAN FRANCISCO COUNTY:

Local Oversite Facilities
A listing of leaking underground storage tank sites located in San Francisco county.

Date of Government Version: 09/19/2008
Date Data Arrived at EDR: 09/19/2008
Date Made Active in Reports: 09/29/2008
Number of Days to Update: 10

Source: Department Of Public Health San Francisco County
Telephone: 415-252-3920
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Quarterly

Underground Storage Tank Information
Underground storage tank sites located in San Francisco county.

Date of Government Version: 11/29/2010
Date Data Arrived at EDR: 03/10/2011
Date Made Active in Reports: 03/15/2011
Number of Days to Update: 5

Source: Department of Public Health
Telephone: 415-252-3920
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Quarterly

SAN JOAQUIN COUNTY:

San Joaquin Co. UST
A listing of underground storage tank locations in San Joaquin county.

Date of Government Version: 06/18/2013
Date Data Arrived at EDR: 06/24/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 57

Source: Environmental Health Department
Telephone: N/A
Last EDR Contact: 09/23/2013
Next Scheduled EDR Contact: 01/08/2014
Data Release Frequency: Semi-Annually

SAN LUIS OBISPO COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/04/2013
Date Data Arrived at EDR: 06/05/2013
Date Made Active in Reports: 07/15/2013
Number of Days to Update: 40

Source: San Luis Obispo County Public Health Department
Telephone: 805-781-5596
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

SAN MATEO COUNTY:

Business Inventory
List includes Hazardous Materials Business Plan, hazardous waste generators, and underground storage tanks.

Date of Government Version: 07/02/2013
Date Data Arrived at EDR: 07/05/2013
Date Made Active in Reports: 08/23/2013
Number of Days to Update: 49

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 06/13/2013
Next Scheduled EDR Contact: 09/30/2013
Data Release Frequency: Annually

Fuel Leak List

A listing of leaking underground storage tank sites located in San Mateo county.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/18/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 64

Source: San Mateo County Environmental Health Services Division
Telephone: 650-363-1921
Last EDR Contact: 09/16/2013
Next Scheduled EDR Contact: 12/30/2013
Data Release Frequency: Semi-Annually

SANTA BARBARA COUNTY:

CUPA Facility Listing

CUPA Program Listing from the Environmental Health Services division.

Date of Government Version: 09/08/2011
Date Data Arrived at EDR: 09/09/2011
Date Made Active in Reports: 10/07/2011
Number of Days to Update: 28

Source: Santa Barbara County Public Health Department
Telephone: 805-686-8167
Last EDR Contact: 09/23/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

SANTA CLARA COUNTY:

Cupa Facility List

Cupa facility list

Date of Government Version: 06/03/2013
Date Data Arrived at EDR: 06/04/2013
Date Made Active in Reports: 07/15/2013
Number of Days to Update: 41

Source: Department of Environmental Health
Telephone: 408-918-1973
Last EDR Contact: 09/03/2013
Next Scheduled EDR Contact: 12/16/2013
Data Release Frequency: Varies

HIST LUST - Fuel Leak Site Activity Report

A listing of open and closed leaking underground storage tanks. This listing is no longer updated by the county. Leaking underground storage tanks are now handled by the Department of Environmental Health.

Date of Government Version: 03/29/2005
Date Data Arrived at EDR: 03/30/2005
Date Made Active in Reports: 04/21/2005
Number of Days to Update: 22

Source: Santa Clara Valley Water District
Telephone: 408-265-2600
Last EDR Contact: 03/23/2009
Next Scheduled EDR Contact: 06/22/2009
Data Release Frequency: No Update Planned

LOP Listing

A listing of leaking underground storage tanks located in Santa Clara county.

Date of Government Version: 06/03/2013
Date Data Arrived at EDR: 06/06/2013
Date Made Active in Reports: 07/15/2013
Number of Days to Update: 39

Source: Department of Environmental Health
Telephone: 408-918-3417
Last EDR Contact: 09/03/2013
Next Scheduled EDR Contact: 12/16/2013
Data Release Frequency: Annually

Hazardous Material Facilities

Hazardous material facilities, including underground storage tank sites.

Date of Government Version: 05/16/2013
Date Data Arrived at EDR: 05/17/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 39

Source: City of San Jose Fire Department
Telephone: 408-535-7694
Last EDR Contact: 08/08/2013
Next Scheduled EDR Contact: 11/25/2013
Data Release Frequency: Annually

SANTA CRUZ COUNTY:

CUPA Facility List
CUPA facility listing.

Date of Government Version: 05/28/2013
Date Data Arrived at EDR: 05/29/2013
Date Made Active in Reports: 06/27/2013
Number of Days to Update: 29

Source: Santa Cruz County Environmental Health
Telephone: 831-464-2761
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

SHASTA COUNTY:

CUPA Facility List
Cupa Facility List.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/18/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 64

Source: Shasta County Department of Resource Management
Telephone: 530-225-5789
Last EDR Contact: 08/22/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Varies

SOLANO COUNTY:

Leaking Underground Storage Tanks
A listing of leaking underground storage tank sites located in Solano county.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/20/2013
Date Made Active in Reports: 08/12/2013
Number of Days to Update: 53

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 09/16/2013
Next Scheduled EDR Contact: 12/30/2013
Data Release Frequency: Quarterly

Underground Storage Tanks
Underground storage tank sites located in Solano county.

Date of Government Version: 06/17/2013
Date Data Arrived at EDR: 06/20/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 61

Source: Solano County Department of Environmental Management
Telephone: 707-784-6770
Last EDR Contact: 09/16/2013
Next Scheduled EDR Contact: 12/30/2013
Data Release Frequency: Quarterly

SONOMA COUNTY:

Cupa Facility List
Cupa Facility list

Date of Government Version: 07/05/2013
Date Data Arrived at EDR: 07/05/2013
Date Made Active in Reports: 08/21/2013
Number of Days to Update: 47

Source: County of Sonoma Fire & Emergency Services Department
Telephone: 707-565-1174
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Varies

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Leaking Underground Storage Tank Sites
A listing of leaking underground storage tank sites located in Sonoma county.

Date of Government Version: 07/02/2013
Date Data Arrived at EDR: 07/05/2013
Date Made Active in Reports: 08/12/2013
Number of Days to Update: 38

Source: Department of Health Services
Telephone: 707-565-6565
Last EDR Contact: 06/25/2013
Next Scheduled EDR Contact: 10/14/2013
Data Release Frequency: Quarterly

SUTTER COUNTY:

Underground Storage Tanks
Underground storage tank sites located in Sutter county.

Date of Government Version: 06/10/2013
Date Data Arrived at EDR: 06/11/2013
Date Made Active in Reports: 08/19/2013
Number of Days to Update: 69

Source: Sutter County Department of Agriculture
Telephone: 530-822-7500
Last EDR Contact: 09/10/2013
Next Scheduled EDR Contact: 12/23/2013
Data Release Frequency: Semi-Annually

TUOLUMNE COUNTY:

CUPA Facility List
Cupa facility list

Date of Government Version: 01/14/2013
Date Data Arrived at EDR: 01/16/2013
Date Made Active in Reports: 02/27/2013
Number of Days to Update: 42

Source: Divison of Environmental Health
Telephone: 209-533-5633
Last EDR Contact: 07/26/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Varies

VENTURA COUNTY:

Business Plan, Hazardous Waste Producers, and Operating Underground Tanks
The BWT list indicates by site address whether the Environmental Health Division has Business Plan (B), Waste Producer (W), and/or Underground Tank (T) information.

Date of Government Version: 04/26/2013
Date Data Arrived at EDR: 05/22/2013
Date Made Active in Reports: 06/25/2013
Number of Days to Update: 34

Source: Ventura County Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/19/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Quarterly

Inventory of Illegal Abandoned and Inactive Sites
Ventura County Inventory of Closed, Illegal Abandoned, and Inactive Sites.

Date of Government Version: 12/01/2011
Date Data Arrived at EDR: 12/01/2011
Date Made Active in Reports: 01/19/2012
Number of Days to Update: 49

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 07/03/2013
Next Scheduled EDR Contact: 10/21/2013
Data Release Frequency: Annually

Listing of Underground Tank Cleanup Sites
Ventura County Underground Storage Tank Cleanup Sites (LUST).

Date of Government Version: 05/29/2008
Date Data Arrived at EDR: 06/24/2008
Date Made Active in Reports: 07/31/2008
Number of Days to Update: 37

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 08/19/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Quarterly

Medical Waste Program List

To protect public health and safety and the environment from potential exposure to disease causing agents, the Environmental Health Division Medical Waste Program regulates the generation, handling, storage, treatment and disposal of medical waste throughout the County.

Date of Government Version: 05/28/2013
Date Data Arrived at EDR: 06/24/2013
Date Made Active in Reports: 08/12/2013
Number of Days to Update: 49

Source: Ventura County Resource Management Agency
Telephone: 805-654-2813
Last EDR Contact: 07/30/2013
Next Scheduled EDR Contact: 11/11/2013
Data Release Frequency: Quarterly

Underground Tank Closed Sites List

Ventura County Operating Underground Storage Tank Sites (UST)/Underground Tank Closed Sites List.

Date of Government Version: 05/28/2013
Date Data Arrived at EDR: 06/17/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 64

Source: Environmental Health Division
Telephone: 805-654-2813
Last EDR Contact: 09/16/2013
Next Scheduled EDR Contact: 12/30/2013
Data Release Frequency: Quarterly

YOLO COUNTY:

Underground Storage Tank Comprehensive Facility Report

Underground storage tank sites located in Yolo county.

Date of Government Version: 06/24/2013
Date Data Arrived at EDR: 06/26/2013
Date Made Active in Reports: 08/20/2013
Number of Days to Update: 55

Source: Yolo County Department of Health
Telephone: 530-666-8646
Last EDR Contact: 09/23/2013
Next Scheduled EDR Contact: 01/08/2014
Data Release Frequency: Annually

YUBA COUNTY:

CUPA Facility List

CUPA facility listing for Yuba County.

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 08/05/2013
Date Made Active in Reports: 08/22/2013
Number of Days to Update: 17

Source: Yuba County Environmental Health Department
Telephone: 530-749-7523
Last EDR Contact: 07/31/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Varies

OTHER DATABASE(S)

Depending on the geographic area covered by this report, the data provided in these specialty databases may or may not be complete. For example, the existence of wetlands information data in a specific report does not mean that all wetlands in the area covered by the report are included. Moreover, the absence of any reported wetlands information does not necessarily mean that wetlands do not exist in the area covered by the report.

CT MANIFEST: Hazardous Waste Manifest Data

Facility and manifest data. Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a tsd facility.

Date of Government Version: 05/20/2013
Date Data Arrived at EDR: 05/21/2013
Date Made Active in Reports: 06/27/2013
Number of Days to Update: 37

Source: Department of Energy & Environmental Protection
Telephone: 860-424-3375
Last EDR Contact: 08/19/2013
Next Scheduled EDR Contact: 12/02/2013
Data Release Frequency: Annually

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

NJ MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2011
Date Data Arrived at EDR: 07/19/2012
Date Made Active in Reports: 08/28/2012
Number of Days to Update: 40

Source: Department of Environmental Protection
Telephone: N/A
Last EDR Contact: 07/19/2013
Next Scheduled EDR Contact: 10/28/2013
Data Release Frequency: Annually

NY MANIFEST: Facility and Manifest Data
Manifest is a document that lists and tracks hazardous waste from the generator through transporters to a TSD facility.

Date of Government Version: 08/01/2013
Date Data Arrived at EDR: 08/07/2013
Date Made Active in Reports: 09/10/2013
Number of Days to Update: 34

Source: Department of Environmental Conservation
Telephone: 518-402-8651
Last EDR Contact: 08/07/2013
Next Scheduled EDR Contact: 11/18/2013
Data Release Frequency: Annually

PA MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 07/24/2013
Date Made Active in Reports: 08/19/2013
Number of Days to Update: 26

Source: Department of Environmental Protection
Telephone: 717-783-8990
Last EDR Contact: 07/18/2013
Next Scheduled EDR Contact: 11/04/2013
Data Release Frequency: Annually

RI MANIFEST: Manifest information
Hazardous waste manifest information

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 06/21/2013
Date Made Active in Reports: 08/05/2013
Number of Days to Update: 45

Source: Department of Environmental Management
Telephone: 401-222-2797
Last EDR Contact: 08/23/2013
Next Scheduled EDR Contact: 12/09/2013
Data Release Frequency: Annually

WI MANIFEST: Manifest Information
Hazardous waste manifest information.

Date of Government Version: 12/31/2012
Date Data Arrived at EDR: 08/09/2013
Date Made Active in Reports: 09/27/2013
Number of Days to Update: 49

Source: Department of Natural Resources
Telephone: N/A
Last EDR Contact: 09/16/2013
Next Scheduled EDR Contact: 12/30/2013
Data Release Frequency: Annually

Oil/Gas Pipelines: This data was obtained by EDR from the USGS in 1994. It is referred to by USGS as GeoData Digital Line Graphs from 1:100,000-Scale Maps. It was extracted from the transportation category including some oil, but primarily gas pipelines.

Electric Power Transmission Line Data
Source: Rextag Strategies Corp.
Telephone: (281) 769-2247
U.S. Electric Transmission and Power Plants Systems Digital GIS Data

Sensitive Receptors: There are individuals deemed sensitive receptors due to their fragile immune systems and special sensitivity to environmental discharges. These sensitive receptors typically include the elderly, the sick, and children. While the location of all sensitive receptors cannot be determined, EDR indicates those buildings and facilities - schools, daycares, hospitals, medical centers, and nursing homes - where individuals who are sensitive receptors are likely to be located.

AHA Hospitals:
Source: American Hospital Association, Inc.
Telephone: 312-280-5991
The database includes a listing of hospitals based on the American Hospital Association's annual survey of hospitals.

GOVERNMENT RECORDS SEARCHED / DATA CURRENCY TRACKING

Medical Centers: Provider of Services Listing
Source: Centers for Medicare & Medicaid Services
Telephone: 410-786-3000
A listing of hospitals with Medicare provider number, produced by Centers of Medicare & Medicaid Services, a federal agency within the U.S. Department of Health and Human Services.

Nursing Homes
Source: National Institutes of Health
Telephone: 301-594-6248
Information on Medicare and Medicaid certified nursing homes in the United States.

Public Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on elementary and secondary public education in the United States. It is a comprehensive, annual, national statistical database of all public elementary and secondary schools and school districts, which contains data that are comparable across all states.

Private Schools
Source: National Center for Education Statistics
Telephone: 202-502-7300
The National Center for Education Statistics' primary database on private school locations in the United States.

Daycare Centers: Licensed Facilities
Source: Department of Social Services
Telephone: 916-657-4041

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

STREET AND ADDRESS INFORMATION

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GEOCHECK®- PHYSICAL SETTING SOURCE ADDENDUM

TARGET PROPERTY ADDRESS

TRACT 2 PICKERING PROJECT
STANLEY AVENUE
ESCONDIDO, CA 92026

TARGET PROPERTY COORDINATES

Latitude (North):	33.1576 - 33° 9' 27.36"
Longitude (West):	117.0851 - 117° 5' 6.36"
Universal Tranverse Mercator:	Zone 11
UTM X (Meters):	492064.3
UTM Y (Meters):	3668570.2
Elevation:	739 ft. above sea level

USGS TOPOGRAPHIC MAP

Target Property Map:	33117-B1 VALLEY CENTER, CA
Most Recent Revision:	2000

EDR's GeoCheck Physical Setting Source Addendum is provided to assist the environmental professional in forming an opinion about the impact of potential contaminant migration.

Assessment of the impact of contaminant migration generally has two principal investigative components:

1. Groundwater flow direction, and
2. Groundwater flow velocity.

Groundwater flow direction may be impacted by surface topography, hydrology, hydrogeology, characteristics of the soil, and nearby wells. Groundwater flow velocity is generally impacted by the nature of the geologic strata.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW DIRECTION INFORMATION

Groundwater flow direction for a particular site is best determined by a qualified environmental professional using site-specific well data. If such data is not reasonably ascertainable, it may be necessary to rely on other sources of information, such as surface topographic information, hydrologic information, hydrogeologic data collected on nearby properties, and regional groundwater flow information (from deep aquifers).

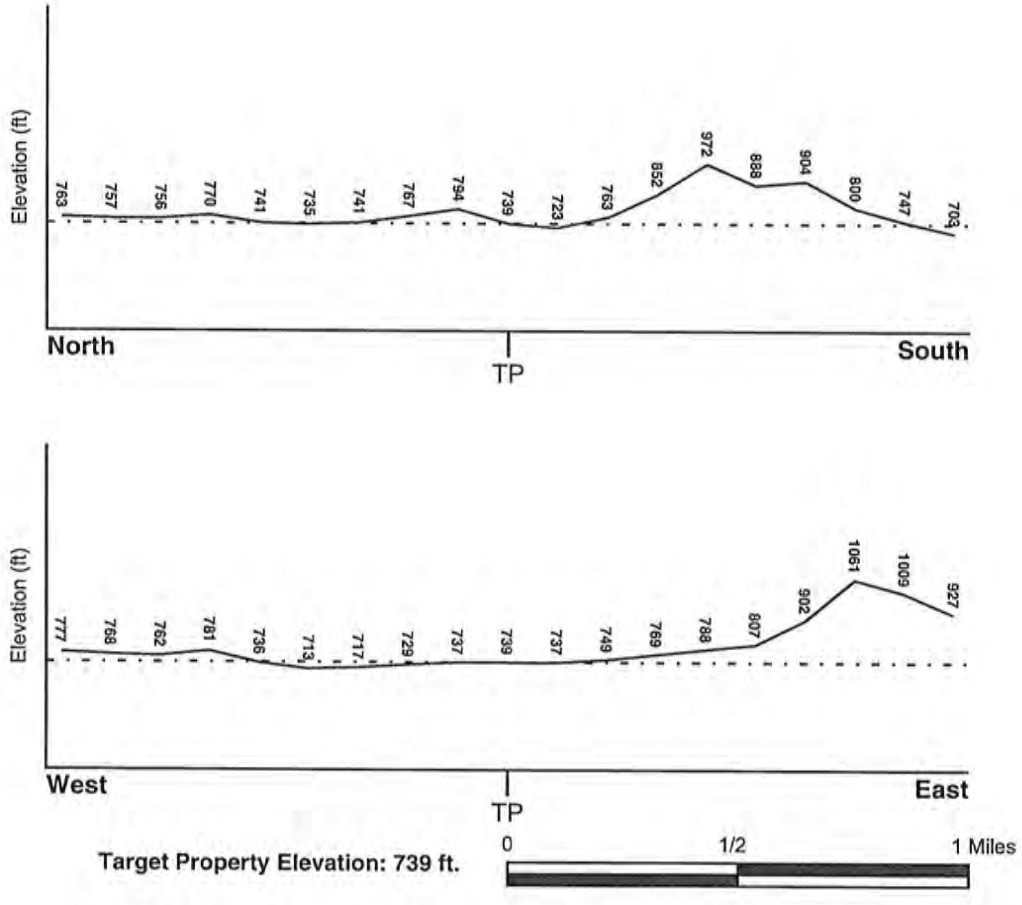
TOPOGRAPHIC INFORMATION

Surface topography may be indicative of the direction of surficial groundwater flow. This information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

TARGET PROPERTY TOPOGRAPHY

General Topographic Gradient: General NW

SURROUNDING TOPOGRAPHY: ELEVATION PROFILES



Source: Topography has been determined from the USGS 7.5' Digital Elevation Model and should be evaluated on a relative (not an absolute) basis. Relative elevation information between sites of close proximity should be field verified.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

HYDROLOGIC INFORMATION

Surface water can act as a hydrologic barrier to groundwater flow. Such hydrologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Refer to the Physical Setting Source Map following this summary for hydrologic information (major waterways and bodies of water).

FEMA FLOOD ZONE

Target Property County	FEMA Flood Electronic Data
SAN DIEGO, CA	YES - refer to the Overview Map and Detail Map

Flood Plain Panel at Target Property: 06073C - FEMA DFIRM Flood data

Additional Panels in search area: Not Reported

NATIONAL WETLAND INVENTORY

NWI Quad at Target Property	NWI Electronic Data Coverage
VALLEY CENTER	YES - refer to the Overview Map and Detail Map

HYDROGEOLOGIC INFORMATION

Hydrogeologic information obtained by installation of wells on a specific site can often be an indicator of groundwater flow direction in the immediate area. Such hydrogeologic information can be used to assist the environmental professional in forming an opinion about the impact of nearby contaminated properties or, should contamination exist on the target property, what downgradient sites might be impacted.

Site-Specific Hydrogeological Data*:

Search Radius:	1.25 miles
Status:	Not found

AQUIFLOW®

Search Radius: 1.000 Mile.

EDR has developed the AQUIFLOW Information System to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted by environmental professionals to regulatory authorities at select sites and has extracted the date of the report, groundwater flow direction as determined hydrogeologically, and the depth to water table.

MAP ID	LOCATION FROM TP	GENERAL DIRECTION GROUNDWATER FLOW
5	1/2 - 1 Mile SE	NE

For additional site information, refer to Physical Setting Source Map Findings.

* ©1996 Site-specific hydrogeological data gathered by CERCLIS Alerts, Inc., Bainbridge Island, WA. All rights reserved. All of the information and opinions presented are those of the cited EPA report(s), which were completed under a Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) investigation.

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

GROUNDWATER FLOW VELOCITY INFORMATION

Groundwater flow velocity information for a particular site is best determined by a qualified environmental professional using site specific geologic and soil strata data. If such data are not reasonably ascertainable, it may be necessary to rely on other sources of information, including geologic age identification, rock stratigraphic unit and soil characteristics data collected on nearby properties and regional soil information. In general, contaminant plumes move more quickly through sandy-gravelly types of soils than silty-clayey types of soils.

GEOLOGIC INFORMATION IN GENERAL AREA OF TARGET PROPERTY

Geologic information can be used by the environmental professional in forming an opinion about the relative speed at which contaminant migration may be occurring.

ROCK STRATIGRAPHIC UNIT

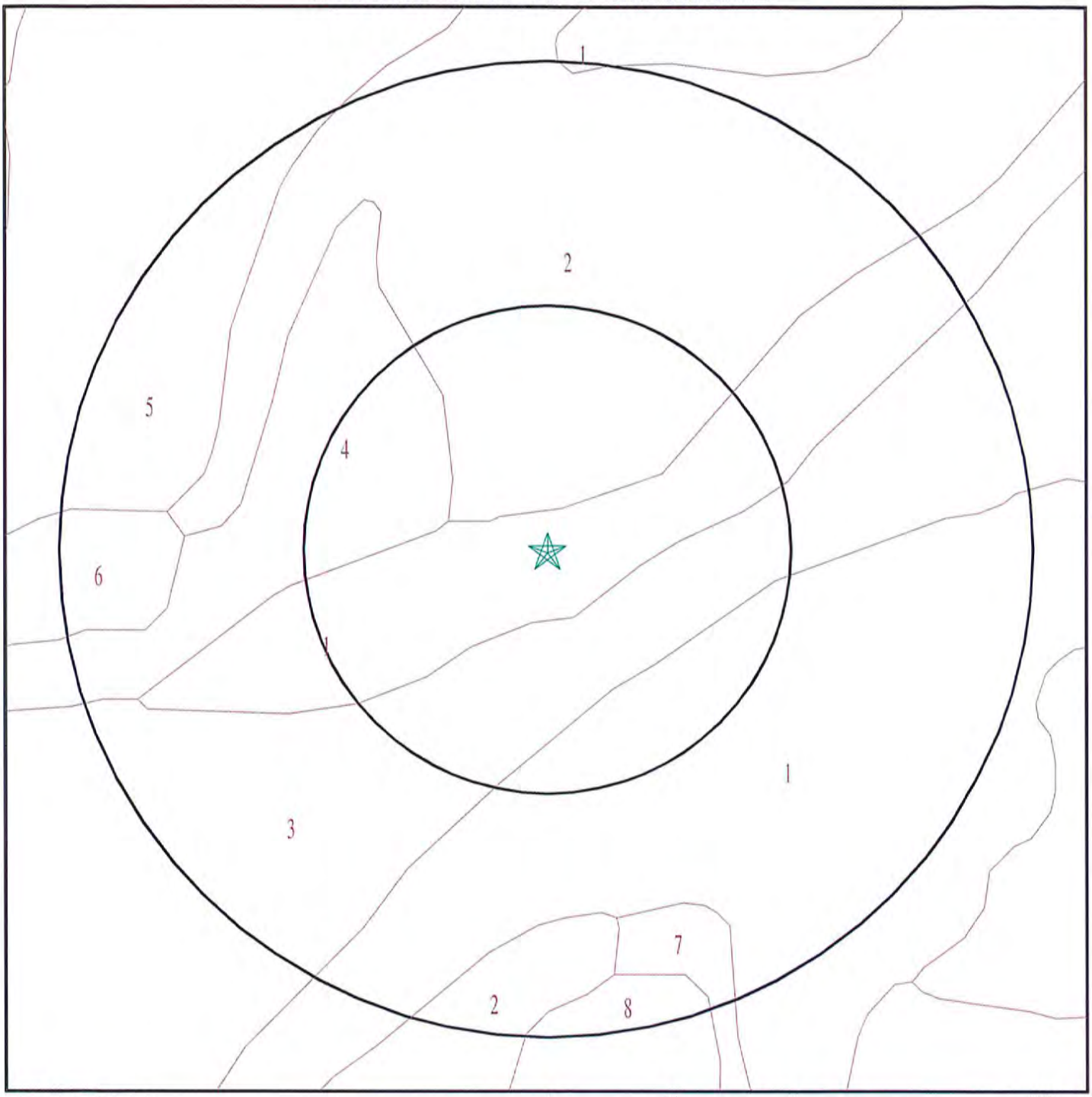
Era:	Mesozoic
System:	Lower Jurassic and Upper Triassic
Series:	Lower Mesozoic
Code:	lMze *(decoded above as Era, System & Series)*

GEOLOGIC AGE IDENTIFICATION

Category: Eugeosynclinal Deposits

Geologic Age and Rock Stratigraphic Unit Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - a digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

SSURGO SOIL MAP - 03741994.2r



★ Target Property
SSURGO Soil
Water

0 1/16 1/8 1/4 Miles

SITE NAME: Tract 2 Pickering Project ADDRESS: Stanley Avenue Escondido CA 92026 LAT/LONG: 33.1576 / 117.0851	CLIENT: Petra Geotechnical Inc CONTACT: Jon Cain INQUIRY #: 03741994.2r DATE: September 27, 2013 2:00 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

DOMINANT SOIL COMPOSITION IN GENERAL AREA OF TARGET PROPERTY

The U.S. Department of Agriculture's (USDA) Soil Conservation Service (SCS) leads the National Cooperative Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. The following information is based on Soil Conservation Service SSURGO data.

Soil Map ID: 1

Soil Component Name: RAMONA

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	9 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 7.3 Min: 6.6
2	9 inches	59 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 7.3 Min: 6.6
3	59 inches	74 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 7.3 Min: 6.6

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Map ID: 2

Soil Component Name: FALLBROOK

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	7 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
2	7 inches	11 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
3	11 inches	27 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
4	27 inches	40 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
5	40 inches	44 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:

Soil Map ID: 3

Soil Component Name: RAMONA

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information

	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	16 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 7.3 Min: 6.6
2	16 inches	59 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 7.3 Min: 6.6
3	59 inches	74 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	COARSE-GRAINED SOILS, Sands, Sands with fines, Clayey sand.	Max: 4 Min: 1.4	Max: 7.3 Min: 6.6

Soil Map ID: 4

Soil Component Name: FALLBROOK

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	5 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
2	5 inches	11 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
3	11 inches	27 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
4	27 inches	46 inches	loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
5	46 inches	51 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:

Soil Map ID: 5

Soil Component Name: VISALIA

Soil Surface Texture: sandy loam

Hydrologic Group: Class B - Moderate infiltration rates. Deep and moderately deep, moderately well and well drained soils with moderately coarse textures.

Soil Drainage Class: Well drained

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Hydric Status: Partially hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	11 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 6.5 Min: 6.1
2	11 inches	40 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 6.5 Min: 6.1
3	40 inches	59 inches	very fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	FINE-GRAINED SOILS, Silts and Clays (liquid limit less than 50%), silt.	Max: 42 Min: 14	Max: 6.5 Min: 6.1

Soil Map ID: 6

Soil Component Name: FALLBROOK

Soil Surface Texture: sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	1 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
2	1 inches	24 inches	sandy clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
3	24 inches	27 inches	sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
4	27 inches	31 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:

Soil Map ID: 7

Soil Component Name: LAS POSAS

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	3 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
2	3 inches	33 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
3	33 inches	37 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:

Soil Map ID: 8

Soil Component Name: LAS POSAS

Soil Surface Texture: fine sandy loam

Hydrologic Group: Class C - Slow infiltration rates. Soils with layers impeding downward movement of water, or soils with moderately fine or fine textures.

Soil Drainage Class: Well drained

Hydric Status: Not hydric

Corrosion Potential - Uncoated Steel: Moderate

Depth to Bedrock Min: > 0 inches

Depth to Watertable Min: > 0 inches

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

Soil Layer Information							
	Boundary			Classification		Saturated hydraulic conductivity micro m/sec	Soil Reaction (pH)
Layer	Upper	Lower	Soil Texture Class	AASHTO Group	Unified Soil		
1	0 inches	3 inches	fine sandy loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
2	3 inches	33 inches	clay loam	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:
3	33 inches	37 inches	weathered bedrock	Silt-Clay Materials (more than 35 pct. passing No. 200), Silty Soils.	Not reported	Max: Min:	Max: Min:

LOCAL / REGIONAL WATER AGENCY RECORDS

EDR Local/Regional Water Agency records provide water well information to assist the environmental professional in assessing sources that may impact ground water flow direction, and in forming an opinion about the impact of contaminant migration on nearby drinking water wells.

WELL SEARCH DISTANCE INFORMATION

DATABASE	SEARCH DISTANCE (miles)
Federal USGS	1.000
Federal FRDS PWS	Nearest PWS within 1 mile
State Database	1.000

FEDERAL USGS WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
A1	USGS40000130353	0 - 1/8 Mile SE
A2	USGS40000130354	0 - 1/8 Mile ENE
4	USGS40000130352	1/4 - 1/2 Mile WSW

GEOCHECK® - PHYSICAL SETTING SOURCE SUMMARY

FEDERAL FRDS PUBLIC WATER SUPPLY SYSTEM INFORMATION

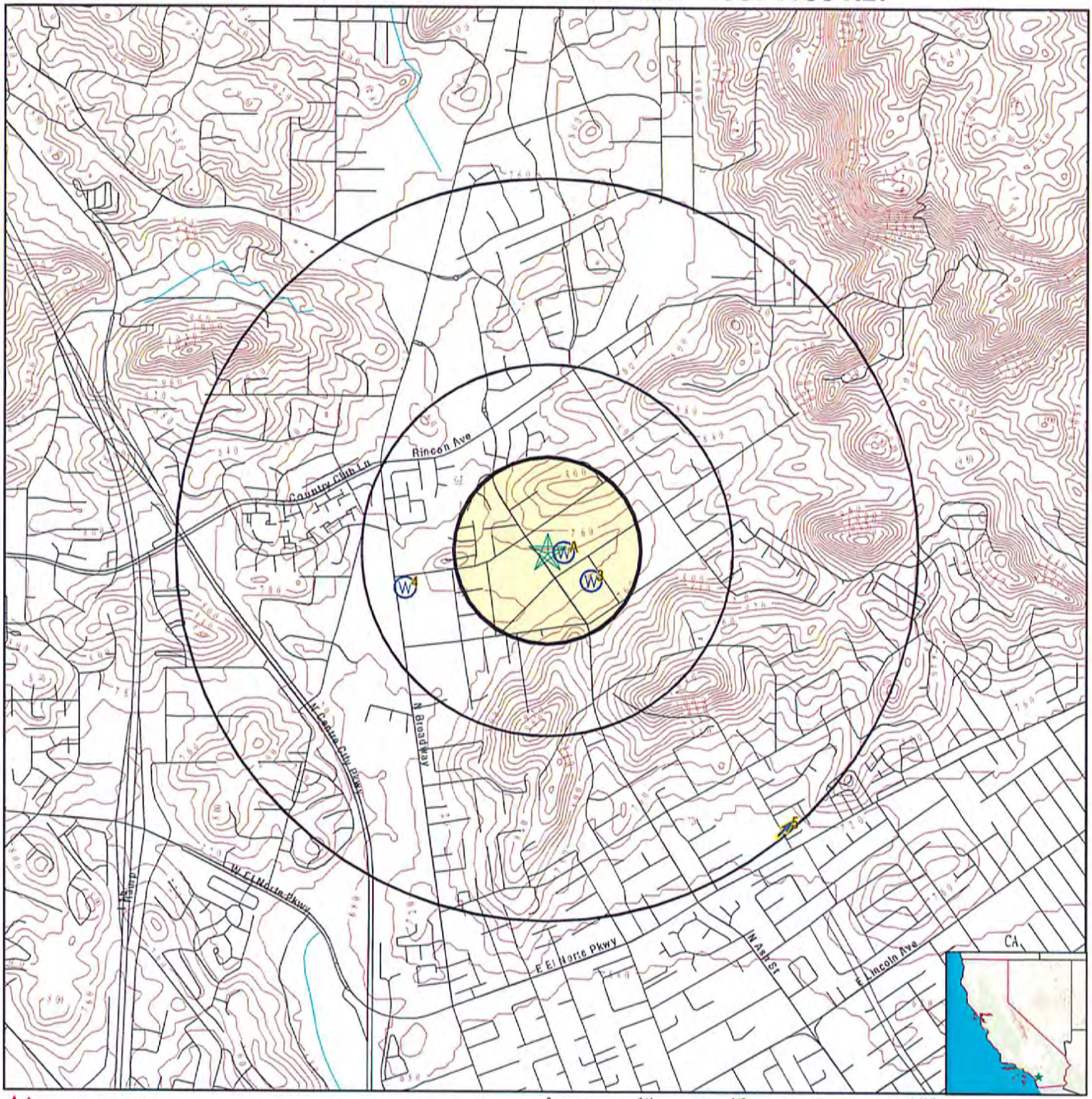
MAP ID	WELL ID	LOCATION FROM TP
No PWS System Found		

Note: PWS System location is not always the same as well location.

STATE DATABASE WELL INFORMATION

MAP ID	WELL ID	LOCATION FROM TP
3	23658	1/8 - 1/4 Mile SE

PHYSICAL SETTING SOURCE MAP - 03741994.2r



- County Boundary
- Major Roads
- Contour Lines
- Earthquake Fault Lines
- Earthquake epicenter, Richter 5 or greater
- Water Wells
- Public Water Supply Wells
- Cluster of Multiple Icons
- Groundwater Flow Direction
- Indeterminate Groundwater Flow at Location
- Groundwater Flow Varies at Location
- Closest Hydrogeological Data
- Oil, gas or related wells

SITE NAME: Tract 2 Pickering Project ADDRESS: Stanley Avenue Escondido CA 92026 LAT/LONG: 33.1576 / 117.0851	CLIENT: Petra Geotechnical Inc CONTACT: Jon Cain INQUIRY #: 03741994.2r DATE: September 27, 2013 2:00 pm

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GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Map ID
Direction
Distance
Elevation

	Database	EDR ID Number
A1 **SE** **0 - 1/8 Mile** **Lower**	**FED USGS**	**USGS40000130353**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-330926117050201		
Monloc name:	012S002W04J001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.157261
Longitude:	-117.084754	Sourcemap scale:	24000
Horiz Acc measure:	10	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	732
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

	Database	EDR ID Number
A2 **ENE** **0 - 1/8 Mile** **Higher**	**FED USGS**	**USGS40000130354**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-330928117045901		
Monloc name:	012S002W03M001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.1578165
Longitude:	-117.0839206	Sourcemap scale:	24000
Horiz Acc measure:	10	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	740
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		

Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	72
Welldepth units:	ft	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 1

Date	Feet below Surface	Feet to Sealevel
1987-05-05	2	

Note: Other conditions existed that would affect the measured water level.

3
SE
1/8 - 1/4 Mile
Higher

CA WELLS **23658**

Water System Information:

Prime Station Code:	N37/006-SDCWA	User ID:	WAT
FRDS Number:	3710006019	County:	San Diego
District Number:	14	Station Type:	CANAL/AMBNT/MUN/INTAKE
Water Type:	Surface Water	Well Status:	Active Raw
Source Lat/Long:	330923.0 1170456.0	Precision:	100 Feet (one Second)
Source Name:	SAN DIEGO COUNTY WATER AUTHORITY - RAW		
System Number:	3710006		
System Name:	Escondido, City of		
Organization That Operates System:	201 No. Broadway Escondido, CA 92025		
Pop Served:	110000	Connections:	22589
Area Served:	ESCONDIDO		
Sample Collected:	02/14/2011	Findings:	14. C
Chemical:	SOURCE TEMPERATURE C		
Sample Collected:	02/14/2011	Findings:	640. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	02/14/2011	Findings:	7.88
Chemical:	PH, FIELD		
Sample Collected:	02/14/2011	Findings:	8.01
Chemical:	PH, LABORATORY		
Sample Collected:	02/14/2011	Findings:	100. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	02/14/2011	Findings:	100. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	02/14/2011	Findings:	170. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	02/14/2011	Findings:	40. MG/L
Chemical:	CALCIUM		
Sample Collected:	02/14/2011	Findings:	16. MG/L
Chemical:	MAGNESIUM		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	02/14/2011	Findings:	64. MG/L
Chemical:	SODIUM		
Sample Collected:	02/14/2011	Findings:	3.9 MG/L
Chemical:	POTASSIUM		
Sample Collected:	02/14/2011	Findings:	87. MG/L
Chemical:	CHLORIDE		
Sample Collected:	02/14/2011	Findings:	0.2 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	02/14/2011	Findings:	9.4 MG/L
Chemical:	SILICA		
Sample Collected:	02/14/2011	Findings:	130. UG/L
Chemical:	BORON		
Sample Collected:	02/14/2011	Findings:	450. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	02/14/2011	Findings:	4.e-002
Chemical:	LANGELIER INDEX AT SOURCE TEMP.		
Sample Collected:	02/14/2011	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	02/14/2011	Findings:	14.5 C
Chemical:	SOURCE TEMPERATURE C		
Sample Collected:	02/14/2011	Findings:	1. UNITS
Chemical:	COLOR		
Sample Collected:	02/14/2011	Findings:	4. TON
Chemical:	ODOR THRESHOLD @ 60 C		
Sample Collected:	02/14/2011	Findings:	685. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	02/14/2011	Findings:	7.88
Chemical:	PH, FIELD		
Sample Collected:	02/14/2011	Findings:	8.
Chemical:	PH, LABORATORY		
Sample Collected:	02/14/2011	Findings:	1. NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	05/09/2011	Findings:	19. C
Chemical:	SOURCE TEMPERATURE C		
Sample Collected:	05/09/2011	Findings:	720. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	05/09/2011	Findings:	8.2
Chemical:	PH, FIELD		
Sample Collected:	05/09/2011	Findings:	8.2
Chemical:	PH, LABORATORY		
Sample Collected:	05/09/2011	Findings:	100. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	05/09/2011	Findings:	100. MG/L
Chemical:	BICARBONATE ALKALINITY		

GEOCHECK®- PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	05/09/2011	Findings:	200. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	05/09/2011	Findings:	49. MG/L
Chemical:	CALCIUM		
Sample Collected:	05/09/2011	Findings:	18. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	05/09/2011	Findings:	65. MG/L
Chemical:	SODIUM		
Sample Collected:	05/09/2011	Findings:	3.7 MG/L
Chemical:	POTASSIUM		
Sample Collected:	05/09/2011	Findings:	71. MG/L
Chemical:	CHLORIDE		
Sample Collected:	05/09/2011	Findings:	0.2 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	05/09/2011	Findings:	130. UG/L
Chemical:	BORON		
Sample Collected:	05/09/2011	Findings:	430. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	05/09/2011	Findings:	0.44
Chemical:	LANGELIER INDEX AT SOURCE TEMP.		
Sample Collected:	05/09/2011	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	05/09/2011	Findings:	19. C
Chemical:	SOURCE TEMPERATURE C		
Sample Collected:	05/09/2011	Findings:	1. UNITS
Chemical:	COLOR		
Sample Collected:	05/09/2011	Findings:	710. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	05/09/2011	Findings:	8.23
Chemical:	PH, FIELD		
Sample Collected:	05/09/2011	Findings:	8.06
Chemical:	PH, LABORATORY		
Sample Collected:	05/09/2011	Findings:	0.9 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	05/09/2011	Findings:	17. UG/L
Chemical:	BROMODICHLORMETHANE (THM)		
Sample Collected:	05/09/2011	Findings:	1.2 UG/L
Chemical:	BROMOFORM (THM)		
Sample Collected:	05/09/2011	Findings:	11. UG/L
Chemical:	DIBROMOCHLOROMETHANE (THM)		
Sample Collected:	05/09/2011	Findings:	17. UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	05/09/2011	Findings:	46. UG/L
Chemical:	TOTAL TRIHALOMETHANES		

GEOCHECK®- PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	08/08/2011	Findings:	26. C
Chemical:	SOURCE TEMPERATURE C		
Sample Collected:	08/08/2011	Findings:	630. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	08/08/2011	Findings:	8.1
Chemical:	PH, FIELD		
Sample Collected:	08/08/2011	Findings:	8.1
Chemical:	PH, LABORATORY		
Sample Collected:	08/08/2011	Findings:	80. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	08/08/2011	Findings:	80. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	08/08/2011	Findings:	180. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	08/08/2011	Findings:	46. MG/L
Chemical:	CALCIUM		
Sample Collected:	08/08/2011	Findings:	17. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	08/08/2011	Findings:	63. MG/L
Chemical:	SODIUM		
Sample Collected:	08/08/2011	Findings:	3.4 MG/L
Chemical:	POTASSIUM		
Sample Collected:	08/08/2011	Findings:	64. MG/L
Chemical:	CHLORIDE		
Sample Collected:	08/08/2011	Findings:	0.2 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	08/08/2011	Findings:	120. UG/L
Chemical:	BORON		
Sample Collected:	08/08/2011	Findings:	370. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	08/08/2011	Findings:	0.3
Chemical:	LANGELIER INDEX AT SOURCE TEMP.		
Sample Collected:	08/08/2011	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	08/08/2011	Findings:	25.8 C
Chemical:	SOURCE TEMPERATURE C		
Sample Collected:	08/08/2011	Findings:	2. UNITS
Chemical:	COLOR		
Sample Collected:	08/08/2011	Findings:	2. TON
Chemical:	ODOR THRESHOLD @ 60 C		
Sample Collected:	08/08/2011	Findings:	654. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	08/08/2011	Findings:	8.09
Chemical:	PH, FIELD		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	08/08/2011	Findings:	8.04
Chemical:	PH, LABORATORY		
Sample Collected:	08/08/2011	Findings:	0.46 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	11/14/2011	Findings:	18. C
Chemical:	SOURCE TEMPERATURE C		
Sample Collected:	11/14/2011	Findings:	420. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	11/14/2011	Findings:	8.3
Chemical:	PH, FIELD		
Sample Collected:	11/14/2011	Findings:	7.6
Chemical:	PH, LABORATORY		
Sample Collected:	11/14/2011	Findings:	72. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	11/14/2011	Findings:	72. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	11/14/2011	Findings:	110. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	11/14/2011	Findings:	25. MG/L
Chemical:	CALCIUM		
Sample Collected:	11/14/2011	Findings:	10. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	11/14/2011	Findings:	41. MG/L
Chemical:	SODIUM		
Sample Collected:	11/14/2011	Findings:	2.4 MG/L
Chemical:	POTASSIUM		
Sample Collected:	11/14/2011	Findings:	49. MG/L
Chemical:	CHLORIDE		
Sample Collected:	11/14/2011	Findings:	0.16 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	11/14/2011	Findings:	10. MG/L
Chemical:	SILICA		
Sample Collected:	11/14/2011	Findings:	2.3 UG/L
Chemical:	ARSENIC		
Sample Collected:	11/14/2011	Findings:	270. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	11/14/2011	Findings:	0.14
Chemical:	LANGELIER INDEX AT SOURCE TEMP.		
Sample Collected:	11/14/2011	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	11/14/2011	Findings:	18.5 C
Chemical:	SOURCE TEMPERATURE C		
Sample Collected:	11/14/2011	Findings:	3. UNITS
Chemical:	COLOR		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	11/14/2011	Findings:	441. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	11/14/2011	Findings:	8.34
Chemical:	PH, FIELD		
Sample Collected:	11/14/2011	Findings:	7.83
Chemical:	PH, LABORATORY		
Sample Collected:	11/14/2011	Findings:	0.74 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	05/22/2012	Findings:	22.5 C
Chemical:	SOURCE TEMPERATURE C		
Sample Collected:	05/22/2012	Findings:	700. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	05/22/2012	Findings:	8.34
Chemical:	PH, FIELD		
Sample Collected:	05/22/2012	Findings:	8.34
Chemical:	PH, LABORATORY		
Sample Collected:	05/22/2012	Findings:	80. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	05/22/2012	Findings:	98. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	05/22/2012	Findings:	180. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	05/22/2012	Findings:	46. MG/L
Chemical:	CALCIUM		
Sample Collected:	05/22/2012	Findings:	17. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	05/22/2012	Findings:	60. MG/L
Chemical:	SODIUM		
Sample Collected:	05/22/2012	Findings:	3.4 MG/L
Chemical:	POTASSIUM		
Sample Collected:	05/22/2012	Findings:	69. MG/L
Chemical:	CHLORIDE		
Sample Collected:	05/22/2012	Findings:	0.18 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	05/22/2012	Findings:	2.1 UG/L
Chemical:	ARSENIC		
Sample Collected:	05/22/2012	Findings:	130. UG/L
Chemical:	BORON		
Sample Collected:	05/22/2012	Findings:	1.9 PCI/L
Chemical:	URANIUM (PCI/L)		
Sample Collected:	05/22/2012	Findings:	6.3 UG/L
Chemical:	BROMODICHLORMETHANE (THM)		
Sample Collected:	05/22/2012	Findings:	1.6 UG/L
Chemical:	BROMOFORM (THM)		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	05/22/2012	Findings:	6. UG/L
Chemical:	DIBROMOCHLOROMETHANE (THM)		
Sample Collected:	05/22/2012	Findings:	4.6 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	05/22/2012	Findings:	410. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	05/22/2012	Findings:	0.73
Chemical:	LANGELIER INDEX AT SOURCE TEMP.		
Sample Collected:	05/22/2012	Findings:	19. UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	05/22/2012	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	05/22/2012	Findings:	3.69 PCI/L
Chemical:	GROSS ALPHA		
Sample Collected:	05/22/2012	Findings:	1.36 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	05/22/2012	Findings:	0.924 PCI/L
Chemical:	GROSS BETA COUNTING ERROR		
Sample Collected:	05/22/2012	Findings:	296. PCI/L
Chemical:	TRITIUM COUNTING ERROR		
Sample Collected:	05/22/2012	Findings:	1.09 PCI/L
Chemical:	RADIUM 228 COUNTING ERROR		
Sample Collected:	05/22/2012	Findings:	0.45 PCI/L
Chemical:	STRONTIUM-90 COUNTING ERROR		
Sample Collected:	05/22/2012	Findings:	0.909 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	05/22/2012	Findings:	0.407 PCI/L
Chemical:	RADIUM 228 MDA95		
Sample Collected:	05/22/2012	Findings:	0.9 PCI/L
Chemical:	GROSS BETA MDA95		
Sample Collected:	05/22/2012	Findings:	0.636 PCI/L
Chemical:	STRONTIUM - 90 MDA95		
Sample Collected:	05/22/2012	Findings:	505. PCI/L
Chemical:	TRITIUM MDA95		
Sample Collected:	05/22/2012	Findings:	0.183 PCI/L
Chemical:	RA-226 OR TOTAL RA BY 903.0 C.E.		
Sample Collected:	05/22/2012	Findings:	0.541 PCI/L
Chemical:	RADIUM, TOTAL, MDA95-NTNC ONLY, BY 903.0		
Sample Collected:	05/22/2012	Findings:	22.5 C
Chemical:	SOURCE TEMPERATURE C		
Sample Collected:	05/22/2012	Findings:	3. UNITS
Chemical:	COLOR		
Sample Collected:	05/22/2012	Findings:	692. US
Chemical:	SPECIFIC CONDUCTANCE		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	05/22/2012	Findings:	8.34
Chemical:	PH, FIELD		
Sample Collected:	05/22/2012	Findings:	8.5
Chemical:	PH, LABORATORY		
Sample Collected:	05/22/2012	Findings:	0.52 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	08/06/2012	Findings:	24.4 C
Chemical:	SOURCE TEMPERATURE C		
Sample Collected:	08/06/2012	Findings:	640. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	08/06/2012	Findings:	8.35
Chemical:	PH, FIELD		
Sample Collected:	08/06/2012	Findings:	8.14
Chemical:	PH, LABORATORY		
Sample Collected:	08/06/2012	Findings:	100. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	08/06/2012	Findings:	120. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	08/06/2012	Findings:	2.4 MG/L
Chemical:	CARBONATE ALKALINITY		
Sample Collected:	08/06/2012	Findings:	180. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	08/06/2012	Findings:	43. MG/L
Chemical:	CALCIUM		
Sample Collected:	08/06/2012	Findings:	18. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	08/06/2012	Findings:	63. MG/L
Chemical:	SODIUM		
Sample Collected:	08/06/2012	Findings:	3.7 MG/L
Chemical:	POTASSIUM		
Sample Collected:	08/06/2012	Findings:	68. MG/L
Chemical:	CHLORIDE		
Sample Collected:	08/06/2012	Findings:	0.18 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	08/06/2012	Findings:	120. UG/L
Chemical:	BORON		
Sample Collected:	08/06/2012	Findings:	7.8 UG/L
Chemical:	BROMODICHLORMETHANE (THM)		
Sample Collected:	08/06/2012	Findings:	2.6 UG/L
Chemical:	BROMOFORM (THM)		
Sample Collected:	08/06/2012	Findings:	8.5 UG/L
Chemical:	DIBROMOCHLOROMETHANE (THM)		
Sample Collected:	08/06/2012	Findings:	4.4 UG/L
Chemical:	CHLOROFORM (THM)		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	08/06/2012	Findings:	5.7e-002 MG/L
Chemical:	FOAMING AGENTS (MBAS)		
Sample Collected:	08/06/2012	Findings:	380. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	08/06/2012	Findings:	0.61
Chemical:	LANGELIER INDEX AT SOURCE TEMP.		
Sample Collected:	08/06/2012	Findings:	23. UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	08/06/2012	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	08/06/2012	Findings:	24.4 C
Chemical:	SOURCE TEMPERATURE C		
Sample Collected:	08/06/2012	Findings:	2. UNITS
Chemical:	COLOR		
Sample Collected:	08/06/2012	Findings:	677. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	08/06/2012	Findings:	8.35
Chemical:	PH, FIELD		
Sample Collected:	08/06/2012	Findings:	8.18
Chemical:	PH, LABORATORY		
Sample Collected:	08/06/2012	Findings:	0.39 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	11/15/2012	Findings:	17.2 C
Chemical:	SOURCE TEMPERATURE C		
Sample Collected:	11/15/2012	Findings:	540. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	11/15/2012	Findings:	7.59
Chemical:	PH, FIELD		
Sample Collected:	11/15/2012	Findings:	7.99
Chemical:	PH, LABORATORY		
Sample Collected:	11/15/2012	Findings:	88. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	11/15/2012	Findings:	110. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	11/15/2012	Findings:	130. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	11/15/2012	Findings:	31. MG/L
Chemical:	CALCIUM		
Sample Collected:	11/15/2012	Findings:	13. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	11/15/2012	Findings:	51. MG/L
Chemical:	SODIUM		
Sample Collected:	11/15/2012	Findings:	3.1 MG/L
Chemical:	POTASSIUM		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	11/15/2012	Findings:	67. MG/L
Chemical:	CHLORIDE		
Sample Collected:	11/15/2012	Findings:	0.18 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	11/15/2012	Findings:	2.2 UG/L
Chemical:	ARSENIC		
Sample Collected:	11/15/2012	Findings:	120. UG/L
Chemical:	BORON		
Sample Collected:	11/15/2012	Findings:	6.e-002 MG/L
Chemical:	FOAMING AGENTS (MBAS)		
Sample Collected:	11/15/2012	Findings:	320. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	11/15/2012	Findings:	- 0.44
Chemical:	LANGELIER INDEX AT SOURCE TEMP.		
Sample Collected:	11/15/2012	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	11/15/2012	Findings:	1.46 PCI/L
Chemical:	GROSS ALPHA COUNTING ERROR		
Sample Collected:	11/15/2012	Findings:	1.05 PCI/L
Chemical:	GROSS BETA COUNTING ERROR		
Sample Collected:	11/15/2012	Findings:	1.08 PCI/L
Chemical:	GROSS ALPHA MDA95		
Sample Collected:	11/15/2012	Findings:	1.28 PCI/L
Chemical:	GROSS BETA MDA95		
Sample Collected:	11/15/2012	Findings:	19.2 C
Chemical:	SOURCE TEMPERATURE C		
Sample Collected:	11/15/2012	Findings:	4. UNITS
Chemical:	COLOR		
Sample Collected:	11/15/2012	Findings:	2. TON
Chemical:	ODOR THRESHOLD @ 60 C		
Sample Collected:	11/15/2012	Findings:	575. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	11/15/2012	Findings:	7.59
Chemical:	PH, FIELD		
Sample Collected:	11/15/2012	Findings:	7.69
Chemical:	PH, LABORATORY		
Sample Collected:	11/15/2012	Findings:	0.5 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	02/11/2013	Findings:	13. C
Chemical:	SOURCE TEMPERATURE C		
Sample Collected:	02/11/2013	Findings:	630. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	02/11/2013	Findings:	7.87
Chemical:	PH, FIELD		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	02/11/2013	Findings:	8.02
Chemical:	PH, LABORATORY		
Sample Collected:	02/11/2013	Findings:	88. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	02/11/2013	Findings:	110. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	02/11/2013	Findings:	160. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	02/11/2013	Findings:	38. MG/L
Chemical:	CALCIUM		
Sample Collected:	02/11/2013	Findings:	16. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	02/11/2013	Findings:	60. MG/L
Chemical:	SODIUM		
Sample Collected:	02/11/2013	Findings:	3.3 MG/L
Chemical:	POTASSIUM		
Sample Collected:	02/11/2013	Findings:	73. MG/L
Chemical:	CHLORIDE		
Sample Collected:	02/11/2013	Findings:	0.2 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	02/11/2013	Findings:	120. UG/L
Chemical:	BORON		
Sample Collected:	02/11/2013	Findings:	410. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	02/11/2013	Findings:	-0.16
Chemical:	LANGELIER INDEX AT SOURCE TEMP.		
Sample Collected:	02/11/2013	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		
Sample Collected:	02/11/2013	Findings:	13. C
Chemical:	SOURCE TEMPERATURE C		
Sample Collected:	02/11/2013	Findings:	5. UNITS
Chemical:	COLOR		
Sample Collected:	02/11/2013	Findings:	4. TON
Chemical:	ODOR THRESHOLD @ 60 C		
Sample Collected:	02/11/2013	Findings:	639. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	02/11/2013	Findings:	7.87
Chemical:	PH, FIELD		
Sample Collected:	02/11/2013	Findings:	8.05
Chemical:	PH, LABORATORY		
Sample Collected:	02/11/2013	Findings:	0.53 NTU
Chemical:	TURBIDITY, LABORATORY		
Sample Collected:	05/06/2013	Findings:	20.8 C
Chemical:	SOURCE TEMPERATURE C		

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS

Sample Collected:	05/06/2013	Findings:	780. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	05/06/2013	Findings:	8.19
Chemical:	PH, FIELD		
Sample Collected:	05/06/2013	Findings:	8.26
Chemical:	PH, LABORATORY		
Sample Collected:	05/06/2013	Findings:	100. MG/L
Chemical:	ALKALINITY (TOTAL) AS CACO3		
Sample Collected:	05/06/2013	Findings:	130. MG/L
Chemical:	BICARBONATE ALKALINITY		
Sample Collected:	05/06/2013	Findings:	230. MG/L
Chemical:	HARDNESS (TOTAL) AS CACO3		
Sample Collected:	05/06/2013	Findings:	58. MG/L
Chemical:	CALCIUM		
Sample Collected:	05/06/2013	Findings:	21. MG/L
Chemical:	MAGNESIUM		
Sample Collected:	05/06/2013	Findings:	71. MG/L
Chemical:	SODIUM		
Sample Collected:	05/06/2013	Findings:	3.8 MG/L
Chemical:	POTASSIUM		
Sample Collected:	05/06/2013	Findings:	74. MG/L
Chemical:	CHLORIDE		
Sample Collected:	05/06/2013	Findings:	0.29 MG/L
Chemical:	FLUORIDE (F) (NATURAL-SOURCE)		
Sample Collected:	05/06/2013	Findings:	2.2 UG/L
Chemical:	ARSENIC		
Sample Collected:	05/06/2013	Findings:	120. UG/L
Chemical:	BORON		
Sample Collected:	05/06/2013	Findings:	11. UG/L
Chemical:	BROMODICHLORMETHANE (THM)		
Sample Collected:	05/06/2013	Findings:	4.7 UG/L
Chemical:	BROMOFORM (THM)		
Sample Collected:	05/06/2013	Findings:	14. UG/L
Chemical:	DIBROMOCHLOROMETHANE (THM)		
Sample Collected:	05/06/2013	Findings:	6.5 UG/L
Chemical:	CHLOROFORM (THM)		
Sample Collected:	05/06/2013	Findings:	500. MG/L
Chemical:	TOTAL DISSOLVED SOLIDS		
Sample Collected:	05/06/2013	Findings:	0.5
Chemical:	LANGELIER INDEX AT SOURCE TEMP.		
Sample Collected:	05/06/2013	Findings:	36. UG/L
Chemical:	TOTAL TRIHALOMETHANES		
Sample Collected:	05/06/2013	Findings:	12.
Chemical:	AGGRSSIVE INDEX (CORROSIVITY)		

Sample Collected:	05/06/2013	Findings:	20.8 C
Chemical:	SOURCE TEMPERATURE C		
Sample Collected:	05/06/2013	Findings:	2. UNITS
Chemical:	COLOR		
Sample Collected:	05/06/2013	Findings:	830. US
Chemical:	SPECIFIC CONDUCTANCE		
Sample Collected:	05/06/2013	Findings:	8.19
Chemical:	PH, FIELD		
Sample Collected:	05/06/2013	Findings:	8.33
Chemical:	PH, LABORATORY		
Sample Collected:	05/06/2013	Findings:	0.58 NTU
Chemical:	TURBIDITY, LABORATORY		

4
WSW
1/4 - 1/2 Mile
Lower

FED USGS **USGS40000130352**

Org. Identifier:	USGS-CA		
Formal name:	USGS California Water Science Center		
Monloc Identifier:	USGS-330922117052701		
Monloc name:	012S002W04Q001S		
Monloc type:	Well		
Monloc desc:	Not Reported		
Huc code:	18070303	Drainagearea value:	Not Reported
Drainagearea Units:	Not Reported	Contrib drainagearea:	Not Reported
Contrib drainagearea units:	Not Reported	Latitude:	33.1561499
Longitude:	-117.0916986	Sourcemap scale:	24000
Horiz Acc measure:	10	Horiz Acc measure units:	seconds
Horiz Collection method:	Interpolated from map		
Horiz coord refsys:	NAD83	Vert measure val:	700
Vert measure units:	feet	Vertacc measure val:	20
Vert accmeasure units:	feet		
Vertcollection method:	Interpolated from topographic map		
Vert coord refsys:	NGVD29	Countrycode:	US
Aquifername:	Other aquifers		
Formation type:	Not Reported		
Aquifer type:	Not Reported		
Construction date:	Not Reported	Welldepth:	Not Reported
Welldepth units:	Not Reported	Wellholedepth:	Not Reported
Wellholedepth units:	Not Reported		

Ground-water levels, Number of Measurements: 0

5
SE
1/2 - 1 Mile
Lower

AQUIFLOW **38460**

Site ID:	9UT1152
Groundwater Flow:	NE
Shallow Water Depth:	10
Deep Water Depth:	13
Average Water Depth:	Not Reported
Date:	10/26/1990

GEOCHECK® - PHYSICAL SETTING SOURCE MAP FINDINGS
RADON

AREA RADON INFORMATION

State Database: CA Radon

Radon Test Results

Zipcode	Num Tests	> 4 pCi/L
92026	21	1

Federal EPA Radon Zone for SAN DIEGO County: 3

Note: Zone 1 indoor average level > 4 pCi/L.
: Zone 2 indoor average level >= 2 pCi/L and <= 4 pCi/L.
: Zone 3 indoor average level < 2 pCi/L.

Federal Area Radon Information for Zip Code: 92026

Number of sites tested: 1

Area	Average Activity	% <4 pCi/L	% 4-20 pCi/L	% >20 pCi/L
Living Area - 1st Floor	0.400 pCi/L	100%	0%	0%
Living Area - 2nd Floor	Not Reported	Not Reported	Not Reported	Not Reported
Basement	Not Reported	Not Reported	Not Reported	Not Reported

PHYSICAL SETTING SOURCE RECORDS SEARCHED

TOPOGRAPHIC INFORMATION

USGS 7.5' Digital Elevation Model (DEM)
Source: United States Geologic Survey
EDR acquired the USGS 7.5' Digital Elevation Model in 2002 and updated it in 2006. The 7.5 minute DEM corresponds to the USGS 1:24,000- and 1:25,000-scale topographic quadrangle maps. The DEM provides elevation data with consistent elevation units and projection.

Scanned Digital USGS 7.5' Topographic Map (DRG)
Source: United States Geologic Survey
A digital raster graphic (DRG) is a scanned image of a U.S. Geological Survey topographic map. The map images are made by scanning published paper maps on high-resolution scanners. The raster image is georeferenced and fit to the Universal Transverse Mercator (UTM) projection.

HYDROLOGIC INFORMATION

Flood Zone Data: This data, available in select counties across the country, was obtained by EDR in 2003 & 2011 from the Federal Emergency Management Agency (FEMA). Data depicts 100-year and 500-year flood zones as defined by FEMA.

NWI: National Wetlands Inventory. This data, available in select counties across the country, was obtained by EDR in 2002 and 2005 from the U.S. Fish and Wildlife Service.

HYDROGEOLOGIC INFORMATION

AQUIFLOW^R Information System
Source: EDR proprietary database of groundwater flow information
EDR has developed the AQUIFLOW Information System (AIS) to provide data on the general direction of groundwater flow at specific points. EDR has reviewed reports submitted to regulatory authorities at select sites and has extracted the date of the report, hydrogeologically determined groundwater flow direction and depth to water table information.

GEOLOGIC INFORMATION

Geologic Age and Rock Stratigraphic Unit
Source: P.G. Schruben, R.E. Arndt and W.J. Bawiec, Geology of the Conterminous U.S. at 1:2,500,000 Scale - A digital representation of the 1974 P.B. King and H.M. Beikman Map, USGS Digital Data Series DDS - 11 (1994).

STATSGO: State Soil Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services
The U.S. Department of Agriculture's (USDA) Natural Resources Conservation Service (NRCS) leads the national Conservation Soil Survey (NCSS) and is responsible for collecting, storing, maintaining and distributing soil survey information for privately owned lands in the United States. A soil map in a soil survey is a representation of soil patterns in a landscape. Soil maps for STATSGO are compiled by generalizing more detailed (SSURGO) soil survey maps.

SSURGO: Soil Survey Geographic Database
Source: Department of Agriculture, Natural Resources Conservation Services (NRCS)
Telephone: 800-672-5559
SSURGO is the most detailed level of mapping done by the Natural Resources Conservation Services, mapping scales generally range from 1:12,000 to 1:63,360. Field mapping methods using national standards are used to construct the soil maps in the Soil Survey Geographic (SSURGO) database. SSURGO digitizing duplicates the original soil survey maps. This level of mapping is designed for use by landowners, townships and county natural resource planning and management.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

LOCAL / REGIONAL WATER AGENCY RECORDS

FEDERAL WATER WELLS

PWS: Public Water Systems
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Public Water System data from the Federal Reporting Data System. A PWS is any water system which provides water to at least 25 people for at least 60 days annually. PWSs provide water from wells, rivers and other sources.

PWS ENF: Public Water Systems Violation and Enforcement Data
Source: EPA/Office of Drinking Water
Telephone: 202-564-3750
Violation and Enforcement data for Public Water Systems from the Safe Drinking Water Information System (SDWIS) after August 1995. Prior to August 1995, the data came from the Federal Reporting Data System (FRDS).

USGS Water Wells: USGS National Water Inventory System (NWIS)
This database contains descriptive information on sites where the USGS collects or has collected data on surface water and/or groundwater. The groundwater data includes information on wells, springs, and other sources of groundwater.

STATE RECORDS

Water Well Database
Source: Department of Water Resources
Telephone: 916-651-9648

California Drinking Water Quality Database
Source: Department of Health Services
Telephone: 916-324-2319
The database includes all drinking water compliance and special studies monitoring for the state of California since 1984. It consists of over 3,200,000 individual analyses along with well and water system information.

OTHER STATE DATABASE INFORMATION

California Oil and Gas Well Locations
Source: Department of Conservation
Telephone: 916-323-1779
Oil and Gas well locations in the state.

RADON

State Database: CA Radon
Source: Department of Health Services
Telephone: 916-324-2208
Radon Database for California

Area Radon Information
Source: USGS
Telephone: 703-356-4020
The National Radon Database has been developed by the U.S. Environmental Protection Agency (USEPA) and is a compilation of the EPA/State Residential Radon Survey and the National Residential Radon Survey. The study covers the years 1986 - 1992. Where necessary data has been supplemented by information collected at private sources such as universities and research institutions.

EPA Radon Zones
Source: EPA
Telephone: 703-356-4020
Sections 307 & 309 of IRAA directed EPA to list and identify areas of U.S. with the potential for elevated indoor radon levels.

PHYSICAL SETTING SOURCE RECORDS SEARCHED

OTHER

Airport Landing Facilities: Private and public use landing facilities
Source: Federal Aviation Administration, 800-457-6656

Epicenters: World earthquake epicenters, Richter 5 or greater
Source: Department of Commerce, National Oceanic and Atmospheric Administration

California Earthquake Fault Lines: The fault lines displayed on EDR's Topographic map are digitized quaternary fault lines, prepared in 1975 by the United State Geological Survey. Additional information (also from 1975) regarding activity at specific fault lines comes from California's Preliminary Fault Activity Map prepared by the California Division of Mines and Geology.

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Tract 2 Pickering Project
Stanley Avenue
Escondido, CA 92026

Inquiry Number: 3741994.3
September 27, 2013

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EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

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9/27/13

Site Name:
Tract 2 Pickering Project
Stanley Avenue
Escondido, CA 92026

EDR Inquiry # 3741994.3

Client Name:
Petra Geotechnical Inc
3190 Airport Loop Drive
Costa Mesa, CA 92626-0000

Contact: Jon Cain

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The complete Sanborn Library collection has been searched by EDR, and fire insurance maps covering the target property location provided by Petra Geotechnical Inc were identified for the years listed below. The certified Sanborn Library search results in this report can be authenticated by visiting www.edrnet.com/sanborn and entering the certification number. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by Sanborn Library LLC, the copyright holder for the collection.

Certified Sanborn Results:

Site Name:	Tract 2 Pickering Project
Address:	Stanley Avenue
City, State, Zip:	Escondido, CA 92026
Cross Street:	
P.O. #	13-445
Project:	Tract 2 Pickering Project
Certification #	8DF5-499D-81EC

Sanborn® Library search results
Certification # 8DF5-499D-81EC

UNMAPPED PROPERTY

This report certifies that the complete holdings of the Sanborn Library, LLC collection have been searched based on client supplied target property information, and fire insurance maps covering the target property were not found.

The Sanborn Library includes more than 1.2 million Sanborn fire insurance maps, which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ✓ Library of Congress
- ✓ University Publications of America
- ✓ EDR Private Collection

The Sanborn Library LLC Since 1866™

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Tract 2 Pickering Project
Stanley Avenue
Escondido, CA 92026

Inquiry Number: 3741994.4
September 27, 2013

EDR Historical Topographic Map Report

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EDR Historical Topographic Map Report

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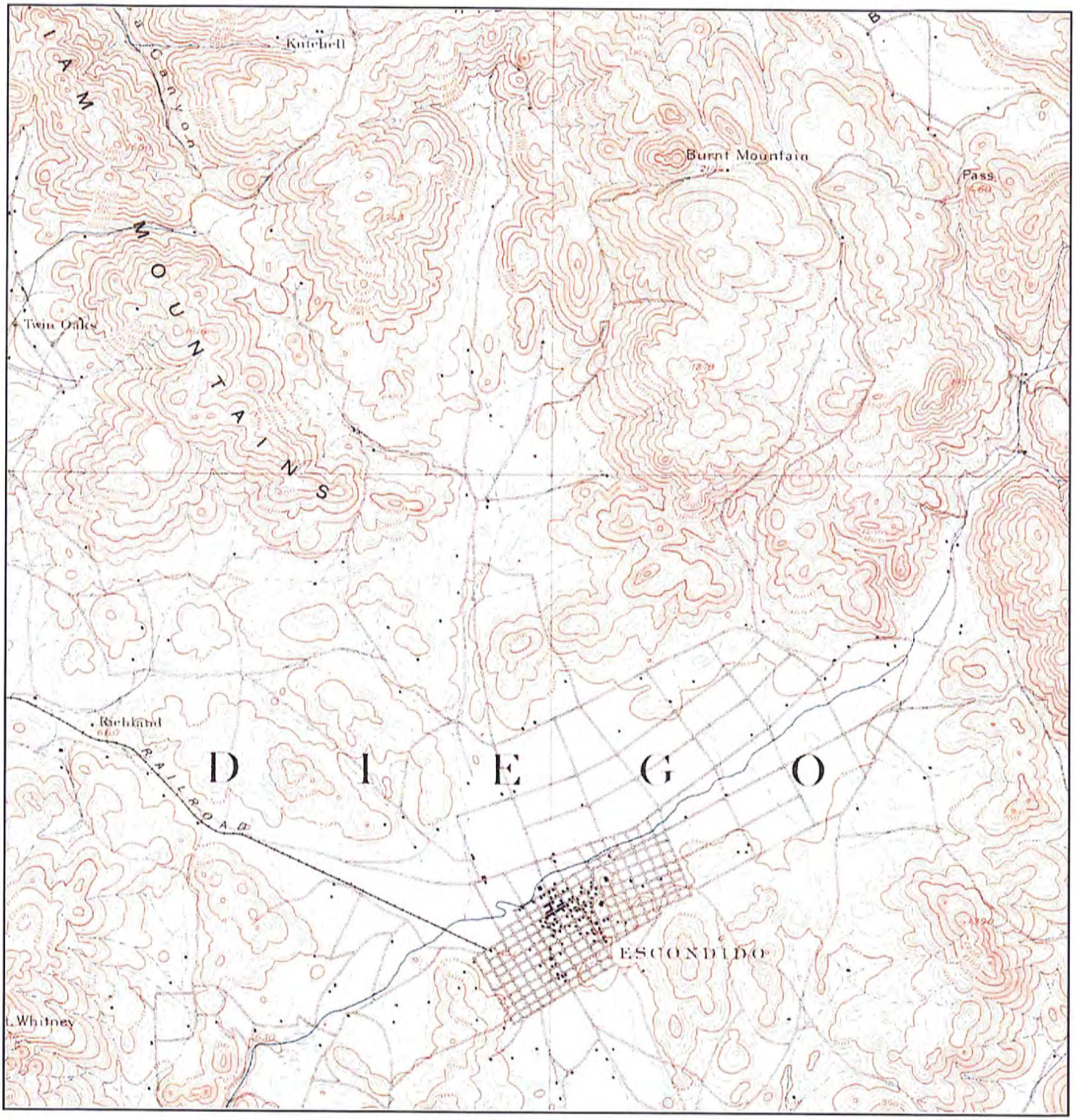
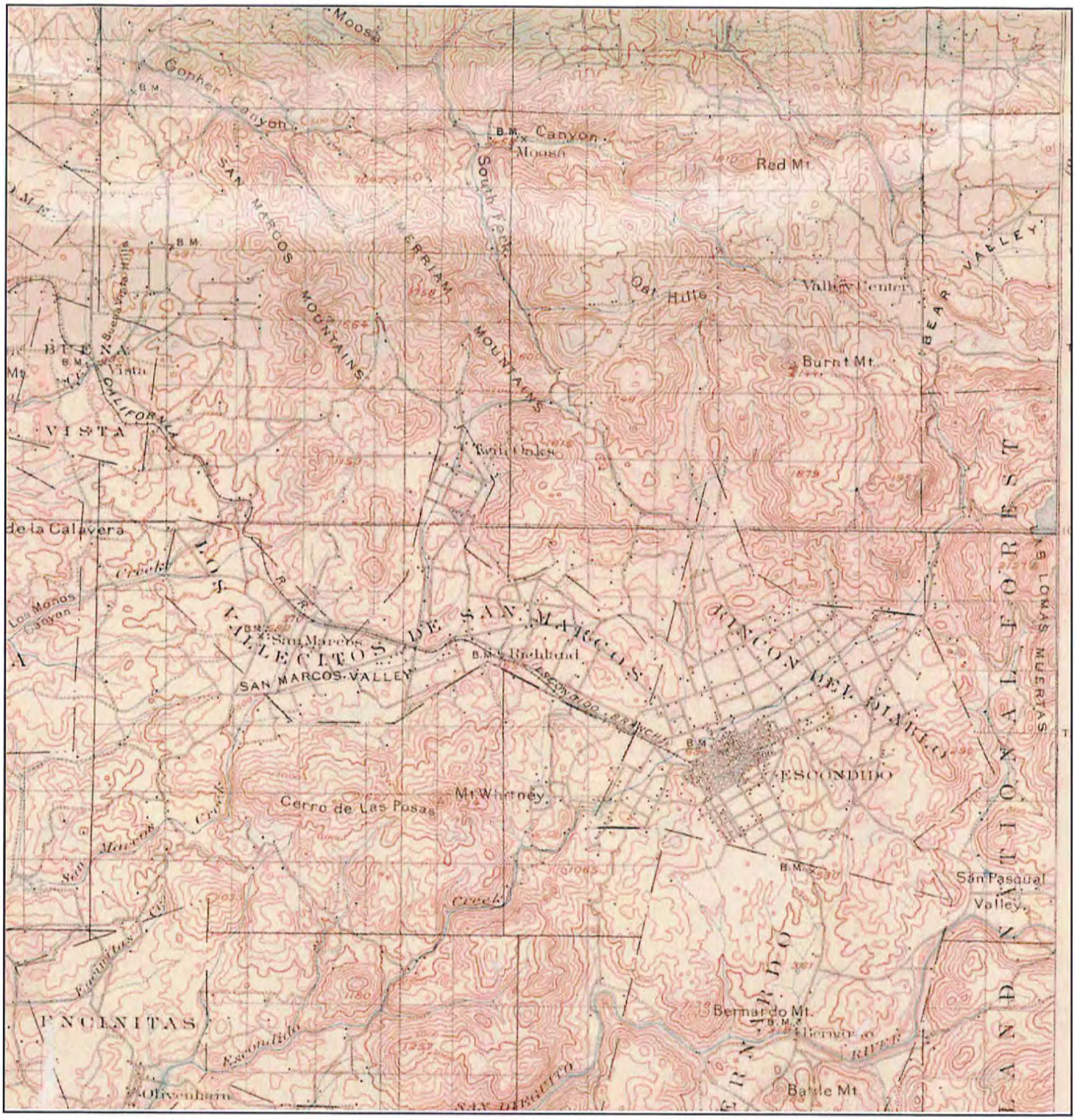
Historical Topographic Map



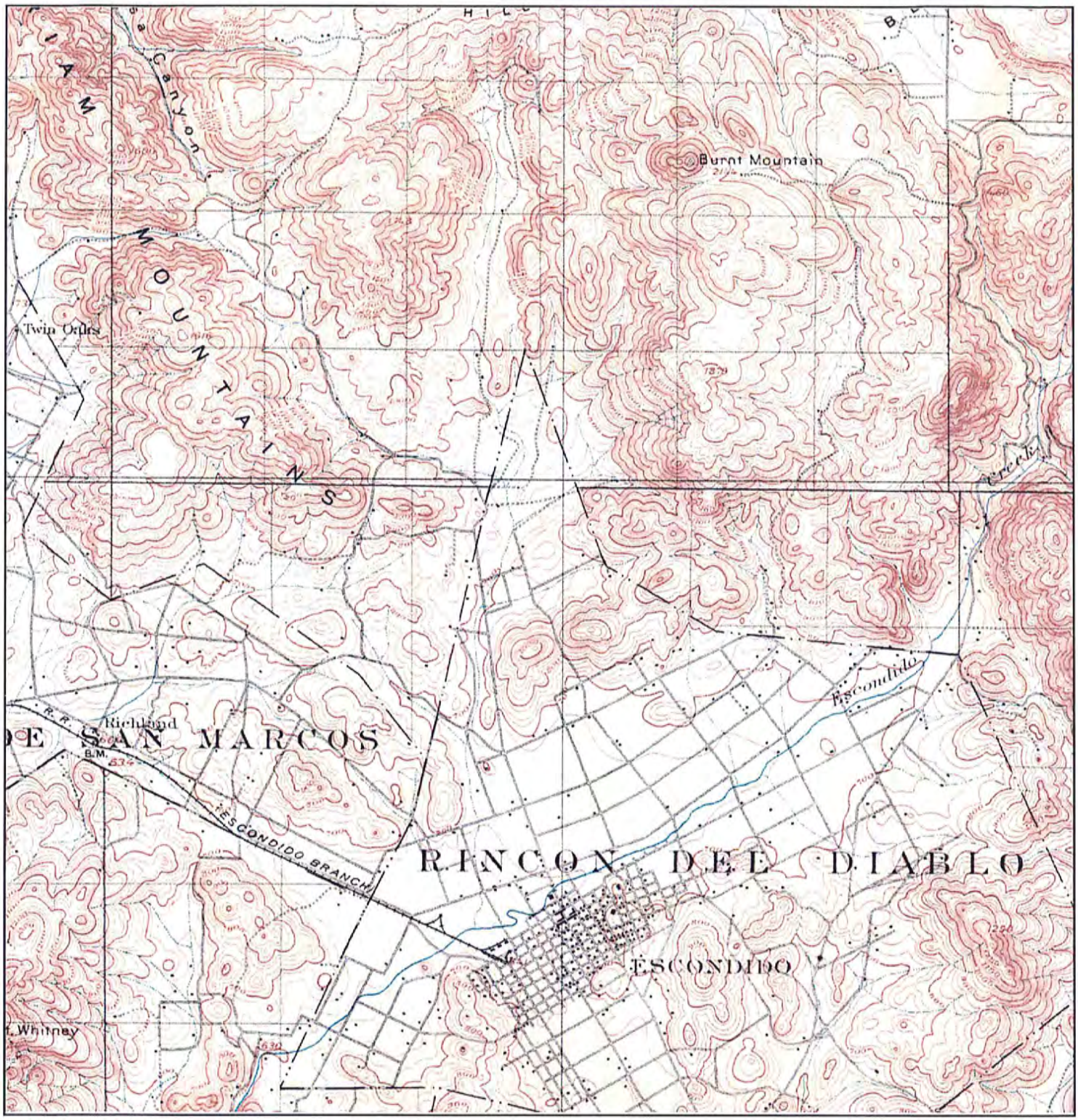
N	TARGET QUAD NAME: ESCONDIDO MAP YEAR: 1893 SERIES: 15 SCALE: 1:62500	SITE NAME: Tract 2 Pickering Project ADDRESS: Stanley Avenue Escondido, CA 92026 LAT/LONG: 33.1576 / -117.0851	CLIENT: Petra Geotechnical Inc CONTACT: Jon Cain INQUIRY#: 3741994.4 RESEARCH DATE: 09/27/2013

Historical Topographic Map



N	TARGET QUAD NAME: SAN LUIS REY MAP YEAR: 1901 SERIES: 30 SCALE: 1:125000	SITE NAME: Tract 2 Pickering Project ADDRESS: Stanley Avenue Escondido, CA 92026 LAT/LONG: 33.1576 / -117.0851	CLIENT: Petra Geotechnical Inc CONTACT: Jon Cain INQUIRY#: 3741994.4 RESEARCH DATE: 09/27/2013

Historical Topographic Map



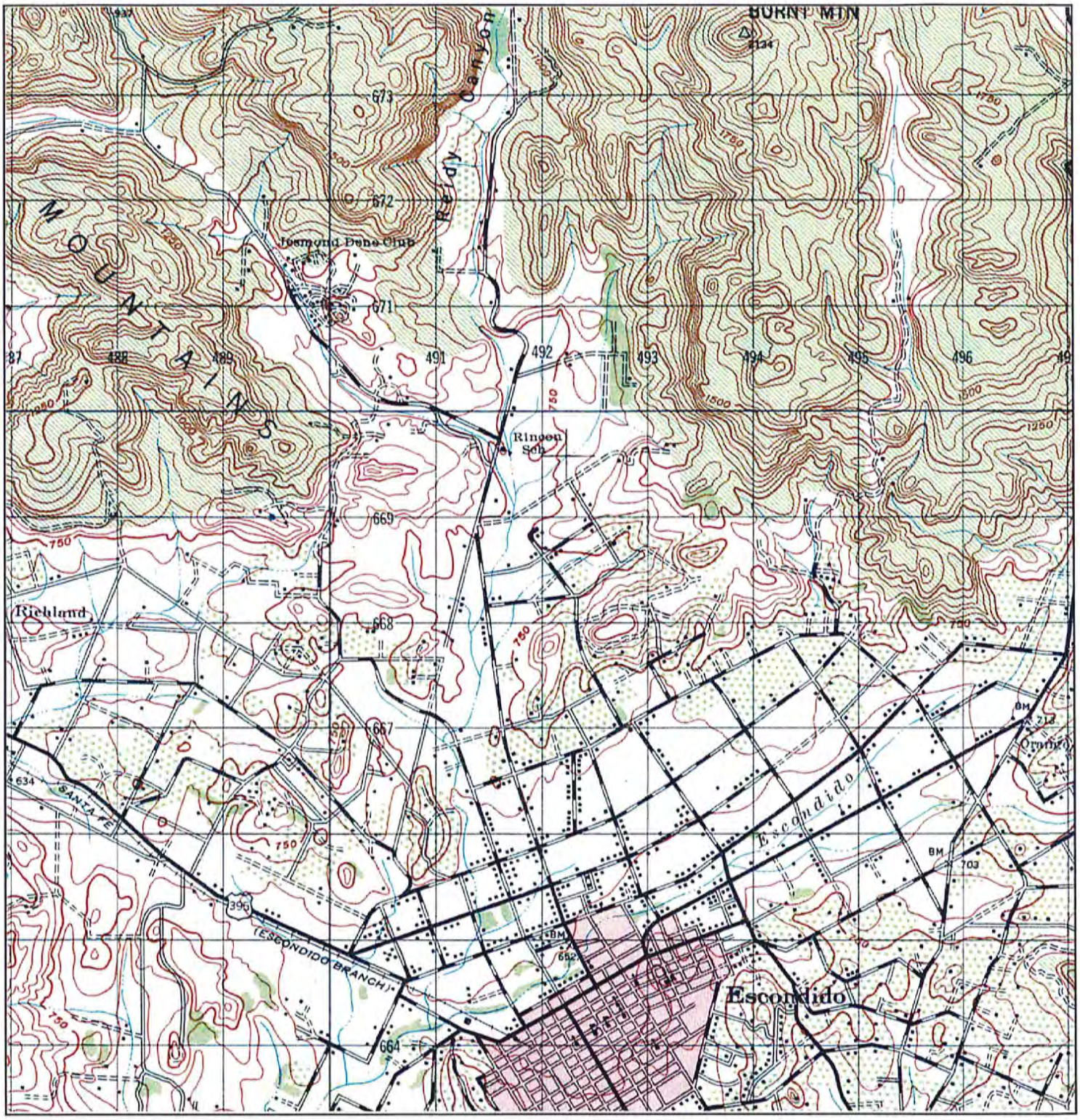
N	TARGET QUAD NAME: ESCONDIDO MAP YEAR: 1901 SERIES: 15 SCALE: 1:62500	SITE NAME: Tract 2 Pickering Project ADDRESS: Stanley Avenue Escondido, CA 92026 LAT/LONG: 33.1576 / -117.0851	CLIENT: Petra Geotechnical Inc CONTACT: Jon Cain INQUIRY#: 3741994.4 RESEARCH DATE: 09/27/2013

Historical Topographic Map

Unsurveyed Area on the Topographic Map

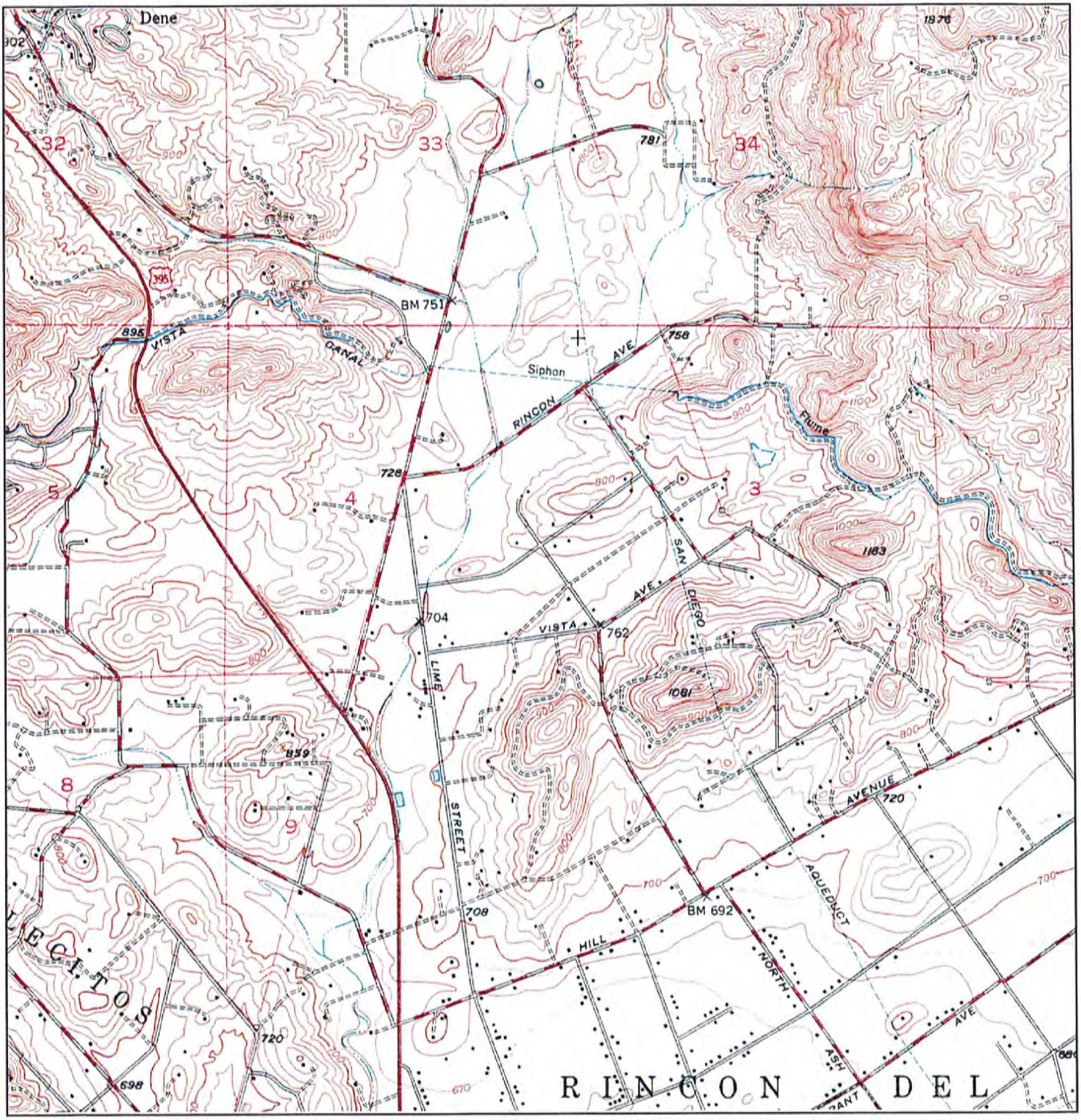
N	TARGET QUAD NAME: SOUTHERN CA SHEET 2 MAP YEAR: 1904 SERIES: 60 SCALE: 1:250000	SITE NAME: Tract 2 Pickering Project ADDRESS: Stanley Avenue Escondido, CA 92026 LAT/LONG: 33.1576 / -117.0851	CLIENT: Petra Geotechnical Inc CONTACT: Jon Cain INQUIRY#: 3741994.4 RESEARCH DATE: 09/27/2013

Historical Topographic Map



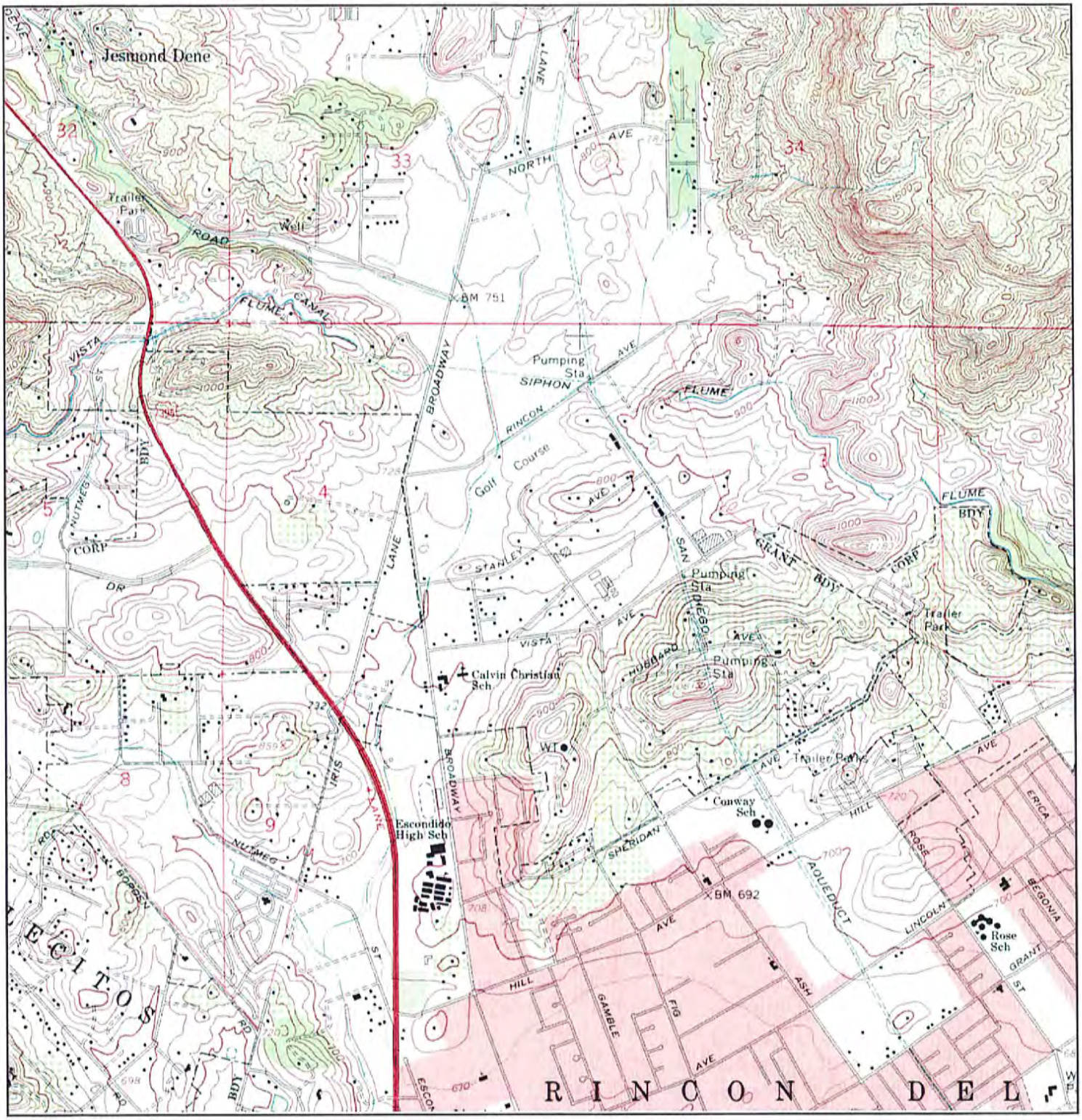
N	TARGET QUAD NAME: ESCONDIDO MAP YEAR: 1947 SERIES: 15 SCALE: 1:50000	SITE NAME: Tract 2 Pickering Project ADDRESS: Stanley Avenue Escondido, CA 92026 LAT/LONG: 33.1576 / -117.0851	CLIENT: Petra Geotechnical Inc CONTACT: Jon Cain INQUIRY#: 3741994.4 RESEARCH DATE: 09/27/2013

Historical Topographic Map



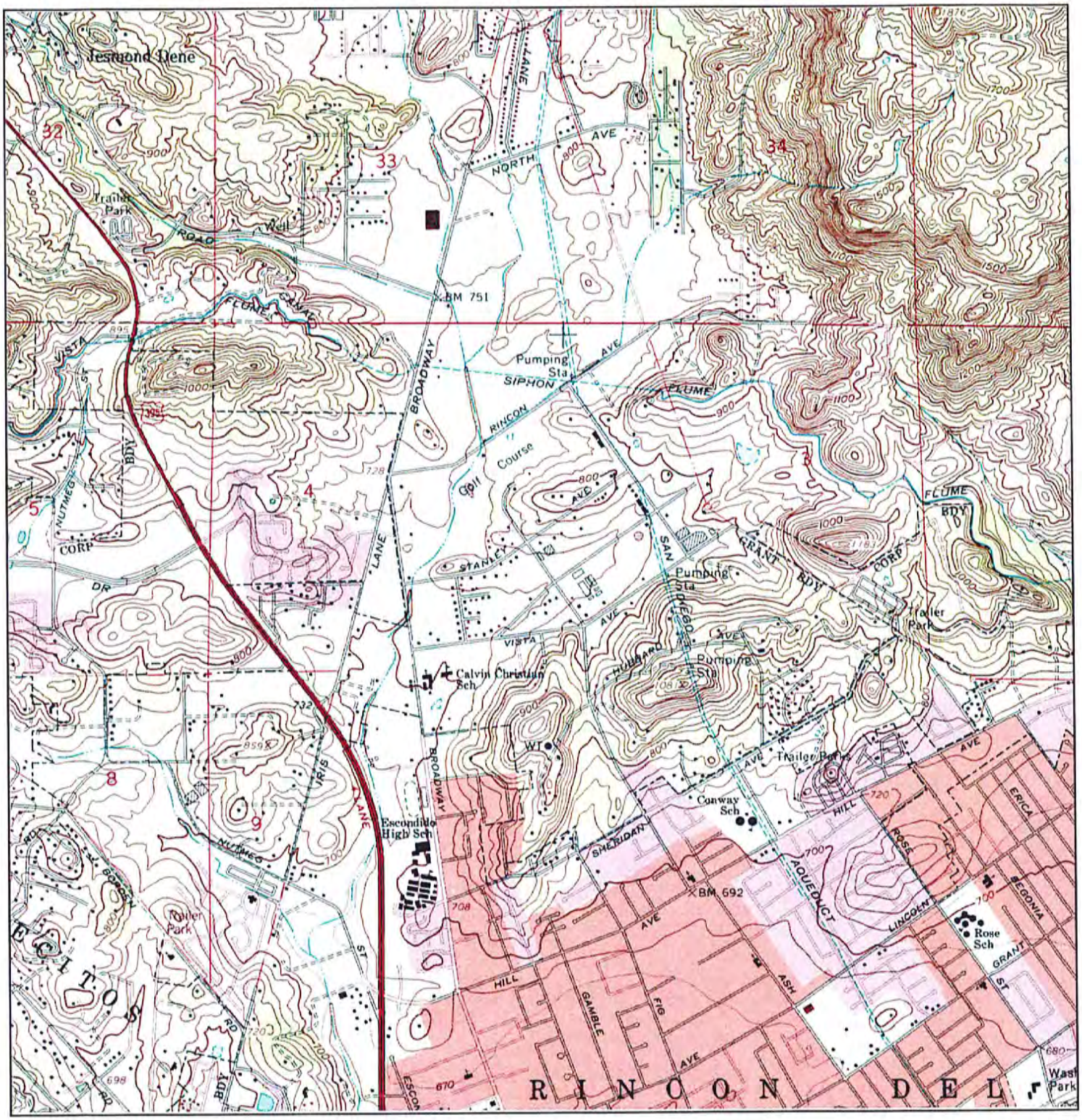
N	TARGET QUAD NAME: VALLEY CENTER MAP YEAR: 1949 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Tract 2 Pickering Project ADDRESS: Stanley Avenue Escondido, CA 92026 LAT/LONG: 33.1576 / -117.0851	CLIENT: Petra Geotechnical Inc CONTACT: Jon Cain INQUIRY#: 3741994.4 RESEARCH DATE: 09/27/2013

Historical Topographic Map



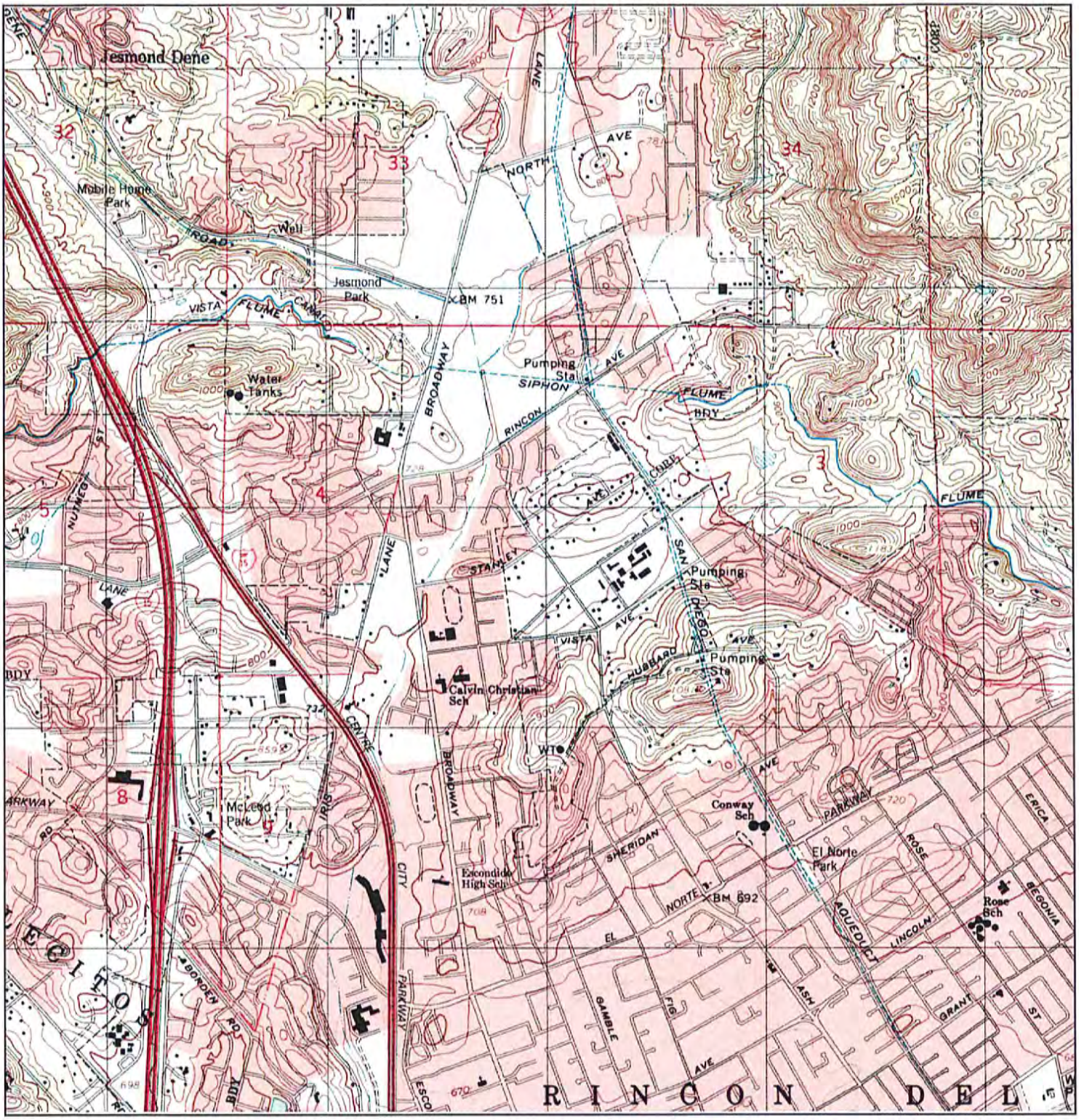
N	TARGET QUAD		SITE NAME:	Tract 2 Pickering Project	CLIENT:	Petra Geotechnical Inc
	NAME:	VALLEY CENTER			CONTACT:	Jon Cain
	MAP YEAR:	1968	ADDRESS:	Stanley Avenue	INQUIRY#:	3741994.4
				Escondido, CA 92026	RESEARCH DATE:	09/27/2013
	SERIES:	7.5	LAT/LONG:	33.1576 / -117.0851		
	SCALE:	1:24000				

Historical Topographic Map



N			
	TARGET QUAD NAME: VALLEY CENTER MAP YEAR: 1975 PHOTOREVISED FROM :1968 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Tract 2 Pickering Project ADDRESS: Stanley Avenue Escondido, CA 92026 LAT/LONG: 33.1576 / -117.0851	CLIENT: Petra Geotechnical Inc CONTACT: Jon Cain INQUIRY#: 3741994.4 RESEARCH DATE: 09/27/2013

Historical Topographic Map



N	TARGET QUAD NAME: VALLEY CENTER MAP YEAR: 1996 SERIES: 7.5 SCALE: 1:24000	SITE NAME: Tract 2 Pickering Project ADDRESS: Stanley Avenue Escondido, CA 92026 LAT/LONG: 33.1576 / -117.0851	CLIENT: Petra Geotechnical Inc CONTACT: Jon Cain INQUIRY#: 3741994.4 RESEARCH DATE: 09/27/2013

Tract 2 Pickering Project
Stanley Avenue
Escondido, CA 92026

Inquiry Number: 3741994.5
September 30, 2013

The EDR Aerial Photo Decade Package

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Date EDR Searched Historical Sources:

Aerial Photography September 30, 2013

Target Property:

Stanley Avenue
Escondido, CA 92026

Year	*Scale*	*Details*	*Source*
1939	Aerial Photograph. Scale: 1"=500'	Flight Year: 1939	Fairchild
1947	Aerial Photograph. Scale: 1"=500'	Flight Year: 1947	Jack Ammann
1953	Aerial Photograph. Scale: 1"=500'	Flight Year: 1953	Park
1963	Aerial Photograph. Scale: 1"=500'	Flight Year: 1963	Cartwright
1974	Aerial Photograph. Scale: 1"=500'	Flight Year: 1974	AMI
1980	Aerial Photograph. Scale: 1"=500'	Flight Year: 1980	AMI
1990	Aerial Photograph. Scale: 1"=500'	Flight Year: 1990	AMI
1995	Aerial Photograph. Scale: 1"=500'	/DOQQ - acquisition dates: 1995	EDR
2005	Aerial Photograph. Scale: 1"=500'	Flight Year: 2005	EDR
2009	Aerial Photograph. Scale: 1"=500'	Flight Year: 2009	EDR
2010	Aerial Photograph. Scale: 1"=500'	Flight Year: 2010	EDR
2012	Aerial Photograph. Scale: 1"=500'	Flight Year: 2012	EDR

INQUIRY #: 3741994.5
YEAR: 1939
= 500'
N

INQUIRY #: 3741994.5
YEAR: 1947
= 500'
N

INQUIRY #: 3741994.5
YEAR: 1953
= 500'
N

INQUIRY #: 3741994.5
YEAR: 1963
= 500'
N

INQUIRY #: 3741994.5
YEAR: 1974
= 500'
N

INQUIRY #: 3741994.5
YEAR: 1980
= 500'
N

INQUIRY #: 3741994.5
YEAR: 1990
= 500'
N

INQUIRY #: 3741994.5
YEAR: 1995
= 500'
N

INQUIRY #: 3741994.5
YEAR: 2005
= 500'
N

INQUIRY #: 3741994.5

YEAR: 2009

= 500'

N

INQUIRY #: 3741994.5
YEAR: 2010
= 500'
N

INQUIRY #: 3741994.5
YEAR: 2012
= 500'
N

Tract 2 Pickering Project
Stanley Avenue
Escondido, CA 92026

Inquiry Number: 3741994.6
September 27, 2013

The EDR-City Directory Abstract

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City Directory Images

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EXECUTIVE SUMMARY

DESCRIPTION

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Business directories including city, cross reference and telephone directories were reviewed, if available, at approximately five year intervals for the years spanning 1903 through 2012. This report compiles information gathered in this review by geocoding the latitude and longitude of properties identified and gathering information about properties within 660 feet of the target property.

A summary of the information obtained is provided in the text of this report.

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RESEARCH SUMMARY

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Year	Source	TP	Adjoining	Text Abstract	Source Image
2012	Cole Information Services	-	X	X	-
2007	Cole Information Services	-	X	X	-
2006	Haines Company, Inc.	-	X	X	X
2000	Haines Company, Inc.	-	X	X	-
1995	PACIFIC BELL WHITE PAGES	-	X	X	-
1992	PACIFIC BELL WHITE PAGES	-	-	-	-
1991	PACIFIC BELL WHITE PAGES	-	X	X	-
1989	Pacific Bell	-	-	-	-
1985	PACIFIC BELL WHITE PAGES	-	X	X	-
1984	R. L. Polk & Co.	-	-	-	-
1980	Pacific Telephone	-	X	X	-
1976	Luskey Blue Book	-	X	X	-
1975	R. L. Polk & Co.	-	-	-	-
1971	Community Directory Co.	-	X	X	-
1970	John M. Ducy	-	-	-	-

EXECUTIVE SUMMARY

Year	Source	TP	Adjoining	Text Abstract	Source Image
1966	R. L. Polk & Co.	-	-	-	-
1965	Community Directory Co.	-	-	-	-
1962	Community Directory Co.	-	-	-	-
1961	R. L. Polk & Co.	-	-	-	-
1960	The Pacific Telephone Telegraph Co.	-	-	-	-
1956	R. L. Polk & Co.	-	-	-	-
1955	R. L. Polk & Co.	-	-	-	-
1952	R. L. Polk & Co. of California	-	-	-	-
1950	The Pacific Telephone & Telegraph Co.	-	-	-	-
1948	San Diego Directory Co.	-	-	-	-
1945	San Diego Directory Co.	-	-	-	-
1943	San Diego Directory Co.	-	-	-	-
1940	San Diego Directory Co.	-	-	-	-
1938	San Diego Directory Co.	-	-	-	-
1933	San Diego Directory Co.	-	-	-	-
1927	San Diego Directory Co.	-	-	-	-
1921	San Diego Directory Co. Inc.	-	-	-	-
1907	San Diego Directory Co.	-	-	-	-
1903	San Diego Directory Co.	-	-	-	-

FINDINGS

TARGET PROPERTY INFORMATION

ADDRESS

Stanley Avenue
Escondido, CA 92026

FINDINGS DETAIL

Target Property research detail.

FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

ASH ST N

1955 ASH ST N

Year	Uses	Source
2000	CASSELL Ernest M	Haines Company, Inc.

2056 ASH ST N

Year	Uses	Source
2000	MINNICK RGanld	Haines Company, Inc.
	GUE 1 RETTE Conrad R	Haines Company, Inc.

2089 ASH ST N

Year	Uses	Source
2000	No Current Listing	Haines Company, Inc.

2097 ASH ST N

Year	Uses	Source
2000	No Current Listing	Haines Company, Inc.

2134 ASH ST N

Year	Uses	Source
2000	ROBERTSFfed	Haines Company, Inc.

2142 ASH ST N

Year	Uses	Source
2000	No Current Listing	Haines Company, Inc.

2144 ASH ST N

Year	Uses	Source
2000	WITTE Rober	Haines Company, Inc.

2150 ASH ST N

Year	Uses	Source
2000	SCHMITT Donad	Haines Company, Inc.

FINDINGS

LEHNER AVE

703 LEHNER AVE

Year	Uses	Source	
2006	ACAMPORA Darren	Haines Company, Inc.	Image pg. A1
2000	LAWTON Paul	Haines Company, Inc.	

709 LEHNER AVE

Year	Uses	Source	
2007	LIRAS INSTALLATION SERVICE	Cole Information Services	
2006	o LIRAAcenath	Haines Company, Inc.	Image pg. A1
2000	LIRAJuan	Haines Company, Inc.	
	LIRASINSTALLATION	Haines Company, Inc.	
1995	Liras Installation Service	PACIFIC BELL WHITE PAGES	
1991	Liras Installation Service	PACIFIC BELL WHITE PAGES	
1985	LIRE S INSTALLATION SERVICE	PACIFIC BELL WHITE PAGES	
1980	Liras Installation Service	Pacific Telephone	
1976	Gordon Hersal J	Luskey Blue Book	

715 LEHNER AVE

Year	Uses	Source	
2007	MITTMAN HANDYMAN SERVICE	Cole Information Services	
2006	e MITFMAN Michael	Haines Company, Inc.	Image pg. A1
2000	MITTMAN Michael	Haines Company, Inc.	
1995	CUTES OLIVE M	PACIFIC BELL WHITE PAGES	
1991	Clites Olive M	PACIFIC BELL WHITE PAGES	
1985	CITES OLIVE M	PACIFIC BELL WHITE PAGES	
1980	Clites Olive M	Pacific Telephone	

N ASH

2134 N ASH

Year	Uses	Source
1971	Osbrink M E h	Community Directory Co.

N ASH ST

1930 N ASH ST

Year	Uses	Source
2012	MATTS CUSTOM TILE INSTALLATION	Cole Information Services
2007	MATTS CUSTOM TILE	Cole Information Services

FINDINGS

1955 N ASH ST

Year	Uses	Source	
2006	CASSELL Emast M	Haines Company, Inc.	Image pg. A2
1991	Cassell Ernest M	PACIFIC BELL WHITE PAGES	
1985	CASSELL ERNEST M	PACIFIC BELL WHITE PAGES	
1980	Cassell Ernest M	Pacific Telephone	
1976	Castle Appliance Service	Luskey Blue Book	

2056 N ASH ST

Year	Uses	Source	
2007	NORTH ASH MINI RANCH	Cole Information Services	
2006	PICKERING Linda	Haines Company, Inc.	Image pg. A2
	CROUCH Janice	Haines Company, Inc.	Image pg. A2
1985	FARLEY JAS P	PACIFIC BELL WHITE PAGES	
1976	Alves Joe S	Luskey Blue Book	

2089 N ASH ST

Year	Uses	Source
1980	Treptow J C	Pacific Telephone

2134 N ASH ST

Year	Uses	Source	
2007	FRED ROBERTS CONSTRUCTION	Cole Information Services	
2006	ADAMS Adgene	Haines Company, Inc.	Image pg. A2
	ROBERTS Fred	Haines Company, Inc.	Image pg. A2
1995	ROBERTS BYRON K	PACIFIC BELL WHITE PAGES	
1991	Roberts Fred	PACIFIC BELL WHITE PAGES	
1985	ROBERTS FRED	PACIFIC BELL WHITE PAGES	

2142 N ASH ST

Year	Uses	Source	
2006	No Current Listing	Haines Company, Inc.	Image pg. A2

2144 N ASH ST

Year	Uses	Source	
2006	WITTE Robert	Haines Company, Inc.	Image pg. A2

2150 N ASH ST

Year	Uses	Source	
2006	a SCHMITT Donald	Haines Company, Inc.	Image pg. A2
1985	VOSEFSKI JOHN L	PACIFIC BELL WHITE PAGES	

FINDINGS

Year	Uses	Source	
1980	Vosefski John L	Pacific Telephone	

STANLEY AVE

533 STANLEY AVE

Year	Uses	Source	
2007	ESCOBEDO ELECTRIC STOCK	Cole Information Services	
2006	ESCOBEDO M	Haines Company, Inc.	Image pg. A3
2000	ESC 0 B 8 EDO M	Haines Company, Inc.	
1995	ESCOBEDO LUCIA	PACIFIC BELL WHITE PAGES	
1991	Escohedo M	PACIFIC BELL WHITE PAGES	
	Escobedo Manya	PACIFIC BELL WHITE PAGES	
1985	ESCOBEDO M	PACIFIC BELL WHITE PAGES	
1980	Escobedo Michael G	Pacific Telephone	

604 STANLEY AVE

Year	Uses	Source
2000	STATILE Louis	Haines Company, Inc.

610 STANLEY AVE

Year	Uses	Source	
2006	DUNTON Sewell	Haines Company, Inc.	Image pg. A3
2000	FAf NSWORTHHoward	Haines Company, Inc.	
1991	Farnsworth Howard E	PACIFIC BELL WHITE PAGES	
1980	Farnsworth Howard E	Pacific Telephone	
1976	Farnsworth Howard E	Luskey Blue Book	

718 STANLEY AVE

Year	Uses	Source	
2006	o HARTSOCK Randall	Haines Company, Inc.	Image pg. A3
2000	HARTSOCK Randy	Haines Company, Inc.	
	HARTSOCK Randy	Haines Company, Inc.	
	HARTSOCK Sherry	Haines Company, Inc.	
1995	HARTSOCK MYRLE R	PACIFIC BELL WHITE PAGES	
1991	White Wayne & Barbara	PACIFIC BELL WHITE PAGES	
1985	WHITE WAYNE & BARBARA	PACIFIC BELL WHITE PAGES	
1980	White Wayne	Pacific Telephone	

FINDINGS

733 STANLEY AVE

Year	Uses	Source	
2006	No Current Listing	Haines Company, Inc.	Image pg. A3
2000	JONES Lorelei	Haines Company, Inc.	
1995	JONES KENNETH & CARMEN	PACIFIC BELL WHITE PAGES	
1991	Jones Lorelei	PACIFIC BELL WHITE PAGES	
	Jones Louis E	PACIFIC BELL WHITE PAGES	
1980	Myers L	Pacific Telephone	
1976	Dovell Raymond M	Luskey Blue Book	

734 STANLEY AVE

Year	Uses	Source	
2006	BROWN Kenneth	Haines Company, Inc.	Image pg. A3
2000	No Current Listing	Haines Company, Inc.	
1995	BROWN LOUIE & MARIE	PACIFIC BELL WHITE PAGES	
1991	Brown PS	PACIFIC BELL WHITE PAGES	
	Brown PK	PACIFIC BELL WHITE PAGES	
	Brown PA	PACIFIC BELL WHITE PAGES	
	Brown Otto W	PACIFIC BELL WHITE PAGES	
	Brown P	PACIFIC BELL WHITE PAGES	
1985	BROWN OTTO W	PACIFIC BELL WHITE PAGES	
1980	Brown Otto W	Pacific Telephone	
1976	Brown Otto W Ida	Luskey Blue Book	

822 STANLEY AVE

Year	Uses	Source	
2006	WESTCOTT Daniel	Haines Company, Inc.	Image pg. A3
2000	WESTCOTT Daniel	Haines Company, Inc.	
1991	Westcott Daniel	PACIFIC BELL WHITE PAGES	
	Westcott D L Specialty Woodturning	PACIFIC BELL WHITE PAGES	
1985	PETRIE CHAS T	PACIFIC BELL WHITE PAGES	
1980	Kubat Alvin R	Pacific Telephone	

STANLEY WAY

822 STANLEY WAY

Year	Uses	Source
1976	Paoanikolaou George	Luskey Blue Book

FINDINGS

TARGET PROPERTY: ADDRESS NOT IDENTIFIED IN RESEARCH SOURCE

The following Target Property addresses were researched for this report, and the addresses were not identified in the research source.

Address Researched	Address Not Identified in Research Source
Stanley Avenue	2012, 2007, 2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903

ADJOINING PROPERTY: ADDRESSES NOT IDENTIFIED IN RESEARCH SOURCE

The following Adjoining Property addresses were researched for this report, and the addresses were not identified in research source.

Address Researched	Address Not Identified in Research Source
1930 N ASH ST	2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
1955 ASH ST N	2012, 2007, 2006, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
1955 N ASH ST	2012, 2007, 2000, 1995, 1992, 1989, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2056 ASH ST N	2012, 2007, 2006, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2056 N ASH ST	2012, 2007, 2000, 1995, 1992, 1991, 1989, 1984, 1980, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2056 N ASH ST	2012, 2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2089 ASH ST N	2012, 2007, 2006, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2089 N ASH ST	2012, 2007, 2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2097 ASH ST N	2012, 2007, 2006, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2134 ASH ST N	2012, 2007, 2006, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2134 N ASH	2012, 2007, 2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903

FINDINGS

Address Researched	Address Not Identified in Research Source
2134 N ASH ST	2012, 2007, 2000, 1992, 1989, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2134 N ASH ST	2012, 2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2142 ASH ST N	2012, 2007, 2006, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2142 N ASH ST	2012, 2007, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2144 ASH ST N	2012, 2007, 2006, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2144 N ASH ST	2012, 2007, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2150 ASH ST N	2012, 2007, 2006, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
2150 N ASH ST	2012, 2007, 2000, 1995, 1992, 1991, 1989, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
533 STANLEY AVE	2012, 2007, 1992, 1989, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
533 STANLEY AVE	2012, 2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
604 STANLEY AVE	2012, 2007, 2006, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
610 STANLEY AVE	2012, 2007, 1995, 1992, 1989, 1985, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
703 LEHNER AVE	2012, 2007, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
709 LEHNER AVE	2012, 2007, 1992, 1989, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
709 LEHNER AVE	2012, 2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
715 LEHNER AVE	2012, 2007, 1992, 1989, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
715 LEHNER AVE	2012, 2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903

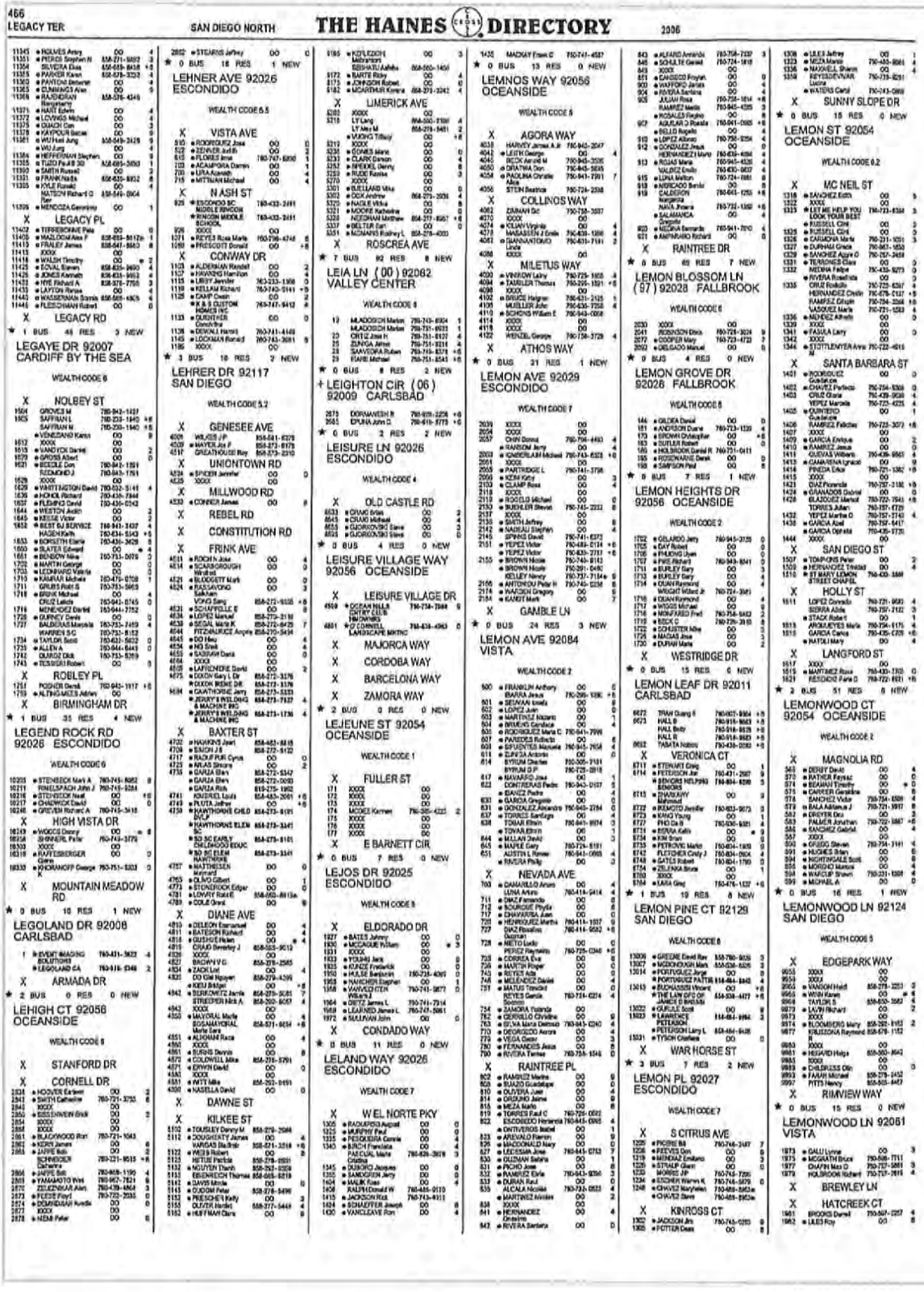
FINDINGS

Address Researched	Address Not Identified in Research Source
718 STANLEY AVE	2012, 2007, 1992, 1989, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
733 STANLEY AVE	2012, 2007, 1992, 1989, 1985, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
734 STANLEY AVE	2012, 2007, 1992, 1989, 1984, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
822 STANLEY AVE	2012, 2007, 1995, 1992, 1989, 1984, 1976, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903
822 STANLEY WAY	2012, 2007, 2006, 2000, 1995, 1992, 1991, 1989, 1985, 1984, 1980, 1975, 1971, 1970, 1966, 1965, 1962, 1961, 1960, 1956, 1955, 1952, 1950, 1948, 1945, 1943, 1940, 1938, 1933, 1927, 1921, 1907, 1903

Source Page Images Appendix

TP	Adjoining	Source
-	✓	Haines Company, Inc.

LEHNER AVE 2006



3741994.6 Page: A1

TP

-

Adjoining

✓

Source

Haines Company, Inc.

N ASH ST 2006

11436 ● REED Ila 858-576-1201 1
● REED Vic 858-576-1201 1
★ 0 BUS 19 RES 3 NEW

ASH HOLLOW CROSSING RD (99) 92064 POWAY

WEALTH CODE 9

13625 ● MYERS Bruce 858-653-9418 4
13630 ● BINDUCE Al OO 4
13640 ● NAGLE Judy OO 3
13650 ● SCHOHER Steven OO 4
13655 XXXX OO
13660 ● CIUFFREDA Edward OO 0
13670 ● BARKER Raymond OO 1
13675 ● BOACKLE John L Jr 858-565-1486 2
★ 0 BUS 8 RES 0 NEW

ASH LN 92029 ESCONDIDO

WEALTH CODE 8

20200 EASTMAN Alex 760-745-5903 3

X LAKE DR

X 10TH PL

20227 XXXX OO
20228 NARTE M 760-294-5131 +6
20232 ● CHOKCHAI Alice OO +6

X 12TH PL

20240 ● HEATON Selina OO 0

X BEECH LN

★ 0 BUS 5 RES 2 NEW

ASH LN 92069 SAN MARCOS

WEALTH CODE 4

X LAUREL DR

701 ● HERRMANN Hans J 760-736-8555
LOPEZ Roberto 760-744-3720 4
● MADDI Ronald OO 0
● NEDYA Christy OO 4
OLSON Dawn 760-761-3624 1
728 ● AVENT Tamara OO 1
● HUDIS Lloyd OO 0
● NOZALEZ Garth OO 4
● PFAFF Rebekah OO 3

X SPRUCE DR

709 CALHOUN Tammy 760-736-8068 4
ESPINOZ Alicia 760-615-1359 +6
713 BURR H 760-736-8322 +6
LOUTSENHIZER Sandra 760-736-4311 1
MARTINEZ Jesus 760-471-8021 +6
715 ● ISLANDS APARTMENTS 760-744-9339
718 ADUSAR Ignacio 760-471-5061 +6
ROMERO Billy 760-451-9112 +6
UPTEGRAFT Rox 760-891-9161 4
721 EDLEY Kelly 760-471-5076
EVASH Katherine 760-752-3250 +6
LOPEZ Cecilia 760-752-7063 +6

X REDWOOD DR

★ 1 BUS 20 RES 7 NEW

ASH RD 92054 OCEANSIDE

WEALTH CODE 1

X S PACIFIC ST

113 SKOMORE William 760-430-0138 4
114 MCNETT Acani 760-430-0911 4
122 FARRINGTON Shaleon 760-430-1556 3
123 XXXX OO
124 HARRIS Jamal 760-430-7284 4
125 XXXX OO
129 XXXX OO
130 XXXX OO
132 XXXX OO
134 SAVAGE Cassandra 760-430-0001 3
135 EDWARDS Dolores A 760-430-9035 4
GODINEZ Maceria 760-430-7520 4

X CARNATION ST

★ 0 BUS 12 RES 0 NEW

ASH ST 92065 RAMONA

WEALTH CODE 3,5

X ELM ST

425 ● SHELLING Bobbie 760-789-2233
● SHELLING C R 760-789-0952
443 CALDERON Elvira 760-788-0736 +6
525 ● KLEMM Ernest H 760-789-5508
715 ● KLEMME EGG RANCH 760-789-1940

X LILAC RD

X OAK ST

532 ● NUEVO MEMORY GARDENS 760-789-8118
● RAMONA CEMETERY NUEVO MRY GRDN 760-789-8134
WHITTEN Jim P 760-788-6971
633 XXXX OO
653 ● SARGENT Ruth 760-788-2317
VELASQUEZ Andreas N 760-765-8602 4
667 GARRETT Kim M 760-789-2640
703 ● NELSON Edward OO 1
731 ● REHALD Sandra OO 0
763 ● PETTON Shelly OO 2
813 ● ARMAN David OO 0
825 ● BERGSEN David OO 0

X HARPER RD

X PINE ST

548 ● PRUNK Jack D 760-789-1672 7
1024 BOOTHE Sue 760-787-9622 +6
1025 ● FRANK Clifford 760-787-1811 +6
PLEAK Ruth 760-787-1811 +6
1023 ● FILES Gerald OO 6
1030 ● EMERSON M 760-789-7103 5

1087 ● MCGWAIN Donald OO 3

X MEADOWLARK WAY

X MAPLE ST

1156 XXXX OO
1171 ● MURPHY Richard 760-788-9150 2
1237 ● LINDBERG Robert 760-789-0315 3
1244 ● FALLICANO A 760-788-8756 0
1249 ● RIVAFEDRO Rachael 760-789-7210 0
1252 ● ESCOTO John OO 0
1305 ● SMITH Cynthia 760-788-5609
1308 XXXX OO
1327 ● SALCIDS San OO 6
1328 ● WHITE Mary OO 0
1331 ● HOLMQUIST Thomas OO 0
1336 ● HERNANDEZ Janet 760-788-8828 0
● HERNANDEZ Ray 760-788-8828 0
1343 ● BRANDNER Doyle D 760-788-2538
BRANDNER Doyle D 760-751-2256
1427 ● ISAAC James OO
LAND Jon 760-788-5665 4

X ALICE ST

★ 3 BUS 34 RES 2 NEW

ASH ST 92081 VISTA

2452 ● PROGRIV COMPOSITE TECHNOLOGIES 760-599-4858 2
● PROGRIV COMPOSITE TECHNOLOGIES 760-940-8547 2
2460 ● COMSAT INTELLIGENT INC 760-597-9099 3
2465 ● G N T 760-643-3009 2
● GLOBAL HEALTH TRAS 760-643-3009 4
2475 ● H F JOHNSTON MFG 760-727-2300 8
● H F JOHNSTON MFG 760-727-6400 8
2485 ● PRUDENTIAL OVERALL 760-727-7103
2490 ● JET PILOT 760-734-1111 4
● PRODUCTION LABORATORIES 760-597-9400 8

X LA MIRADA DR

★ 10 BUS 8 RES 0 NEW

N ASH ST 92027 ESCONDIDO

WEALTH CODE 4,5

X SAN PASQUAL VALLEY

120 ● FREE METHODIST CHURCH 760-745-2832
● LIGHT & LIFE FREE METHDST CH 760-745-2832
● LIGHT & LIFE CHRISTIAN SC 760-741-8550
● LIGHT & LIFE CHRISTIAN SC PRESC 760-741-8400

X E OHIO AVE

200 ● ADVANCED DENTAL GROUP 760-738-8302 4
● CENTER FOR COMMUNITY SOLUTIONS 760-747-4262 4
253 ● ASP DENTAL GROUP 760-480-8883
● CHATTON TM DDS ESDONDO 760-489-8883 4
255 ● LOPEZ CARMELITA DR 760-489-7762
● MARQUEZ LUIS M MD 760-745-5632 2
● MITCHELL C L DR 760-489-7763
● MORTGAGE OPTIONS FINANCIAL INC 760-741-7963 4
● PRESIDIO MEDICAL GROUP 760-745-5633 0
● RYAN'S WORLD 760-741-4288 2
● SANDY AMADOR 760-480-8313 4
● VIANI ENGINEERING 760-432-9811 0
● WILLIAMS AREL TAS PROFESSIONAL SERVICE 760-738-8884 3
● ZICAFOOSE MARTI DC 760-737-6663

X E PENNSYLVANIA AVE

307 ● DRUG CO. PHARMACY 760-745-6672
● DALGIES FLOWERS 760-291-0428 2
311 ● PERFECTION NAILS 760-745-9699 +6
315 ● GARY'S TV 760-745-8680 9
319 ● LARIBERA CRISTIANA EMANUEL 760-745-9629 0
321 ● DAMARIS BOUTIQUE 760-741-1504 9

X E VALLEY PKY

433 ● JOHNNY RAYS BUCKLE CAR ALLEY 760-745-9977 +6

X E WASHINGTON AVE

529 ● MENTAL HLTH SYSTMS INC/NORTH ● NORTH INLAND NEARBY RECOVERY CT 760-741-7750 0
623 ● FOSTER Charles OO 0
633 ● SANCHEZ Hanna OO 3
645 ● CORTEZ Daniel 760-781-3027 0
649 KAROLINA Barbara 760-480-8780 1
● VILAYSANE Ketsana OO 0

X JEFFERSON AVE

653 XXXX OO
662 ● HINOJOSA Jovencio OO 8
663 ● ESCALANTE Ignacio 760-747-3033 5
666 DELEON Domingo 760-740-9258 2
● MACEDO Isidro OO 2
675 ● RITTINGHAUS Lloyd OO 3
676 ● FRANCO-M Sergio OO
688 SOLTERO Felix 760-747-5451 4
689 ● OLIZONSASTE Hoa N 760-745-8602 4
KAPGAS Rafael 760-735-3416 4

X ELMWOOD DR

702 ● TORRES Ismael OO 0
709 ● MORINO Miguel OO 0
ORTEGA Guadalupe 760-432-5705 4
710 ● PADILLA Miguel OO 4
714 ● RUIZ Gerald OO 0
720 ● CARRANZA Faustino OO 0
724 ● RONAN Reyna OO 8

X E RUSTIC RD

726 ● CRUZ-REYES Marisol OO 1
732 ● URBINA Jaime OO 0
VALENCIA Anselmo 760-741-9415 3
735 ● SANTIBANEZ Frank OO 0
738 ● CASTILLO Aaron OO 4
739 OJEDA Crystal 760-737-9658 3
● SOLANO Rudy OO +6
742 BAZA Maya Adriana 760-738-5142 4
● GUERRERO Zeferino OO 4

743 SAAVEDRA Maria 760-743-9345 4

X E MISSION AVE

X MONTROS PL

X BEVERLY WAY

880 ● ESCONDIDO BC 760-432-2412
● PIONEER ELEM SC 760-432-3412

X E LINCOLN AVE

1004 ● QUILLO Salvador OO 0
1006 ● NGUYEN Long 760-480-6423 3
1008 ● SHARP Edith OO 0

X ARMSTRONG CIR

1024 ● NELSON Lois OO 0
1026 ● ROSS Opal OO ● 4
1032 MARTINEZ Manuel 760-747-5454
1035 ● MONTES Raquel OO 6
1042 ● TRAN Danny OO 4
1051 ● JEHOVAH'S WITNESS KINGDOM HLLS CT 760-741-1344
1056 ● ROBLES Steve OO 0

X FARR AVE

X KENT AVE

1111 ● FUNDAMENTAL BAPT CH 760-743-1808
1112 BISCENO Fernando ● MENTAL Felipe 760-233-5761 +6
1125 XXXX OO 1
1126 ● MCNULTY Sue OO 6
1135 ● JENSEN Dan OO 4
1139 ● CHAVEZ Francisco OO 0

X BALL AVE

1140 ● CUCINELLA Matthew OO 1
1141 ● WALTON Michael C 760-233-4686 0
1143 XXXX OO
1154 ● BERARDI Wayne 760-739-9744 6

X KERN PL

1155 ● CASTILLO Bernardo OO 3
1158 ARGUELLES Daniel 760-743-5875 4
1170 ● HERNANDEZ Felipe OO 4

X SENDERO AVE

1180 ● JUAREZ Andres OO 3
SOLANO Arnaldo 760-781-0154 4
1210 ● DIAZ Michael 760-741-8112 0
1220 XXXX OO
1244 ● KERN Ruth OO
REYES E 760-746-0858 +6

X E EL NORTE PKY

1324 ● PEDRO M 760-743-4012 +6
1330 BARDEN Arlene M 760-747-3748
1331 ● MULLIN Patricia C 760-746-7858
1334 ● HEIGH Kenneth OO 0
1339 ● FLORES Urbano OO 4
HERNANDEZ Gabriel 760-432-8125 +6
1342 BRADLEY M R 760-745-5341
1344 XXXX OO

X LINVIEW AVE

1350 ● MADDRAY Myron OO 1
1351 ● BERNER Ila OO 8
1352 XXXX OO

X TERRACE AVE

1402 KURTZ Chas 760-746-7229
1408 ● VISQUE Alberto OO 4
1413 DALCIA Teresa Martinez 760-751-3967 +6
● ROSALES Angel OO 9
1415 ● GARCIA Michael OO 4
HOLLOWAY Sid 760-741-8541 4
1422 ● BENITEZ Juan OO 0
1425 ● GOMEZ Juan OO 0
1432 ● FOX Brian OO 3
1435 ● DEATTY Mary OO 9
1442 ● REYES Virgilio OO 3
1445 ● CRUZ Pedro OO 4
1452 ● SELIGNAN Phyllis GROUP OO 4
BLOOD Anthony 760-480-1941 9
1455 ● ALATORRE Steven OO 4
1462 LOPEZ Ricardo ● RENTERIA Pablo 760-738-4981 +6 OO +6
1465 GROCH Gregory 760-480-4782
1472 MUNYER Katherine 760-743-1288

X SHERIDAN AVE

1501 ● INFANTE Jaquelin OO 0
1502 ● GEARY David OO 3
1511 XXXX OO
1512 ● PANOWIN Joe K 760-741-9658
1521 ● KIN Don OO 3
1522 ● SKODACEK Gregory 760-747-3472 2
1531 ● HOD David 760-743-2387 2
1532 ● BARNETT Chas A 760-747-1786
1541 ● LEACH Joe OO 0
1542 ● PEDDICORD Robert OO 4

X MADISON AVE

1551 ● HAUDEN Leland 760-743-1589
1552 ● MCDONALD Barbara OO 8
1560 ERDLWEIR Jack 760-746-5025

X PEACH WAY

1611 ● OLEA Bernard OO 4
1621 ● BARAJAS Barbara 760-740-0351 4
1631 ● ROMERO Cesar OO 0
1641 ● BLAIR Todd OO 0
1651 ● ADAMOLI Angela OO +6
1671 ● SALISBURY Ben OO 0

X HUBBARD AVE

1701 ● DEHOEY Thomas OO 0
1711 ● PARKER Brad 760-743-5788 4
1721 ● BLAKOVICS Robert OO 0
1730 ● MAHIN BRO 760-737-0057 2
1731 ● BURDITT Michael OO 8
1741 ● CARTER Chas OO 0
1744 ● COON Daniel OO 6
1756 ● CAVANAUGH Wade OO 0
1764 BALDERAS Rosa 760-839-0817 4
● CARRILLO Manuel OO 4

X VISTA AVE

★ 31 BUS 119 RES 12 NEW

N ASH ST 92026 ESCONDIDO

WEALTH CODE 6

X VISTA AVE

1814 ● DEITY Michael OO 0
1830 ● FARLEY James OO 3

1842 XXXX OO
1850 CASSELL Ernest M 760-745-9372

X LEHNER AVE

2000 CROUCH Janice 760-480-5939 4
● PICKERING Linda OO 3

X STANLEY AVE

2134 ADAMS Alpine 760-294-5077 +6
● ROBERTS Fred 760-747-8450

X COLLINS TER

2142 XXXX OO
2144 ● WHITE Robert OO 0
2150 ● SCHMITT Donald OO 0

X PLEASANTWOOD LN

2168 ● THOMAS Danny C 760-747-4068
2174 ● HEALY Kevin OO 0

X BROOKWOOD CT

★ 0 BUS 13 RES 1 NEW

S ASH ST 92027 ESCONDIDO

WEALTH CODE 3

155 CORRANCESCO Marcella M BELMANTARA Jennifer 760-480-6430 2
760-294-2365 +6
138 SHERWOOD Brian C 760-745-3168 4

X E 2ND AVE

★ 0 BUS 3 RES 1 NEW

S ASH ST 92025 ESCONDIDO

WEALTH CODE 3

X E 3RD AVE

311 ● REYES Jesus Primero 760-737-9413

X E 4TH AVE

411 ● BEEBE Everett OO 0
MOLICA John H 760-751-1373 +6
431 ● MARTINEZ Guillermo OO 0
441 XXXX OO
★ 0 BUS 5 RES 1 NEW

W ASH ST 92028 FALLBROOK

WEALTH CODE 1

X S MAIN AVE

116 XXXX OO
124 ● CHURCH OF GOD 760-728-7175
RODAS Lelia 760-731-3066 3
RODAS Lelia 760-451-9142 3
RODAS Lelia 760-451-3359 3

X S PICO AVE

215 ● JANKOWSKI PLUMBING 760-728-8906 4
● JANKOWSKI PLUMBING 760-728-9900 4

X S MISSION RD

★ 3 BUS 4 RES 0 NEW

ASHBERRY RD (03) 92008 CARLSBAD

WEALTH CODE 7

5005 ● KOTOL Paul OO 4
5013 ● MESLARDS George OO 4
5017 ● GREENHALGH Dale OO 4
5020 ● CROPP Rena J 760-930-1777 4
5031 ● SHERMER Steve OO 4
5054 ● MACK T 760-931-9863 4
5055 ● GRIFFITH Jeff 760-356-1118 3
● GRIFFITH Jeff 760-356-1118 3
GRIFFITH Jeff 760-603-1116 3
5018 ● SANCHEZ Fernando OO +6
5029 ● HOLES Laurie 760-436-2774 4
5032 ● LIAO Zeyu OO 4
5033 ● MASHBURN Rick OO 4
5036 ● HORSOK, Timothy 760-931-8855 3
5037 ● ERNST Mark OO 4

X AUDEN PL

5040 MALVERSON Lorie A 760-602-5340 4
● MARJER-SON Lorne OO 0
5044 ● PATTERSON Joseph 760-839-1902 4
5045 ● ODAY James 760-931-5648 4
ODAY James R 760-931-5648 3
5048 ● KETEL Todd OO 4
5049 ● SCHNEIDER Jeffrey OO 4
5052 ● WOODBURN Thomas OO +6
5053 ● WOSK Bernard 760-931-1228 2
● WOSK Nikole 760-931-1541 4
5057 ● BECHTLOFF George OO 4
5060 ● LEHMAN Timothy OO 4
5061 XXXX OO
5064 XXXX OO
5065 ● OLSSON Matthew OO 4
5068 ● BARRETT James OO 4
5069 ● PARUZEAU Kimberly OO 4
5073 ● GUTHRIE David 760-431-1788 3
5077 ● KAPP Harry OO 4
● KAPP Harry P 760-672-0227 3
5078 ● BOESLE Joann OO 4
5081 ● RAFFERTY Daniel OO 4
5082 ● KIMURA Jeffrey OO 4
5085 GLOYD William 760-804-0326 +6
● WIGELMAN Michael OO 4
5088 PROCISING Paul ● BERAJAN Maria 760-476-3023 4
OO 4
5090 ● METCZER Anna 760-476-0721 3
5093 ● SCHOUWE Marc 760-804-9948 4
5094 ● BRETSON Gregory OO +6

X FROST AVE

5098 ● GONZALEZ Stuart OO 4
★ 0 BUS 46 RES 4 NEW

+ ASHBOURNE GLN (06) 92027 ESCONDIDO

414 TOKO Andy 760-809-0367 +6
475 RODRIGUEZREYES Karina 760-737-9859 +6
★ 0 BUS 2 RES 2 NEW

ASHBURTON RD 92128 SAN DIEGO

WEALTH CODE 6

X TIMARU WAY

17410 ● THOMAS Rex 858-673-1109 3
17413 ● OMALLEY Timothy OO 3
17414 ● GRAY Gary OO 8
17415 ● FARZAM Farzana OO 4
17418 ● FAGET Sandra 858-413-0948 +6
17419 XXXX OO
17418 ● NOLAN Allen OO 0
17419 ● HARMON Helen OO 0
17422 ● FEENAN William OO 8
17423 ● LAMO Jon OO 8
MERTEUS Richard 858-679-8033 +6
17424 ● SALSAVAR Maria OO 4
17425 ● MCCARTHY WILLIAM P LEGEL 858-674-4840 4
17426 ● CAMPOS Anaberta 858-451-9005 8
● CAMPOS L 858-451-9005 8
17427 ● GARDNER Louis M 858-451-2031
17428 ● BRODICK Stephen Kent OO 4
17429 XXXX OO
17432 XXXX OO
17433 KINNEY Joseph 858-673-7830 4
17434 ● MARSELLI Rena OO +6
17435 XXXX OO
17436 ● WOSINGER Mark 858-457-2236 2
17437 ● DOERING L 858-451-8183
17438 ● JENSEN Devin OO 4
17439 ● CHADECHAYZ David OO 4
17441 ● ROSSI Anthony OO 4
17442 ● SMITH Gary OO +6
● WALDROP Richard T 858-674-4670 +6
17444 ● DILBERE Ann 858-673-4444 2
17445 BILLO Geoffrey 858-457-2546
17446 ● FISHER Carl OO 0
17447 ● HOUGH Eric 858-673-4444 2
17448 ● HATA Kazunari OO 0
17452 ● DAWSON Carl 858-675-0721
17453 ● CONDE David OO 3
17454 ● DALY Judith OO 3
17455 ● CASTRO James OO 4
17456 XXXX OO
17457 ● SAS Paul 858-716-9417 4
17458 ● DURHAM Mark 858-486-1729 4
17459 ● SABAYAN Nikolai OO 4
17462 XXXX OO
17463 XXXX OO
17464 ● NOLAN Terri OO 3
17465 ● BADDASARAN Alexander 858-385-7904 4
17466 ● CHANG Edward OO 4
17467 ● MOSKIN Melinda OO 8
17468 ● HARDY Desmond OO +6
17469 XXXX OO
17473 CROMLEY Constance OO 0
● KONESKY Allen OO 4
17475 ● HALL Elizabeth OO 0
17477 ● ROGERS Warren OO +6
17479 ● TUCK Kenyon 858-386-0305 4
17482 ● CARLSON Sharon OO 0
17483 ● BURGE Thomas E 858-674-1952 2
17484 ● PARMON Lorie OO 0
17485 RET Dyle 858-673-8362 4
17486 ● STEVERSON Paula 858-673-9428 3
17487 ● LIU Changhui OO +6
17488 ● SHEKHTOROVICH Mark 858-613-1736 8
17489 ● ARSHAVSKI Arnee OO +6
17492 CHONKO Gerald L ● WEICHSELBERGER Anthony 858-675-1038 3
OO 0
17490 ● WETMORE Jonathan 858-457-1445 4
17494 BRYANT Angela H ● WEICHSELBERGER Anthony 858-485-8320 4
OO 0
17495 ● MCDONNELL Michael OO +6
17496 XXXX OO
17497 ● TSOI Elsie OO 4
17498 ● EARL Randall OO 0
17499 ● BROWN Robert OO 0
17500 ● SIEMENS Arthur OO 4
17510 ● SAWYER David OO 4
17513 ● SCHRAM Todd OO 0
17514 HOUSTON R 858-673-6112 4
17515 ● DUSSOLLIE David OO 3
17516 XXXX OO
17517 ● MORONG Ruby OO 0
17518 ● MCMINNON Margaret 858-693-9855 3
17519 ● NAIEK Jamil OO 2
17522 ● DESCHOTOS Jeanine OO 4
17525 XXXX OO
17526 XXXX OO
17527 MONTY Julie 858-486-1739 +6
17528 XXXX OO
17529 XXXX OO
17532 ● TAN Chai Hsiu 858-675-1108 +6
17533 ● HENEVIE Charles OO 1
17534 ● YELLIN Bill 858-613-1219 3
17535 ● HOUSTON Chris OO 3
17536 ● TAMGUCH David OO 4
17537 ● BITTNER Carol OO 8
● TAMTOS G 858-613-8345 +6
17538 ● WOOD Scott OO 8
17539 ● SMITH Barrie OO 4
17540 ● HANSEN John 858-613-1951 2
● LAWSON John W 858-613-1514 2
17543 ROSS Heather 858-457-8019 +6
17544 XXXX OO
17545 ● HADDAN Betty OO 0
17546 ● GALDRON Brandy 858-675-8114 4
17547 ● PUTNAM Greg OO +6
17548 ● BAYLIS Christopher OO 4
17549 ● DELVECCHIO Alice OO 0
17552 XXXX OO
17555 XXXX OO
17557 XXXX OO
17559 XXXX OO

X FAIRLIE RD

★ 1 BUS 114 RES 18 NEW

ASHBY CT 92010 CARLSBAD

X HARWICH DR

3604 LINDSLEY John 760-729-3303
● PAUL Robert 760-729-8282 4
● PAUL Bernardo 760-729-8282 4
3606 XXXX OO
3608 ● HELE Lisa L 760-730-8145 3
3610 ● ZIROLIS Josephine OO +6
3612 ● TONSUPA Richard OO +6
3614 ● BROWN Larry OO 0
★ 0 BUS 8 RES 1 NEW

ASHFORD CT 92111 SAN DIEGO

WEALTH CODE 2

7534 ● PRUE David 858-278-2362
7535 MACIAS Maria 858-565-6129 +6
● SWFLDER Mark OO 0
7550 ● WHITE Paul OO 0
7551 ● LY Phat OO 2
★ 0 BUS 5 RES 1 NEW

ASHFORD GLN 92027 ESCONDIDO

WEALTH CODE 3

2410 MORAES Virginia 760-480-3413 4
2411 CLIFTON John P 760-747-2586 4
2412 ● ANN David OO 8
2414 ● GRANDBOUCHE Karel OO 1
2416 ● CASTANEDA Anja OO 3
2417 ● TOOKER Bridgette OO 4
2418 ● CASTRO Jose OO 1
2419 ● AYALA Oscar 760-480-2913
2420 ● BREGGER Laura OO 9
KRESS A L 760-480-7254 4
2421 ● PIERCE Russell OO 2
2426 ● MCDOUGALL Virginia OO 4
2428 ● TURNER Anthony OO 4
2430 WHITE Caryl 760-745-2107 0
WHITE MR 760-745-2107 0
2436 DONSDONSKO M 760-741-5496 4
● CUMMINGS Edward OO 4
2440 ● STORES Earl OO 4
2442 ● SANFINS Susan OO 1
★ 0 BUS 19 RES 0 NEW

ASHFORD PL 92111 SAN DIEGO

WEALTH CODE 2

7405 ● SAYER Glenna 858-560-8375 3
7414 WOODFILLER E WOOTEN D F 858-278-3302 0
● WOOTEN D F 858-278-3302 0
7415 ● SCHNECK Theresa OO 4
7424 ● PAROL Joshua 858-541-9551 4
7434 ● WHITE Robert OO 4
7434 ● JAMESEYEE Walter OO 8
7435 ● LAND-AUGUSTINE Arlene OO 4
7444 XXXX OO
7445 ● LEVEILLE Timothy OO 4
7454 ● SMALL Steven E 858-573-4430 4
7455 ● VIGIL Norman OO 8
7464 ROGERS John R 858-277-1830 4
7465 ● WOODWORTH David OO 8
7474 ● PRICE Hazel OO 0
7478 ● EVANS Everett OO 0

X ASHFORD ST

★ 0 BUS 19 RES 0 NEW

ASHFORD ST 92111 SAN DIEGO

WEALTH CODE 2,9

X MESA COLLEGE DR

3167 . . . . . APARTMENTS

C ANNIS Elizabeth 858-292-5798 +6
NGUYEN Dan 858-518-5118 3
G NGUYEN Ngoc 858-277-8867 3
OSKRAVICS Paul 858-278-3241 +6
TUDORA John 858-277-3960 +6
F TRAN Nguyen 858-694-3413 4
TSAI Ching Erhsu 858-565-2988 +6

3187 . . . . . APARTMENTS

3199H ● MELLES Yohannes OO 0

X ASHFORD CT

3211 ● MADRIGAL Macario C 858-278-5812 1
3230 ● BISHOP Seth 858-565-8900 +6
B ● OMALDEN Helen 858-560-1563 3
● LOPEZ Gustavo OO 3
H ● MCDEVITT Gerald OO 4
D ● MONGKAT Chris E 858-292-3660
F ● MCMILLION John OO 4
E ● MERLIN Louis OO 4
3233 XXXX OO
3234 . . . . . APARTMENTS

A BRUHN Robert L 858-560-9133 2
P ● DOYLE Gerald C 858-576-2005 7
A ● HOUGHTON Theresa OO 8
D ● LEBOWSKI Art 858-576-3230
H ● LIMANAG Mary OO 3
L ● LY Chuong 858-560-1368 4
● MAYNARD Hugh OO 4
C ● PADRON Maria Hilda 858-614-2594 4
D PADRON-RENDE 858-573-9920 4
Jaime B
B PEREZ Cecilia 858-541-2879 4
G TOTES Jorge 858-569-6723 4
I ● SANDERS Delores OO 3
● SHARIF Allen OO 4
● SHOLAN Mark OO 4
● TANG Dustin OO 4
K ● WENH Mickey OO 3
● YOUNG Michael OO 3
3234 . . . . . APARTMENTS

3238 ● CASAS Maria OO 3
● EGGENDORFER Richard OO 3
B ● HARP Sara 858-496-2864 4
A ● HILL Steve M 858-278-8801 4
● HOFFMAN Fred OO 3
● JOURDAN Rodolphe OO 3
● LOEFFLER Andreas OO 3
I ● LOPEZ Trinidad OO 3
● MANN Stephen OO 4
E ● MARSHALL Stephen OO 4
F ● MEDEI Heather OO 3
MEKOTA Lubomir 858-945-2423 4
PARK Sae Hyun 858-263-1171 +6
N ● PASLA Lenzie OO 3
J ● POTCHYNOK Tim OO 3
P ● SILVA Melissa OO 4
K ● WHITE Jeffrey OO 4

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Adjoining

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Source

Haines Company, Inc.

STANLEY AVE 2006

2200 MARTINEZ Angela 760-731-9514 4

X RUJEAN LN

2233 ● FIELDS Larry 00 4
2237 ● ATALA Jorge 00 5
2241 ● MILLER S 760-723-2535 1
2245 ● MCDONALD Anthony 00 +6
2249 ● LOPEZ Roberto 00 +6
2253 ● WOODWARD Mark 00 3
2261 ● BONDER Gary 760-722-9072
2265 ● FONSECA Guadalupe 00 4
PEREZ Guadalupe 760-431-0953 4
2266 ● HAYWOOD John 00 5
2267 ● FLYNN Larry 760-723-0342
● FLYNN Larry 760-723-3668
● FLYNN Lawrence 760-723-1058
2291 CABRERA J 760-728-1290 4
● PALACIOS-CASTE Nina 00 3
2295 ● ALVAREZ Juan 00 4
2299 ● TORRES Juan 00 0

X MORRO RD

3321 ● GARCIA Frank 00 5
3331 ● SPONG James 00 +6
3355 ● PARKS Daniel 00 4
3400 . . . . . BUILDING

● FALLBROOK BILINGUAL MIDDST RD 760-723-5147
● FALLBROOK CAFETERIA 760-723-5147
● FALLBROOK HS COUNSELING RECORDS 760-723-5443
● FALLBROOK HS LIBRARY 760-723-5410
● FALLBROOK HS PERSONNEL 760-723-5443
● FALLBROOK HS SPECIAL EDUCATION 760-723-5434
● FALLBROOK SC HI ACCTG 760-723-5134
● FALLBROOK SC HI ATHLTC 760-723-5160
● FALLBROOK SC HI BUSNS 760-723-5132
● FALLBROOK SC HI CAFE 760-723-5147
● FALLBROOK SC HI DEAN 760-723-5115
● FALLBROOK SC HI FCLTY 760-723-5135
● FALLBROOK SC HI HLTH 760-723-5125
● FALLBROOK SC HI MATHC 760-723-5130
● FALLBROOK SC HI PRCPL 760-723-5110
● FALLBROOK SC HI PUNCH 760-723-5123
● FALLBROOK SC HI ROP 760-723-5241
● FALLBROOK SC HI SUPT 760-723-5276
● FALLBROOK SC SHOOL HI ACTIVITIES 760-723-5166
● FALLBROOK UNION HIGH SCHOOL 760-723-5300
● PALOMAR COLL FALLBROOK EDUC CTR 760-723-1166
3400 . . . . . .

X SUMMERHILL LN

2445 ● GARCIA Robert 760-451-0805 0
2455 ● BISHOP Brian 760-720-9649 5
● DEN BISHOP 760-720-9649 5

X S MISSION RD

★ 41 BUS 103 RES 13 NEW

STAGHORN CT (03) 92028 FALLBROOK

WEALTH CODE 4

3216 XXXX 00
3230 ● DUNCAN Jenna 00 4
3253 ● BECKERLE Thomas 00 ★ 0
3254 DIXON David 760-451-3535 3
DIXSON David 760-451-3535 3
● DIXSEN David 760-451-3535 3
3265 ● CLASS Christopher 00

X BRUSHWOOD LN

★ 0 BUS 7 RES 0 NEW

STAGHORN RD (00) 92036 JULIAN

WEALTH CODE 2

X PINCUSHION LN

120 LONG Robert E 760-765-2926 0

X TIERRA BLANCA LN

157 ● SUMSARKER J 00 5

X CANEBRAKE RD

★ 0 BUS 2 RES 0 NEW

STALLION DR 92057 OCEANSIDE

WEALTH CODE 4

101 ★ COASTAL CHRISTIAN ACADEMY 760-433-9233 +6
★ FIRST BAPTIST CH 760-731-2723
SAN LUIS REY
142 TURMAN Todd 760-806-1553 +6
198 SELLO Rosario 760-439-3539 4
● MCKAY Blair 00 4
201 ★ FIRST ALMADAN RESTORAT CH CHRIST 760-721-1788
210 ROWE Dewey W 760-433-7950

X MARE RD

★ 3 BUS 4 RES 2 NEW

STALMER ST 92111 SAN DIEGO

WEALTH CODE 3

X ATLAS ST

7920 ● BICKSTON Mary 00 3
● CLEMONS Tracey 00 +6
● LEDERALDE Lupendro 00 3
OROZCO Maribel 858-571-9684 +6
● RODRIGUEZ Lesly 00 3
● SALVATORE Christopher 00 0
● SANCHEZ Oscar 00 0

7940 ● CORFELT Timothy 00 3
● MOSLUND Kelly 00 3
● PAPALA Daniel 00 3
● SPECK Mark 00 3
● SYMONS Ed 858-279-7758
● TRAN Phillip 00 3
● WILLIE Keith 858-565-5765
7960 ● CUENCA Richard 00 4
● HALL Timothy 00 3
● MARAVAY Rudy 00
● QUACH Hung 00 3
7981 ● QUILALYA Alfonso I 858-277-2152 7
7971 A ● JACOBSEN Stanley 00 3
● MCKIBBIN Scott 00 2
C ● TAYLOR Ian 00 ★ 4
7970 ● HARDAWAY Tom 00 3
A ● HEYES John L 858-571-7442 5
C ● ROBAK June 00 3
WANG P 858-405-0658 4
7979 ● HERLEY Joan 00 3
● MURPHY Jeffrey 00 3
C ● RADER Rebecca 00 3
A ● ROBERTSON Charles 00 3
7983 A ● SACH Khanh 00 3
D ● FERRERA Julian 00 4
C ● LADAIAP Isaac 00 4
B ● LYON Stephen 00 3
7987 A ● CRAMER Mark S 858-268-4878
B ● PHILLIPSON Gregg 00 4
● REICHEL Timmy 00 4
7991 A ● FLEMING Matthew 00 4
C ● FORBES Bruce 00 3
● MCKIN Patrick 00 3
B PECK Mary T 858-565-8313 4
7995 C ● REICHEL Nanjoune 00 0
A ● SCOTT Jason 00 4
● LOOVICH Lindsay 858-565-6465
B ● YTURRALDE Mark 00 3
7939 C ● ALLEN Kerri J 858-278-2420
● CARTER Charles 00 3
● HAGAN William 00 3
7745 HUGHES H 858-505-0911 4
7730 MTT Jaedon 858-571-1103 +6
7777 . . . . . APARTMENTS
● RAMOS Yudko 858-573-9712 4
● CATASUS Pamela 00 3
2 ● CLARK Crystal 858-279-8402 2
● DEP Team 00 3
● GOEBEL Larry 858-268-3834 3
6 ● KATRACK Amelia 858-565-8186 4
B3 ● HOLYEN Mai 00 4
6 PHAM Phuongngoc Tran 858-467-0178 4
3 QUACH Chau 858-565-7255 3
8 ● WEIDEKOLER Teresa 00 3
1 ● WESTFALL Steve 00 3
7777 . . . . . .

X ANGELUCCI ST

7797 ● BOUMAN Fred 00 3
● DUONG Dan 00 3
● ELLISON Darlene 00 3
● FLINT Suzanne 00 +5
● GEISLER Mark 00 4
GERAS Barbara A 858-674-5531 5
● NIVELY Edwin 00 3
● MESANDOVC Small Joseph 858-565-1960 3
NUNEZ Rodolfo 858-292-5973 4
● OWEN Heidi 858-453-1773 2
● PIZARRO Nicole 00 +5
7827 A REYES Jeremy 858-268-2914 4
REICHERTERS Frederick C 858-560-5236 4
7830 . . . . . APARTMENTS
A2 BORKOWSK Scott 858-674-8771 +6
DUONG Dan 858-292-5725 4
A3B HONDA Takumi 858-715-4438 4
A3 KOSSH Randy 858-271-1720 5
A3B NOWROZ Anwar 858-278-9631 7
PEREZ Jose 858-277-4781 4
A1 RAMOS Enrico B 858-571-7663 2
SANKO A 858-569-5001 4
SHINDEAN Rishikesh 858-571-4723 3
A1H SHIRLEY Stan 858-565-0949 3
YI Kasarita 858-715-5830 +6
7930 . . . . . .
7837 ZOUAHI Said 858-300-9419 +5
7843 . . . . . APARTMENTS
B2A ADAMS Hanna 858-467-1159
GARCIA J 858-571-0916 +6
B1 HUDSON S F 858-571-0808 4
B2J JOHNSTON Keith 858-560-9731
KENNICKROBERTS Denise 858-715-8268 +6
LEE Jong Wook 858-715-0922 +6
B1B LIAO Candy 858-505-0815 4
MA Kay 858-505-0312 +6
OLP Travis 858-663-5765 4
STAWT Todd 858-467-1305 4
B6 TRAN Hanan 858-578-7100 1
7845 . . . . . .
7850 . . . . . APARTMENTS
ADLISON Stefanie 858-674-8185 +6
B2B DIAZ Richie 858-270-3344 4
FITCH Jessica 858-268-0126 4
D2F JONLAS Amelia M 858-271-1630 2
KAYE Angela 858-271-0346 4
D1D ROSSOW Lorraine A 858-674-1634 4
D1 STAMPS Bill 858-549-1315 4
STEPHENS Stephanie 858-270-2337 +6
WISEMAN Fred 858-565-1345 4
7856 . . . . . .
7857 GUTTORSON Michael 858-292-1830 4
7960 . . . . . APARTMENTS
D1B MANOA Ana Lilia 858-270-9054 2
C2 CARPENTER C E 858-715-0911 4
GONZALEZ Betty 858-503-0185 5
C1D LANTON Kaye 858-715-1703 2
MEALE Susan 858-565-5744 +6
MOUYEN Lan 858-565-1811 2
C4 ROJERA Wanda 858-715-5480 4
SUN Xingua 858-560-5408 4
TIMOTHY Amelia 858-565-5053 4
7950 . . . . . .
7957 A PECENI Stephanie 858-565-9056 +6
B PETTIO Paulette F 858-565-1827 1
7978 ● WEDFORD MANOR 858-277-4842
★ 1 BUS 118 RES 16 NEW

STANDEL LN (97) 92026 ESCONDIDO

WEALTH CODE 7

X ROCKING HORSE RD

22480 STEVENS Stacey 760-451-3218 4

X W LILAC RD

★ 0 BUS 1 RES 0 NEW

STANDISH DR 92064 POWAY

WEALTH CODE 4 B

X HIGH PINE ST

12903 ● PHAM Viet 00 2
12907 ● MCCREA Brian 858-693-7150 4
12911 ● MEDVEN David 00 4
12917 XXXX 00
12922 ● WEAVER Michael L 858-748-2182

X ELMPORT LN

12929 ● PARKER Donna 00 2
12928 ● POWERS Patrick 858-748-4072
12948 ● GRANADOS Ramon 858-748-3665
12941 ● BRANSE Barbara 00 0
12946 ● CAVENDER Penny 858-679-5000 4
12947 XXXX 00
12950 ● NICHOLS Alan 858-486-1609 1
● NICHOLS Mark C 858-486-1575 3
● HITE Michael 00 8
12953 BURGAN Cathe 858-486-1004 4
● HITE Ralph 00 3
12957 ● HOGAN Brian 00 +6
12962 FRESQUEZ Margret 858-748-1942 4
● COLLINSAUGH Andrea 00 3
13001 ● WOOD Dennis W 858-748-3310
13002 XXXX 00
13007 ● PURDY Michael S 858-748-1568 9
13008 ● LEONARD Tommy C 858-486-6542
13011 ● SCHULTZ Martin 858-513-1042 1

X GLENVILLE ST

13014 ● JUDD Ronald D 858-748-3136
13026 ● FULLER Herbert K 858-748-3779
13024 ● ROELOFTS Debra 00 4
13030 ● CHEEN Jerry 00 3
13036 PETERS E 858-748-2148 4
13042 ● WILLIAMS Wayne 00 4
13048 ● JACKSON Devereaux 00 9

X SCARBORO ST

13054 ROBERTS Doris 858-748-1772 +6
13060 ● STRICK Richard 858-486-1511

X KENNEBUNK ST

X WALTHAM AVE

13109 XXXX 00
13101 ● PHAM Christina 00 4
WILLASSEN Hans Jorgen 858-486-4772 9
13114 ● PUYDA Thomas 858-679-5715 1
13121 ● HAMILTON Patrick 00 3
13126 KNOPP Gina W 858-748-3098
13127 XXXX 00

X KITTERY ST

13133 ● SALAS Roman 00 4
13134 ● CRESCENCIO Juan 00 +6

X SACO ST

13204 ● CHASS David 00 2
13209 ● CORDREY Kenneth W 858-748-1075
13210 ● HEATHERMAN Joseph 00 5
13215 ● WOODS Rachel 00 +6

X BIDDEFORD ST

13216 XXXX 00
13222 ● NEWGUARD Jens 00 +6
13228 ● COE Rex 00 0
13229 ● PITROSSI'S Chad 00 8
13234 ● GARCIA Gerardo 00 4

X GARDEN RD

X SPRINGVALE ST

13410 ● JULIAN Andy 858-748-2637 3
13404 ● RANCHO DAY CARE 858-748-6894 4
13416 ● WARD, Hussein 00 4
13417 ● BUCKLEY Paul 00 0
13422 ● WEAVER T 858-748-4338 2
13423 ● ANDERSON John 00 4
13425 ● KRUDE Cherie 00 4
13428 ● FREELany G 858-748-1131
13429 ● MORRIS Benjamin 00 4
13431 ● SAVMICHAEL Frederick 858-748-5124
13434 ● LOCKET Ian 00 +6
NELSEN Carol 858-748-4520 2

X NEDDICK AVE

X BOWDOIN RD

13433 ● GOLDEN Brian 00 4
13436 ● EMRICK John 858-748-3131
13441 ● SELLE Janice 00 4
13447 ● DODD Joe E 858-748-5340
13443 ● CEDENA Ricardo 00 3
13448 ● DURANT Barbara 00 4
13449 ● SILVEIRA Cristina 858-679-3634 2
★ 1 BUS 68 RES 5 NEW

STANDRING ST 92054 OCEANSIDE

WEALTH CODE 1

136 KRIVENKO Christopher 760-439-2732 4
151 XXXX 00
152 ALCEA J 760-433-1598 4
154 XXXX 00
164 RODRIGUEZ Oliver 760-433-5102 +6

X VAUGHN ST

121 XXXX 00
122 NGUYEN Thanh H 760-433-8434 3
124 AMESQUA Jamie 760-433-4663 +6
AMESQUA Matthew D 760-433-4663 +6
130 MARQUEZ James 760-433-2965 +6
VISHER Morgan 760-433-5150
131 XXXX 00
132 BRUNEHA Kelly 760-433-5448 4
137 WILEY Samantha 760-433-3704 4
★ 0 BUS 14 RES 4 NEW

STANFIELD CIR 92126 SAN DIEGO

WEALTH CODE 5

10424 ● STEWART Gary 00 0
10428 RIVERA Bernardita 858-689-2895 +6
● VAZQUEZ Sabina 00 3
10436 DUMAS Irene S 858-271-1753
10431 ● SANCHEZ Maria Luisa 858-695-7022 3
10436 ● JIMENO Benito 00 8
10437 ● KEMP Dieter K 858-271-4656
10442 ● SILLE Gladiola 858-549-1780 2
10443 ● DEGISO Gary 858-537-9865 +6
NGUYEN Giang XXXX 00
10448 ● THOUGUSEN Tracey 858-695-7945 4
10454 ● TIMMANS Marcelino 00 8
10455 BOTTARI Mary 858-271-0203 4
10458 ● LAU Chia 858-566-8520
10451 ● AGUIRRE Armando 858-566-4581 4
13405 VEGA George R 858-693-8530 2
13407 ● NIGHT Joseph 858-695-0680 3
13472 ● HERNANDOR Mary 00 5
13400 ● SANTOS Asmyldo 00 0
13481 ● ORDUNO Miguel 00 4
13490 ● DEWOLDT Jane E 858-578-2094
13491 XXXX 00

X FLANDERS DR

★ 0 BUS 23 RES 2 NEW

STANFORD DR 92056 OCEANSIDE

WEALTH CODE 6

X CARNEGIE DR

3745 ● SUN Hand 760-433-5564
3749 ● NGUYEN Trieu 00 4
3757 ● DH Sungkil 760-754-7052 3
3761 ● GAYOSO Jorge 760-439-5631 4
3762 DONAHUE R 760-439-5551
3765 MILLER Michael A 760-722-5126
● MILLER Michael A 760-721-0327
3769 ● COSTA Jared 00 +6
3770 ● NOGUEIRA Richard 00 3
3773 ● DENG David 00 3
3774 ● STORCH Richard F 760-433-2515 2
3777 ● ULMER Charles 00 3
3725 ● DEMPSEY E 760-231-6663 4
3781 ● MILLER Norman 00 4
3782 ● DONOHAN Gulay 00 8

X LEHIGH CT

3801 ● PETRUZZELLA Francesco 00 8
3802 ● LE Lynn H 760-757-9712 2
3803 XXXX 00
3808 ● LLOYD Rob 760-757-8273
3810 ● POPE William 00 8
3813 ● MOCAP Soon 00 0
3814 ● GABRIELES Jose Luis 760-705-0852 0
3817 ● COAST Madena 760-721-1133 0
3818 ● EZEPESY Carmen A 760-722-1031 0
3821 ● MCDASS James M 760-433-4436 0
3822 ● NIELSEN Dale 760-757-9902
3825 ● CASTROMOVO Sam 760-757-8091 8
3826 HANSON Donald 760-757-1849
3829 ● LEWIS Mark 00 0
3830 ● LAWRENCE John D 760-722-8192
3834 ● PATRICK Jerry 760-967-6825 +6
3837 XXXX 00
3838 ● MANN Judith 760-754-6357 8
3814 ● MANN Judith 760-754-6354 8
3841 ● CASTANEDA Robert 00 4
3842 ● REED Jacqueline 760-439-3853 8
3845 ● REED Delbert 00 8
3846 ● LITTLE Donna 760-439-4339 0
3849 ● SIMMONS Bennie 00 0
3850 ● RHODAMAN Donald 760-439-3245 3
3853 ● MATEJAN Steve D 760-433-5138
3854 ● DEMARCO Michael 00 4
3857 XXXX 00

X CORNELL DR

3901 ● BREWSTER Hazel 00 0
3902 ● HANSEN Johns 00 4
3905 WALLACE Norman R 760-967-5638
3906 ● JOHNSON Michelle 00 3
3909 XXXX 00
3910 ● SHANNON Daniel 760-433-9547 0
3913 ● ABDALLAH Mazin 00 0
3914 PLATT Ron 760-439-4501 4
3917 ● BERNARD Noel 760-754-2592 +6
3918 ● RAY Linda 00 8
3921 ● DEPP Andrew 00 4
3922 ● FORTUNA Giuseppe 00 +6
3925 ● BRANTLEY Jeff 00 3
3926 ● BISHOP Stephen 00 +6
3929 BYRNS Frank 760-231-6128 4
● BRANAHAN John 00 4
3930 ● CLARK John D 760-433-3903
3933 ● SENTMAN Richard 00 0
3934 ● ROOT Aaron 00 0
3937 ● HANSEN Mark 00 8
3938 ● SALDERRAMA Alma 00 8
3942 ● SALCEDO Gina 00 3
3945 ● ALVAREZ Juan 760-231-1149 +6
3946 CERVANTES Severin Heriberto 760-433-1713 2
● MANVA Pret 00 4
3949 ● EGAN Richard 00 +6
3953 ● ESHAM Kent 760-967-9223 1
★ 0 BUS 70 RES 7 NEW

STANFORD ST 92010 CARLSBAD

X AVALON AVE

4314 ● BREEDING Ret 760-434-9462 0
LAURENCE Tom 760-434-9462
LAWRENCE Tom 760-434-9462
SCHUMACHER Tom L 760-434-9462
4323 CARSON Linda 760-720-8027 4
CARSON Linda 760-729-9119 4
● MADGENZIE Kenneth 00 4
4325 DI Marco Shari 760-434-9525 4
4332 ● VANDEVEN Barb 00 9

X BERKELEY AVE

4338 NARDOTTE Steve 760-729-8651 4
● VOTH Robert 00 0
4344 ● ADAME Sebastian M 760-434-4326 2
4350 ● DIAZ Christian 00 4
4351 ● NIELSEN Jergen 00 4
4354 ● LYMAN Tom F 760-434-6851
● LYMAN Tom F 760-434-4482
4355 XXXX 00
4358 ● BRASSEY L 760-729-8257 7
4362 ● COOK Matthew 00 +6
4363 REYNOLDS B J 760-726-2441 +6
4365 ● MCCLORY Brendan 00 0
4367 ● HENRY Michael 00 4
4370 ● SCHLEIF Emrik 760-434-7914 0
4374 ● BEDROSIAN Diane 00 4
4376 XXXX 00
4378 ● DETZEL F 00 2
4382 ● OLNMEYER William 00 4
4389 ● GEER Gordy 00 8
4390 MACDOUGALL Allen B 760-434-3454
4394 ● GONZALES Elva 760-726-7366 4
● VOGEL Frank 00 1
4398 ● SHARMA Sukhdev 00 8

X TIBURON AVE

★ 0 BUS 32 RES 1 NEW

STANLEY AVE 92026 ESCONDIDO

WEALTH CODE 6

227 ● LU Roberto 00 8
405 ● RACHAMPADAK Ramesh 00 4
JAYASINH Sanjay 760-294-2848 +6
415 ● PARTCH Darrell 00 4
425 ● DIAZ Angel 00 4
ORTIZ Emma 760-839-2700 4

X KARWARREN CT

508 CARY Dennis 760-294-8505 +6
509 ● GARCIA Jose 00 3
511 ● FARRISH-BELL Don 760-740-1382
● FARRISH-BELL Randi 760-740-1382
519 ● FRANFELLI Linda 00 +6
535 ● DOUGLAS John 760-743-8952
● DOUGLAS John T 760-743-8954
533 ● ESCONDIDO 760-489-8361
615 ● DUNTON Seed 00 0

X N ASH ST

718 ● HARTSOCK Randall 00 4
723 XXXX 00
724 ● BROWN Kenneth 00 1
822 ● WESTCOTT Daniel 00 4
839 XXXX 00

X WEISS WAY

811 ● OLAMON Ida J 760-743-8931
912 ● ENRICUEZ Miguel 00 4
918 ● TATE Charles 00 4
917 ● PUCKLEY E 760-489-6157 0
● BUCKLEY F 760-489-6157 0
923 ● CLEMONS Scott 00 4
827 ● LLOYD John W 760-747-2295 0
943 ● BURT Mark 00 0

X HONEYSUCKLE WAY

★ 0 BUS 28 RES 3 NEW

STANLEY CT 92026 ESCONDIDO

WEALTH CODE 4

X N GRAPE ST

625 HAZEN Arthur G 760-743-1157
613 ● MURRILLO Pedro 00 9
621 WEED Kenneth L 760-741-7181
629 XXXX 00
630 ● SPARKS Carla 760-745-4364 2
637 ● KEIL Dirk 760-480-9369
638 ● BERNADAS Hilanor 00 0
643 ● MELTON-BOYLE Rocio 00 8
646 ● PUENTES Ricardo 00 0
653 XXXX 00
654 ● AVERETT Mike 00 4
661 ● FRANCO Jose M 760-747-1153 +6
669 MEZA Yolanda 760-437-6254 4

X N FIG ST

★ 0 BUS 13 RES 1 NEW

STANLEY ST 92054 OCEANSIDE

WEALTH CODE 4

X S COAST HWY

522 XXXX 00
525 ● SANSORN Norman 00 4
601 ● NELSETH Linda 00 1
602 ● DUFFY John 00 8
605 ● AGUILAR Edelan 00 8
606 ● AGREN James 00 4
JUKE Mark J 760-754-5488 1
609 ● BAUER Douglas 00 0
615 ● ALLEN Estelle 00 1
613 ● HAWKINS Wade 00 1
614 ● STOREY Patricia 00 1
701 ● CALDWELL Craig 00 1
702 ● FOLEY Hugh 760-797-4313 0
705 ● LOEURTO Vie 00 4
706 MILLER W Shannon 760-722-7734
709 ● MCGOWAN Mary 00 0
710 ● WAGNER John 00 2
713 MARTHALE Carol 760-721-8308
714 ● DOMINGUEZ Randy 00 0

X S DITMAR ST

X S NEVADA ST

X S CLEMENTINE ST

1802 ● WENK Sharon 00 4

X SHAFER ST

★ 0 BUS 20 RES 0 NEW

STANLEY WAY 92027 ESCONDIDO

WEALTH CODE 6

X ROOSEVELT ST

1329 ● CLAPPER Gary 00 0
1340 ALVAREZ Iris 760-743-5696 4
● MENA Gloria 00 6
1345 ● GUSTAFSON Larry 00 8
1346 ● BATARA Edberto 00 +6
1351 ● RANDOLPH Carol 00 0
1352 ● VANOVA Rene 00 4
VELASCO Maria 760-738-7098 4
1357 ● PARKER Jeffrey 00 9
1358 ● FIEDLER Peter 00 8
1364 ● MELGOZA Raul G 760-233-8625 4
1365 ● MAUS Mary 760-740-9697

X HOOVER ST

1304 ● ZAMORA Jesse 760-736-1989 8
1335 ● ZAMORA Raul 00 0
BARSAMENDOZA Angelina 760-233-9826 3
● GONZALEZ Jose 00 4
1315 FLORES Daniel 760-735-5178 +6
● ZAMORA Javier 00 4
● BOON Raymond 00 4
1325 ● MUNOZ Yolanda 00 0
1335 ● MENDOZA Paulfano 760-432-9152 4
1345 ● GARNACA Aaron 00 9

X CONWAY DR

1309 ● BRIDGES Ethel 00 ★ 4
1401 ● BRENT Howard J 760-745-1143
1402 CARLSON David 760-737-9483 1
● CONTNEY Ernest 00 0
1411 ● GARCIA Soledad 760-745-9452
1412 ANGELES Jaime 760-839-5784 +6
CERVANTES Manuel 00 4
1421 ● CALZADA Dan 00 0
1425 ● RAMOS Pete 760-746-1263 +6
1422 ● HUYNHAN David 00 3
1431 ● THAMON Gene 00 9
1432 ● RAMOS Pedro 760-480-9102 0
1441 ● KAKAZU Robert 00 0
1442 MENHAUS Albert 760-743-4664
1451 ● HERNANDEZ Cyril 00 0
1452 ● BARAJAS David 00 4
1461 PRUSINSKI Stephen 760-736-9402 4
1462 ● GUARDADO Celia 00 0
1471 ● ANIZOUITA Oscar 00 0

1472 ● USALDE Ruben 00 +6
1451 ● ERICKSON Gladys 00 8
1452 ● SUMMERTER D 760-230-3838 0
1501 ● PINTO Filiando 760-758-8824 3
1502 ● FAVELA Hector 00 8
1511 LOPEZ Jose Manuel 760-230-8018 +6
1512 ● JENNINGS Mark 00 +6
1521 ● LABADIE Robert 00 0
ROBERTSON Jerry 760-741-4505 4
1522 ● WALKER-VILLEGA Julieta 00 6
1532 ● BALLARDO Hoa 00 4
1541 ● CHAMAYTURISOS Alfred 00 0
1542 MUNKLER R C 760-747-6817
1551 ● PHAM Long V 760-481-6455 2
1552 KOURAL S 760-294-4192 4
KOURAL Sharon 760-294-2975 4
1561 ● MILLER Steven 00 4
1562 XXXX 00
1571 XXXX 00
1572 ● NERHAUS Ulrike 760-741-0224 0
1581 ● SHAW Jason 00 0

X N ROSE ST

1604 ● SANDERS Joan C 760-741-5158 3
1615 ● LARA Augustine 00 8
1616 ● SEDOLLA Fernando 00 6
1618 ● PEITER Dolores 00 4
1621 ● DAVIS Sonia L 760-741-4538 0
1627 ● MARCUS Patricia 760-233-0591 8
1628 ● MAHAN Jerry L 760-743-8384 0
1630 ● GARY Andrew 760-481-1451 4
1633 ● MYERS John 00 0
1635 ● HAWKINS Lance 00 ★ 2
1636 MCDWELL Kelli A 760-741-1782 4
● HUGHES Christine 00 0
PURROS Elizabeth 760-294-5512 +6
1648 ● MILLIGAN Charles 00 0
1647 WHANT George W 760-743-8323 6
1653 ● GILLESPIE Chad 3D 760-747-2328
1655 ● CERVANTES Jose 00 2
1656 XXXX 00
1664 CICA Michael M 760-747-6523
1665 ● EDMUNDS C 760-233-1304 2
1666 SUCK A 760-743-9025 4
● MCLEOD Michael 00 4

X THOMAS WAY

X N MIDWAY DR

2002 ● PERTH Dale 00 9
2005 ● VALDEZ Raul 760-746-2202 2
● VALDEZ Raul 760-738-8668 2
2010 ● GAINAN Gary 00 4
2013 ● MORALES Martha 760-745-7087 3
2018 ● ALAMO Francis 760-745-3649 3
2021 ● CRUM Jack M 760-741-2680
2026 GENTILE Salvatore E 760-743-5336
2029 ● SOSA Gustavo 00 0
2034 ● HERNANDEZ Irene 00 0
2037 FLYNN Helen 760-745-0662 4
2042 ● LOPRESTI Anthony 00 0
2045 ● CHEW Michael 00 4
2050 ● SALTA Eduardo R 760-739-1999
2058 ● MARCH CRUZ Patricia 00 ★ 2

X GALE ST

2110 ● CERVANTES Victor 00 4
2114 ● RIAD Aurora 00 9
2126 ● AGUILAR Carlos 00 +6
2129 ● MONDRAGON Pedro 760-736-9264 0
2134 ● RIVERA Juan 00 4
2137 ● TIMMONS Timothy R 760-745-9533

X PAULA WAY

★ 0 BUS 105 RES 9 NEW

STANTON RD 92024 ENCINITAS

WEALTH CODE 4

X FORESTDALE DR

1804 ● SHAFFER Steven 00 0
1808 XXXX 00
1809 XXXX 00
1817 ● STARR John 760-753-4113 9
1808 ● DEMPSEY John 00 3
1816 ● COLIN Cornel 00 0
1811 XXXX 00
1812 ● VOURUTIS Nicholas J 760-434-1361 3
1813 ● SMITH Helen 00 8
1814 ● HEDGE Stephen 00 4
LESYK William 760-635-3551 4
1815 XXXX 00
1816 ● ARNOLD John W 760-633-1376 2
1819 ● FARIS Lurlee 00 8
1820 XXXX 00
1821 ● GOUREVITCH Heather 00 4
HARVEY Debs 760-436-9443 3
1822 ● HUTS-CHEVALIX Gerald 00 4
1823 ● LAWSON Donald P 760-753-9019 2
1824 XXXX 00
1825 ● CURRAN Marilyn R 760-942-1264
1826 ● GARRITT Barbara 00 0
★ 0 BUS 22 RES 3 NEW

STANWELL CIR 92126 SAN DIEGO

WEALTH CODE 4

X STANWELL ST

10636 ● AGENAS Edgar 00 4
SALDIVAR Stephanie 858-453-5973 +6
10638 ● PEARSLEY John 00 6
10643 ● AAMAN Anthony 00 4
10669 ● ORTEGA Cesar 00 4
10678 ● ZAFRA Jefferson A 858-271-1606 4
10714 ● ORTEGA Cesar 00 4
10683 ● QIANG Dexter 00 0
10689 ● HEZIN Sorla 00 0
★ 0 BUS 9 RES 1 NEW

STANWELL CT 92126 SAN DIEGO

WEALTH CODE 4

X STANWELL ST

10650 ● NGUYEN Dinh 858-695-9650 0
10653 ● TRAN Jaymes 00 4
10662 ● SHANAHAN P 858-695-1091
10667 ● MACDOUGALL Robert 00 9
10674 ● THOTTEN Barry 00 0
10679 ● LEDBETTER Charles 00 0
10698 ● TRAGRETA Jose 00 0
10691 ● NAPA Danilo 00 0
★ 0 BUS 8 RES 0 NEW

Tract 2 Pickering Project
Stanley Avenue
Escondido, CA 92026

Inquiry Number: 3741994.7
September 29, 2013

EDR Environmental Lien and AUL Search

EDR® Environmental Data Resources Inc

440 Wheelers Farms Road
Milford, CT 06461
800.352.0050
www.edrnet.com

EDR Environmental Lien and AUL Search

The EDR Environmental Lien and AUL Search Report provides results from a search of available current land title records for environmental cleanup liens and other activity and use limitations, such as engineering controls and institutional controls.

A network of professional, trained researchers, following established procedures, uses client supplied address information to:

- search for parcel information and/or legal description;
- search for ownership information;
- research official land title documents recorded at jurisdictional agencies such as recorders' offices, registries of deeds, county clerks' offices, etc.;
- access a copy of the deed;
- search for environmental encumbering instrument(s) associated with the deed;
- provide a copy of any environmental encumbrance(s) based upon a review of key words in the instrument(s) (title, parties involved, and description); and
- provide a copy of the deed or cite documents reviewed.

Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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EDR Environmental Lien and AUL Search

TARGET PROPERTY INFORMATION

ADDRESS

Stanley Avenue
Tract 2 Pickering Project
Escondido, CA 92026

RESEARCH SOURCE

Source 1:
San Diego Recorder
San Diego, CA

PROPERTY INFORMATION

Deed 1:

Type of Deed:	deed
Title is vested in:	Peggy L Lehrke Trustee
Title received from:	Peggy L Lehrke
Deed Dated	4/26/2013
Deed Recorded:	5/1/2013
Book:	NA
Page:	na
Volume:	na
Instrument:	na
Docket:	NA
Land Record Comments:	See Exhibit
Miscellaneous Comments:	na
Legal Description:	See Exhibit
Legal Current Owner:	Peggy L Lehrke Trustee
Parcel # / Property Identifier:	224-142-01
Comments:	See Exhibit

ENVIRONMENTAL LIEN

Environmental Lien: Found ☐ Not Found ☒

OTHER ACTIVITY AND USE LIMITATIONS (AULs)

AULs: Found ☐ Not Found ☒

Deed Exhibit 1

224-142-01-00

DOC # 2013-0274033

MAY 01, 2013 1:10 PM
OFFICIAL RECORDS
SAN DIEGO COUNTY RECORDER'S OFFICE
Ernest J. Dronenburg, Jr., COUNTY RECORDER
FEES: 15.00
OC: OC

18218 PAGES: 1

RECORDING REQUESTED BY:
Mrs. Peggy L. Lehrke
2056 N. Ash Street
Escondido, CA 92026

WHEN RECORDED RETURN TO AND MAIL TAX STATEMENTS TO:

Mrs. Peggy L. Lehrke
2056 N. Ash Street
Escondido, CA 92026

QUITCLAIM DEED

THE UNDERSIGNED GRANTOR DECLARES APN# _____
DOCUMENTARY TAX IS --0-- (transfer to a revocable living trust)

FOR NO CONSIDERATION, Peggy L. Lehrke, does hereby remise, release and forever quitclaim to Peggy L. Lehrke, as Trustee of the Peggy L. Lehrke Family Trust initially created February 25, 2009, the following described real property in the County of San Diego, State of California:

Lot "M" in Block 418, being a resubdivision of Block 418 & 419 of the Rancho Rincon del Diablo, in the County of San Diego, State of California, according to Map thereof No. 1520 made by J.M. Graham, filed in the Office of the County Recorder of San Diego County, on January 21, 1913.

aka: 2056 North Ash Escondido, CA 92026

DATE: April 26, 2013

Peggy L. Lehrke

STATE OF CALIFORNIA

COUNTY OF SAN DIEGO

ROBERT A. SMYKOWSKI
Commission # 1973701
Notary Public - California
San Diego County
My Comm. Expires Apr 18, 2016

On April 26, 2013, before me, Robert A. Smykowski, a notary public, personally appeared Peggy L. Lehrke, who proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.

I certify under PENALTY OF PERJURY under the laws of the State of California that the foregoing paragraph is true and correct.

WITNESS my hand and official seal.

Signature _____

Tract 2 Pickering Project
Stanley Avenue
Escondido, CA 92026

Inquiry Number: 3741994.11
September 27, 2013

EDR Building Permit Report

Target Property and Adjoining Properties

EDR® Environmental Data Resources Inc

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www.edrnet.com

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Thank you for your business.
Please contact EDR at 1-800-352-0050
with any questions or comments.

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This Report contains certain information obtained from a variety of public and other sources reasonably available to Environmental Data Resources, Inc. It cannot be concluded from this Report that coverage information for the target and surrounding properties does not exist from other sources. **NO WARRANTY EXPRESSED OR IMPLIED, IS MADE WHATSOEVER IN CONNECTION WITH THIS REPORT. ENVIRONMENTAL DATA RESOURCES, INC. SPECIFICALLY DISCLAIMS THE MAKING OF ANY SUCH WARRANTIES, INCLUDING WITHOUT LIMITATION, MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE OR PURPOSE. ALL RISK IS ASSUMED BY THE USER. IN NO EVENT SHALL ENVIRONMENTAL DATA RESOURCES, INC. BE LIABLE TO ANYONE, WHETHER ARISING OUT OF ERRORS OR OMISSIONS, NEGLIGENCE, ACCIDENT OR ANY OTHER CAUSE, FOR ANY LOSS OR DAMAGE, INCLUDING, WITHOUT LIMITATION, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR EXEMPLARY DAMAGES. ANY LIABILITY ON THE PART OF ENVIRONMENTAL DATA RESOURCES, INC. IS STRICTLY LIMITED TO A REFUND OF THE AMOUNT PAID FOR THIS REPORT.** Purchaser accepts this Report "AS IS". Any analyses, estimates, ratings, environmental risk levels or risk codes provided in this Report are provided for illustrative purposes only, and are not intended to provide, nor should they be interpreted as providing any facts regarding, or prediction orforecast of, any environmental risk for any property. Only a Phase I Environmental Site Assessment performed by an environmental professional can provide information regarding the environmental risk for any property. Additionally, the information provided in this Report is not to be construed as legal advice.

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EDR BUILDING PERMIT REPORT

About This Report

The EDR Building Permit Report provides a practical and efficient method to search building department records for indications of environmental conditions. Generated via a search of municipal building permit records gathered from more than 1,600 cities nationwide, this report will assist you in meeting the search requirements of EPA's Standards and Practices for All Appropriate Inquiries (40 CFR Part 312), the ASTM Standard Practice for Environmental Site Assessments (E 1527-05), or custom requirements developed for the evaluation of environmental risk associated with a parcel of real estate.

Building permit data can be used to identify current and/or former operations and structures/features of environmental concern. The data can provide information on a target property and adjoining properties such as the presence of underground storage tanks, pump islands, sumps, drywells, etc., as well as information regarding water, sewer, natural gas, electrical connection dates, and current/former septic tanks.

ASTM and EPA Requirements

ASTM E 1527-05 lists building department records as a "standard historical source," as detailed in § 8.3.4.7: "Building Department Records – The term building department records means those records of the local government in which the property is located indicating permission of the local government to construct, alter, or demolish improvements on the property." ASTM also states that "Uses in the area surrounding the property shall be identified in the report, but this task is required only to the extent that this information is revealed in the course of researching the property itself."

EPA's Standards and Practices for All Appropriate Inquires (AAI) states: "§312.24: Reviews of historical sources of information. (a) Historical documents and records must be reviewed for the purposes of achieving the objectives and performance factors of §312.20(e) and (f). Historical documents and records may include, but are not limited to, aerial photographs, fire insurance maps, building department records, chain of title documents, and land use records."

Methodology

EDR has developed the EDR Building Permit Report through our partnership with BuildFax, the nation's largest repository of building department records. BuildFax collects, updates, and manages building department records from local municipal governments. The database now includes 30 million permits, on more than 10 million properties across 1,600 cities in the United States.

The EDR Building Permit Report comprises local municipal building permit records, gathered directly from local jurisdictions, including both target property and adjoining properties. Years of coverage vary by municipality. Data reported includes (where available): date of permit, permit type, permit number, status, valuation, contractor company, contractor name, and description.

Incoming permit data is checked at seven stages in a regimented quality control process, from initial data source interview, to data preparation, through final auditing. To ensure the building department is accurate, each of the seven quality control stages contains, on average, 15 additional quality checks, resulting in a process of approximately 105 quality control "touch points."

For more information about the EDR Building Permit Report, please contact your EDR Account Executive at (800) 352-0050.

EDR® Environmental Data Resources Inc

BUILD FAX PROPERTY HISTORY

EXECUTIVE SUMMARY: SEARCH DOCUMENTATION

A search of building department records was conducted by Environmental Data Resources, Inc (EDR) on behalf of Petra Geotechnical Inc on Sep 27, 2013.

TARGET PROPERTY

Stanley Avenue
Escondido, CA 92026

SEARCH METHODS

EDR searches available lists for both the Target Property and Surrounding Properties.

RESEARCH SUMMARY

Building permits identified: **YES**

The following research sources were consulted in the preparation of this report. An "X" indicates where information was identified in the source and provided in this report.

San Diego County

Year	*Source*	*TP*	*Adjoining*
2013	San Diego County, Development Services		
2012	San Diego County, Development Services		
2011	San Diego County, Development Services		
2010	San Diego County, Development Services		X
2009	San Diego County, Development Services		X
2008	San Diego County, Development Services		
2007	San Diego County, Development Services		X
2006	San Diego County, Development Services		
2005	San Diego County, Development Services		X
2004	San Diego County, Development Services		
2003	San Diego County, Development Services		

BUILDING DEPARTMENT RECORDS SEARCHED

Name: San Diego County
Years: 2003-2013
Source: San Diego County, Development Services, San Diego, CA
Phone: (619) 446-5000

Name: Encinitas
Years: 1971-2012
Source: City of Encinitas, Planning and Building, Encinitas, CA
Phone: (760) 633-2730

Name: Escondido
Years: 1992-2012
Source: City of Escondido, Building Division, Escondido, CA
Phone: (760) 839-4647

Name: San Marcos
Years: 2007-2012
Source: City of San Marcos, Building Division, San Marcos, CA
Phone: (760) 744-1050 x3241

Name: Vista
Years: 1990-2012
Source: City of Vista, Building Division, Vista, CA
Phone: 760-726-1340 ext. 12

TARGET PROPERTY FINDINGS

TARGET PROPERTY DETAIL

Stanley Avenue
Escondido, CA 92026

No Permits Found

ADJOINING PROPERTY FINDINGS

ADJOINING PROPERTY DETAIL

The following Adjoining Property addresses were researched for this report. Detailed findings are provided for each address.

N ASH ST

1914 N ASH ST

Date:	**3/10/2009**
Permit Type:	**1004**
Description:	**OTC** **Cross street: VISTA AVE Description of Work: 452 SQFT AS-BUILT GARAGE CONVERSION TO HOME OFFICE W/ MISC. ELEC. & DEMO EXISTING POOL**
Permit Description:	**PERMIT-SFD ADDN**
Work Class:	
Proposed Use:	Residential Alteration or Addition - Plan Check-Permit
Permit Number:	PDS2009-1004-20090052
Status:	
Valuation:	$0.00
Contractor Company:	
Contractor Name:	

2144 N ASH ST

Date:	**1/22/2010**
Permit Type:	**1031**
Description:	**OTC** **Cross Street: Description of Work: __ROOF__ MOUNT RESIDENTIAL SOLAR PV FOR EXISTING SFD NO. OF MODULES: 33 NO. OF INVERTERS: 7 TOTAL SYSTEM SIZE IN KILOWATTS: 7.085 Per Section 4620 (i) of the zoning ordinance, roof mounted photovoltaic systems shall not extend more than 5' above the highest point of the existing roof.**
Permit Description:	**PERMIT-RENEWABLE ENERGY**
Work Class:	
Proposed Use:	Residential Alteration or Addition - Plan Check-Permit
Permit Number:	PDS2010-1031-20100063
Status:	
Valuation:	$0.00
Contractor Company:	
Contractor Name:	E T S BUILDERS INC

ADJOINING PROPERTY FINDINGS

STANLEY AVE

533 STANLEY AVE

Date:	**7/14/2005**
Permit Type:	**1030**
Description:	**OTC** **Cross street:Ash Description of Work:natural gas line repair**
Permit Description:	**PERMIT-HOMEOWNER/BUSINESS OWNER RELIEF**
Work Class:	
Proposed Use:	Residential Alteration or Addition - Plan Check-Permit
Permit Number:	PDS2005-1030-20050444
Status:	
Valuation:	$0.00
Contractor Company:	
Contractor Name:	

733 STANLEY AVE

Date:	**3/1/2007**
Permit Type:	**2540**
Description:	**Area: Escondido**
Permit Description:	**PLAN CHECK - CURB GRADE IMPROVEMENTS**
Work Class:	
Proposed Use:	Pub Improvement Plan
Permit Number:	PDS2007-2540-4687
Status:	
Valuation:	$0.00
Contractor Company:	
Contractor Name:	GARY LARSON-BHA INC

ADJOINING PROPERTY FINDINGS

734 STANLEY AVE

Date:	**1/13/2010**
Permit Type:	**RFS**
Description:	**Solid Waste - Burned R.V.**
Permit Description:	**General Enforcement**
Work Class:	
Proposed Use:	General Enforcement
Permit Number:	PDS2010-RFS-10-0058718
Status:	
Valuation:	$0.00
Contractor Company:	
Contractor Name:	

Date:	**11/17/2009**
Permit Type:	**1007**
Description:	**OTC** **Cross street: ASH Description of Work: HRA EMERGENCY ELECTRIC REPAIR DUE TO FIRE.**
Permit Description:	**PERMIT-ELECTRICAL**
Work Class:	
Proposed Use:	Residential Alteration or Addition - Plan Check-Permit
Permit Number:	PDS2009-1007-20090735
Status:	
Valuation:	$0.00
Contractor Company:	
Contractor Name:	

ADJOINING PROPERTY FINDINGS

Date:	**3/21/2007**
Permit Type:	**RFS**
Description:	**waste sink, bath tubs & more-older beige pick up truck**
Permit Description:	**General Enforcement**
Work Class:	
Proposed Use:	General Enforcement
Permit Number:	PDS2007-RFS-07-0028774
Status:	
Valuation:	$0.00
Contractor Company:	
Contractor Name:	

Date:	**12/5/2005**
Permit Type:	**RFS**
Description:	**TEN OR MORE HORSES ON PROPERTY, POSSIBLY BOARDING W/OUT PERMIT, "Q" ANIMAL REGS.**
Permit Description:	**General Enforcement**
Work Class:	
Proposed Use:	General Enforcement
Permit Number:	PDS2005-RFS-05-0003237
Status:	
Valuation:	$0.00
Contractor Company:	
Contractor Name:	

GLOSSARY

General Building Department concepts

- **ICC:** The International Code Council. The governing body for the building/development codes used by all jurisdictions who've adopted the ICC guidelines. MOST of the US has done this. Canada, Mexico, and other countries use ICC codes books and guides as well. There are a few states who have added guidelines to the ICC codes to better fit their needs. For example, California has added seismic retrofit requirements for most commercial structures.
- **Building Department (Permitting Authority, Building Codes, Inspections Department, Building and Inspections):** This is the department in a jurisdiction where an owner or contractor goes to obtain permits and inspections for building, tearing down, remodeling, adding to, re-roofing, moving or otherwise making changes to any structure, Residential or Commercial.
- **Jurisdiction:** This is the geographic area representing the properties over which a Permitting Authority has responsibility.
- **GC:** General Contractor. Usually the primary contractor hired for any Residential or Commercial construction work.
- **Sub:** Subordinate contracting companies or subcontractors. Usually a "trades" contractor working for the GC. These contractors generally have an area of expertise in which they are licensed like Plumbing, Electrical, Heating and Air systems, Gas Systems, Pools etc. (called "trades").
- **Journeymen:** Sub contractors who have their own personal licenses in one or more trades and work for different contracting companies, wherever they are needed or there is work.
- **HVAC (Mechanical, Heating & Air companies):** HVAC = Heating, Ventilation, and Air Conditioning.
- **ELEC (Electrical, TempPole, TPole, TPower, Temporary Power, Panel, AMP Change, Power Release):** Electrical permits can be pulled for many reasons. The most common reason is to increase the AMPs of power in an electrical power panel. This requires a permit in almost every jurisdiction. Other commons reason for Electrical permits is to insert a temporary power pole at a new construction site. Construction requires electricity, and in a new development, power has yet to be run to the lot. The temporary power pole is usually the very first permit pulled for new development. The power is released to the home owner when construction is complete and this sometimes takes the form of a Power Release permit or inspection.
- **"Pull" a permit:** To obtain and pay for a building permit.
- **CBO:** Chief Building Official
- **Planning Department:** The department in the development process where the building /structural plans are reviewed for their completeness and compliance with building codes
- **Zoning Department:** The department in the development process where the site plans are reviewed for their compliance with the regulations associated with the zoning district in which they are situated.
- **Zoning District:** A pre-determined geographic boundary within a jurisdiction where certain types of structures are permitted / prohibited. Examples are Residential structure, Commercial/Retail structures, Industrial/Manufacturing structures etc. Each zoning district has regulations associated with it like the sizes of the lots, the density of the structures on the lots, the number of parking spaces required for certain types of structures on the lots etc.
- **PIN (TMS, GIS ID, Parcel#):** Property Identification Number and Tax Map System number.
- **State Card (Business license):** A license card issued to a contractor to conduct business.
- **Building Inspector (Inspector):** The inspector is a building department employee that inspects building construction for compliance to codes.
- **C.O.:** Certificate of Occupancy. This is the end of the construction process and designates that the owners now have permission to occupy a structure after its building is complete. Sometimes also referred to as a Certificate of Compliance.

GLOSSARY

Permit Content Definitions

- Permit Number: The alphanumerical designation assigned to a permit for tracking within the building department system. Sometimes the permit number gives clues to its role, e.g. a "PL" prefix may designate a plumbing permit.
- Description: A field on the permit form that allows the building department to give a brief description of the work being done. More often than not, this is the most important field for EP's to find clues to the prior use(s) of the property.
- Permit Type: Generally a brief designation of the type of job being done. For example BLDG-RES, BLDG-COM, ELEC, MECH etc.

Sample Building Permit Data

Date: Nov 09, 2000
Permit Type: Bldg -
New Permit Number: 101000000405
Status: Valuation: $1,000,000.00
Contractor Company: OWNER-BUILDER
Contractor Name:

Description: New one store retail (SAV-ON) with drive-thru pharmacy. Certificate of Occupancy.

APPENDIX D

INTERVIEWS

PETRA

PETRA GEOTECHNICAL, INC.
Environmental Division
40880 County Center Dr., Suite R, Temecula, CA * (951) 600-9271 * (951) 719-1499

PHASE I CLIENT QUESTIONNAIRE

The purpose of this questionnaire is to obtain information from the client regarding the Property.

Date Sent to Client September 11, 2013 Date Received from Client _____

A. SITE INFORMATION

1. Property Name: APN 224-142-01, 14-lot Subdivision on Stanley Avenue

2. Location (If a map is available, please include it): Stanley Avenue Between N. Ash Street and Conway Drive, Escondido, CA

3. Why is the Phase I required? (Development as a residential parcel, protection from CERCLA liability, etc?): Development as a residential parcel.

4. Is there an Interview Contact for this job? (A current owner, operator, or someone with knowledge of the history and/or processes occurring at the site). ■ Yes ☐ No

   If yes, please provide the following information:
   Person to be interviewed: John Kaye
   Title/Company: Pacific Land Investors LLC.
   Phone number and/or email address: (949) 233-4086 / john@argus-partners.com

5. Do you have any reports for this job (such as previous Phase I's, biology reports, cultural resource reports, geotechnical reports, etc.) ■ Yes ☐ No

   If yes, please provide them for Petra to review. *Date Received from Client* _____

6. As part of our investigation, Petra contacts local agencies to obtain miscellaneous information about the project site such as previous investigations, zoning, and flood zone. Do you have any current restrictions regarding Petra contacting these agencies?

   ☐ Yes ■ No

   If yes, please contact us to discuss further.

B. SITE ACESS

1. Does Petra have access to the property at this time? ■ Yes ☐ No

2. Are there any access restrictions such as a locked gate or required insurance forms? No

3. Is there a site manager that Petra needs to contact prior to visiting the site? No

PETRA GEOTECHNICAL, INC.
Environmental Division
40880 County Center Dr., Suite R, Temecula, CA * (951) 600-9271 * (951) 719-1499

C. LANDOWNER LIABILITY PROTECTIONS

In order to qualify for one of the Landowner Liability Protections offered by the Small Business liability Relief and Brownfields Revitalization of 2001 (the "Brownfields Amendments"), the client must provide the following information (if available) to the environmental professional. Failure to provide this information could result in a determination that "all appropriate inquiry" is not complete.

1. Are you aware of any environmental clean-up liens against the property that are filed or recorded under federal, tribal, state, or local law? (40 CFR 312.25) ☐ Yes ☒ No

   If no, have you or will you conduct a search for any environmental cleanup liens against the property that are filed or recorded in a registry? ☐ Yes ☒ No

   If yes, please provide Petra with this information. _____

   _____

   _____

   If no, do you require Petra to complete this task? ☐ Yes ☐ No

2. Are you aware of any activity and land use limitations (AULs), such as engineering controls, land use restrictions, or institutional controls that are in place on or for the site and/or have been filed or that environmental cleanup liens against the property that are filed or recorded under federal, tribal, state, or local law? (40 CFR 312.25) ☐ Yes ☒ No

   If no, have you or will you conduct a search for any AULs against the property that are filed or recorded in a registry? ☐ Yes ☐ No

   If yes, please provide Petra with this information. _____

   _____

   _____

   If no, do you require Petra to complete this task? ☐ Yes ☐ No

3. As the user of this Environmental Site Assessment, do you have any specialized knowledge or experience related to the property or nearby properties? For example, are you involved in the same line of business as the current or former occupants of the property or an adjoining property so that you would have specialized knowledge of the potential chemicals and processes used by this type of business? ☐ Yes ☒ No

   If yes, please provide Petra with this information. _____

   _____

   _____

PETRA GEOTECHNICAL, INC.
Environmental Division
40880 County Center Dr., Suite R, Temecula, CA * (951) 600-9271 * (951) 719-1499

4. Does the purchase price being paid for this property reasonably reflect the fair market value of the property? ☒ Yes ☐ No

   If you conclude that there is a difference, have you considered whether the lower purchase price is because of any environmental concerns are known or believed to be present at the property?
   ☐ Yes ☒ No

   If yes, please provide Petra with that information. _____

5. Are you aware of commonly known or reasonably ascertainable information about the property that would help the environmental professional to identify conditions indicative of hazardous materials/chemical releases or threatened releases? For example,

   A. Do you know the past uses of the property? ☐ Yes ☒ No

   If yes, please provide Petra with the information. _____

   B. Do you know of specific chemicals that are present or once were present at the property?
   ☐ Yes ☒ No

   If yes, please provide Petra with the information. _____

   C. Do you know of spills or other chemical releases that have taken place at the property?
   ☐ Yes ☒ No

   If yes, please provide Petra with the information. _____

   D. Do you know of any environmental cleanups that have taken place at the property or adjacent properties? ☐ Yes ☒ No

   If yes, please provide Petra with the information. _____

6. As the user of this ESA, based on your knowledge and experience related to the property, are there any obvious indicators that point to the presence or likely presence of contamination at the property?
   ☐ Yes ☒ No

   If yes, please provide Petra with the information. _____

APPENDIX E

RESUMES

PETRA

MR. JONATHAN CAIN
Title: Senior Project Geologist

EDUCATION
BS, Geology, Radford University, Radford, Virginia

Mr. Cain has been in the field of Engineering Geology since 1984. As a project manager he has supervised field personnel and coordinated outside services for implementing geologic and geotechnical investigations for numerous new and/or forensic (distress) site evaluations. His projects have included geotechnical evaluations of hillside and flatland sites, landslide and fault evaluations along with evaluation of damages caused by consolidation or expansive soil conditions and moisture emissions through concrete slabs. Mr. Cain has also managed and conducted numerous environmental projects with special emphasis on Phase I Environmental Site Assessments and Phase II Soil and Groundwater Assessments for vacant, residential and commercial properties.

SELECT PROJECT EXPERIENCE

Environmental Investigations
- Phase I and Limited Phase II investigation, March 2012, KB Homes, Hollywood Beverly Christian Church, Hollywood
- Phase I and Phase II Investigation, January 2012, Meridian Land Development, Casa Blanca Ranch, Yucaipa
- Limited Phase II near-surface soil investigation, September 2011, Long Beach Unified School District, Newcomb Academy, Long Beach
- Limited Phase II near-surface soil investigation, September 2011, Long Beach Unified School District, Roosevelt Elementary School, Long Beach
- Phase I site assessment, July 2011, Castle & Cooke, Lake Elsinore Outlet Mall, Lake Elsinore
- Phase I site assessment, November 2010, Carlsbad Volvo Dealership, Carlsbad
- Phase I site assessment, August 2010; TRS Consultants, Shadow Run Project, Pauma Valley
- Phase I site assessment and report preparation, August 2010; Ryland Homes, Alberhill Ranch Project, City of Lake Elsinore
- Phase I site assessment and report preparation, August 2010; KB Home, Paradiso Project, Indio
- Phase I site assessment, July 2010; Meritage Homes, Rancho 23 Project, Rancho Cucamonga
- Limited Phase II site assessment, July 2010; TRS Consultants, Brisa Del Mar Project, Bonsall

Forensic Distress Investigations
- Big Rock Mesa Landslide, Malibu
- Via Allegre Landslide, San Clemente
- Leighton Street Landslide, Oahu, Hawaii
- Temple Hills Landslide, Laguna Beach
- Crown Cove Landslide, Laguna Beach
- Avenida de Santiago Landslide, Anaheim Hills

Public Agency

- Ocean Beach Bikeway Extension, City of San Diego, San Diego

Educational Facility
- Extensive Fault Investigations, Mt. San Jacinto College Community College District, Menifee

Entertainment/Hospitality
- Design of Soldier-Pile Retaining Wall for Proposed Casino/Resort/Hotel, Jamul Band of Indians, Jamul

Transportation
- Geotechnical Investigation, Mariposa Avenue Bridge and Corrine Way Bridge, Tract 22100, KB Home Costal, Inc., Mockingbird Canyon Area, Riverside County
- Geotechnical Investigation, Nordahl Road Bridge, City of Escondido, San Diego County
- Ocean Beach Bikeway Extension, City of San Diego, San Diego County

Mass Grading
- Sweetwater Ranch Development, Classic Pacific Homes, French Valley Area, Riverside County
- Centex Hemet Development, Centex Homes, City of Hemet, Riverside County
- Bridle Creek Development, William Lyon Homes, Inc., Mockingbird Canyon Area, Riverside County
- Alicante Development, KB Home Costal, Inc., Mockingbird Canyon Area, Riverside County
- Nandina Limited Edition Estate Homes, Flatiron Land Company, Inc., Mockingbird Canyon Area, Riverside County
- Artisan San Jacinto, Artisan Communities, City of San Jacinto, Riverside County

Public Agency
- Ocean Beach Bikeway Extension, City of San Diego, San Diego

Educational Facility
- Extensive Fault Investigations, Mt. San Jacinto College Community College District, Menifee

Residential
- Geotechnical Investigation, Approximately 9.5-Acre Site, Darling Development Group, Mockingbird Canyon Area, Riverside County
- Geotechnical Investigation, Approximately 45.6-Acre Site, Pelican Homes, Cajalco Road, Lake Mathews Area, Riverside County
- Geotechnical Investigation, Approximately 40.5-Acre Site, Vista Ranch Development LLC, Woodcrest Area, Riverside County
- Geotechnical Investigation, Proposed Borrow Area Adjacent Tract 31118, Classic Pacific Homes, French Valley Area, Riverside County California
- Geotechnical Investigation, Gavalin Hills, Baker & Baker, Lake Mathews Area, Riverside County

DR. SIAMAK JAFROUDI
President
Principal-in-Charge

EDUCATION
PhD, Geotechnical Engineering, 1983,
UC Davis
MS, Civil Engineering, 1978, UC Davis

REGISTRATIONS
Civil Engineering, California, PE 36641
Geotechnical Engineer, California, GE 2024
Environmental Assessor, REA 01655

PROFESSIONAL SUMMARY
Dr. Jafroudi has over 34 years of professional experience in geotechnical engineering. His area of specialization is "material characterization" in relation to slope stability evaluation, liquefaction analysis, pavement design, collapse potential, earth retaining structures and earthquake engineering. Dr. Jafroudi's experience encompasses the design and supervision of a multitude of soil mechanics laboratory tests and drilling programs. With a broad range of project experience, he has served as a Principal Engineer on several key projects for such clients as school, university and college districts, public agencies; transportation agencies; residential and commercial developers, as well as private sector clients.

Acquiring a doctorate degree in Geotechnical Engineering as well as a Master of Science degree in Civil Engineering; Dr. Jafroudi maintains extensive working knowledge and experience with respect to these challenging fields. Dr. Jafroudi is a Registered Geotechnical Engineer (GE), a Registered Environmental Assessor (REA), and is registered in Civil Engineering (PE), all in the state of California. Additionally, he is an active member of the American Society of Civil Engineers, the Earthquake Engineering Research Institute and California Geotechnical Engineering Association.

SELECTED PROJECT EXPERIENCE

Environmental Site Assessments
- KB Homes, Hollywood Beverly Christian Church, Hollywood
- Castle & Cooke, Lake Elsinore Outlet Mall, Lake Elsinore
- Covina Transit Plaza, Foothill Transit, Covina
- First Street Bridge Widening, Los Angeles County
- Overland Street Bridge Improvements, Los Angeles County
- 801 Office Tower, Mani Brothers, Los Angeles
- Harmony Grove Site Acquisition, New Urban West, San Diego County
- Site Acquisitions, County of Los Angeles Office of Education, Los Angeles
- Eleven Projects, City of Mission Viejo, Mission Viejo
- Site Acquisitions, Paramount USD, Paramount
- Site Acquisitions, Santa Ana USD, Santa Ana
- Site Acquisition, Nevis Construction, Chino Hills
- Site Acquisitions, Moreno Valley USD, Moreno Valley
- Corona Farms, Confidential Client, Corona
- Amusement Park, Confidential Client, Orange County
- Nursery Site, Confidential Client, Sylmar
- Warehouse Facility, Confidential Client, Norwalk

PETRA

Orange County / Environmental / Corporate

3190 Airport Loop Drive, Suite J1
Costa Mesa, California 92626
T: 714-549-8921 F: 714-549-1438

Riverside County

40880 County Center Drive, Suite R
Temecula, California 92591
T: 951-600-9271 F: 951-600-9215

Los Angeles County

25050 Avenue Kearney, Suite 110A
Valencia, California 91355
T: 661-255-5790 F: 661-255-5242

Desert Region

42-240 Green Way, Suite E
Palm Desert, California 92211
T: 760-340-5303 F: 760-340-5096

Appendix G
Traffic Impact Analysis

LINSCOTT LAW & GREENSPAN engineers

TRAFFIC IMPACT ANALYSIS

PICKERING RESIDENTIAL PROJECT

Escondido, California
April 4, 2014

LLG Ref. 3-13-2242

Linscott, Law & Greenspan, Engineers
4542 Ruffner Street
Suite 100
San Diego, CA 92111
858.300.8800 T
858.300.8810 F
www.llgengineers.com

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APPENDIX

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TRAFFIC IMPACT ANALYSIS

PICKERING RESIDENTIAL PROJECT

Escondido, California
April 4, 2014

1.0 INTRODUCTION

Linscott, Law and Greenspan, Engineers (LLG) has prepared the following traffic impact analysis to assess the impacts to the street system as a result of the Pickering Residential project ("Project"), which proposes the development of 14 single-family residential dwelling units on approximately 4.2 acres. The Project site is located east of N. Ash Street and is bounded by Stanley Avenue to the north and Lehner Avenue to the south within the City of Escondido.

Figure 1–1 shows the Project vicinity and ***Figure 1–2*** illustrates, in more detail, the site location.

The traffic analysis presented in this report includes the following:

- Project Description
- Existing Conditions
- Analysis Approach and Methodology
- Significance Criteria
- Analysis of Existing Conditions
- Project Trip Generation/Distribution/Assignment
- Cumulative Projects
- Analysis of Near-term Scenarios
- Analysis of Long-term (2035) Scenario
- Mid-Afternoon Peak Hour Analysis
- Site Access Discussion/Pedestrian Assessment
- Significance of Impacts and Mitigation Measures

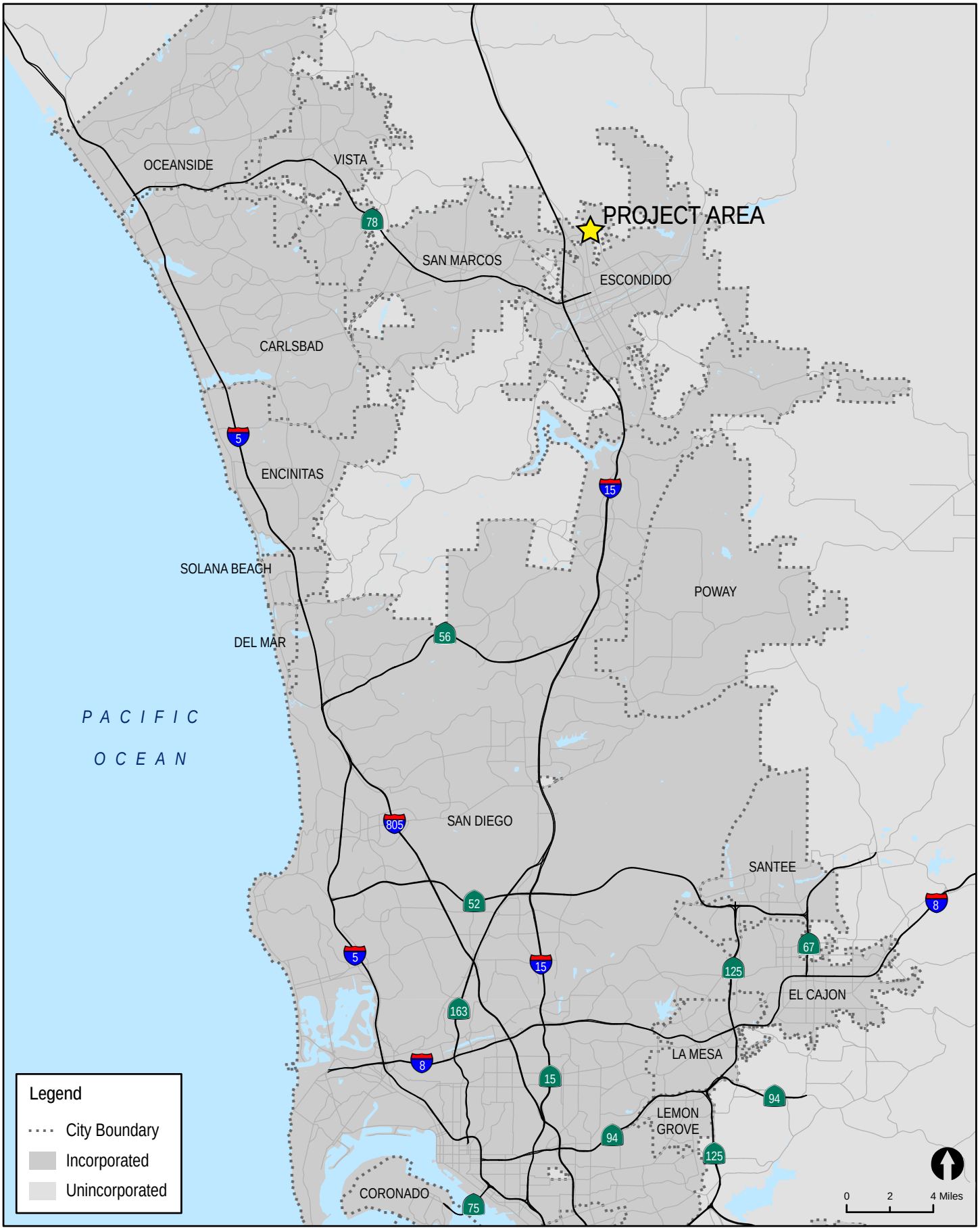

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Figure 1-1

Vicinity Map

PINKERING RESIDENTIAL PROJECT

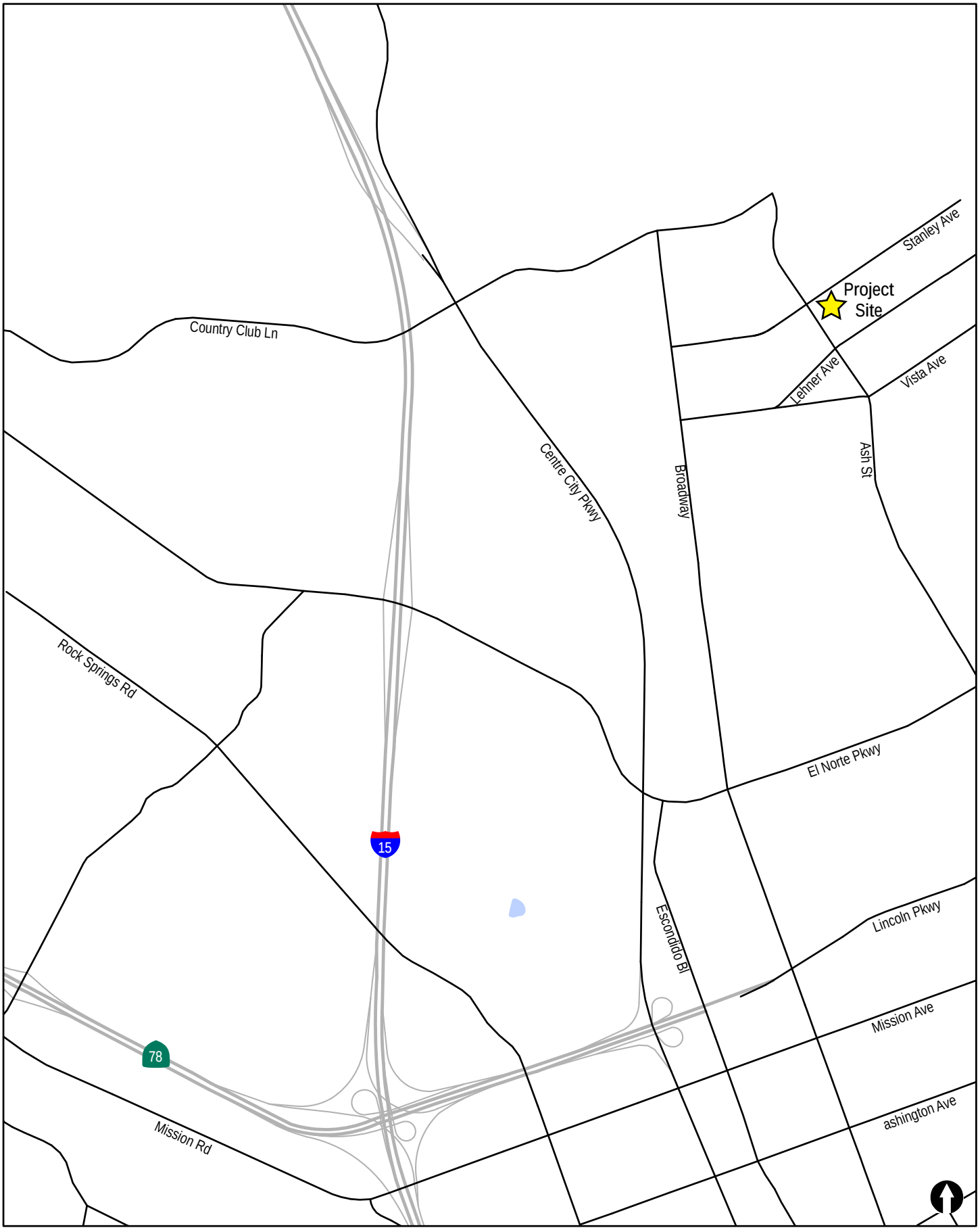

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Figure 1-2

Project Area Map

PINKERING RESIDENTIAL PROJECT

2.0 PROJECT DESCRIPTION

2.1 Project Location

The Pickering Residential Project will be located at the northern limits of the City of Escondido, east of N. Ash Street. The Project site is located along N. Ash Street bounded by Stanley Avenue to the north and Lehner Avenue to the south.

2.2 Project Description

The Project would construct 14 new single-family detached residences on a 4.2 acre site. The site is designated under City of Escondido R-1-10 zoning standards (Single-Family Residential - 10,000 SF minimum lot size).

2.3 Project Access

Access to the site would be provided from a single driveway to Stanley Avenue.

Figure 2–1 depicts the Conceptual Site Plan.

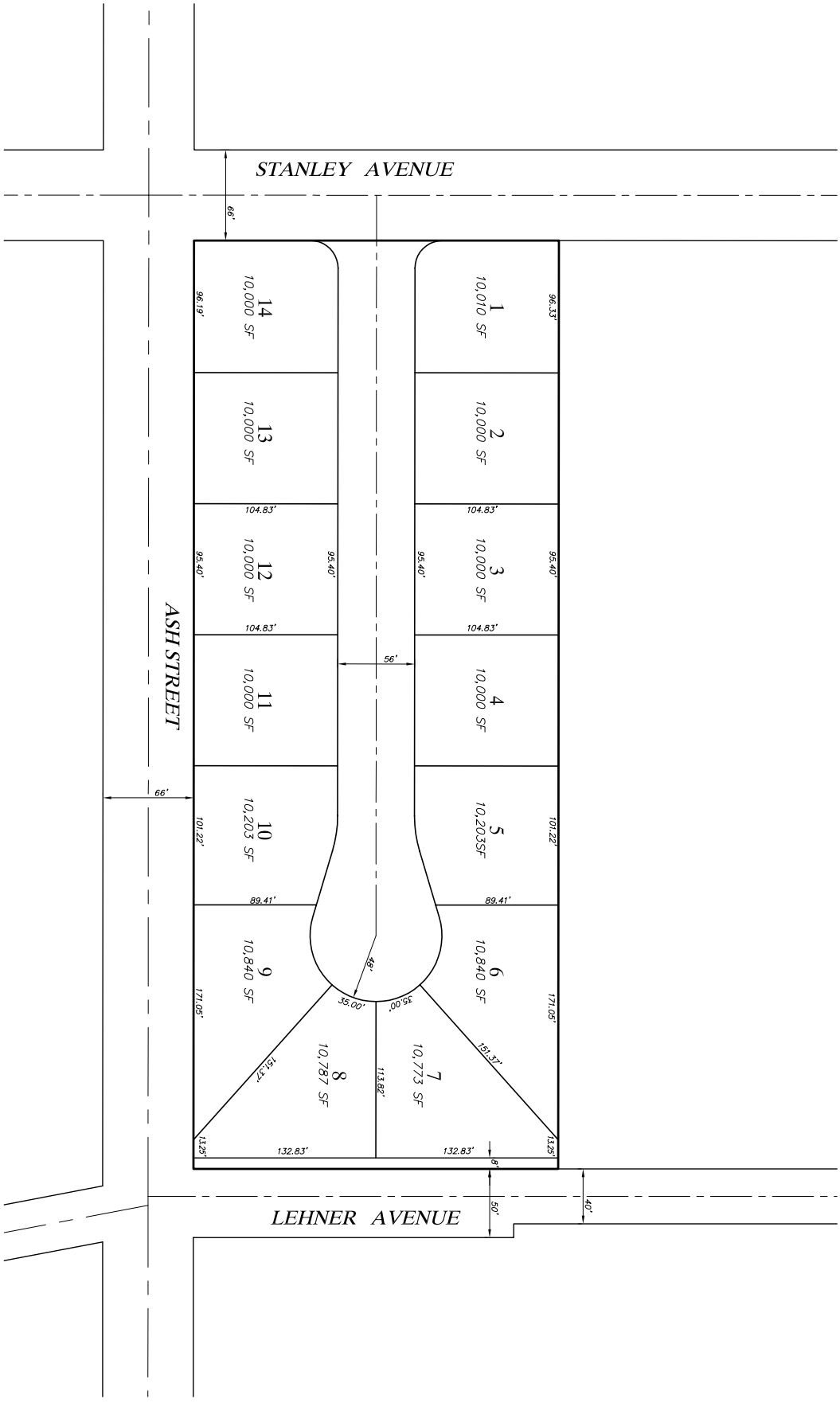

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Figure 2-1

Site Plan

PICKERING RESIDENTIAL PROJECT

3.0 EXISTING CONDITIONS

Effective evaluation of the traffic impacts associated with the proposed *Project* requires an understanding of the existing transportation system within the Project area. ***Figure 3–1*** depicts existing conditions, including signalized/unsignalized intersections and lane configurations.

The study area includes the following five (5) existing intersections and five (5) street segments.

Intersections:

1. N. Broadway / Stanley Avenue
2. N. Ash Street / Stanley Avenue
3. N. Ash Street / Lehner Avenue
4. N. Broadway / Vista Avenue
5. N. Ash Street / Vista Avenue

Segments:

1. N. Ash Street: Between Stanley Avenue and Lehner Avenue
2. N. Ash Street: South of Vista Avenue
3. Stanley Avenue: East of N. Ash Street
4. Vista Avenue: Between N. Broadway and N. Ash Street
5. N. Broadway: South of Vista Avenue

3.1 Existing Transportation Conditions

The following is a brief description of the streets in the Project area.

N. Ash Street is classified as a Local Collector on the City of Escondido Circulation Plan. N. Ash Street is currently constructed as a two-lane undivided roadway. N. Ash Street is currently constructed as a substandard roadway without curb, gutters, or sidewalks provided within the immediate Project area. The posted speed limit is 45 mph in the Project area.

Stanley Avenue is classified as a Local Collector on the City of Escondido Circulation Plan in the Project area. It is constructed as a two-lane roadway in the Project area. Stanley Avenue is currently constructed as a substandard roadway without curb, gutters, or sidewalks provided within the immediate Project area. The posted speed limit is 25 mph in the Project area.

Vista Avenue is classified as a Collector on the City of Escondido Circulation Plan in the Project area. It is constructed as a two-lane roadway in the Project area. Vista Avenue is currently constructed with no curb, gutters, or sidewalks within the immediate Project area. *It is therefore analyzed as a Local Collector.* The posted speed limit is 25 mph in the Project area.

N. Broadway is classified as a Collector Road north of Vista Avenue and a Major Road south of Vista Avenue on the City of Escondido Circulation Plan in the Project area. N. Broadway is constructed as a four-lane roadway with a two-way left turn lane (TWLTL). Parking is generally prohibited and bus stops are provided within the Project area. The posted speed limit is 45 mph

however due to the schools located adjacent to N. Broadway; there are segments with a posted 25 mph speed limit when children are present.

3.2 Existing Traffic Volumes

Table 3–1 is a summary of the most recent available average daily traffic volumes (ADTs) from LLG counts commissioned in 2013. Manual hand counts at the study area intersections and daily 24-hour tube counts were conducted in the week of December 2nd 2013, when local schools were in session. The ADT volumes were rounded to the nearest ten.

Figure 3–2 shows the Existing Traffic Volumes. ***Appendix A*** contains the manual count sheets.

TABLE 3–1
EXISTING TRAFFIC VOLUMES

Street Segment	ADT[a]
N. Ash Street	
Stanley Avenue to Lehner Avenue	4,200
South of Vista Avenue	7,040
Stanley Avenue	
East of N. Ash Street	660
Vista Avenue	
N. Broadway to Ash Street	4,170
N. Broadway	
South of Vista Avenue	10,740

Footnotes:

a. Average Daily Traffic Volume counts conducted the week of December 2, 2013.

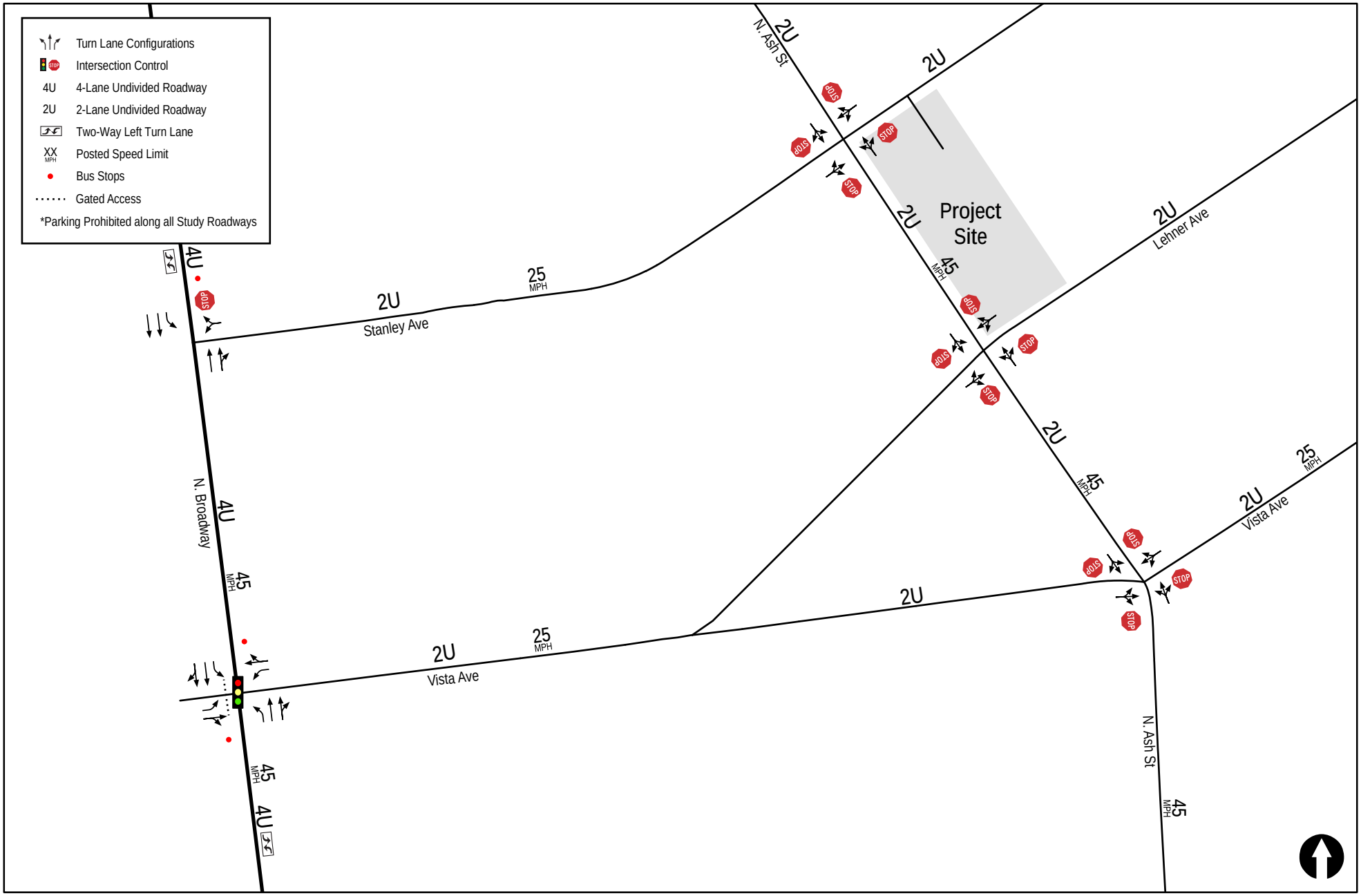

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Figure 3-1

Existing Conditions Diagram

Pickering Residential Project

Linscott Law & Greenspan engineers

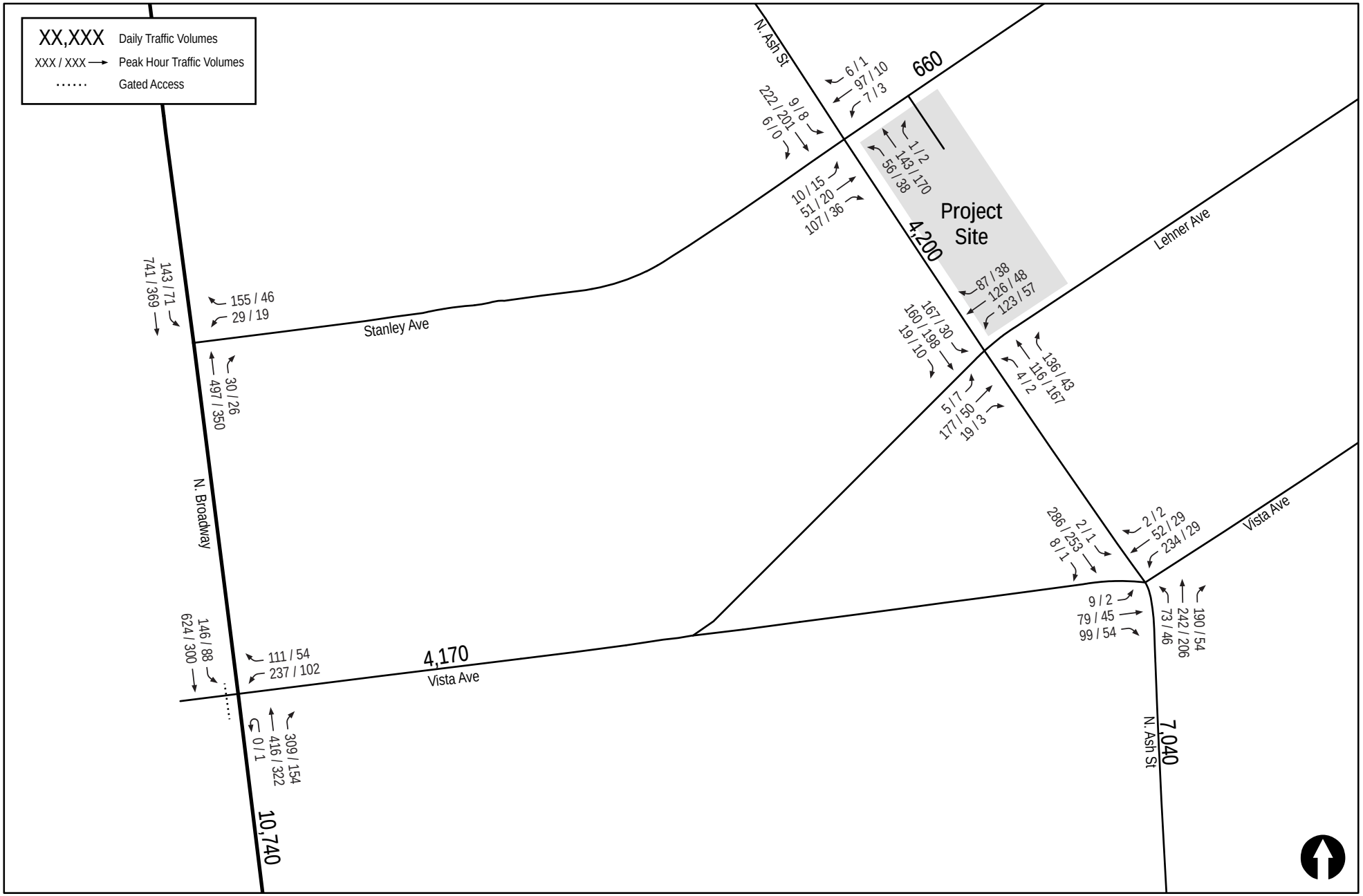

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Figure 3-2

Existing Traffic Volumes

PICKERING RESIDENTIAL PROJECT

4.0 ANALYSIS APPROACH AND METHODOLOGY

4.1 Analysis Approach

The City of Escondido Engineering Staff provides the following guidance on report approach and methodology:

1. The traffic study should include a SANDAG prepared Select Zone Assignment for the project to determine the project traffic distribution.
2. The traffic study should utilize the Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region (April 2002) published by SANDAG, to determine the project traffic volume.
3. Traffic should utilize the following scenarios to determine project traffic impacts at intersections and along roadway segments.
    a. Existing Condition (based on new traffic counts)
    b. Existing + Project Traffic Condition
    c. Existing + Cumulative Projects Traffic Condition
    d. Existing + Cumulative Projects + Project Traffic Condition

4.2 Methodology

Level of service (LOS) is the term used to denote the different operating conditions which occur on a given roadway segment under various traffic volume loads. It is a qualitative measure used to describe a quantitative analysis taking into account factors such as roadway geometries, signal phasing, speed, travel delay, freedom to maneuver, and safety. Level of service provides an index to the operational qualities of a roadway segment or an intersection. Level of service designations range from A to F, with LOS A representing the best operating conditions and LOS F representing the worst operating conditions. Level of service designation is reported differently for signalized intersections, unsignalized intersections and roadway segments.

In the 2000 Highway Capacity Manual (HCM), Level of Service for signalized intersections is defined in terms of delay. The level of service analysis results in seconds of delay expressed in terms of letters A through F. Delay is a measure of driver discomfort, frustration, fuel consumption, and lost travel time. ***Table 4-1*** summarizes the signalized intersections levels of service descriptions.

4.2.1 *Signalized Intersections*

Table 4-2 depicts the criteria, which are based on the average control delay for any particular minor movement (unsignalized intersections) and overall intersection (signalized intersections).

For signalized intersections, level of service criteria is stated in terms of the average control delay per vehicle for a 15-minute analysis period. Control delay includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay.

TABLE 4-1
INTERSECTION LEVEL OF SERVICE DESCRIPTIONS

Level of Service	Description
A	Occurs when progression is extremely favorable and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.
B	Generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of average delay.
C	Generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.
D	Generally results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume-to-capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.
E	Considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume-to-capacity ratios. Individual cycle failures are frequent occurrences.
F	Considered to be unacceptable to most drivers. This condition often occurs with over saturation i.e. when arrival flow rates exceed the capacity of the intersection. It may also occur at high volume-to-capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels

TABLE 4–2
INTERSECTION LOS & DELAY RANGES

LOS	Delay (seconds/vehicle)	
	Signalized Intersections	Unsignalized Intersections
A	≤ 10.0	≤ 10.0
B	10.1 to 20.0	10.1 to 15.0
C	20.1 to 35.0	15.1 to 25.0
D	35.1 to 55.0	25.1 to 35.0
E	55.1 to 80.0	35.1 to 50.0
F	≥ 80.1	≥ 50.1

Source: 2000 Highway Capacity Manual

Level of service A describes operations with very low delay, (i.e. less than 10.0 seconds per vehicle). This occurs when progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.

Level of service B describes operations with delay in the range 10.1 seconds and 20.0 seconds per vehicle. This generally occurs with good progression and/or short cycle lengths. More vehicles stop than for LOS A, causing higher levels of Average delay.

Level of service C describes operations with delay in the range 20.1 seconds and 35.0 seconds per vehicle. These higher delays may result from fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.

Level of service D describes operations with delay in the range 35.1 seconds and 55.0 seconds per vehicle. At level D, the influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or higher v/c ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are frequent.

Level of service E describes operations with delay in the range of 55.1 seconds to 80.0 seconds per vehicle. This is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high v/c ratios. Individual cycle failures are frequent occurrences.

Level of service F describes operations with delay in excess of over 80.0 seconds per vehicle. This is considered to be unacceptable to most drivers. This condition often occurs with over-saturation (i.e., when arrival flow rates exceed the capacity of the intersection). It may also occur at high v/c ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.

4.2.2 *Unsignalized Intersections*

For unsignalized intersections, level of service is determined by the computed or measured control delay and is defined for each minor movement. Level of service is not defined for the intersection as a whole.

Level of Service F exists when there are insufficient gaps of suitable size to allow a side street demand to safely cross through a major street traffic stream. This level of service is generally evident from extremely long control delays experienced by side-street traffic and by queuing on the minor-street approaches. The method, however, is based on a constant critical gap size; that is, the critical gap remains constant no matter how long the side-street motorist waits.

LOS F may also appear in the form of side-street vehicles selecting smaller-than-usual gaps. In such cases, safety may be a problem, and some disruption to the major traffic stream may result. It is important to note that LOS F may not always result in long queues but may result in adjustments to normal gap acceptance behavior, which are more difficult to observe in the field than queuing.

4.2.3 *Street Segments*

Street segment analysis is based upon the comparison of daily traffic volumes (ADTs) to the City of Escondido's Roadway Classification, Level of Service, and ADT Table. This table provides segment capacities for different street classifications, based on traffic volumes and roadway characteristics. ***Table 4-3*** depicts the City of Escondido Roadway Classification, Level of Service, and ADT.

TABLE 4–3
CITY OF ESCONDIDO
PROPOSED LEVEL OF SERVICE STANDARDS
STREET SEGMENT AVERAGE DAILY VEHICLE TRIP THRESHOLDS

Street Classification	Lanes	Cross Sections	Level of Service				
			A	B	C	D	E
Prime Arterial	(8 lanes)	116/136 (NP)	23,800	37,800	51,800	56,700	70,000
Prime Arterial	(6 lanes)	106/126 (NP)	20,400	32,400	44,400	48,600	60,000
Super Major Road	(6 lanes)	90/110 (NP)	17,000	27,000	37,000	40,500	50,000
Major Road	(4 lanes)	82/102 (NP)	12,600	20,000	27,400	30,000	37,000
Collector	(4 lanes)	64/84 (NP)	11,600	18,500	25,300	27,700	34,200
Collector	(4 lanes)	(WP)	6,800	10,800	14,800	16,200	20,000
Local Collector	(2 lanes)	42/66 (NP)	5,100	8,100	11,100	12,200	15,000
Local Collector	(2 lanes)	(WP)	3,400	5,400	7,400	8,100	10,000

Source: *Escondido General Plan, 2011.*

General Notes:

1. (NP) = No Parking
2. (WP) = With Parking

LOS	V/C Ratio
A	0.00 ≥ 0.34
B	0.35 ≥ 0.54
C	0.55 ≥ 0.74
D	0.75 ≥ 0.80
E	0.90 ≥ 1.00
F	>1.00

It should be noted that N. Ash Street and Vista Avenue are not fully built to City of Escondido Standards (Ash Street, Local Collector and Vista Avenue, Collector. ***Table 4–4*** shows a comparison of the current paved widths of these streets and the ultimate width based on City standards. Based on a field review of these two streets and the comparison table below, a 20% reduction in capacity was applied to both streets for analysis purposes. Since each of these roads provides one lane in each direction (the most important indication of capacity), shoulder width does not add a large amount of additional capacity and there is little side street friction along these roads, a 20% capacity reduction was deemed accurate.

TABLE 4–4
PROJECT AREA ROADWAY WIDTHS

Street Segment	Actual Width	Ultimate Width of Road Based on City Standards
N. Ash Street		
Stanley Avenue to Lehner Avenue	20’	42’
Lehner Avenue to Vista Avenue	20’	42’
Vista Avenue		
Broadway to Lehner Avenue	27’	64’

5.0 SIGNIFICANCE CRITERIA

The Project study area includes locations that lie both within the City of Escondido and County of San Diego jurisdictions. The following is a summary of the significance criteria from each jurisdiction that was utilized in this study.

5.1 City of Escondido

The Table below summarizes the amount of traffic which can be added to a LOS D/E/F location before a significant impact is calculated in the City of Escondido.

TABLE 5–1
PROPOSED THRESHOLDS TO IDENTIFY PROJECTS SIGNIFICANT TRAFFIC IMPACT
CITY OF ESCONDIDO

Level of Service with Project	Allowable Change due to Project Impact		
	Roadway Segments		Intersections Delay (sec.)
	V/C	Speed (mph)	
D, E, or F	0.02	1	2

*No Significant Impact occurs at areas in GP Downtown Specific Area that operates on LOS "D" or better.

*Mitigation measures should also be considered for any segment or intersection operating on LOS "F" subject to less than significant impact.

*V: Volume *C: Capacity (use LOS "E")

5.2 County of San Diego

This section provides guidance for evaluating adverse environmental effects a project may have on unsignalized intersections. ***Table 5–2*** was obtained from County guidelines and summarizes the allowable increases in delay or traffic volumes at unsignalized intersections. Exceeding the thresholds in *Table 5–2* would result in a significant impact.

5.2.1 *Unsignalized Intersections*

The operating parameters and conditions for unsignalized intersections differ dramatically from those of signalized intersections. Very small volume increases on one leg or turn and/or through movement of an unsignalized intersection can substantially affect the calculated delay for the entire intersection. Significance criteria for unsignalized intersections are based upon a minimum number of trips added to a critical movement at an unsignalized intersection.

TABLE 5–2
MEASURES OF SIGNIFICANT PROJECT IMPACTS TO CONGESTION ON INTERSECTIONS
ALLOWABLE INCREASES ON CONGESTED ROAD SEGMENTS

Level of service	Unsignalized
LOS E	20 or less peak hour trips on a critical movement
LOS F	5 or less peak hour trips on a critical movement

General Notes:

1. A critical movement is an intersection movement (right-turn, left-turn, through-movement) that experiences excessive queues, which typically operate at LOS F.
2. By adding proposed project trips to all other trips from a list of projects, these same tables are used to determine if total cumulative impacts are significant. If cumulative impacts are found to be significant, each project is responsible for mitigating its share of the cumulative impact.
3. The County may also determine impacts have occurred on roads even when a project's traffic or cumulative impacts do not trigger an unacceptable level of service, when such traffic uses a significant amount of remaining road capacity.
4. For determining significance at signalized intersections with LOS F conditions, the analysis must evaluate both the delay ***and*** the number of trips on a critical movement, in excess of either criteria result in a significant impact.

Traffic volume increases from public or private projects that result in one or more of the following criteria will have a significant traffic impact on an unsignalized intersection as listed in *Table 5–2* and described as text below:

1. The additional or redistributed ADT generated by the Project will add 21 or more peak hour trips to a critical movement of an unsignalized intersection, and cause an unsignalized intersection to operate below LOS D, or
2. The additional or redistributed ADT generated by the Project will add 21 or more peak hour trips to a critical movement of an unsignalized intersection currently operating at LOS E, or
3. The additional or redistributed ADT generated by the Project will add 6 or more peak hour trips to a critical movement of an unsignalized intersection, and cause the unsignalized intersection to operate at LOS F, or
4. The additional or redistributed ADT generated by the Project will add 6 or more peak hour trips to a critical movement of an unsignalized intersection currently operating at LOS F, or
5. Based upon an evaluation of existing accident rates, the signal priority list, intersection geometrics, proximity of adjacent driveways, sight distance or other factors, the Project would significantly impact the operations of the intersection.

6.0 ANALYSIS OF EXISTING CONDITIONS

6.1 Peak Hour Intersection Levels of Service

Table 6–1 summarizes the existing peak hour intersection operations. As shown, the following intersections are calculated to operate at LOS E during the AM peak hour.

- N. Ash Street / Lehner Avenue intersection
- N. Ash Street / Vista Avenue intersection

The remaining intersections are calculated to operate at LOS C or better.

Appendix B contains the Existing peak hour intersection analysis worksheets.

TABLE 6–1
EXISTING INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Delay[a]	LOS[b]
1. N. Broadway / Stanley Avenue	OWSC[c]	AM	21.1	C
		PM	11.4	B
2. N. Ash Street / Stanley Avenue	AWSC[d]	AM	12.0	B
		PM	9.0	A
3. N. Ash Street / Lehner Avenue	AWSC	AM	30.5	E
		PM	11.1	B
4. N. Broadway / Vista Avenue	Signal	AM	13.0	B
		PM	8.7	A
5. N. Ash Street / Vista Avenue	AWSC	AM	47.0	E
		PM	10.9	B

Footnotes:

a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. OWSC - One-Way Stop Controlled intersection. Minor street left-turn delay is reported.
d. AWSC – All-Way Stop Controlled intersection.

SIGNALIZED		UNSIGNALIZED	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 45.0	D	25.1 to 30.0	D
45.1 to 80.0	E	30.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

6.2 Daily Street Segment Levels of Service

Table 6–2 summarizes the existing segment operations along the key study area roadways. As shown, all roadway segments are calculated to currently operate at acceptable LOS C or better on a daily basis.

TABLE 6–2
EXISTING STREET SEGMENT OPERATIONS

Street Segment	Functional Classification	Capacity (LOS E) [a]	ADT [b]	LOS [c]	V/C [d]
N. Ash Street					
Stanley Ave to Lehner Ave	Local Collector	12,000[f]	4,200	B	0.350
South of Vista Ave	Local Collector	12,000[f]	7,040	C	0.587
Stanley Avenue [e]					
East of N. Ash St	Residential Collector	4,500	660	C	N/A
Vista Avenue					
N. Broadway to Lehner Ave	Local Collector	12,000[f]	4,170	B	0.348
N. Broadway					
South of Vista Ave	Major Road	37,000	10,740	A	0.290

Footnotes:

a. Capacities based on *City of Escondido Roadway Classification Table* (See *Table 4-3*).

b. Average Daily Traffic Volumes.

c. Level of Service.

d. Volume to Capacity.

e. Level of Service is not reported for residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Level of service normally applies to roads carrying through traffic between major traffic generators and attractors. County equates to better than LOS C operations.

f. A 20% reduction in capacity was applied to account for roadways not fully built to City standards.

7.0 TRIP GENERATION/DISTRIBUTION/ASSIGNMENT

The following is a discussion of the Project trip generation calculations and the Project traffic distribution and assignment through the local network.

7.1 Trip Generation

The Project proposes to develop 14 single-family estate style homes on an approximately 4.2 acre property. Homes will be constructed to City of Escondido R-1-10 zoning standards (Single-Family Residential - 10,000 SF minimum lot size).

The Project traffic generation calculations were conducted using the trip generation rates published in the SANDAG's *"Not so Brief Guide of Vehicular Traffic Generation Rates for San Diego Region" (April 2002).*Based on the type and density of homes proposed by the Project, SANDAG specifies a trip rate of 10.0/ unit.

Table 7–1 shows a summary of the Project traffic generation. As tabulated the Project is calculated to generate 140 daily trips with 11 trips (3 inbound/8 outbound) in the AM peak hour, 11 trips (7 inbound/4 outbound) in the Mid-Afternoon peak hour and 14 trips (10 inbound/4 outbound) during the PM peak hour.

7.2 Trip Distribution/Assignment

The Project traffic was distributed to the local street system based on the Project's proximity to I-15, local roadway network, employment centers, commercial areas, local schools and traffic circulation.

Figure 7–1 depicts the Project trip distribution percentages. ***Figure 7–2*** depicts the AM/PM peak hour Project traffic volumes. ***Figure 7–3*** depicts Existing + Project traffic volumes.

TABLE 7–1
PROJECT TRIP GENERATION

Land Use	Size [a]	Daily Trip Ends (ADTs)		AM Peak Hour					Mid Afternoon Peak Hour (Between 2:00 PM and 4:00 PM					PM Peak Hour				
		Rate [b]	Volume	% of ADT	In:Out Split	Volume			% of ADT [b]	In:Out Split	Volume			% of ADT	In:Out Split	Volume		
						In	Out	Total			In	Out	Total			In	Out	Total
Residential	14 DU	10 /DU	140	8%	30:70	3	8	11	7.5%	70:30	7	4	11	10%	70:30	10	4	14

Footnotes:

a. Rate is based on SANDAG's (Not So) Brief Guide of Vehicular Traffic Generation Rates for the San Diego Region, April 2002.

b. Mid-Afternoon peak hour percentages estimated based on vehicles on roadways serving primarily residential traffic.

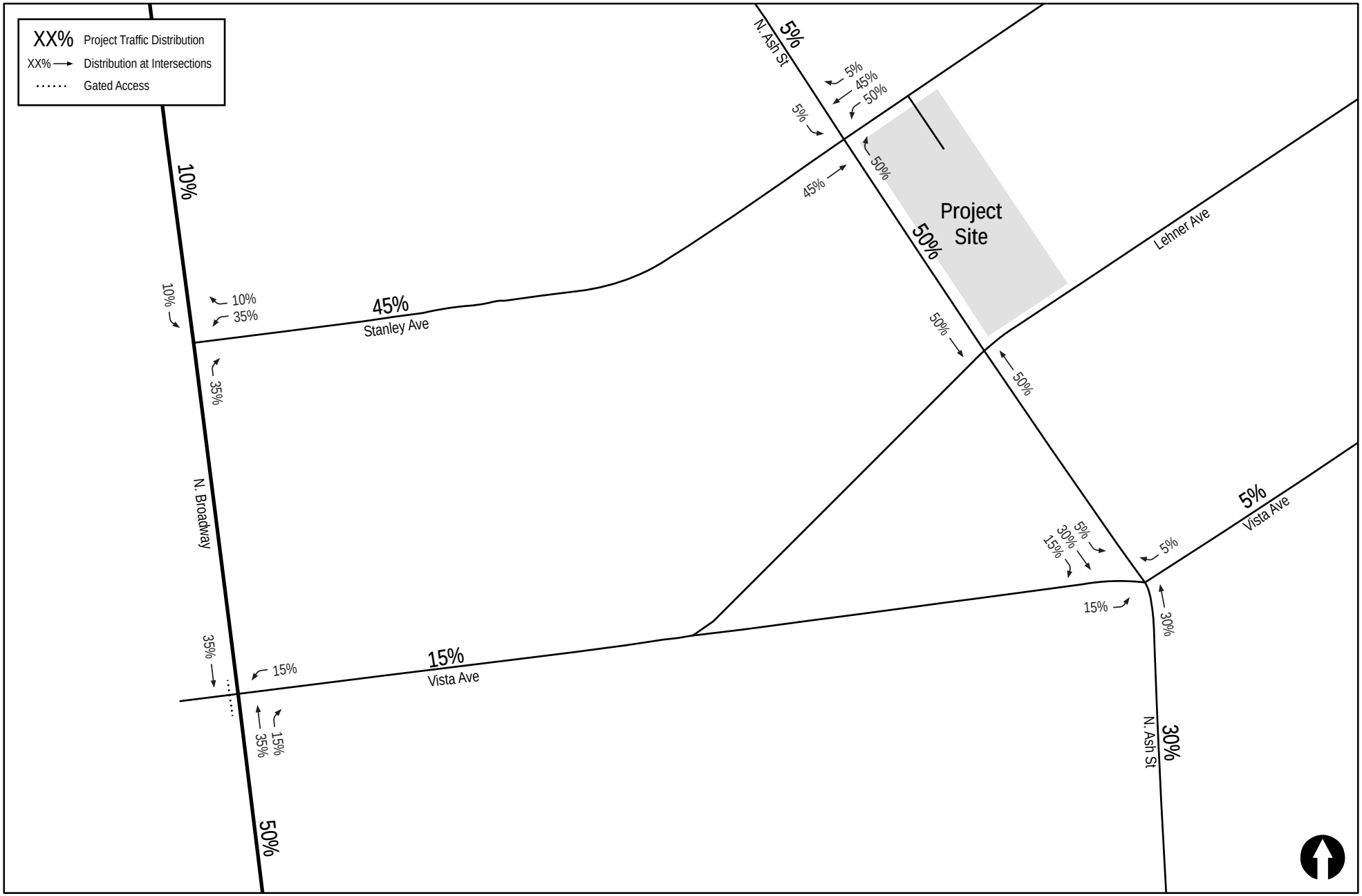

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Figure 7-1

Project Traffic Distribution

PICKERING RESIDENTIAL PROJECT

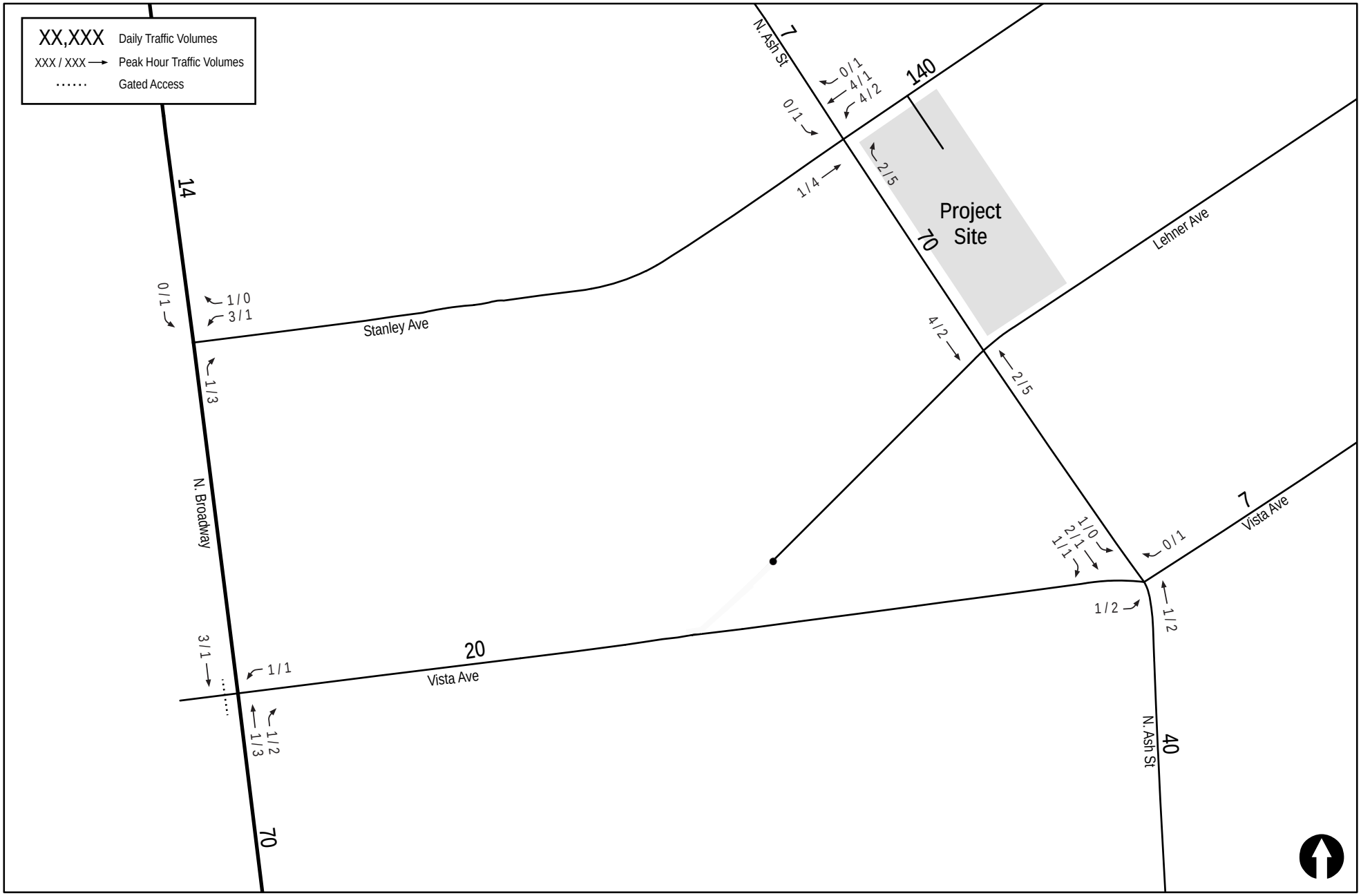

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Figure 7-2

Project Traffic Volumes

PICKERING RESIDENTIAL PROJECT

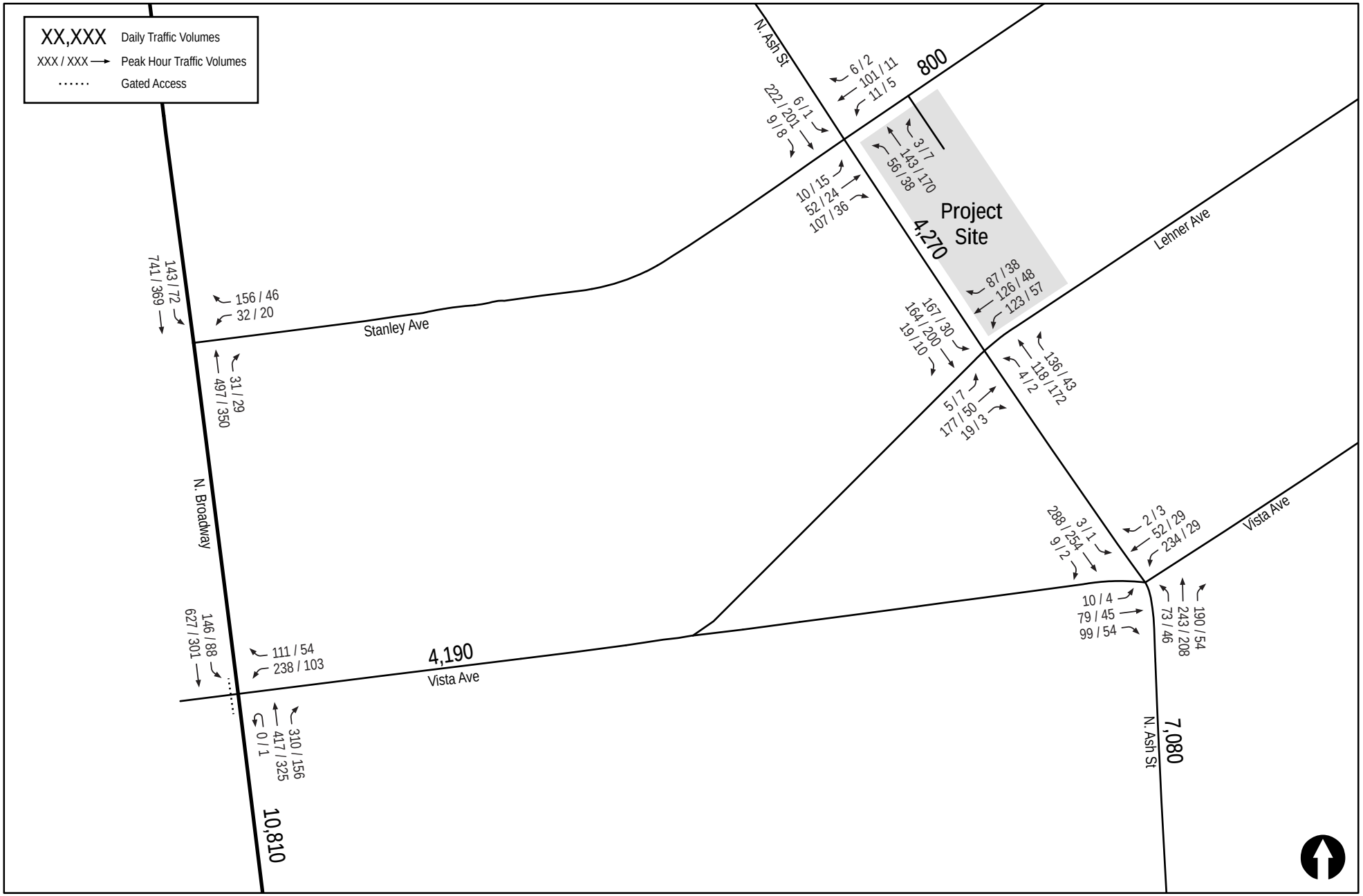

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Figure 7-3

Existing + Project Traffic Volumes

PICKERING RESIDENTIAL PROJECT

8.0 CUMULATIVE PROJECTS

Future immediate area cumulative development potential was taken into consideration. Based on a review of the Project area and discussions with City staff, several specific cumulative development Projects were identified that are either planned or on going in the vicinity of the study area. The following is a brief description of the cumulative Projects.

8.1 Description of "Adjacent" Residential Projects

There are other planned residential projects within the immediate project area that are in the planning stages which will have a potential impact on the circulation system. These projects were included and analyzed as a separate cumulative analysis. These residential projects are described below.

Zenner Residential is located along Lehner Avenue between Nina Place and N. Ash Street and proposes to construct 33 single-family residential units on 5.6 acres. In addition, the project, proposes to close Lehner Avenue and providing a cul-de-sac just east of Vista Avenue. As a result, redistribution of volumes will occur due to the closure of Lehner Drive to through traffic.

The project is calculated to generate 330 ADT with 26 AM peak hour trips with 8 inbound and 18 outbound trips and 33 PM peak hour trips with 23 inbound and 10 outbound trips. Access is proposed to N. Ash Street and Lehner Avenue.

Baker Residential is located along Stanley Avenue east of the proposed project. The project proposes to construct 16 single-family residential units and 4.6-acre site. Access is to Stanley Avenue. The project is calculated to generate 160 ADT with 13 AM peak hour trips with 4 inbound and 9 outbound trips and 16 PM peak hour trips with 11 inbound and 5 outbound trips.

Boer Residential is located along Stanley Avenue and adjacent to and east of the "Baker" residential project. The project proposes to construct 16 single-family residential units and 4.6-acre site. Access is to Stanley Avenue. The project is calculated to generate 160 ADT with 13 AM peak hour trips with 4 inbound and 9 outbound trips and 16 PM peak hour trips with 11 inbound and 5 outbound trips.

Baker Conway Residential is located along the southwestern corner of the Stanley Avenue and Conway Drive intersection and proposes to construct 14 single-family residential units on the site. Access is to Lehner Avenue. The project is calculated to generate 140 ADT with 11 AM peak hour trips with 3 inbound and 8 outbound trips and 14 PM peak hour trips with 10 inbound and 4 outbound trips.

Figure 8–1 depicts the "Adjacent" Residential Cumulative project traffic volumes. ***Figure 8–2*** depicts the Existing + Project + "Adjacent" Residential projects traffic volumes. The volumes on this figure include "Adjacent" Residential project volumes and the resultant redistribution of volumes that will occur due to the closure of Lehner Drive to through traffic.

8.2 Description of Regional Cumulative Projects

TR 883 – TR 883 is a proposed 11 unit single-family residential project located at the northeast corner of El Norte Parkway and Alita Lane in the City of Escondido. The project is calculated to generate 110 daily trips, 9 AM peak hour trips with 3 inbound and 6 outbound trips and 11 PM peak hour trips with 8 inbound and 3 outbound trips.

TR 854 – TR 854 is a proposed 10 unit single-family residential project located on McNaughton near La Honda Drive in the City of Escondido. The project is calculated to generate 100 daily trips, 8 AM peak hour trips with 2 inbound and 6 outbound trips and 10 PM peak hour trips with 7 inbound and 3 outbound trips.

BG Residential (TR 889) is located along Stanley Avenue and adjacent to the "Proposed Project" along the east side. The project proposes to construct 16 single-family residential units and 4.6-acre site. Access is to Stanley Avenue. The project is calculated to generate 160 ADT with 13 AM peak hour trips with 4 inbound and 9 outbound trips and 16 PM peak hour trips with 11 inbound and 5 outbound trips.

Merit Residential is located along Lehner Avenue east of N. Ash Street adjacent to the Boer Residential project. The project proposes to construct 11 single-family residential units and 3.2-acre site. Access is to Lehner Avenue. The project is calculated to generate 110 ADT with 9 AM peak hour trips with 3 inbound and 6 outbound trips and 11 PM peak hour trips with 8 inbound and 3 outbound trips.

2002 69 CUP – 2002 69 CUP is a proposed 143 unit elder care facility located on the west side Broadway, south of Village Lane in the City of Escondido. The project is calculated to generate 358 daily trips, 14 AM peak hour trips with 8 inbound and 6 outbound trips and 29 PM peak hour trips 15 inbound and 14 outbound trips.

TR 864 – TR 864 is a proposed 18 unit single-family residential project located on the east side North Broadway opposite Meadowbrook in the City of Escondido. The project is calculated to generate 180 daily trips, 14 AM peak hour trips with 4 inbound and 10 outbound trips and 18 PM peak hour trips with 13 inbound and 5 outbound trips.

The ISKCON Cultural Center is a 40,663 square-foot development proposed to be located south of Rincon Avenue and east of Ash Street. The proposed development would include a cultural hall, classrooms, dormitory, bookstore, dining hall and a main temple. A traffic impact report was conducted for the project in August of 1999 by O'Rourke Engineering (OE), which calculated that the project would generate approximately 360 ADT with 11 inbound and 7 outbound trips during the AM peak hour and 12 inbound and 13 outbound trips during the PM peak hour.

Hidden Valley Ranch is a proposed 179-unit single-family residential subdivision located in the northeast section of the City of Escondido, east of Conway Drive/Centennial Way and south of Rincon Avenue. This project is calculated to generate 1790 daily trips, 143 AM peak hour trips with

43 inbound and 100 outbound trips and 179 PM peak hour trips with 125 inbound and 54 outbound trips.

Henry Ranch is a proposed 125-unit single-family residential subdivision located on the located on the north side of East Washington Avenue, west of Valley Center Road. This project is calculated to generate 1,250 daily trips, 100 AM peak hour trips with 30 inbound and 70 outbound trips and 125 PM peak hour trips with 88 inbound and 38 outbound trips.

North Avenue Estates is a proposed 34-unit single-family residential project on a 17.2-acre site. The project is located in the northeast quadrant of the North Avenue / Laurashawn Lane intersection. Access to the site is proposed via North Avenue opposite Conway Drive and via Tamara Drive to Laurashawn Lane. The project is calculated to generate 340 ADT with 27 AM peak hour trips with 8 inbound and 19 outbound trips and 34 PM peak hour trips with 24 inbound and 10 outbound trips.

Figure 8–3 depicts the regional Cumulative projects traffic volumes. ***Figure 8–4*** depicts the Existing + Project + Total Cumulative projects traffic volumes.

Appendix C contains the Cumulative projects information.

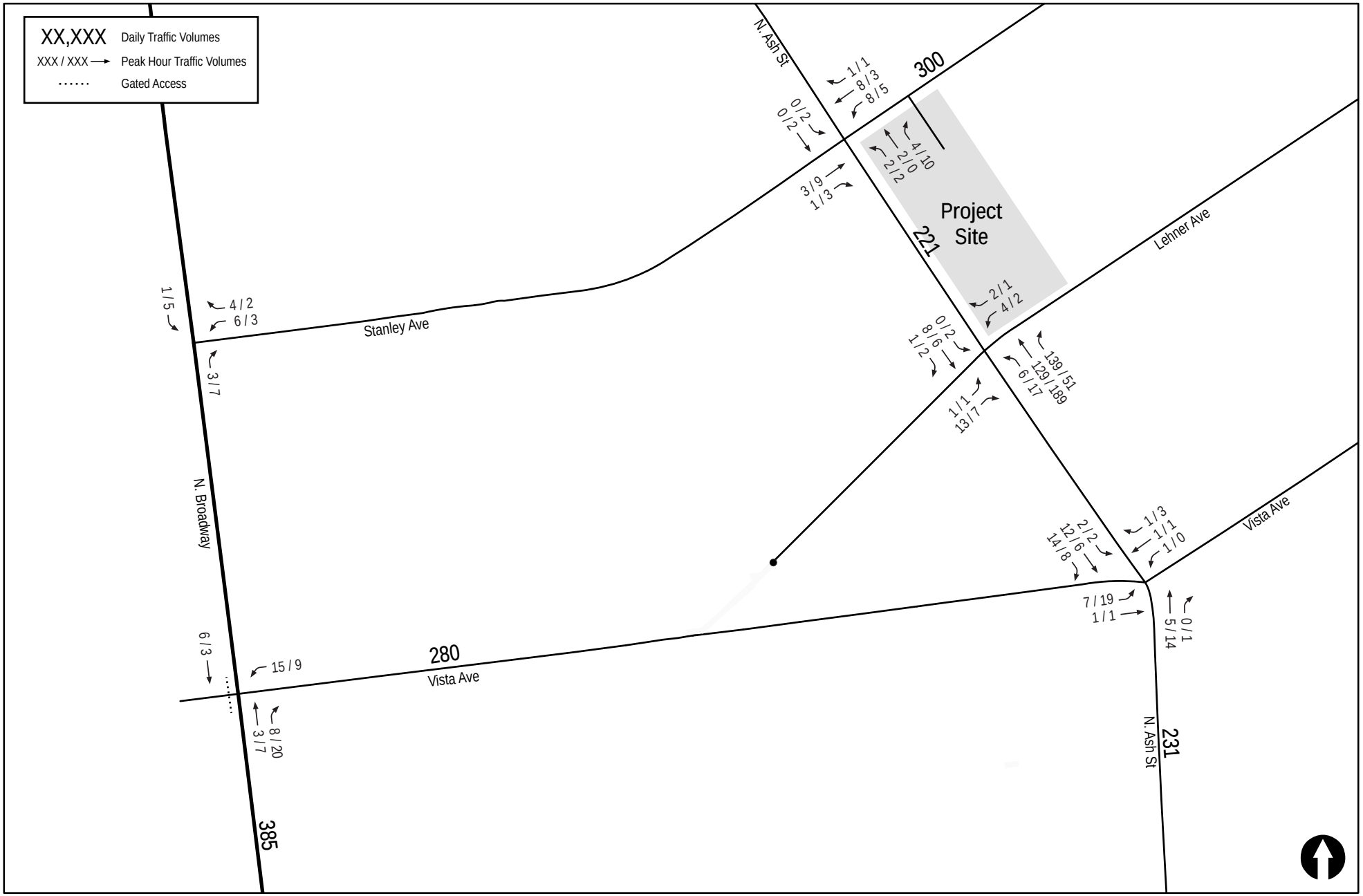

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Figure 8-1

"Adjacent" Residential Projects Traffic Volumes

PICKERING RESIDENTIAL PROJECT

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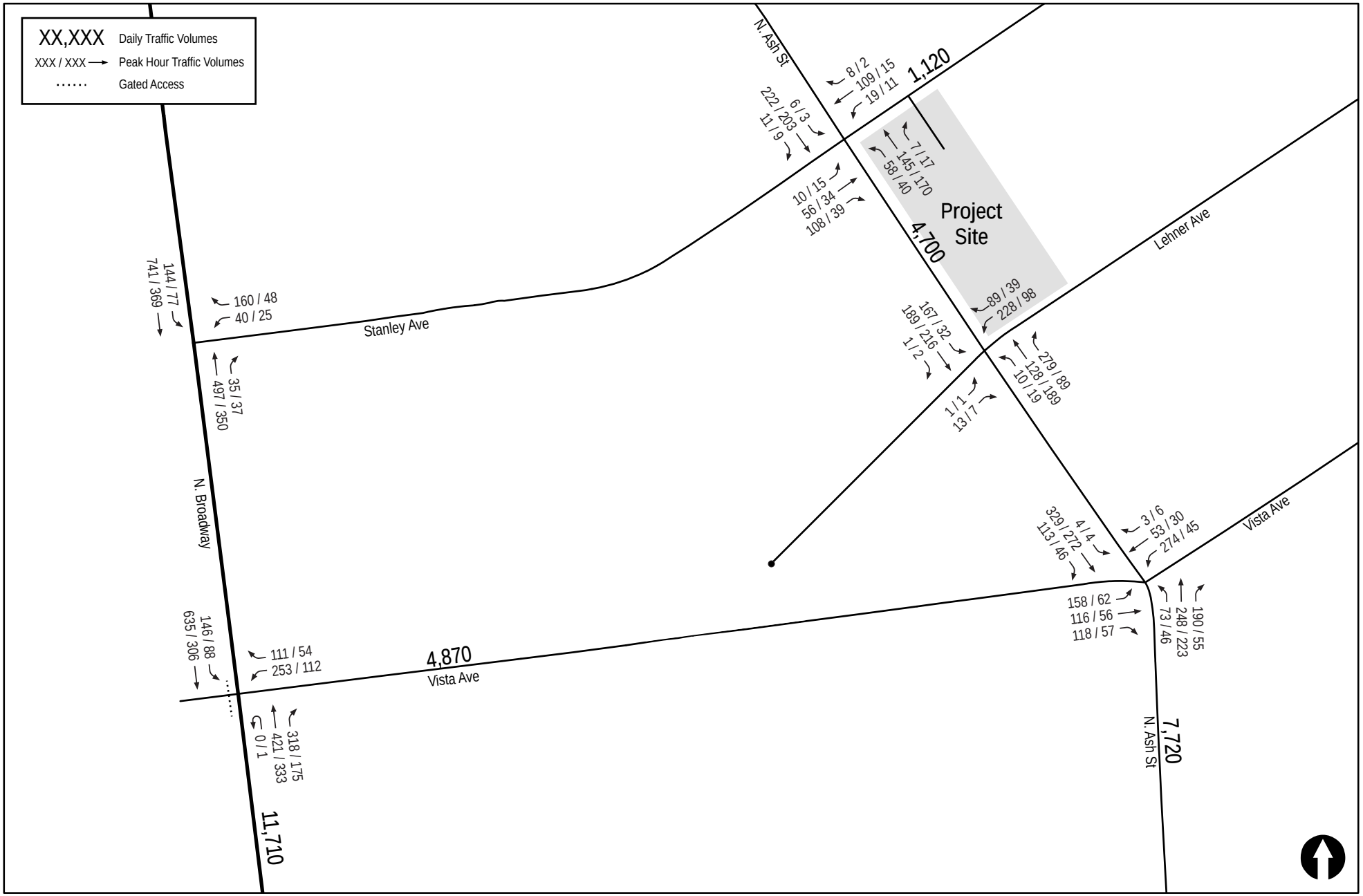

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Figure 8-2

Existing + Project + "Adjacent" Residential Projects Traffic Volumes

PICKERING RESIDENTIAL PROJECT

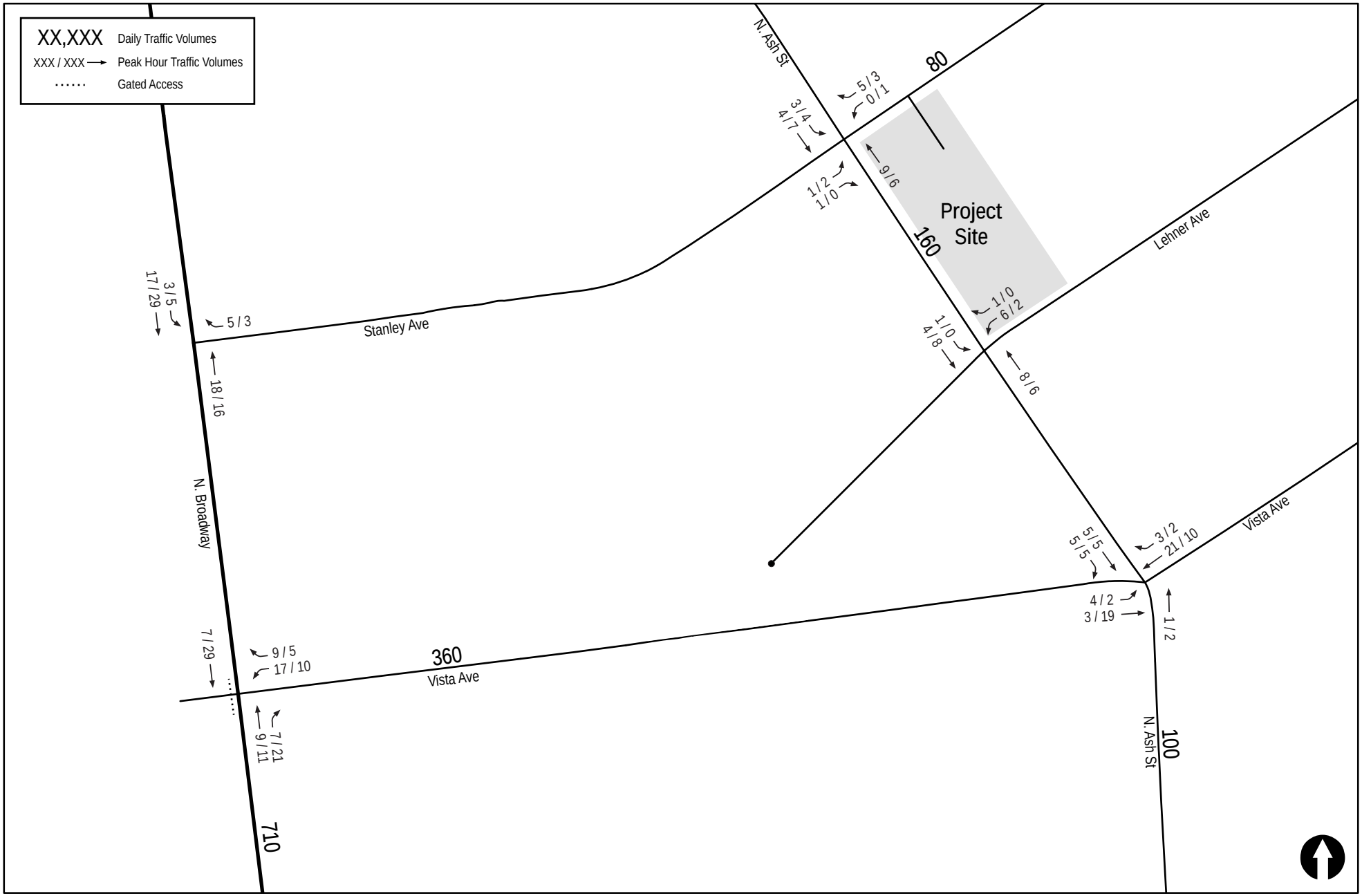

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Figure 8-3

Regional Cumulative Projects Traffic Volumes

PICKERING RESIDENTIAL PROJECT

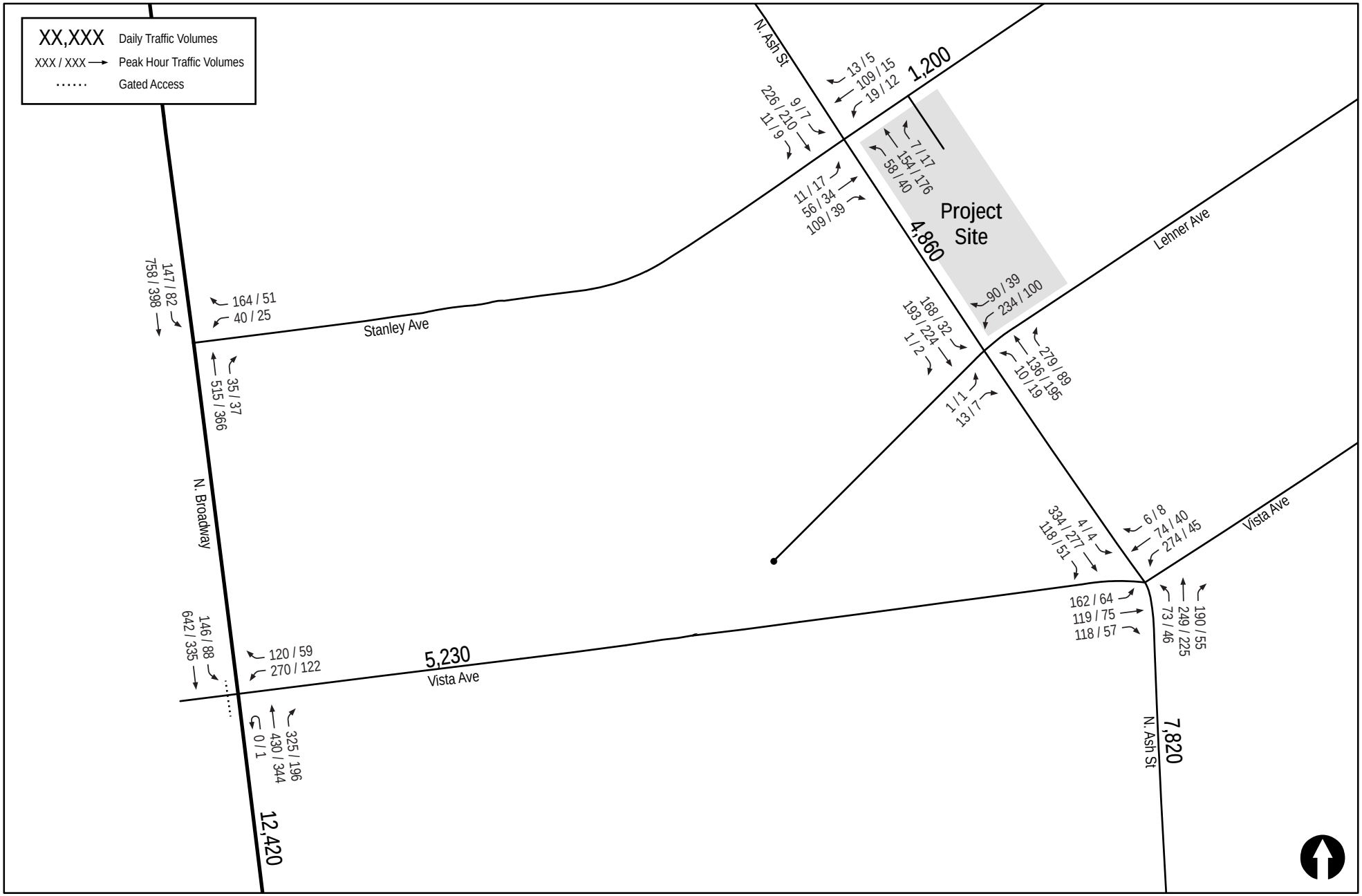

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Figure 8-4

Existing + Project + Total Cumulative Projects Traffic Volumes

PICKERING RESIDENTIAL PROJECT

9.0 ANALYSIS OF NEAR-TERM SCENARIOS

The following is a summary of the operational analyses for the various street-system components for the near-term traffic scenarios.

9.1 Existing + Project

9.1.1 *Intersection Analysis*

Table 9–1 summarizes the peak hour intersection operations with the addition of Project traffic. *Table 9–1* shows that all the study area intersections are calculated to operate at LOS C or better during both the AM and PM peak hours except the following:

- N. Ash Street and Lehner Avenue intersection (LOS E during the AM peak hour)
- N. Ash Street and Vista Avenue intersection (LOS E during the AM peak hour)

The increase in delay due to the project traffic at these intersections is less than the 2.0 seconds of delay allowed to an LOS E operating intersection by the established significance criteria. Therefore, ***no significant direct impact is calculated for this scenario.***

Appendix D contains the Existing + Project peak hour intersection analysis worksheets.

9.1.2 *Segment Operations*

Table 9–2 summarizes the roadway segment operations with the addition of Project traffic. As seen in *Table 9–2*, the study area segments are calculated to continue to operate at LOS C or better on a daily basis.

9.2 Existing + Project + "Adjacent" Residential Projects

The analysis assumes the closure to through traffic of Lehner Avenue east of Vista Avenue. Existing traffic has been re-routed to adjacent intersections within the immediate study area and added to project and cumulative project traffic volumes.

9.2.1 *Intersection Analysis*

Table 9–1 summarizes the peak hour intersection operations with the addition of the "adjacent" residential projects traffic. *Table 9–1* shows that all the following intersection is calculated to operate at LOS F during the AM peak hour:

- N. Ash Street and Vista Avenue intersection

The remaining study area intersections are calculated to continue to operate at LOS D or better during both the AM and PM peak hours. The N. Ash Street and Lehner Avenue intersection is calculated to operate at LOS C due to the rerouting of traffic as a result of the Lehner Avenue cul-de-sac east of Vista Avenue.

TABLE 9–1
NEAR-TERM INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project			Significant?	Existing + Project + "Adjacent" Residential Projects			Significant?
			Delay[a]	LOS[b]	Delay	LOS	Δ[c]		Delay	LOS	Δ	
1. N. Broadway / Stanley Ave	MSSC[d]	AM	21.1	C	22.2	C	1.1	No	26.1	D	3.8	No
		PM	11.4	B	11.4	B	0.0	No	11.7	B	0.3	No
2. N. Ash St / Stanley Ave	AWSC[e]	AM	12.0	B	12.3	B	0.3	No	13.0	B	0.7	No
		PM	9.0	A	9.1	A	0.1	No	9.6	A	0.4	No
3. N. Ash St / Lehner Ave	AWSC	AM	30.5	E	31.4	E	0.9	No	23.4	C	(8.0) [f]	No
		PM	11.1	B	11.2	B	0.1	No	11.6	B	0.4	No
4. N. Broadway / Vista Ave	Signal	AM	13.0	B	13.1	B	0.1	No	14.2	B	1.1	No
		PM	8.7	A	8.7	A	0.0	No	8.9	A	0.2	No
5. N. Ash St / Vista Ave	AWSC	AM	47.0	E	47.4	E	0.4	No	**75.8**	**F**	**28.4**	**Yes**
Mitigated		*AM*						–	*29.2*	*C*		–
		PM	10.9	B	11.0	B	0.1	No	13.5	B	2.5	No

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes an increase in delay due to project.
d. MSSC – Minor street Stop Controlled intersection. Minor street left turn delay is reported.
e. AWSC – All-Way Stop Controlled intersection.
f. Intersection delay improved with rerouting of existing traffic due to closure of Lehner Avenue east of Vista Avenue to through traffic, as part of the Zenner residential project.

SIGNALIZED		UNSIGNALIZED	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 45.0	D	25.1 to 30.0	D
45.1 to 80.0	E	30.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

General Notes:
BOLD typeface indicates a potentially significant impact.

TABLE 9–2
NEAR-TERM STREET SEGMENT OPERATIONS

Street Segment	Capacity (LOS E) [a]	Existing			Existing + Project				Significant?	Existing + Project + "Adjacent" Residential Projects				Significant?
		ADT[b]	LOS[c]	V/C[d]	ADT	LOS	V/C	Δ[e]		ADT	LOS	V/C	Δ	
N. Ash Street														
Stanley Ave to Lehner Ave[f]	12,000[g]	4,200	B	0.276	4,270	B	0.281	0.005	No	4,700	B	0.309	0.028	No
South of Vista Ave[f]	12,000[g]	7,040	C	0.463	7,080	C	0.466	0.003	No	7,720	C	0.508	0.040	No
Stanley Avenue														
East of N. Ash St	4,500[h]	660	C	N/A	800	C	N/A	N/A	No	1,120	C	N/A	N/A	No
Vista Avenue														
N. Broadway to Ash St	12,000[g]	4,170	B	0.348	4,190	B	0.349	0.002	No	4,870	B	0.406	0.057	No
N. Broadway														
South of Vista Ave	37,000	10,740	A	0.290	10,810	A	0.292	0.002	No	11,710	A	0.316	0.024	No

Footnotes:

a. Capacities based on the *City of Escondido Roadway Classification Table* (See *Table 4-3*).
b. Average Daily Traffic
c. Level of Service
d. Volume to Capacity ratio
e. Project Attributable increase in V/C
f. Roadway Segment lies within County of San Diego.
g. A 20% reduction in capacity was applied to this segment, as it is not fully built to City standards.
h. Level of Service is not reported for residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Level of service normally applies to roads carrying through traffic between major traffic generators and attractors. County equates LOC better than LOS C operations.

With the addition of the 4 "Additional" cumulative projects and project traffic to the N. Ash Street / Vista Avenue intersection, the increase in delay due to the project traffic at this intersection is greater than the 2.0 seconds of delay allowed to an LOS E operating intersection by the established significance criteria. Therefore, ***a significant impact is calculated at this intersection.***

With the installation of a traffic signal, exclusive left-turn lanes and shared through-right lanes on all approaches at the N. Ash Street / Vista Avenue intersection, this impact will be mitigated to a level below significance.

Appendix E contains the (Rerouted) Existing + Project + 4 "Adjacent" Cumulative projects peak hour intersection analysis worksheets.

9.2.2 *Segment Operations*

Table 9–2 summarizes the roadway segment operations with the addition of the "adjacent" residential projects project traffic. As seen in *Table 9–2*, the study area segments are calculated to continue to operate at LOS C or better on a daily basis.

9.3 Existing + Project + Total Cumulative Projects

9.3.1 *Intersection Analysis*

Table 9–3 summarizes the peak hour intersection with the addition of the remaining regional cumulative projects traffic. *Table 9–3* shows that all the study area intersections are calculated to continue to operate at LOS D or better during both the AM and PM peak hours, except the following intersection

- N. Ash Street and Vista Avenue (LOS F during the AM peak hour)

With the combined addition of cumulative projects and project traffic to the N. Ash Street / Vista Avenue intersection, the delay-increase at this intersection is greater than the 2.0 seconds of delay allowed to an LOS E operating intersection by the established significance criteria. Therefore, ***a significant impact is calculated at this intersection.***

The installation of a traffic signal, exclusive left-turn lanes and shared through-right lanes on all approaches at the N. Ash Street / Vista Avenue intersection will mitigate this impact to a level below significance.

During the AM peak hour, the calculated queue in the southbound approach at the N. Ash Street / Vista Avenue intersection is 320 to 400 feet and the distance to the upstream intersection at Lehner Avenue is 700 feet. Therefore the southbound queue on N. Ash Street is not expected to negatively impact the N. Ash Avenue / Lehner Avenue intersection.

Thus, the combination of a four-way stop control at Lehner Avenue and a traffic signal at Vista Avenue along the N. Ash Street corridor is expected to operate adequately and the traffic is not likely to back-up all the way to the upstream intersection (Lehner Avenue).

Appendix F contains the (Rerouted) Existing + Project + Total Cumulative projects peak hour intersection analysis worksheets.

9.3.2 *Segment Operations*

Table 9–4 summarizes the roadway segment operations with the addition of the remaining cumulative projects traffic. As seen in *Table 9–4*, the study area segments are calculated to continue to operate at LOS C or better on a daily basis.

TABLE 9–3
EXISTING + PROJECT + CUMULATIVE PROJECTS INTERSECTION OPERATIONS

Intersection	Control Type	Peak Hour	Existing		Existing + Project + Total Cumulative Projects		Significant?
			Delay[a]	LOS[b]	Delay	LOS	
1. N. Broadway / Stanley Ave	MSSC[c]	AM	21.1	C	28.1	D	No
		PM	11.4	B	12.1	B	No
2. N. Ash St / Stanley Ave	AWSC[d]	AM	12.0	B	13.6	B	No
		PM	9.0	A	9.6	A	No
3. N. Ash St / Lehner Ave	AWSC	AM	30.5	E	25.2	D	No
		PM	11.1	B	11.8	B	No
4. N. Broadway / Vista Ave	Signal	AM	13.0	B	14.4	B	No
		PM	8.7	A	9.2	A	No
5. N. Ash St / Vista Ave	AWSC	AM	47.0	E	**78.1**	**F**	**Yes**
Mitigated		*AM*			*32.7*	*C*	–
		PM	10.9	B	15.2	C	No

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. MSSC – Minor street Stop Controlled intersection. Minor street left turn delay is reported. AWSC – All-Way Stop Controlled intersection.
d. Intersection delay improved with rerouting of existing traffic due to closure of Lehner Avenue east of Vista Avenue to through traffic, as part of the Zenner residential project.

SIGNALIZED		UNSIGNALIZED	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 45.0	D	25.1 to 30.0	D
45.1 to 80.0	E	30.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

General Notes:
BOLD typeface indicates a potentially significant impact.

TABLE 9–4
EXISTING + PROJECT + CUMULATIVE PROJECTS SEGMENT OPERATIONS

Street Segment	Capacity (LOS E) [a]	Existing			Existing + Project + Total Cumulative			Significant?
		ADT[b]	LOS[c]	V/C[d]	ADT	LOS	V/C	
N. Ash Street								
Stanley Ave to Lehner Ave[e]	12,000[f]	4,200	B	0.276	4,860	C	0.320	No
South of Vista Ave[f]	12,000[f]	7,040	C	0.463	7,820	C	0.514	No
Stanley Avenue								
East of N. Ash St	4,500[g]	660	C	N/A	1.200	N/A	N/A	No
Vista Avenue								
N. Broadway to Ash St	12,000[f]	4,170	B	0.348	5,230	B	0.436	No
N. Broadway								
South of Vista Ave	37,000	10,740	A	0.29	12,420	A	0.336	No

Footnotes:

a. Capacities based on the *City of Escondido Roadway Classification Table* (See *Table 4-3*).
b. Average Daily Traffic
c. Level of Service
d. Volume to Capacity ratio
e. Roadway Segment lies within County of San Diego.
f. A 20% reduction in capacity was applied to this segment, as it is not fully built to City standards.
g. Level of Service is not reported for residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Level of service normally applies to roads carrying through traffic between major traffic generators and attractors. County equates LOC better than LOS C operations.

10.0 ANALYSIS OF LONG-TERM (2035) SCENARIO

10.1 Year 2035 Volumes

The Year 2035 ADT volumes were obtained from the SANDAG Series 12 model plot. Project traffic was added to the Year 2035 ADT to obtain the Year 2035 with project traffic volumes.

10.2 Year 2035 Without Project Segment Analysis

Table 10–1 summarizes the Year 2035 Without Project roadway segment operations. As seen in *Table 10–1*, the study area segments are calculated to operate at LOS C or better on a daily basis.

10.3 Year 2035 With Project Segment Analysis

Table 10–1 summarizes the Year 2035 With Project roadway segment operations. As seen in *Table 10–1*, with the addition of project traffic, the study area segments are calculated to continue to operate at LOS C or better on a daily basis.

TABLE 10–1
YEAR 2035 STREET SEGMENT OPERATIONS

Street Segment	Capacity (LOS E) [a]	Year 2035 Without Project			Year 2035 With Project		
		ADT[b]	LOS[c]	V/C[d]	ADT	LOS	V/C
N. Ash Street							
Stanley Ave to Lehner Ave[f]	15,200	6,500	C	0.428	6,570	C	0.432
South of Vista Ave[f]	15,200	7,900	C	0.520	7,940	C	0.522
Stanley Avenue							
East of N. Ash St	4,500	1,100	C [g]	0.244	1,240	C [g]	0.276
Vista Avenue							
N. Broadway to Ash St	12,000	5,500	B	0.458	5,520	B	0.460
N. Broadway							
South of Vista Ave	37,000	13,000	B	0.351	13,070	B	0.353

Footnotes:

a. Capacities based on the *City of Escondido Roadway Classification Table* (See *Table 4-3*).
b. Average Daily Traffic from SANDAG Series 12 model.
c. Level of Service
d. Volume to Capacity ratio
e. Roadway Segment lies within County of San Diego.
f. A 20% reduction in capacity was applied to this segment, as it is not fully built to City standards.
g. Level of Service is not reported for residential streets since their primary purpose is to serve abutting lots, not carry through traffic. Level of service normally applies to roads carrying through traffic between major traffic generators and attractors. County equates LOC better than LOS C operations.

11.0 MID-AFTERNOON PEAK HOUR ANALYSIS

The Rincon Middle School is located on Lehner Avenue, adjacent to the N. Ash Street / Lehner Avenue and N. Ash Street / Vista Avenue intersections. A Mid-Afternoon peak hour intersection analysis was conducted for all analysis scenarios to determine the operations at the two intersections during the afternoon school bell. Peak hour counts were conducted between 2:00 PM and 4:00 PM.

Figure 11-1A depicts the Existing Mid-Afternoon peak hour traffic volumes. ***Figure 11-2A*** depicts the Mid-Afternoon peak hour Project traffic volumes, while ***Figure 11–2B*** depicts Existing + Project Mid-Afternoon traffic volumes. ***Figure 11-3A*** depicts the Existing + Project + 4 "Adjacent" Cumulative projects Mid-Afternoon peak hour Project traffic volumes, while ***Figure 11–3B*** depicts Existing + Project + Total Cumulative projects Mid-Afternoon traffic volumes.

11.1 Existing

Table 11–1 summarizes the Existing peak hour intersection operations during the Mid-Afternoon peak between 2:00 PM and 4:00 PM during the afternoon school bell at two intersections, adjacent to the school. As seen in *Table 11–1*, the two subject intersections are calculated to operate at LOS E during the Mid-Afternoon peak hour.

Appendix G-1 contains the Existing Mid-Afternoon peak hour intersection analysis worksheets.

11.2 Existing + Project

Table 11–1 summarizes the Existing + Project intersection operations during the Mid-Afternoon peak hour (afternoon school bell). As seen in *Table 11–1*, with the addition of project traffic, the two subject intersections are calculated to continue to operate at LOS E.

Even though the level of service is E, at the N. Ash Street / Lehner Avenue and N. Ash Street / Vista Avenue intersections, the increase in delay due to project traffic is less than 2.0 seconds over the Existing delay, the allowed delay threshold at an intersection operating at LOS E per the established City of Escondido significance criteria.

The increase in delay at the N. Ash Street / Lehner Avenue and N. Ash Street / Vista Avenue intersections due to project traffic is less than 2.0 seconds. Hence, based on the above discussion, ***no significant direct impact is calculated at either intersection for this scenario.***

Appendix G-2 contains the Existing + Project Mid-Afternoon peak hour intersection analysis worksheets.

11.3 Existing + Project + "Adjacent" Residential Projects

The analysis assumes the closure to through traffic of Lehner Avenue east of Vista Avenue. Existing traffic was re-routed to adjacent intersections within the immediate study area and added to project and cumulative project traffic volumes.

TABLE 11–1
NEAR-TERM INTERSECTION OPERATIONS (MID-AFTERNOON TIME FRAME)

Intersection	Control Type	Existing		Existing + Project			Significant?	Existing + Project + "Adjacent" Residential Projects			Significant?
		Delay[a]	LOS[b]	Delay	LOS	Δ[c]		Delay	LOS	Δ	
3. N. Ash St / Lehner Ave	AWSC [d]	37.6	E	38.3	E	0.7	No	**39.8**	**E**	**2.2**	**Yes**
Mitigated								*26.6*	*D*		
5. N. Ash St / Vista Ave	AWSC	41.8	E	42.2	E	0.4	No	**66.8**	**F**	**25.0**	**Yes**
Mitigated		–	–	–	–	–	–	*28.8*	*C*	–	–

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes an increase in delay.
d. AWSC – All-Way Stop Controlled intersection.

General Notes:
BOLD typeface indicates a potentially significant impact.

SIGNALIZED		UNSIGNALIZED	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 45.0	D	25.1 to 30.0	D
45.1 to 80.0	E	30.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F

Table 11–1 summarizes the Existing + Project + "Adjacent" Residential projects intersection operations during the Mid-Afternoon peak hour. As seen in *Table 11–1*, with the addition of Adjacent" Residential projects traffic, the N. Ash Street / Lehner Ave intersection is calculated to continue to operate at LOS E, while the N. Ash Street / Vista Ave intersection is calculated to operate at LOS F. Significant cumulative impacts are calculated at both the, N. Ash Street / Lehner Avenue and N. Ash Street / Vista Avenue intersections.

Appendix G-3 contains the (Rerouted) Existing + Project + 4 "Adjacent" Cumulative Projects Mid-Afternoon peak hour intersection analysis worksheets.

11.4 Existing + Project + Total Cumulative Projects

Table 11–2 summarizes the Existing + Project + Total Cumulative projects intersection operations during the Mid-Afternoon peak hour. As seen in Table 11–2, with the addition of the Total Cumulative projects traffic, the N. Ash Street / Lehner Ave intersection is calculated to continue to operate at LOS E, while the N. Ash Street / Vista Ave intersection is calculated to operate at LOS F

Significant cumulative impacts are calculated at the N. Ash Street / Lehner Avenue and N. Ash Street / Vista Avenue intersections. With the mitigation measures described in Section 11.3 above, these impacts will be mitigated to a level below significance.

Appendix G-4 contains the (Rerouted) Existing + Project + Total Cumulative Projects Mid-Afternoon peak hour intersection analysis worksheets.

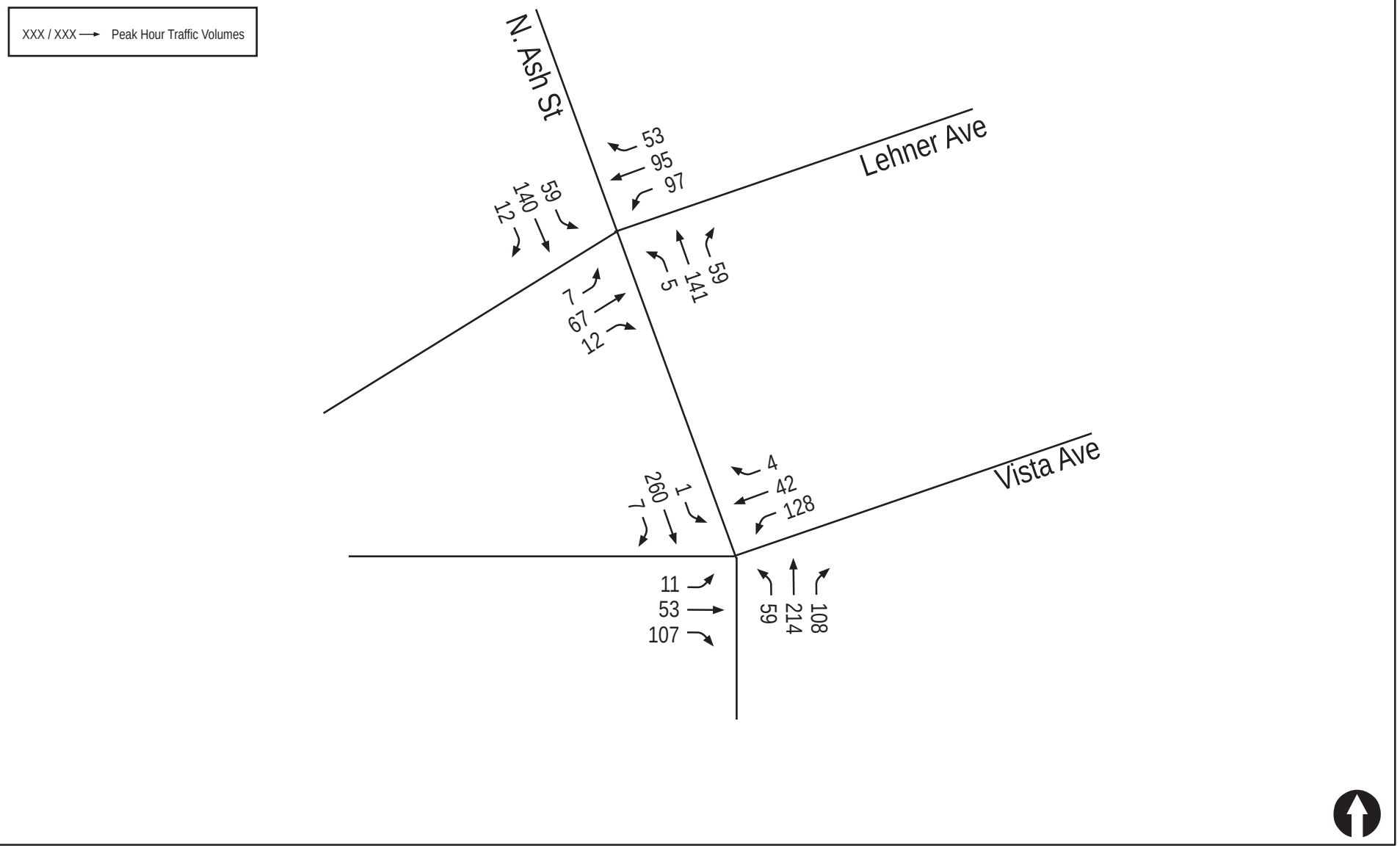
TABLE 11–2
EXISTING + PROJECT + CUMULATIVE PROJECTS INTERSECTION OPERATIONS (MID-AFTERNOON TIME FRAME)

Intersection	Control Type	Existing		Existing + Project + Total Cumulative Projects			Significant?
		Delay[a]	LOS[b]	Delay	LOS	Δ[c]	
3. N. Ash St / Lehner Ave	AWSC [d]	37.6	E	**45.3**	**E**	**7.7**	**Yes**
Mitigated				*30.2*	*D*	–	–
5. N. Ash St / Vista Ave	AWSC	41.8	E	**75.1**	**F**	**33.3**	**Yes**
Mitigated		–	–	*31.3*	*C*	–	–

Footnotes:
a. Average delay expressed in seconds per vehicle.
b. Level of Service.
c. Δ denotes an increase in delay.
d. AWSC – All-Way Stop Controlled intersection.

General Notes:
BOLD typeface indicates a potentially significant impact.

SIGNALIZED		UNSIGNALIZED	
Delay	LOS	Delay	LOS
0.0 ≤ 10.0	A	0.0 ≤ 10.0	A
10.1 to 20.0	B	10.1 to 15.0	B
20.1 to 35.0	C	15.1 to 25.0	C
35.1 to 45.0	D	25.1 to 30.0	D
45.1 to 80.0	E	30.1 to 50.0	E
≥ 80.1	F	≥ 50.1	F



LINSCOTT LAW & GREENSPAN engineers

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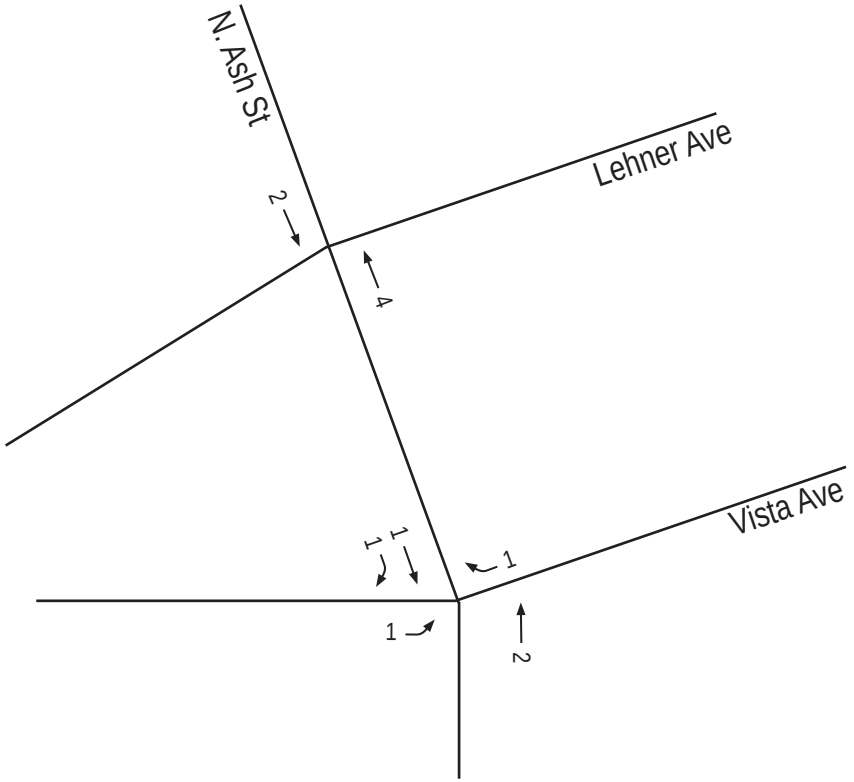
Date: 03/31/14

Figure 11-1

Existing Mid-Afternoon Traffic Volumes

PICKERING RESIDENTIAL

A. Project Traffic Volumes



B. Existing + Project Traffic Volumes

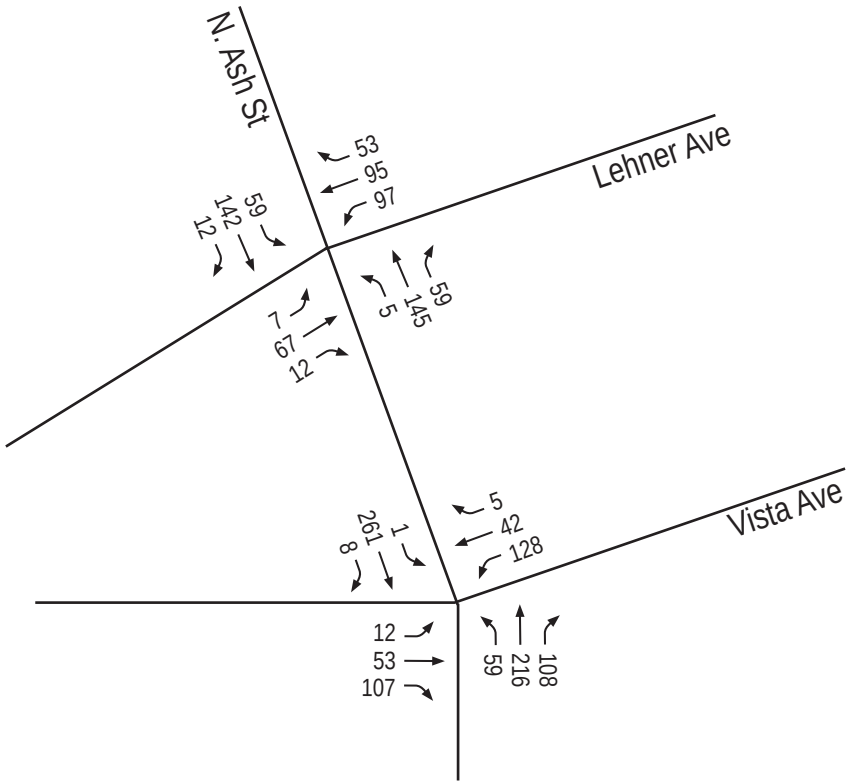


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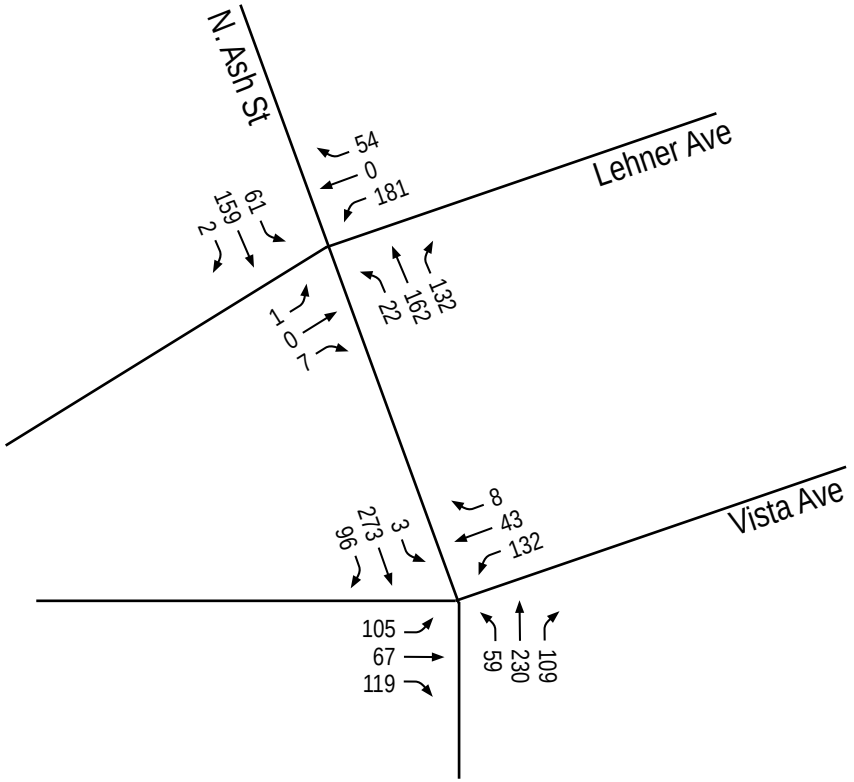
Figure 11-2

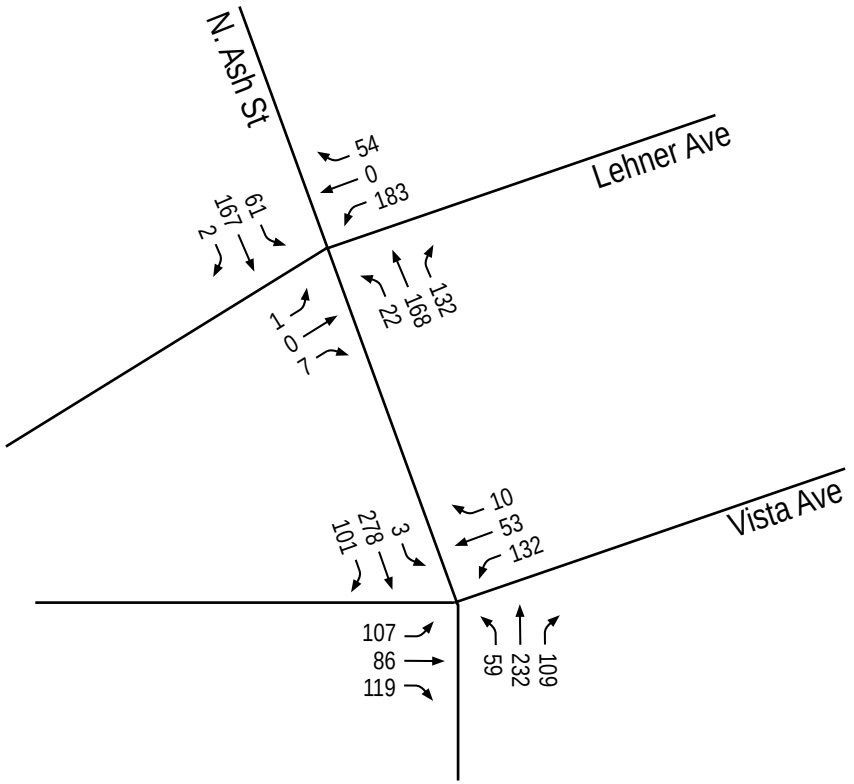
Project & Existing + Project Traffic Volumes

PICKERING RESIDENTIAL

A. Existing (Re-Routed) + Project +4 "Adjacent Cumulative Traffic Volumes



B. Existing (Re-Routed) + Project + Total Cumulative Traffic Volumes



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Date: 03/31/14

Figure 11-3

Existing (Re-Routed) + Project + 4 "Adjacent" Cumulative Projects Traffic Volumes

PICKERING RESIDENTIAL

12.0 SITE ACCESS DISCUSSION / PEDESTRIAN ASSESSMENT

Access to the Project is via Stanley Avenue, approximately 150 feet east of N. Ash Street along the northern portion of the project.

Given the low peak hour volumes along Stanley Avenue, adequate gaps in traffic flow from the projected driveway location are available for project traffic entering and exiting the site. The design of project access should conform with published local, regional and State standards with respect to signing, striping and corner and stopping sight-distance, to the satisfaction of the City Engineer.

It is recommended that a 4-5 foot wide pedestrian path be constructed along Conway Drive between Rincon Avenue and Stanley Avenue.

A peak hour pedestrian count was conducted during the morning of February 6th on N. Ash Street between Vista Avenue and Sheridan Avenue. A total of 9 pedestrians were counted, a relatively small amount. It is therefore concluded that it is not warranted for the project to construct a pedestrian path along this portion of N. Ash Street.

13.0 SIGNIFICANCE OF IMPACTS AND MITIGATION MEASURES

The potential impacts of the proposed Pickering Residential project and several other cumulative projects were evaluated at five (5) intersections and five (5) street segments. The following is a summary of the significance of impacts, and the recommended mitigation measures.

13.1 Significance of Impacts

The following two (2) significant impacts were determined based on City significance criteria.

1. **N. Ash Street / Lehner Avenue**
2. **N. Ash Street / Vista Avenue**

13.2 Mitigation Measures

The following mitigation measures are recommended to mitigate the significant impacts. ***Appendix H*** contains the peak hour intersection mitigation analysis worksheets.

1. **MM-1: N. Ash Street / Lehner Avenue**

   The applicant shall improve this intersection prior to construction of the 40th unit within the Lehner / Stanley block (the area bound by N. Ash Street / Conway Drive / Lehner Avenue and Stanley Avenue). Dedicated turn lanes should be provided at the Southbound, westbound and northbound approaches.

   The developer will be responsible for all widening, transitions, necessary right of way acquisitions and other aspects of the design and construction process to the City Engineer's satisfaction. School related signing and striping should be implemented at the intersection per the MUTCD.

2. **MM-1: N. Ash Street / Vista Avenue**

   The applicant shall improve this intersection with dedicated turn lanes on all approaches prior to construction of the 40th dwelling unit within the Lehner / Stanley block (the area bound by N. Ash Street / Conway Drive / Lehner Avenue and Stanley Avenue). School related signing and striping should be implemented at the intersection per the MUTCD.

   The developer will be responsible for all widening, transitions, necessary right of way acquisitions and other aspects of the design and construction process to the City Engineer's satisfaction.

   Also, contribute a fair share towards the future signalization of this intersection. The signal should be installed at the time the Zenner project cul-de-sac's Lehner Avenue at Vista Avenue (Any further traffic impacts to this intersection related to the Zenner project are assumed to be mitigated by that project and / or other cumulative projects).

3. **The following additional mitigation measures are recommended.**
   a. No construction material or equipment deliveries should be scheduled during peak school pick-up/drop-off periods.
   b. Provide a 4 foot wide pedestrian path along Conway Drive between Rincon Avenue and Stanley Avenue.

LINSCOTT LAW & GREENSPAN engineers

TECHNICAL APPENDICES

PICKERING RESIDENTIAL PROJECT

Escondido, California
April 2, 2014

LLG Ref. 3-13-2242

Linscott, Law & Greenspan, Engineers
4542 Ruffner Street
Suite 100
San Diego, CA 92111
858.300.8800 T
858.300.8810 F
www.llgengineers.com

APPENDIX A

INTERSECTION AND SEGMENT MANUAL COUNT SHEETS

24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: N. Broadway, btwn Vista Ave and Bahia Ln

Orientation: *North-South*

Date of Count: *Tuesday, December 03, 2013*

Analysts: *DASH*

Weather: *Sunny*

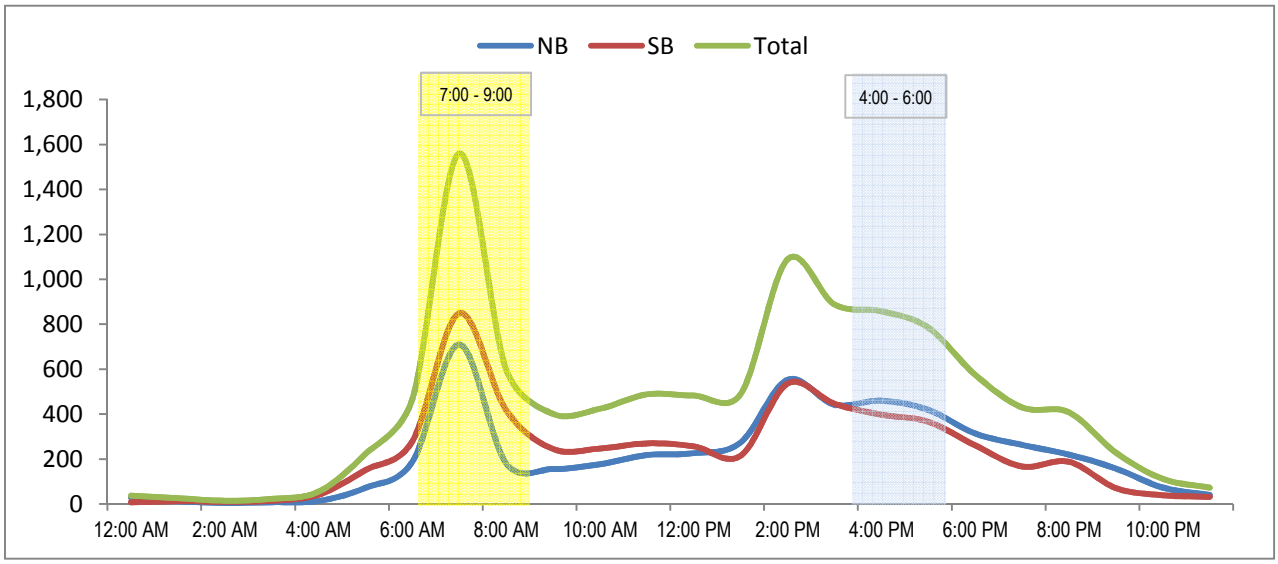
AVC Proj. No: *13-0128*

24 Hour Segment Volume			10,736

Time	Hourly Volume		
	NB	SB	Total
12:00 AM - 1:00 AM	29	8	37
1:00 AM - 2:00 AM	13	13	26
2:00 AM - 3:00 AM	5	10	15
3:00 AM - 4:00 AM	8	15	23
4:00 AM - 5:00 AM	14	41	55
5:00 AM - 6:00 AM	72	151	223
6:00 AM - 7:00 AM	188	279	467
7:00 AM - 8:00 AM	710	849	1,559
8:00 AM - 9:00 AM	181	418	599
9:00 AM - 10:00 AM	156	245	401
10:00 AM - 11:00 AM	177	247	424
11:00 AM - 12:00 PM	218	270	488
Total	**1,771**	**2,546**	**4,317**

Time	Hourly Volume		
	NB	SB	Total
12:00 PM - 1:00 PM	226	257	483
1:00 PM - 2:00 PM	274	215	489
2:00 PM - 3:00 PM	553	536	1,089
3:00 PM - 4:00 PM	442	446	888
4:00 PM - 5:00 PM	460	398	858
5:00 PM - 6:00 PM	419	366	785
6:00 PM - 7:00 PM	314	261	575
7:00 PM - 8:00 PM	263	167	430
8:00 PM - 9:00 PM	220	188	408
9:00 PM - 10:00 PM	158	71	229
10:00 PM - 11:00 PM	73	39	112
11:00 PM - 12:00 AM	41	32	73
Total	**3,443**	**2,976**	**6,419**

24-Hour NB Volume	5,214	24-Hour SB Volume	5,522



24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Vista Ave, btwn N. Broadway and Lehner Ave

Orientation: *East-West*

Date of Count: *Tuesday, December 03, 2013*

Analysts: *DASH*

Weather: *Sunny*

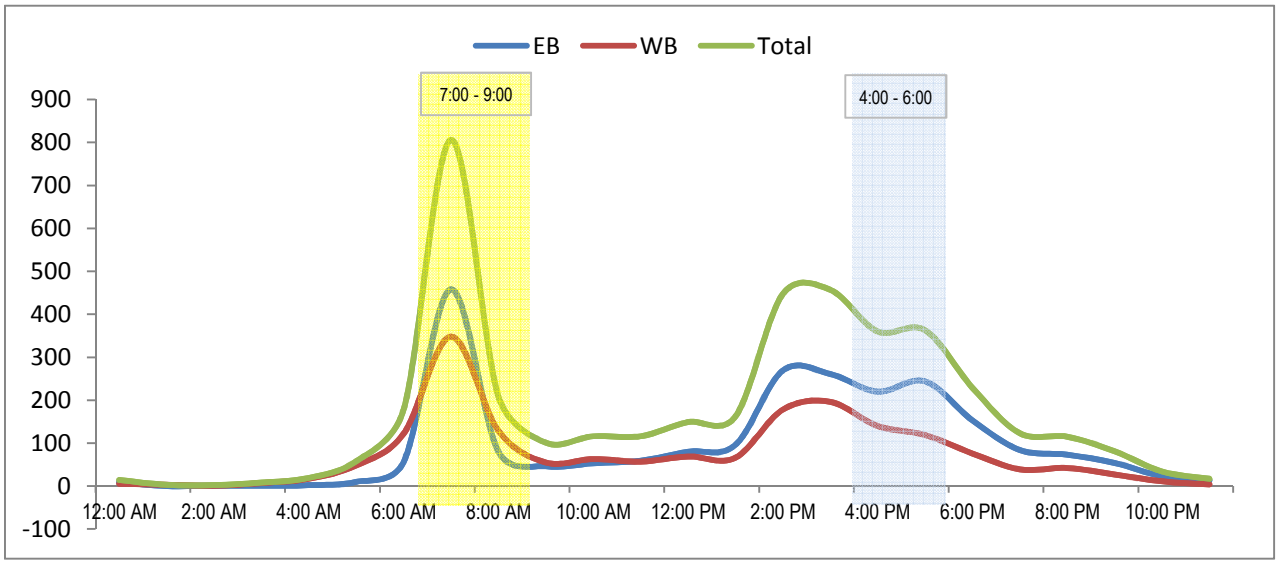
AVC Proj. No: *13-0128*

24 Hour Segment Volume			4,167

Time	Hourly Volume		
	EB	WB	Total
12:00 AM - 1:00 AM	9	5	14
1:00 AM - 2:00 AM	0	3	3
2:00 AM - 3:00 AM	1	1	2
3:00 AM - 4:00 AM	1	7	8
4:00 AM - 5:00 AM	2	17	19
5:00 AM - 6:00 AM	10	48	58
6:00 AM - 7:00 AM	56	122	178
7:00 AM - 8:00 AM	458	348	806
8:00 AM - 9:00 AM	80	129	209
9:00 AM - 10:00 AM	46	55	101
10:00 AM - 11:00 AM	53	63	116
11:00 AM - 12:00 PM	59	57	116
Total	**775**	**855**	**1,630**

Time	Hourly Volume		
	EB	WB	Total
12:00 PM - 1:00 PM	80	69	149
1:00 PM - 2:00 PM	96	66	162
2:00 PM - 3:00 PM	269	178	447
3:00 PM - 4:00 PM	261	196	457
4:00 PM - 5:00 PM	220	140	360
5:00 PM - 6:00 PM	244	119	363
6:00 PM - 7:00 PM	153	76	229
7:00 PM - 8:00 PM	84	39	123
8:00 PM - 9:00 PM	73	42	115
9:00 PM - 10:00 PM	54	27	81
10:00 PM - 11:00 PM	23	11	34
11:00 PM - 12:00 AM	13	4	17
Total	**1,570**	**967**	**2,537**

24-Hour EB Volume	2,345	24-Hour WB Volume	1,822



24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Lehner Ave, btwn Vista Ave and N. Ash St

Orientation: *East-West*

Date of Count: *Tuesday, December 03, 2013*

Analysts: *DASH*

Weather: *Sunny*

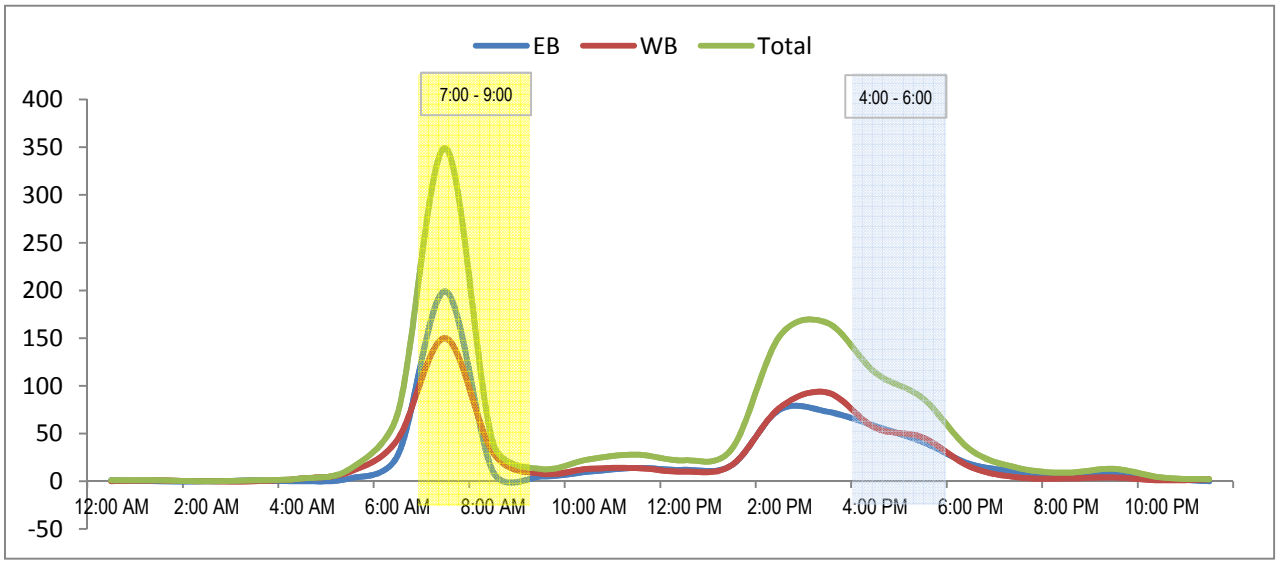
AVC Proj. No: *13-0128*

24 Hour Segment Volume			1,193

Time	Hourly Volume		
	EB	WB	Total
12:00 AM - 1:00 AM	1	0	1
1:00 AM - 2:00 AM	0	1	1
2:00 AM - 3:00 AM	0	0	0
3:00 AM - 4:00 AM	1	0	1
4:00 AM - 5:00 AM	0	3	3
5:00 AM - 6:00 AM	3	10	13
6:00 AM - 7:00 AM	27	44	71
7:00 AM - 8:00 AM	199	150	349
8:00 AM - 9:00 AM	10	30	40
9:00 AM - 10:00 AM	5	8	13
10:00 AM - 11:00 AM	10	13	23
11:00 AM - 12:00 PM	14	14	28
Total	**270**	**273**	**543**

Time	Hourly Volume		
	EB	WB	Total
12:00 PM - 1:00 PM	12	10	22
1:00 PM - 2:00 PM	17	17	34
2:00 PM - 3:00 PM	75	77	152
3:00 PM - 4:00 PM	73	93	166
4:00 PM - 5:00 PM	58	56	114
5:00 PM - 6:00 PM	41	46	87
6:00 PM - 7:00 PM	18	15	33
7:00 PM - 8:00 PM	10	4	14
8:00 PM - 9:00 PM	6	3	9
9:00 PM - 10:00 PM	9	4	13
10:00 PM - 11:00 PM	3	1	4
11:00 PM - 12:00 AM	0	2	2
Total	**322**	**328**	**650**

24-Hour EB Volume	592	24-Hour WB Volume	601



24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: N. Ash St, btwn Stanley Ave and Lehner Ave

Orientation: *North-South*

Date of Count: *Tuesday, December 03, 2013*

Analysts: *DASH*

Weather: *Sunny*

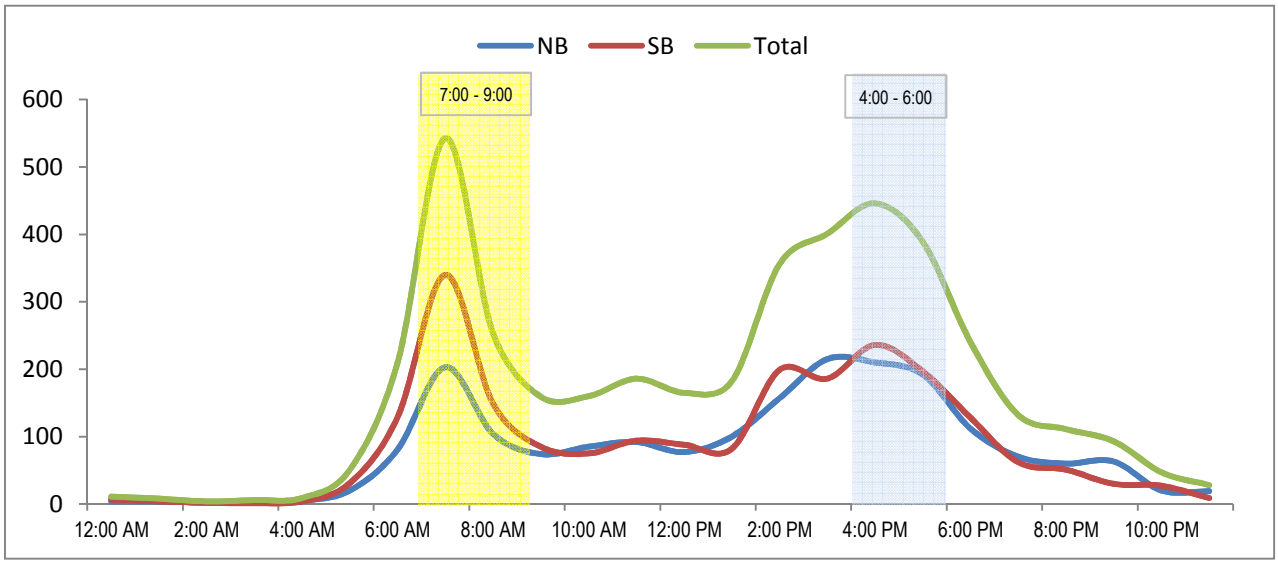
AVC Proj. No: *13-0128*

24 Hour Segment Volume			4,190

Time	Hourly Volume		
	NB	SB	Total
12:00 AM - 1:00 AM	4	7	11
1:00 AM - 2:00 AM	4	4	8
2:00 AM - 3:00 AM	2	2	4
3:00 AM - 4:00 AM	5	1	6
4:00 AM - 5:00 AM	5	4	9
5:00 AM - 6:00 AM	20	31	51
6:00 AM - 7:00 AM	81	129	210
7:00 AM - 8:00 AM	203	340	543
8:00 AM - 9:00 AM	104	149	253
9:00 AM - 10:00 AM	74	85	159
10:00 AM - 11:00 AM	85	75	160
11:00 AM - 12:00 PM	92	94	186
Total	**679**	**921**	**1,600**

Time	Hourly Volume		
	NB	SB	Total
12:00 PM - 1:00 PM	77	88	165
1:00 PM - 2:00 PM	100	82	182
2:00 PM - 3:00 PM	157	199	356
3:00 PM - 4:00 PM	215	186	401
4:00 PM - 5:00 PM	210	236	446
5:00 PM - 6:00 PM	192	197	389
6:00 PM - 7:00 PM	112	128	240
7:00 PM - 8:00 PM	70	62	132
8:00 PM - 9:00 PM	60	51	111
9:00 PM - 10:00 PM	63	30	93
10:00 PM - 11:00 PM	20	27	47
11:00 PM - 12:00 AM	19	9	28
Total	**1,295**	**1,295**	**2,590**

24-Hour NB Volume	1,974	24-Hour SB Volume	2,216



24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: N. Ash St, btwn Vista Ave and Hubbard Ave

Orientation: *North-South*

Date of Count: *Tuesday, December 03, 2013*

Analysts: *DASH*

Weather: *Sunny*

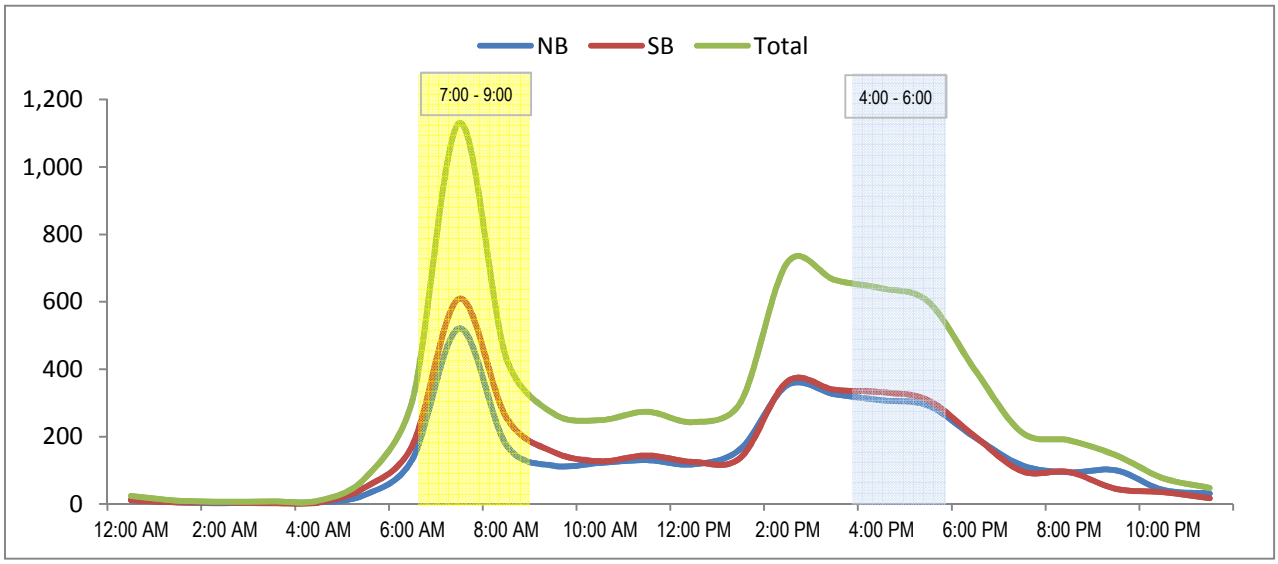
AVC Proj. No: *13-0128*

24 Hour Segment Volume			7,035

Time	Hourly Volume		
	NB	SB	Total
12:00 AM - 1:00 AM	12	12	24
1:00 AM - 2:00 AM	5	5	10
2:00 AM - 3:00 AM	2	5	7
3:00 AM - 4:00 AM	6	2	8
4:00 AM - 5:00 AM	5	5	10
5:00 AM - 6:00 AM	28	50	78
6:00 AM - 7:00 AM	133	174	307
7:00 AM - 8:00 AM	521	609	1,130
8:00 AM - 9:00 AM	176	258	434
9:00 AM - 10:00 AM	114	155	269
10:00 AM - 11:00 AM	122	127	249
11:00 AM - 12:00 PM	130	144	274
Total	**1,254**	**1,546**	**2,800**

Time	Hourly Volume		
	NB	SB	Total
12:00 PM - 1:00 PM	118	125	243
1:00 PM - 2:00 PM	164	138	302
2:00 PM - 3:00 PM	353	364	717
3:00 PM - 4:00 PM	326	339	665
4:00 PM - 5:00 PM	308	332	640
5:00 PM - 6:00 PM	292	308	600
6:00 PM - 7:00 PM	197	200	397
7:00 PM - 8:00 PM	115	97	212
8:00 PM - 9:00 PM	94	95	189
9:00 PM - 10:00 PM	100	45	145
10:00 PM - 11:00 PM	42	35	77
11:00 PM - 12:00 AM	31	17	48
Total	**2,140**	**2,095**	**4,235**

24-Hour NB Volume	3,394	24-Hour SB Volume	3,641



24 Hour Segment Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Stanley Ave, Just East of N. Ash St

Orientation: *East-West*

Date of Count: *Tuesday, December 03, 2013*

Analysts: *DASH*

Weather: *Sunny*

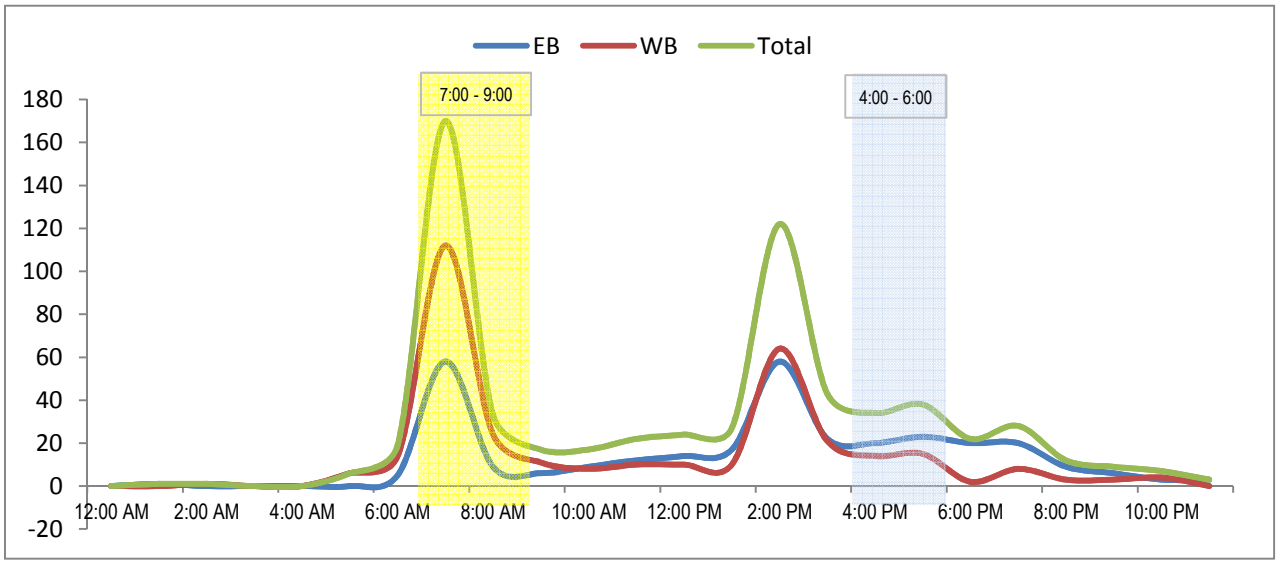
AVC Proj. No: *13-0128*

24 Hour Segment Volume			655

Time	Hourly Volume		
	EB	WB	Total
12:00 AM - 1:00 AM	0	0	0
1:00 AM - 2:00 AM	1	0	1
2:00 AM - 3:00 AM	0	1	1
3:00 AM - 4:00 AM	0	0	0
4:00 AM - 5:00 AM	0	0	0
5:00 AM - 6:00 AM	0	6	6
6:00 AM - 7:00 AM	5	14	19
7:00 AM - 8:00 AM	58	112	170
8:00 AM - 9:00 AM	9	24	33
9:00 AM - 10:00 AM	6	11	17
10:00 AM - 11:00 AM	9	8	17
11:00 AM - 12:00 PM	12	10	22
Total	**100**	**186**	**286**

Time	Hourly Volume		
	EB	WB	Total
12:00 PM - 1:00 PM	14	10	24
1:00 PM - 2:00 PM	17	10	27
2:00 PM - 3:00 PM	58	64	122
3:00 PM - 4:00 PM	22	21	43
4:00 PM - 5:00 PM	20	14	34
5:00 PM - 6:00 PM	23	15	38
6:00 PM - 7:00 PM	20	2	22
7:00 PM - 8:00 PM	20	8	28
8:00 PM - 9:00 PM	9	3	12
9:00 PM - 10:00 PM	6	3	9
10:00 PM - 11:00 PM	3	4	7
11:00 PM - 12:00 AM	3	0	3
Total	**215**	**154**	**369**

24-Hour EB Volume	315	24-Hour WB Volume	340



Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Stanley Ave @ N. Broadway

Date of Count: *Tuesday, December 03, 2013*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *13-0128*

LINSCOTT LAW & GREENSPAN engineers

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: Stanley Ave @ N. Broadway

AM Period (7:00 AM - 9:00 AM)								
	Southbound		Westbound		Northbound			
	Left	Thru	Left	Right	Thru	Right		TOTAL
7:00 AM	22	171	5	19	78	5		300
7:15 AM	33	250	3	33	98	4		421
7:30 AM	49	134	5	61	163	13		425
7:45 AM	39	186	16	42	158	8		449
8:00 AM	9	148	6	21	104	2		290
8:15 AM	11	76	8	3	30	3		131
8:30 AM	5	61	5	5	42	1		119
8:45 AM	4	48	0	3	43	2		100
Total	172	1,074	48	187	716	38		2,235

AM Intersection Peak Hour : **7:00 AM - 8:00 AM** Intersection PHF : **0.89**

	Southbound		Westbound		Northbound			TOTAL
	Left	Thru	Left	Right	Thru	Right		
Volume	143	741	29	155	497	30		1,595
PHF	0.73	0.74	0.45	0.64	0.76	0.58		0.89
Movement PHF		0.78		0.70	0.75			0.89

PM Period (4:00 PM - 6:00 PM)								
	Southbound		Westbound		Northbound			
	Left	Thru	Left	Right	Thru	Right		TOTAL
4:00 PM	11	73	2	7	75	5		173
4:15 PM	11	84	7	13	99	1		215
4:30 PM	21	83	2	12	84	7		209
4:45 PM	17	96	4	7	80	9		213
5:00 PM	22	106	6	14	87	9		244
5:15 PM	17	66	2	8	88	8		189
5:30 PM	16	83	1	7	66	4		177
5:45 PM	18	77	3	12	63	3		176
Total	133	668	27	80	642	46		1,596

PM Intersection Peak Hour : **4:15 PM - 5:15 PM** Intersection PHF : **0.90**

	Southbound		Westbound		Northbound			TOTAL
	Left	Thru	Left	Right	Thru	Right		
Volume	71	369	19	46	350	26		881
PHF	0.81	0.87	0.679	0.821	0.884	0.722		0.90
Movement PHF		0.86		0.81	0.94			0.90

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Vista Ave @ N. Broadway

Date of Count: *Tuesday, December 03, 2013*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *13-0128*

LINSCOTT LAW & GREENSPAN engineers

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: Vista Ave @ N. Broadway

AM Period (7:00 AM - 9:00 AM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
7:00 AM	12	164	0	43	0	15	0	68	35	0	0	0	337
7:15 AM	38	215	0	82	0	23	0	79	93	0	0	0	530
7:30 AM	39	100	0	43	0	35	0	141	100	0	0	0	458
7:45 AM	57	145	0	69	0	38	0	128	81	0	0	0	518
8:00 AM	30	124	0	46	0	28	0	78	10	0	0	0	316
8:15 AM	9	75	0	21	0	5	0	28	5	0	0	0	143
8:30 AM	3	63	0	15	0	12	0	31	12	0	0	0	136
8:45 AM	3	45	0	14	0	7	0	38	5	0	0	0	112
Total	191	931	0	333	0	163	0	591	341	0	0	0	2,550

AM Intersection Peak Hour : **7:00 AM - 8:00 AM** Intersection PHF : **0.87**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	146	624	0	237	0	111	0	416	309	0	0	0	1,843
PHF	0.64	0.73	#####	0.72	#####	0.73	#####	0.74	0.77	#####	#####	#####	0.87
Movement PHF		0.76			0.81			0.75			#DIV/0!		0.87

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
4:00 PM	25	50	0	20	0	21	0	59	31	0	0	0	206
4:15 PM	31	60	0	25	0	18	1	82	43	0	0	0	260
4:30 PM	14	71	0	36	0	18	0	73	36	0	0	0	248
4:45 PM	15	85	0	22	0	7	0	82	31	0	0	0	242
5:00 PM	28	84	0	19	0	11	0	85	44	0	0	0	271
5:15 PM	11	57	0	26	0	24	0	72	27	0	0	1	218
5:30 PM	22	62	0	12	0	11	0	59	32	0	1	0	199
5:45 PM	18	62	0	28	0	7	0	59	37	0	0	0	211
Total	164	531	0	188	0	117	1	571	281	0	1	1	1,855

PM Intersection Peak Hour : **4:15 PM - 5:15 PM** Intersection PHF : **0.94**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	88	300	0	102	0	54	1	322	154	0	0	0	1021
PHF	0.71	0.882	#####	0.708	#####	0.75	0.25	0.947	0.875	#####	#####	#####	0.94
Movement PHF		0.87			0.72			0.92			#DIV/0!		0.94

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Stanley Ave @ N. Ash St

Date of Count: *Tuesday, December 03, 2013*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *13-0128*

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Stanley Ave @ N. Ash St

AM Period (7:00 AM - 9:00 AM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
7:00 AM	0	59	3	1	6	0	7	29	1	3	3	26	138
7:15 AM	2	63	3	3	16	0	17	41	0	1	6	23	175
7:30 AM	2	46	0	0	31	2	23	39	0	3	21	33	200
7:45 AM	2	54	3	3	44	4	9	34	0	3	21	25	202
8:00 AM	0	48	2	0	8	0	5	40	0	3	1	7	114
8:15 AM	1	32	2	1	6	2	1	21	1	1	1	10	79
8:30 AM	0	25	4	0	2	0	1	18	0	0	1	4	55
8:45 AM	0	22	2	0	6	0	3	17	0	0	4	0	54
Total	7	349	19	8	119	8	66	239	2	14	58	128	1,017

AM Intersection Peak Hour : **7:00 AM - 8:00 AM** Intersection PHF : **0.88**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	6	222	9	7	97	6	56	143	1	10	51	107	715
PHF	0.75	0.88	0.75	0.58	0.55	0.38	0.61	0.87	0.25	0.83	0.61	0.81	0.88
Movement PHF		0.87			0.54			0.81			0.74		0.88

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
4:00 PM	0	41	1	0	3	0	9	42	0	3	4	7	110
4:15 PM	0	54	3	1	4	0	9	43	1	1	2	6	124
4:30 PM	0	49	1	0	3	1	11	44	0	5	7	12	133
4:45 PM	0	55	3	2	0	0	7	43	1	5	5	10	131
5:00 PM	0	43	1	0	3	0	11	40	0	4	6	8	116
5:15 PM	0	48	1	0	4	0	2	38	1	3	6	9	112
5:30 PM	0	43	0	1	2	0	2	39	2	4	4	7	104
5:45 PM	0	26	0	2	2	0	7	46	0	3	6	6	98
Total	0	359	10	6	21	1	58	335	5	28	40	65	928

PM Intersection Peak Hour : **4:15 PM - 5:15 PM** Intersection PHF : **0.95**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	0	201	8	3	10	1	38	170	2	15	20	36	504
PHF	#####	0.914	0.667	0.375	0.625	0.25	0.864	0.966	0.5	0.75	0.714	0.75	0.95
Movement PHF		0.90			0.70			0.95			0.74		0.95

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Lehner Ave @ N. Ash St

Date of Count: *Tuesday, December 03, 2013*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *13-0128*

LINSCOTT LAW & GREENSPAN engineers

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: Lehner Ave @ N. Ash St

AM Period (7:00 AM - 9:00 AM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
7:00 AM	25	54	5	21	20	12	1	27	20	0	25	1	211
7:15 AM	34	52	4	28	30	27	1	35	34	2	51	1	299
7:30 AM	59	26	4	35	34	26	1	28	48	2	58	11	332
7:45 AM	49	28	6	39	42	22	1	26	34	1	43	6	297
8:00 AM	3	51	3	11	14	3	0	40	4	1	3	0	133
8:15 AM	2	41	0	4	5	2	1	21	2	1	1	0	80
8:30 AM	2	28	0	3	4	0	2	16	4	2	3	0	64
8:45 AM	0	22	0	1	2	1	0	20	2	0	1	0	49
Total	174	302	22	142	151	93	7	213	148	9	185	19	1,465

AM Intersection Peak Hour : **7:00 AM - 8:00 AM** Intersection PHF : **0.86**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	167	160	19	123	126	87	4	116	136	5	177	19	1,139
PHF	0.71	0.74	0.79	0.79	0.75	0.81	1.00	0.83	0.71	0.63	0.76	0.43	0.86
Movement PHF		0.96			0.82			0.83			0.71		0.86

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
4:00 PM	6	40	1	17	7	8	1	40	10	2	11	1	144
4:15 PM	5	54	3	9	9	5	0	42	8	5	13	2	155
4:30 PM	9	52	2	20	25	16	0	44	18	0	15	0	201
4:45 PM	10	52	4	11	7	9	1	41	7	0	11	0	153
5:00 PM	7	44	2	13	6	12	3	35	6	4	6	2	140
5:15 PM	11	46	3	15	9	7	0	38	14	0	10	0	153
5:30 PM	5	48	2	11	10	8	0	41	11	0	9	1	146
5:45 PM	4	30	0	11	13	6	0	43	7	1	7	0	122
Total	57	366	17	107	86	71	5	324	81	12	82	6	1,214

PM Intersection Peak Hour : **4:00 PM - 5:00 PM** Intersection PHF : **0.81**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	30	198	10	57	48	38	2	167	43	7	50	3	653
PHF	0.75	0.917	0.625	0.713	0.48	0.594	0.5	0.949	0.597	0.35	0.833	0.375	0.81
Movement PHF		0.90			0.59			0.85			0.75		0.81

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Vista Ave @ N. Ash St

Date of Count: *Tuesday, December 03, 2013*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *13-0128*

LINSCOTT LAW & GREENSPAN engineers

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: Vista Ave @ N. Ash St

AM Period (7:00 AM - 9:00 AM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
7:00 AM	1	75	0	33	15	0	8	47	22	0	8	13	222
7:15 AM	0	81	2	57	9	1	34	68	44	1	23	32	352
7:30 AM	0	65	3	65	11	1	10	69	68	5	27	28	352
7:45 AM	1	65	3	79	17	0	21	58	56	3	21	26	350
8:00 AM	0	62	1	28	11	1	22	43	4	0	4	16	192
8:15 AM	0	43	1	13	7	0	6	24	8	0	2	8	112
8:30 AM	0	32	1	16	8	0	7	22	5	0	2	7	100
8:45 AM	0	22	0	10	5	0	4	23	9	0	3	6	82
Total	2	445	11	301	83	3	112	354	216	9	90	136	1,762

AM Intersection Peak Hour : **7:00 AM - 8:00 AM** Intersection PHF : **0.91**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	2	286	8	234	52	2	73	242	190	9	79	99	1,276
PHF	0.50	0.88	0.67	0.74	0.76	0.50	0.54	0.88	0.70	0.45	0.73	0.77	0.91
Movement PHF		0.89			0.75			0.86			0.78		0.91

PM Period (4:00 PM - 6:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	TOTAL
4:00 PM	0	58	1	10	4	0	13	52	8	0	10	9	165
4:15 PM	1	56	1	7	9	2	15	49	16	0	12	20	188
4:30 PM	0	74	0	6	7	0	9	59	14	1	9	9	188
4:45 PM	0	69	0	12	7	0	7	53	11	1	11	8	179
5:00 PM	0	54	0	4	6	0	15	45	13	0	13	17	167
5:15 PM	0	57	0	6	16	0	13	52	10	2	10	13	179
5:30 PM	1	57	0	15	6	1	11	49	10	0	13	18	181
5:45 PM	1	39	0	8	8	0	8	50	20	0	18	16	168
Total	3	464	2	68	63	3	91	409	102	4	96	110	1,415

PM Intersection Peak Hour : **4:15 PM - 5:15 PM** Intersection PHF : **0.96**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	1	253	1	29	29	2	46	206	54	2	45	54	722
PHF	0.25	0.855	0.25	0.604	0.806	0.25	0.767	0.873	0.844	0.5	0.865	0.675	0.96
Movement PHF		0.86			0.79			0.93			0.79		0.96

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Vista Ave @ Lehner Ave

Date of Count: *Tuesday, December 03, 2013*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *13-0128*

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

Location: Vista Ave @ Lehner Ave

AM Period (7:00 AM - 9:00 AM)							
	Southbound		Westbound			Eastbound	
	Left	Right	Thru	Right	Left	Thru	TOTAL
7:00 AM	0	22	33	0	27	24	106
7:15 AM	1	39	45	0	62	56	203
7:30 AM	0	41	33	0	63	62	199
7:45 AM	1	53	41	1	47	48	191
8:00 AM	1	18	37	0	4	18	78
8:15 AM	0	6	14	0	2	12	34
8:30 AM	0	5	19	0	4	11	39
8:45 AM	0	2	10	0	1	7	20
Total	3	186	232	1	210	238	870

AM Intersection Peak Hour : **7:00 AM - 8:00 AM** Intersection PHF : **0.86**

	Southbound		Westbound		Eastbound		TOTAL
	Left	Right	Thru	Right	Left	Thru	
Volume	2	155	152	1	199	190	699
PHF	0.50	0.73	0.84	0.25	0.79	0.77	0.86
Movement PHF	0.73		0.85			0.78	0.86

PM Period (4:00 PM - 6:00 PM)							
	Southbound		Westbound			Eastbound	
	Left	Right	Thru	Right	Left	Thru	TOTAL
4:00 PM	0	9	21	0	12	25	67
4:15 PM	1	8	22	0	20	34	85
4:30 PM	1	27	19	0	15	22	84
4:45 PM	0	10	15	0	11	21	57
5:00 PM	0	9	18	1	11	32	71
5:15 PM	1	12	27	0	12	26	78
5:30 PM	0	10	17	0	9	30	66
5:45 PM	0	15	16	0	9	32	72
Total	3	100	155	1	99	222	580

PM Intersection Peak Hour : **4:15 PM - 5:15 PM** Intersection PHF : **0.87**

	Southbound		Westbound		Eastbound		TOTAL
	Left	Right	Thru	Right	Left	Thru	
Volume	2	54	74	1	57	109	297
PHF	0.50	0.5	0.841	0.25	0.713	0.801	0.87
Movement PHF	0.50		0.85			0.77	0.87

LINSCOTT LAW & GREENSPAN engineers

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

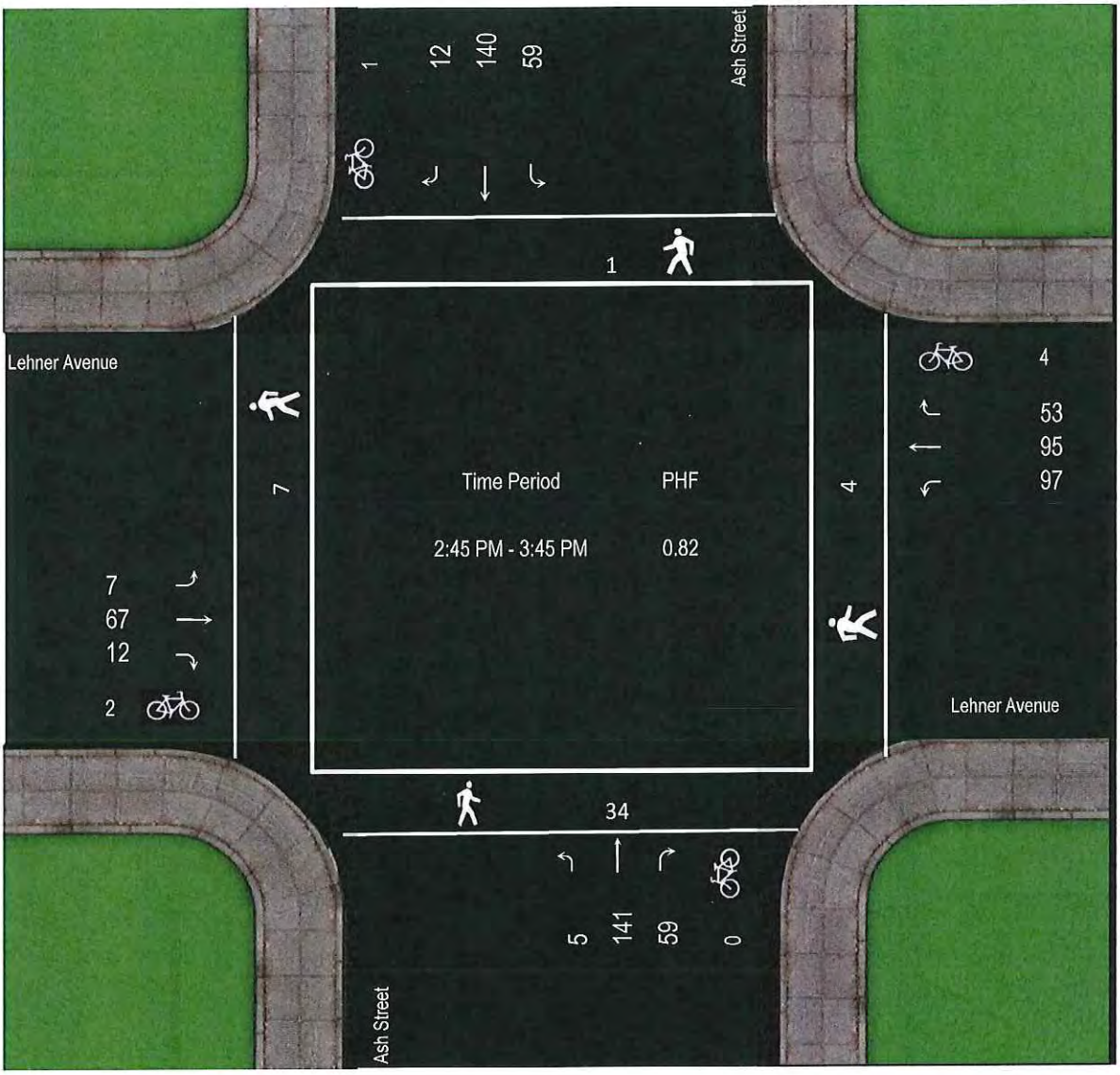
Location: Lehner Avenue @ Ash Street

Date of Count: *Tuesday, February 25, 2014*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *14-0171*



LINSCOTT LAW & GREENSPAN engineers

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: Lehner Avenue @ Ash Street

Midday (2:00 PM - 4:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2:00 PM	3	20	0	7	2	0	0	29	14	1	2	0	78
2:15 PM	12	16	1	3	5	2	0	35	17	0	7	1	99
2:30 PM	17	38	2	14	13	4	2	39	21	0	10	1	161
2:45 PM	22	46	7	32	28	13	3	30	16	2	20	10	229
3:00 PM	12	33	3	29	18	19	2	35	18	2	15	0	186
3:15 PM	18	31	1	16	24	8	0	30	14	1	21	1	165
3:30 PM	7	30	1	20	25	13	0	46	11	2	11	1	167
3:45 PM	9	32	4	6	12	7	0	46	11	3	8	1	139
Total	100	246	19	127	127	66	7	290	122	11	94	15	1,224

PM Intersection Peak Hour : **2:45 PM - 3:45 PM** Intersection PHF : **0.82**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	59	140	12	97	95	53	5	141	59	7	67	12	747
PHF	0.67	0.761	0.429	0.758	0.848	0.697	0.417	0.766	0.819	0.875	0.798	0.3	0.82
Movement PHF		0.70			0.84			0.90			0.67		0.82

LINSCOTT LAW & GREENSPAN engineers

Turn Count Summary

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

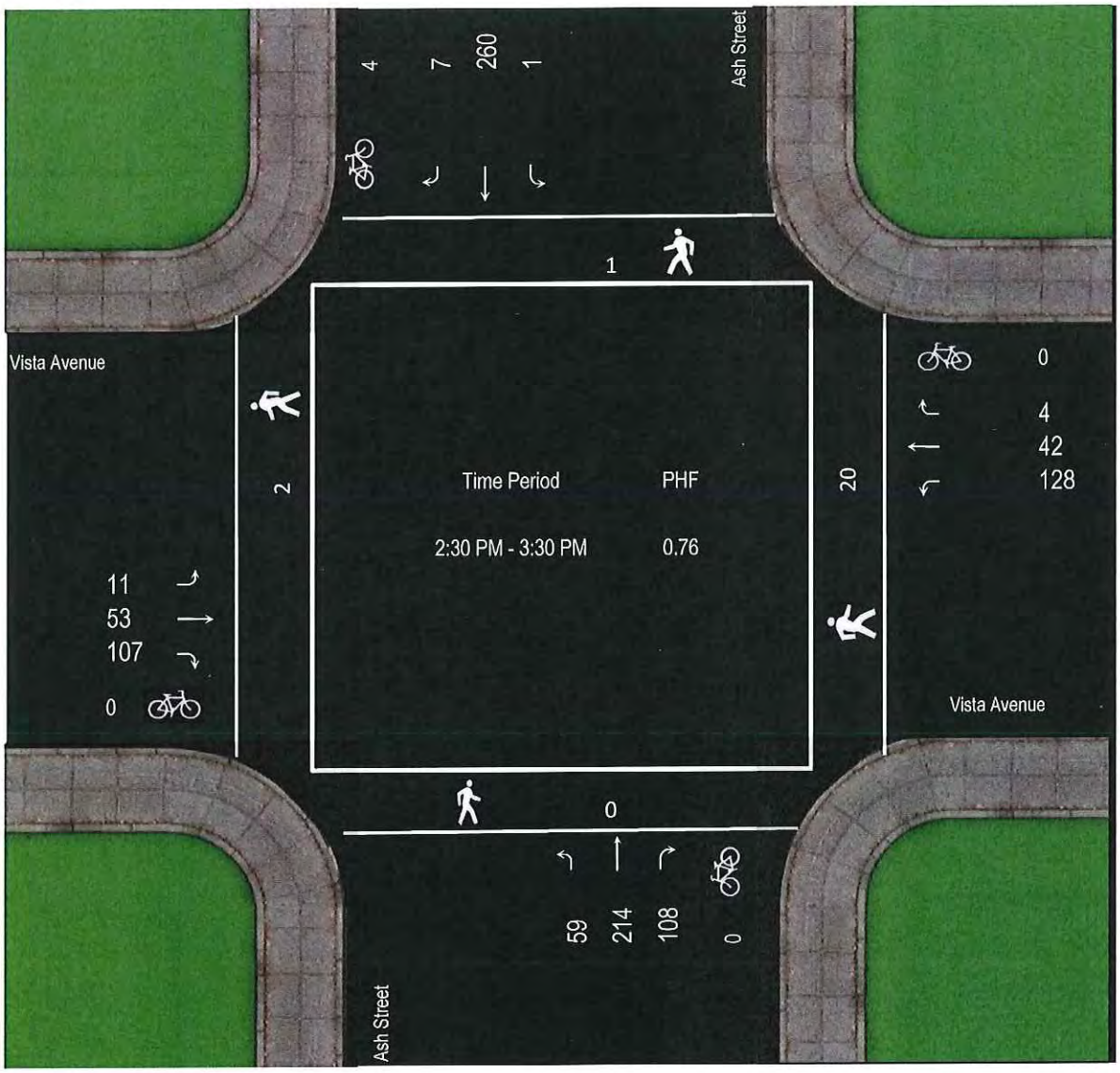
Location: Vista Avenue @ Ash Street

Date of Count: *Tuesday, February 25, 2014*

Analysts: *LV/CD*

Weather: *Sunny*

AVC Proj No: *14-0171*



LINSCOTT LAW & GREENSPAN engineers

Vehicular Count

Accurate Video Counts Inc
info@accuratevideocounts.com
(619) 987-5136

AVC

Location: Vista Avenue @ Ash Street

Midday (2:00 PM - 4:00 PM)													
	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
2:00 PM	0	30	0	11	0	0	5	45	11	0	2	9	113
2:15 PM	0	19	0	16	7	0	13	52	14	0	8	17	146
2:30 PM	0	46	0	16	14	1	8	73	50	5	14	21	248
2:45 PM	1	88	5	63	17	1	25	48	26	3	19	30	326
3:00 PM	0	72	0	29	7	1	16	49	16	1	10	37	238
3:15 PM	0	54	2	20	4	1	10	44	16	2	10	19	182
3:30 PM	0	50	2	10	2	1	10	58	17	1	9	10	170
3:45 PM	0	40	2	6	3	0	3	57	17	0	12	15	155
Total	1	399	11	171	54	5	90	426	167	12	84	158	1,578

PM Intersection Peak Hour : **2:30 PM - 3:30 PM** Intersection PHF : **0.76**

	Southbound			Westbound			Northbound			Eastbound			TOTAL
	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	
Volume	1	260	7	128	42	4	59	214	108	11	53	107	994
PHF	0.25	0.739	0.35	0.508	0.618	1	0.59	0.733	0.54	0.55	0.697	0.723	0.76
Movement PHF		0.71			0.54			0.73			0.82		0.76

APPENDIX B

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – EXISTING

Intersection	
Int Delay, s/veh	3.5

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	29	155	497	30	143	741
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	80	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	70	70	75	75	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	41	221	663	40	183	950

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1525	351	0	0	703	0
Stage 1	683	-	-	-	-	-
Stage 2	842	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	109	645	-	-	890	-
Stage 1	463	-	-	-	-	-
Stage 2	383	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	87	645	-	-	890	-
Mov Cap-2 Maneuver	205	-	-	-	-	-
Stage 1	463	-	-	-	-	-
Stage 2	304	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	21.1	0	1.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	482	890	-
HCM Lane V/C Ratio	-	-	0.545	0.206	-
HCM Control Delay (s)	-	-	21.1	10.1	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	3.2	0.8	-

Intersection	
Intersection Delay, s/veh	12
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	10	51	107	0	7	97	6	0	56	143	1
Peak Hour Factor	0.92	0.74	0.74	0.74	0.92	0.54	0.54	0.54	0.92	0.81	0.81	0.81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	14	69	145	0	13	180	11	0	69	177	1
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	11.3	11.7	12.3
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	6%	6%	3%
Vol Thru, %	71%	30%	88%	94%
Vol Right, %	1%	64%	5%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	200	168	110	237
LT Vol	143	51	97	222
Through Vol	1	107	6	9
RT Vol	56	10	7	6
Lane Flow Rate	247	227	204	272
Geometry Grp	1	1	1	1
Degree of Util (X)	0.389	0.341	0.327	0.421
Departure Headway (Hd)	5.675	5.404	5.778	5.565
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	632	661	619	643
Service Time	3.739	3.471	3.847	3.628
HCM Lane V/C Ratio	0.391	0.343	0.33	0.423
HCM Control Delay	12.3	11.3	11.7	12.7
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	1.8	1.5	1.4	2.1

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	6	222	9
Peak Hour Factor	0.92	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	7	255	10
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	12.7
HCM LOS	B

Lane

Intersection	
Intersection Delay, s/veh	30.5
Intersection LOS	D

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	5	177	19	0	123	126	87	0	4	116	136
Peak Hour Factor	0.92	0.71	0.71	0.71	0.92	0.82	0.82	0.82	0.92	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	7	249	27	0	150	154	106	0	5	140	164
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	23	39.2	23.6
HCM LOS	C	E	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	2%	37%	48%
Vol Thru, %	45%	88%	38%	46%
Vol Right, %	53%	9%	26%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	256	201	336	346
LT Vol	116	177	126	160
Through Vol	136	19	87	19
RT Vol	4	5	123	167
Lane Flow Rate	308	283	410	360
Geometry Grp	1	1	1	1
Degree of Util (X)	0.648	0.619	0.844	0.772
Departure Headway (Hd)	7.564	7.873	7.417	7.715
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	475	456	488	469
Service Time	5.637	5.949	5.484	5.785
HCM Lane V/C Ratio	0.648	0.621	0.84	0.768
HCM Control Delay	23.6	23	39.2	32.5
HCM Lane LOS	C	C	E	D
HCM 95th-tile Q	4.5	4.1	8.5	6.7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	167	160	19
Peak Hour Factor	0.92	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	174	167	20
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	32.5
HCM LOS	D

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	237	0	111	0	416	309	146	624	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	0	0	0	293	0	137	0	555	412	192	821	0
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.81	0.81	0.81	0.75	0.75	0.75	0.76	0.76	0.76
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	135	412	0	528	0	351	3	802	595	249	2225	0
Arrive On Green	0.00	0.00	0.00	0.22	0.00	0.22	0.00	0.41	0.41	0.14	0.63	0.00
Sat Flow, veh/h	1247	1863	0	1774	0	1583	1774	1939	1439	1774	3632	0
Grp Volume(v), veh/h	0	0	0	293	0	137	0	507	460	192	821	0
Grp Sat Flow(s),veh/h/ln	1247	1863	0	1774	0	1583	1774	1770	1609	1774	1770	0
Q Serve(g_s), s	0.0	0.0	0.0	8.2	0.0	3.9	0.0	12.5	12.5	5.6	6.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	8.2	0.0	3.9	0.0	12.5	12.5	5.6	6.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.89	1.00		0.00
Lane Grp Cap(c), veh/h	135	412	0	528	0	351	3	732	665	249	2225	0
V/C Ratio(X)	0.00	0.00	0.00	0.56	0.00	0.39	0.00	0.69	0.69	0.77	0.37	0.00
Avail Cap(c_a), veh/h	560	1047	0	1132	0	890	598	995	904	598	2225	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	19.4	0.0	17.7	0.0	12.9	12.9	22.1	4.8	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.9	0.0	0.7	0.0	1.3	1.4	5.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	4.1	0.0	1.8	0.0	6.3	5.8	3.1	2.9	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	20.3	0.0	18.4	0.0	14.1	14.2	27.2	4.9	0.0
LnGrp LOS				C		B		B	B	C	A	
Approach Vol, veh/h		0			430			967			1013	
Approach Delay, s/veh		0.0			19.7			14.2			9.1	
Approach LOS					B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.5	26.1		15.8	0.0	37.6		15.8
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	18.0	30.0		30.0	18.0	30.0		30.0
Max Q Clear Time (g_c+I1), s	7.6	14.5		0.0	0.0	8.0		10.2
Green Ext Time (p_c), s	0.4	7.5		0.0	0.0	13.3		1.6

Intersection Summary	
HCM 2010 Ctrl Delay	13.0
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	47
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	9	79	99	0	234	52	2	0	73	242	190
Peak Hour Factor	0.92	0.78	0.78	0.78	0.92	0.75	0.75	0.75	0.92	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	12	101	127	0	312	69	3	0	85	281	221
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	21.2	43	69
HCM LOS	C	E	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	5%	81%	1%
Vol Thru, %	48%	42%	18%	97%
Vol Right, %	38%	53%	1%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	505	187	288	296
LT Vol	242	79	52	286
Through Vol	190	99	2	8
RT Vol	73	9	234	2
Lane Flow Rate	587	240	384	333
Geometry Grp	1	1	1	1
Degree of Util (X)	1	0.554	0.853	0.747
Departure Headway (Hd)	7.544	8.317	8.133	8.088
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	482	436	449	449
Service Time	5.582	6.341	6.133	6.109
HCM Lane V/C Ratio	1.218	0.55	0.855	0.742
HCM Control Delay	69	21.2	43	31.4
HCM Lane LOS	F	C	E	D
HCM 95th-tile Q	13.3	3.3	8.5	6.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	2	286	8
Peak Hour Factor	0.92	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	2	321	9
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	31.4
HCM LOS	D

Lane

Intersection	
Int Delay, s/veh	1.6

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	19	46	350	26	71	369
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	80	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	94	94	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	57	372	28	83	429

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	766	200	0	0	400	0
Stage 1	386	-	-	-	-	-
Stage 2	380	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	339	808	-	-	1155	-
Stage 1	656	-	-	-	-	-
Stage 2	661	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	315	808	-	-	1155	-
Mov Cap-2 Maneuver	433	-	-	-	-	-
Stage 1	656	-	-	-	-	-
Stage 2	613	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.4	0	1.3
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	645	1155	-
HCM Lane V/C Ratio	-	-	0.124	0.071	-
HCM Control Delay (s)	-	-	11.4	8.4	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0.2	-

Intersection	
Intersection Delay, s/veh	9
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	15	20	36	0	3	10	1	0	38	170	2
Peak Hour Factor	0.92	0.74	0.74	0.74	0.92	0.70	0.70	0.70	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	20	27	49	0	4	14	1	0	40	179	2
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.4	8.3	9.2
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	18%	21%	21%	0%
Vol Thru, %	81%	28%	71%	96%
Vol Right, %	1%	51%	7%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	210	71	14	209
LT Vol	170	20	10	201
Through Vol	2	36	1	8
RT Vol	38	15	3	0
Lane Flow Rate	221	96	20	232
Geometry Grp	1	1	1	1
Degree of Util (X)	0.276	0.126	0.028	0.286
Departure Headway (Hd)	4.497	4.714	5.083	4.435
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	800	760	702	810
Service Time	2.522	2.749	3.127	2.46
HCM Lane V/C Ratio	0.276	0.126	0.028	0.286
HCM Control Delay	9.2	8.4	8.3	9.2
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.1	0.4	0.1	1.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	0	201	8
Peak Hour Factor	0.92	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	0	223	9
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	9.2
HCM LOS	A

Lane

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	7	50	3	0	57	48	38	0	2	167	43
Peak Hour Factor	0.92	0.75	0.75	0.75	0.92	0.59	0.59	0.59	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	9	67	4	0	97	81	64	0	2	196	51
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	9.6	11.3	11
HCM LOS	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	12%	40%	13%
Vol Thru, %	79%	83%	34%	83%
Vol Right, %	20%	5%	27%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	212	60	143	238
LT Vol	167	50	48	198
Through Vol	43	3	38	10
RT Vol	2	7	57	30
Lane Flow Rate	249	80	242	264
Geometry Grp	1	1	1	1
Degree of Util (X)	0.355	0.127	0.359	0.383
Departure Headway (Hd)	5.117	5.698	5.334	5.209
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	703	628	674	690
Service Time	3.151	3.742	3.369	3.242
HCM Lane V/C Ratio	0.354	0.127	0.359	0.383
HCM Control Delay	11	9.6	11.3	11.5
HCM Lane LOS	B	A	B	B
HCM 95th-tile Q	1.6	0.4	1.6	1.8

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	30	198	10
Peak Hour Factor	0.92	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	33	220	11
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	11.5
HCM LOS	B

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	102	0	54	1	322	154	88	300	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	0	0	0	142	0	75	1	350	167	101	345	0
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.72	0.72	0.72	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	242	263	0	492	0	223	6	887	416	135	1607	0
Arrive On Green	0.00	0.00	0.00	0.14	0.00	0.14	0.00	0.38	0.38	0.08	0.45	0.00
Sat Flow, veh/h	1319	1863	0	1774	0	1583	1774	2341	1098	1774	3632	0
Grp Volume(v), veh/h	0	0	0	142	0	75	1	263	254	101	345	0
Grp Sat Flow(s),veh/h/ln	1319	1863	0	1774	0	1583	1774	1770	1669	1774	1770	0
Q Serve(g_s), s	0.0	0.0	0.0	2.2	0.0	1.3	0.0	3.2	3.3	1.7	1.8	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	2.2	0.0	1.3	0.0	3.2	3.3	1.7	1.8	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.66	1.00		0.00
Lane Grp Cap(c), veh/h	242	263	0	492	0	223	6	671	633	135	1607	0
V/C Ratio(X)	0.00	0.00	0.00	0.29	0.00	0.34	0.17	0.39	0.40	0.75	0.21	0.00
Avail Cap(c_a), veh/h	1388	1881	0	2033	0	1599	1075	1787	1685	1075	3573	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	11.9	0.0	11.5	14.8	6.7	6.8	13.4	4.9	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.0	0.9	12.7	0.4	0.4	8.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	1.1	0.0	0.6	0.0	1.6	1.6	1.1	0.8	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	12.2	0.0	12.4	27.5	7.1	7.2	21.4	5.0	0.0
LnGrp LOS				B		B	C	A	A	C	A	
Approach Vol, veh/h		0			217			518			446	
Approach Delay, s/veh		0.0			12.3			7.2			8.7	
Approach LOS					B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.3	15.3		8.2	4.0	17.5		8.2
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	18.0	30.0		30.0	18.0	30.0		30.0
Max Q Clear Time (g_c+I1), s	3.7	5.3		0.0	2.0	3.8		4.2
Green Ext Time (p_c), s	0.2	6.0		0.0	0.0	6.1		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	8.7
HCM 2010 LOS	A

Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	2	45	54	0	29	29	2	0	46	206	54
Peak Hour Factor	0.92	0.79	0.79	0.79	0.92	0.79	0.79	0.79	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	3	57	68	0	37	37	3	0	49	222	58
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	9.5	9.6	11.5
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	15%	2%	48%	0%
Vol Thru, %	67%	45%	48%	99%
Vol Right, %	18%	53%	3%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	306	101	60	255
LT Vol	206	45	29	253
Through Vol	54	54	2	1
RT Vol	46	2	29	1
Lane Flow Rate	329	128	76	297
Geometry Grp	1	1	1	1
Degree of Util (X)	0.434	0.188	0.122	0.4
Departure Headway (Hd)	4.752	5.29	5.778	4.858
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	747	681	624	732
Service Time	2.845	3.294	3.784	2.954
HCM Lane V/C Ratio	0.44	0.188	0.122	0.406
HCM Control Delay	11.5	9.5	9.6	11.2
HCM Lane LOS	B	A	A	B
HCM 95th-tile Q	2.2	0.7	0.4	1.9

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	1	253	1
Peak Hour Factor	0.92	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	1	294	1
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	11.2
HCM LOS	B

Lane

APPENDIX C

CUMULATIVE PROJECTS DATA AND REROUTED TRAFFIC

INTERSECTION	DIRECTION	Other Regional Cumulative from #1653					
		R am	**R** pm	**T** am	**T** pm	**L** am	**L** pm
1. N. Broadway / Stanley Ave.	**S**b	-	-	17	29	3	5
	Wb	5	3	-	-	-	-
	Nb	-	-	18	16	-	-
	Eb	-	-	-	-	-	-
2. N. Ash St. / Stanley Ave.	**S**b	-	-	4	7	3	4
	Wb	5	3	-	-	-	1
	Nb	-	-	9	6	-	-
	Eb	1	-	-	-	1	2
3. N. Ash St. / Lehner Ave.	**S**b	-	-	4	8	1	-
	Wb	1	-	-	-	6	2
	Nb	-	-	8	6	-	-
	Eb	-	-	-	-	-	-
4. N. Broadway / Vista Wy.	**S**b	-	-	7	29	-	-
	Wb	9	5	-	-	17	10
	Nb	7	21	9	11	-	-
	Eb	-	-	-	-	-	-
5. N. Ash St. / Vista Wy.	**S**b	5	5	5	5	0	0
	Wb	3	2	21	10	0	0
	Nb	0	0	1	2	0	0
	Eb	0	0	3	19	4	2

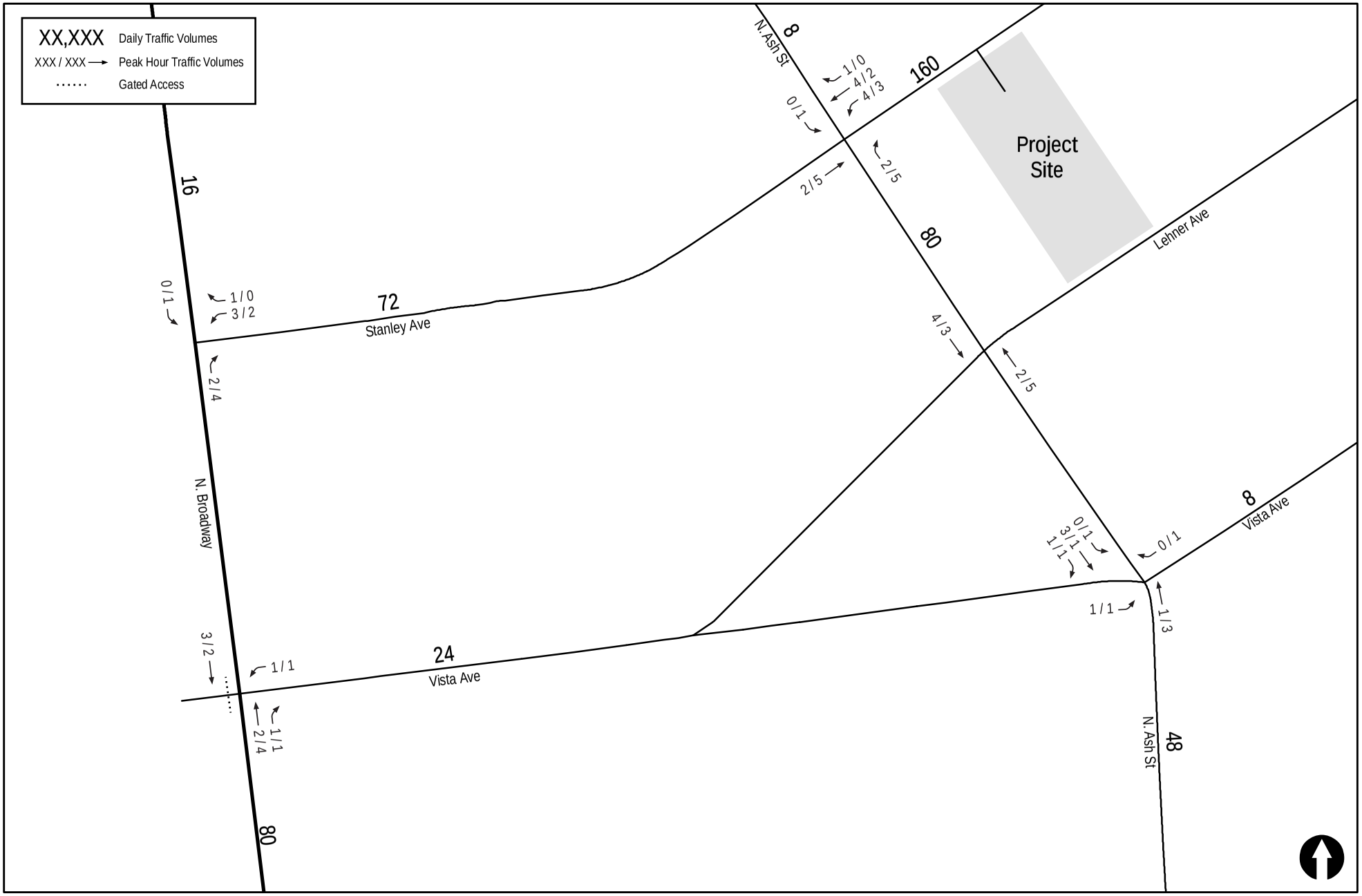


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Figure 7-2

Project Traffic Volumes

BOER RESIDENTIAL

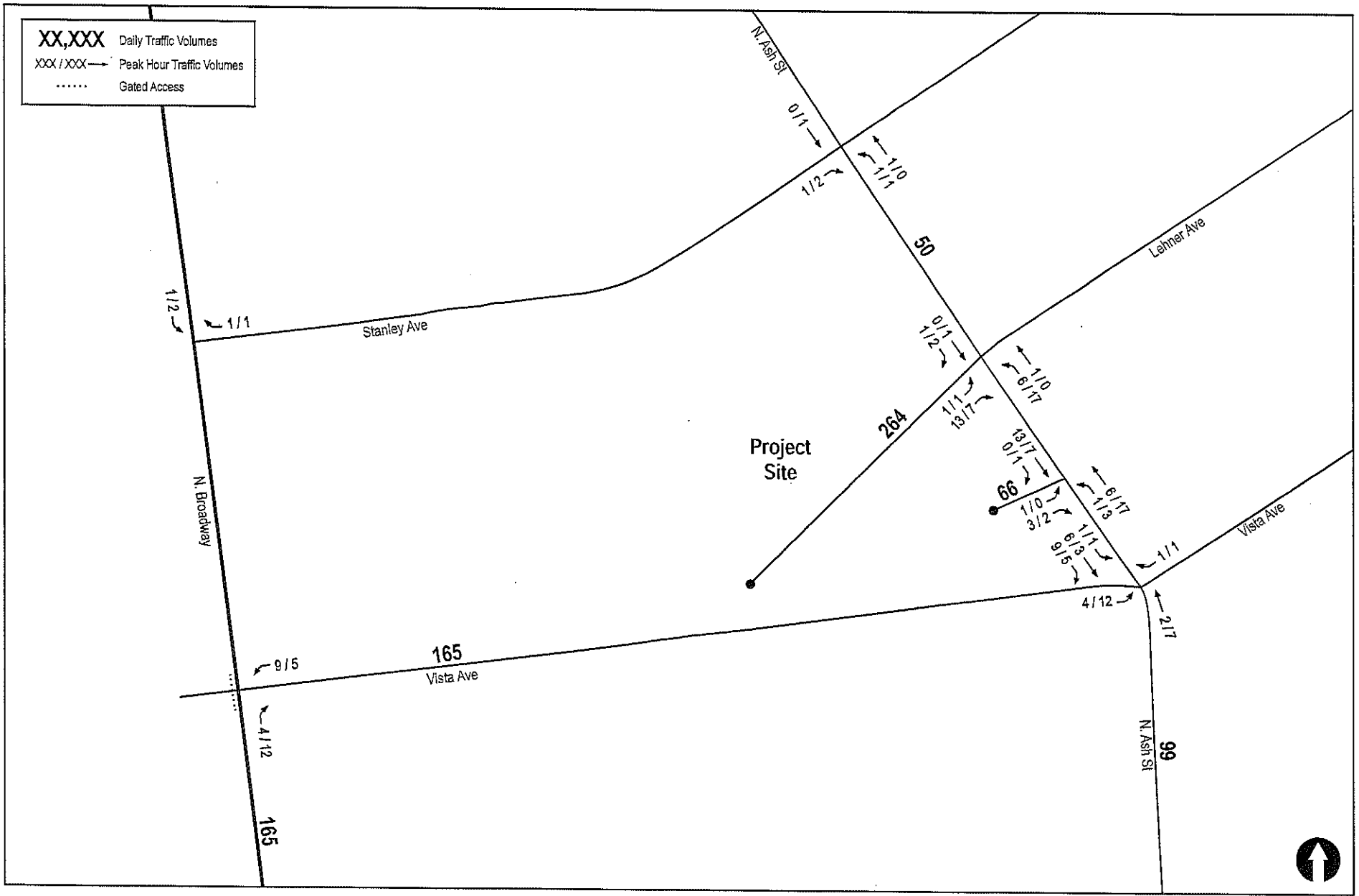

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Figure 7-2

Project Traffic Volumes

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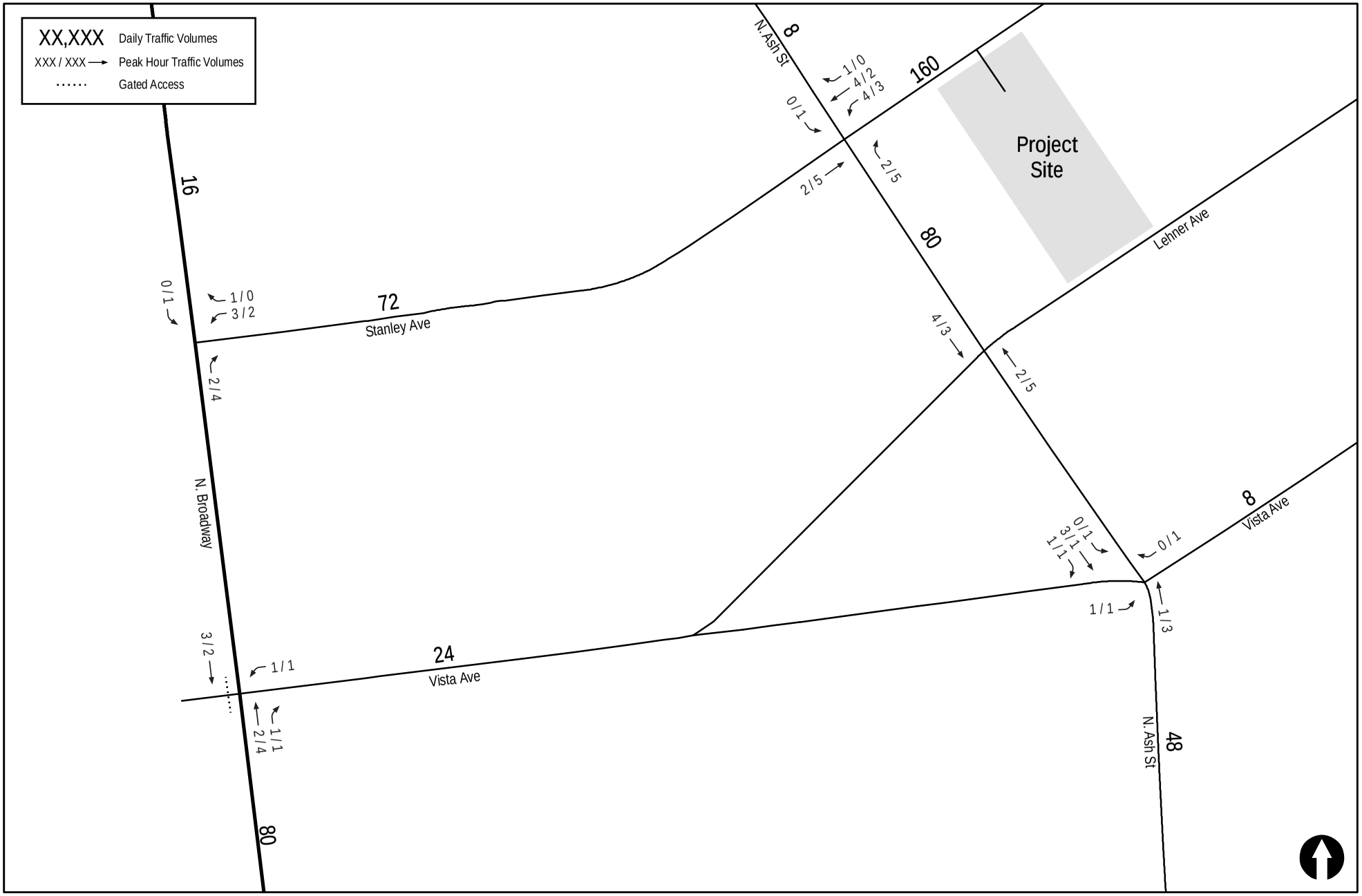

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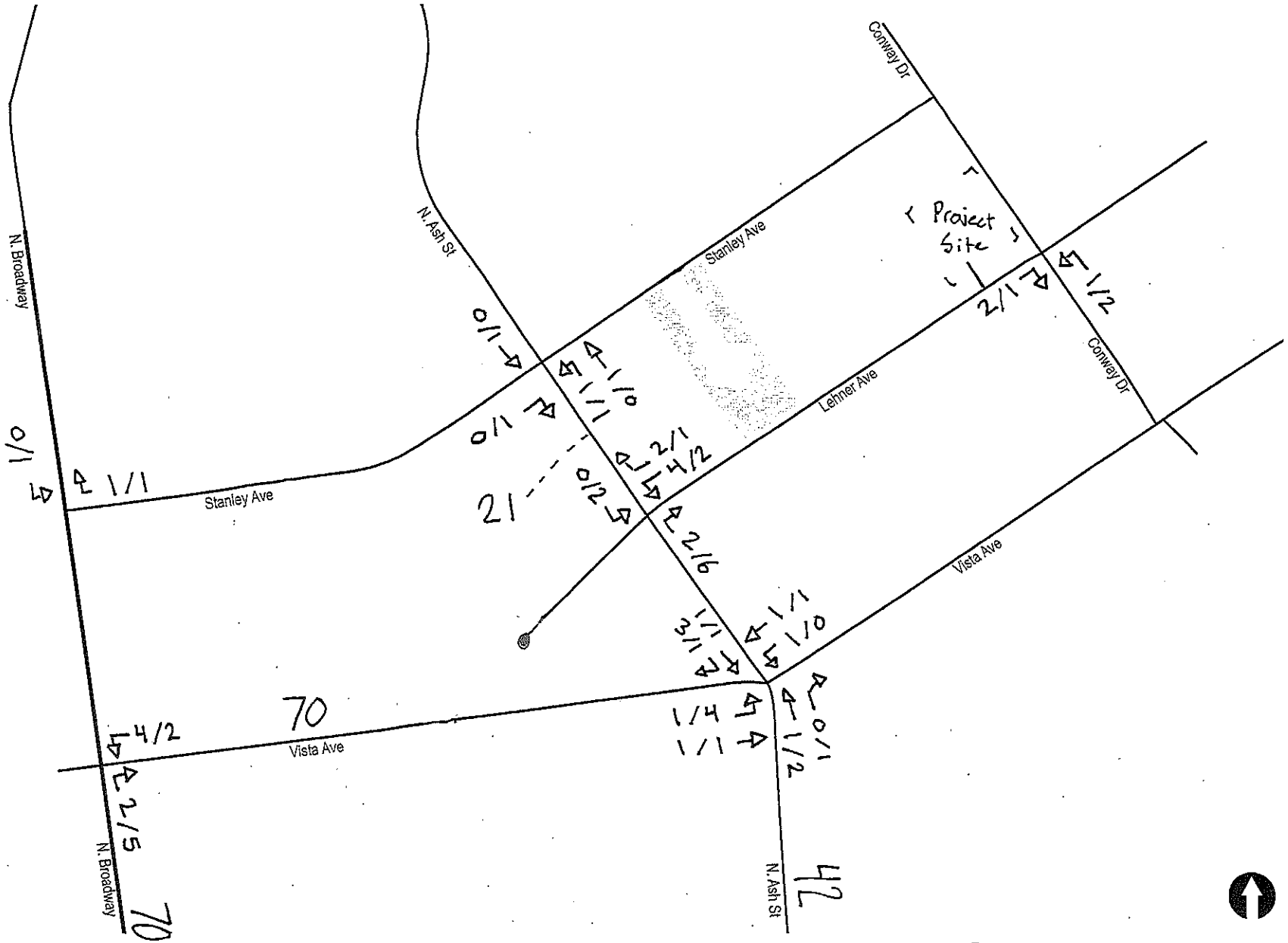
Figure 7-2

Project Traffic Volumes

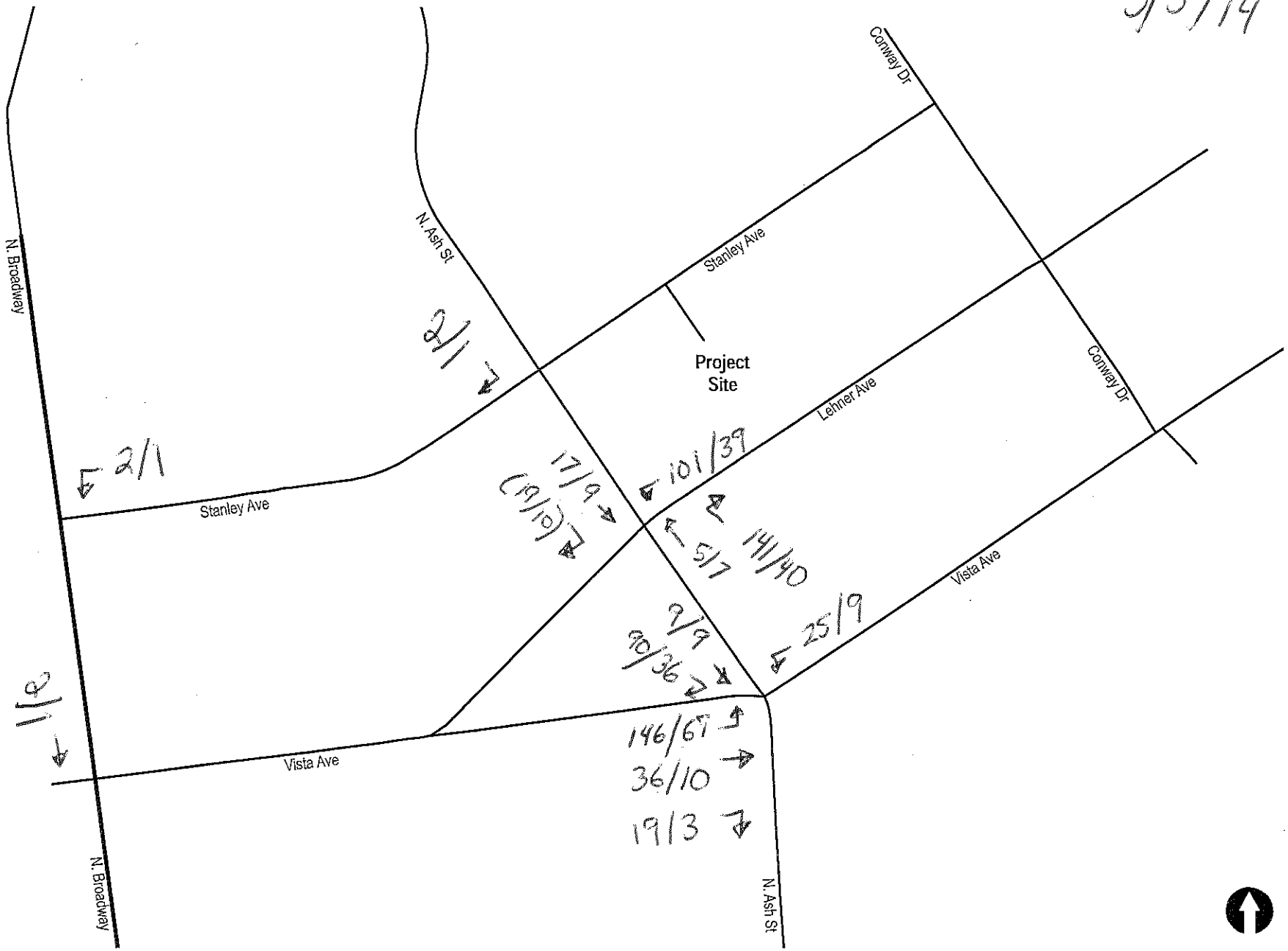
BAKER RESIDENTIAL



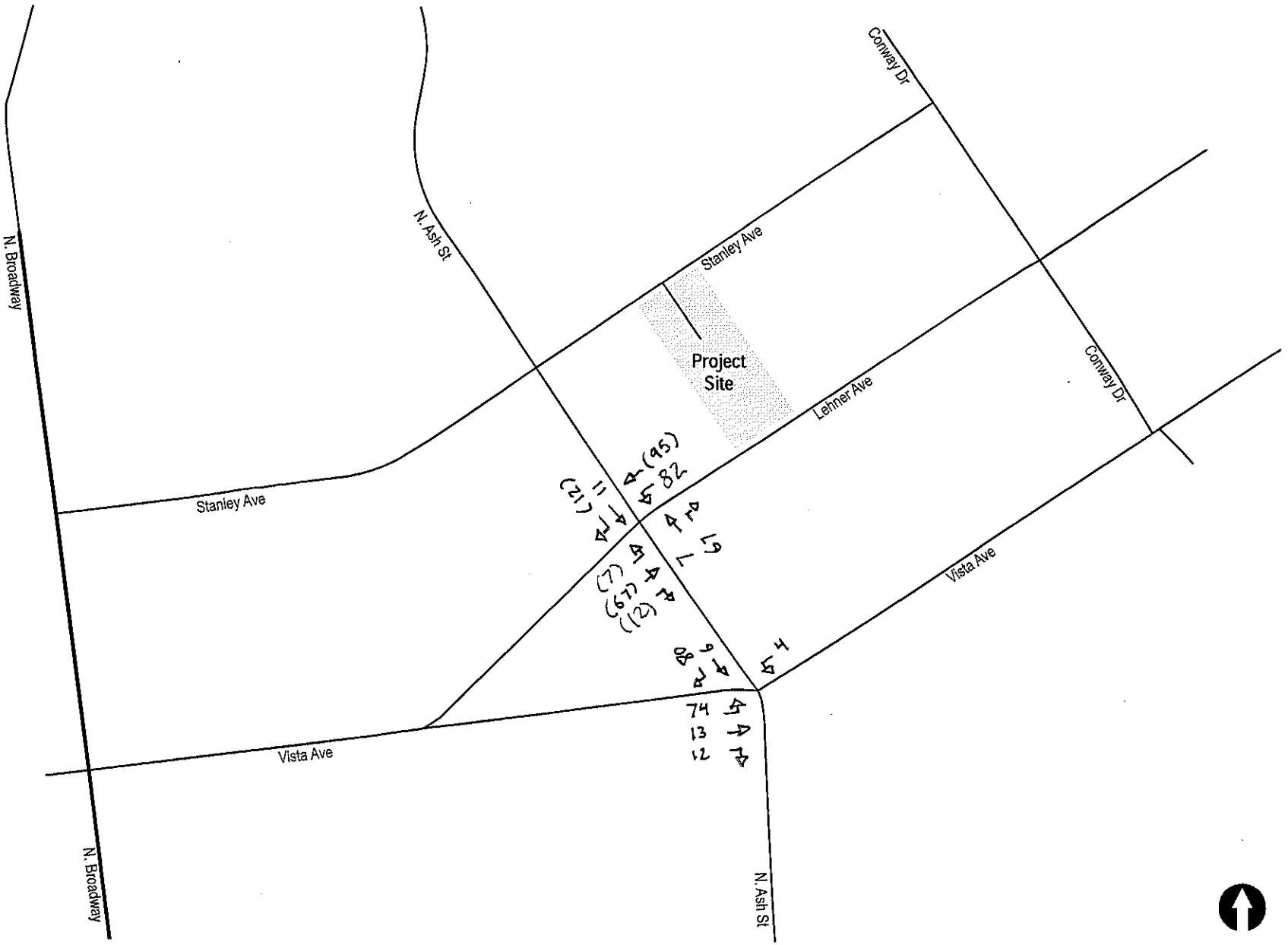
Project Traffic Volumes

BAKER CONWAY

3/5/14



Total Re-Routed AM/PM Volo



Mid day re-routed volumes
Added (subtracted) from Existing

APPENDIX D

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – EXISTING + PROJECT

Intersection	
Int Delay, s/veh	3.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	32	156	497	31	143	741
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	80	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	70	70	75	75	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	46	223	663	41	183	950

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1525	352	0	0	704	0
Stage 1	683	-	-	-	-	-
Stage 2	842	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	109	644	-	-	890	-
Stage 1	463	-	-	-	-	-
Stage 2	383	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	87	644	-	-	890	-
Mov Cap-2 Maneuver	205	-	-	-	-	-
Stage 1	463	-	-	-	-	-
Stage 2	304	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	22.2	0	1.6
HCM LOS	C		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	472	890	-
HCM Lane V/C Ratio	-	-	0.569	0.206	-
HCM Control Delay (s)	-	-	22.2	10.1	-
HCM Lane LOS	-	-	C	B	-
HCM 95th %tile Q(veh)	-	-	3.5	0.8	-

Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	10	52	107	0	11	101	6	0	56	143	3
Peak Hour Factor	0.92	0.74	0.74	0.74	0.92	0.54	0.54	0.54	0.92	0.81	0.81	0.81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	14	70	145	0	20	187	11	0	69	177	4
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	11.4	12.1	12.6
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	6%	9%	3%
Vol Thru, %	71%	31%	86%	94%
Vol Right, %	1%	63%	5%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	202	169	118	237
LT Vol	143	52	101	222
Through Vol	3	107	6	9
RT Vol	56	10	11	6
Lane Flow Rate	249	228	219	272
Geometry Grp	1	1	1	1
Degree of Util (X)	0.397	0.346	0.353	0.426
Departure Headway (Hd)	5.734	5.461	5.814	5.634
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	623	653	614	635
Service Time	3.802	3.534	3.887	3.7
HCM Lane V/C Ratio	0.4	0.349	0.357	0.428
HCM Control Delay	12.6	11.4	12.1	12.9
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	1.9	1.5	1.6	2.1

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	6	222	9
Peak Hour Factor	0.92	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	7	255	10
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	12.9
HCM LOS	B

Lane

Intersection	
Intersection Delay, s/veh	31.4
Intersection LOS	D

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	5	177	19	0	123	126	87	0	4	118	136
Peak Hour Factor	0.92	0.71	0.71	0.71	0.92	0.82	0.82	0.82	0.92	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	7	249	27	0	150	154	106	0	5	142	164
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	23.4	40.2	24.2
HCM LOS	C	E	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	2%	37%	48%
Vol Thru, %	46%	88%	38%	47%
Vol Right, %	53%	9%	26%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	258	201	336	350
LT Vol	118	177	126	164
Through Vol	136	19	87	19
RT Vol	4	5	123	167
Lane Flow Rate	311	283	410	365
Geometry Grp	1	1	1	1
Degree of Util (X)	0.657	0.624	0.85	0.785
Departure Headway (Hd)	7.611	7.933	7.47	7.752
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	472	453	484	467
Service Time	5.691	6.014	5.541	5.826
HCM Lane V/C Ratio	0.659	0.625	0.847	0.782
HCM Control Delay	24.2	23.4	40.2	33.9
HCM Lane LOS	C	C	E	D
HCM 95th-tile Q	4.7	4.2	8.6	7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	167	164	19
Peak Hour Factor	0.92	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	174	171	20
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	33.9
HCM LOS	D

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	238	0	111	0	417	310	146	627	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	0	0	0	294	0	137	0	556	413	192	825	0
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.81	0.81	0.81	0.75	0.75	0.75	0.76	0.76	0.76
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	135	413	0	528	0	351	3	801	595	249	2224	0
Arrive On Green	0.00	0.00	0.00	0.22	0.00	0.22	0.00	0.41	0.41	0.14	0.63	0.00
Sat Flow, veh/h	1247	1863	0	1774	0	1583	1774	1938	1440	1774	3632	0
Grp Volume(v), veh/h	0	0	0	294	0	137	0	508	461	192	825	0
Grp Sat Flow(s),veh/h/ln	1247	1863	0	1774	0	1583	1774	1770	1609	1774	1770	0
Q Serve(g_s), s	0.0	0.0	0.0	8.3	0.0	3.9	0.0	12.6	12.6	5.6	6.0	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	8.3	0.0	3.9	0.0	12.6	12.6	5.6	6.0	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.90	1.00		0.00
Lane Grp Cap(c), veh/h	135	413	0	528	0	351	3	732	665	249	2224	0
V/C Ratio(X)	0.00	0.00	0.00	0.56	0.00	0.39	0.00	0.69	0.69	0.77	0.37	0.00
Avail Cap(c_a), veh/h	558	1046	0	1131	0	889	598	993	903	598	2224	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	19.4	0.0	17.7	0.0	12.9	12.9	22.2	4.8	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.9	0.0	0.7	0.0	1.3	1.4	5.1	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	4.1	0.0	1.8	0.0	6.3	5.8	3.1	2.9	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	20.3	0.0	18.4	0.0	14.2	14.3	27.2	4.9	0.0
LnGrp LOS				C		B		B	B	C	A	
Approach Vol, veh/h		0			431			969			1017	
Approach Delay, s/veh		0.0			19.7			14.2			9.1	
Approach LOS					B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.5	26.1		15.9	0.0	37.6		15.9
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	18.0	30.0		30.0	18.0	30.0		30.0
Max Q Clear Time (g_c+I1), s	7.6	14.6		0.0	0.0	8.0		10.3
Green Ext Time (p_c), s	0.4	7.5		0.0	0.0	13.3		1.6

Intersection Summary	
HCM 2010 Ctrl Delay	13.1
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	47.4
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	10	79	99	0	234	52	2	0	73	243	190
Peak Hour Factor	0.92	0.78	0.78	0.78	0.92	0.75	0.75	0.75	0.92	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	13	101	127	0	312	69	3	0	85	283	221
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	21.5	43.5	69.2
HCM LOS	C	E	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	5%	81%	1%
Vol Thru, %	48%	42%	18%	96%
Vol Right, %	38%	53%	1%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	506	188	288	300
LT Vol	243	79	52	288
Through Vol	190	99	2	9
RT Vol	73	10	234	3
Lane Flow Rate	588	241	384	337
Geometry Grp	1	1	1	1
Degree of Util (X)	1	0.559	0.856	0.759
Departure Headway (Hd)	7.584	8.353	8.169	8.107
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	482	434	445	448
Service Time	5.623	6.379	6.169	6.128
HCM Lane V/C Ratio	1.22	0.555	0.863	0.752
HCM Control Delay	69.2	21.5	43.5	32.5
HCM Lane LOS	F	C	E	D
HCM 95th-tile Q	13.3	3.3	8.6	6.4

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	3	288	9
Peak Hour Factor	0.92	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	3	324	10
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	32.5
HCM LOS	D

Lane

Intersection	
Int Delay, s/veh	1.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	20	46	350	29	72	369
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	80	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	94	94	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	25	57	369	31	80	408

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	747	200	0	0	399	0
Stage 1	384	-	-	-	-	-
Stage 2	363	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	349	808	-	-	1156	-
Stage 1	658	-	-	-	-	-
Stage 2	674	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	325	808	-	-	1156	-
Mov Cap-2 Maneuver	441	-	-	-	-	-
Stage 1	658	-	-	-	-	-
Stage 2	627	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.4	0	1.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	645	1156	-
HCM Lane V/C Ratio	-	-	0.126	0.069	-
HCM Control Delay (s)	-	-	11.4	8.3	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.4	0.2	-

Intersection	
Intersection Delay, s/veh	9.1
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	15	24	36	0	5	11	2	0	38	170	7
Peak Hour Factor	0.92	0.74	0.74	0.74	0.92	0.70	0.70	0.70	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	20	32	49	0	7	16	3	0	40	179	7
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.5	8.3	9.3
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	18%	20%	28%	0%
Vol Thru, %	79%	32%	61%	96%
Vol Right, %	3%	48%	11%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	215	75	18	210
LT Vol	170	24	11	201
Through Vol	7	36	2	8
RT Vol	38	15	5	1
Lane Flow Rate	226	101	26	233
Geometry Grp	1	1	1	1
Degree of Util (X)	0.284	0.134	0.036	0.29
Departure Headway (Hd)	4.514	4.754	5.099	4.471
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	797	752	700	803
Service Time	2.544	2.794	3.147	2.501
HCM Lane V/C Ratio	0.284	0.134	0.037	0.29
HCM Control Delay	9.3	8.5	8.3	9.3
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.2	0.5	0.1	1.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	1	201	8
Peak Hour Factor	0.92	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	1	223	9
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	9.3
HCM LOS	A

Lane

Intersection	
Intersection Delay, s/veh	11.2
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	7	50	3	0	57	48	38	0	2	172	43
Peak Hour Factor	0.92	0.75	0.75	0.75	0.92	0.59	0.59	0.59	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	9	67	4	0	97	81	64	0	2	202	51
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	9.6	11.4	11.1
HCM LOS	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	12%	40%	12%
Vol Thru, %	79%	83%	34%	83%
Vol Right, %	20%	5%	27%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	217	60	143	240
LT Vol	172	50	48	200
Through Vol	43	3	38	10
RT Vol	2	7	57	30
Lane Flow Rate	255	80	242	267
Geometry Grp	1	1	1	1
Degree of Util (X)	0.364	0.127	0.361	0.387
Departure Headway (Hd)	5.13	5.724	5.357	5.224
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	702	625	671	688
Service Time	3.162	3.77	3.393	3.256
HCM Lane V/C Ratio	0.363	0.128	0.361	0.388
HCM Control Delay	11.1	9.6	11.4	11.5
HCM Lane LOS	B	A	B	B
HCM 95th-tile Q	1.7	0.4	1.6	1.8

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	30	200	10
Peak Hour Factor	0.92	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	33	222	11
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	11.5
HCM LOS	B

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	103	0	54	1	325	156	88	301	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	0	0	0	143	0	75	1	353	170	101	346	0
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.72	0.72	0.72	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	241	264	0	492	0	224	6	888	421	135	1613	0
Arrive On Green	0.00	0.00	0.00	0.14	0.00	0.14	0.00	0.38	0.38	0.08	0.46	0.00
Sat Flow, veh/h	1319	1863	0	1774	0	1583	1774	2333	1104	1774	3632	0
Grp Volume(v), veh/h	0	0	0	143	0	75	1	266	257	101	346	0
Grp Sat Flow(s),veh/h/ln	1319	1863	0	1774	0	1583	1774	1770	1668	1774	1770	0
Q Serve(g_s), s	0.0	0.0	0.0	2.2	0.0	1.3	0.0	3.3	3.4	1.7	1.8	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	2.2	0.0	1.3	0.0	3.3	3.4	1.7	1.8	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.66	1.00		0.00
Lane Grp Cap(c), veh/h	241	264	0	492	0	224	6	674	635	135	1613	0
V/C Ratio(X)	0.00	0.00	0.00	0.29	0.00	0.33	0.17	0.40	0.40	0.75	0.21	0.00
Avail Cap(c_a), veh/h	1379	1871	0	2023	0	1590	1069	1777	1675	1069	3555	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	12.0	0.0	11.6	14.9	6.7	6.8	13.5	4.9	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.3	0.0	0.9	12.8	0.4	0.4	8.0	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	1.1	0.0	0.6	0.0	1.6	1.6	1.1	0.8	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	12.3	0.0	12.4	27.7	7.1	7.2	21.6	5.0	0.0
LnGrp LOS				B		B	C	A	A	C	A	
Approach Vol, veh/h		0			218			524			447	
Approach Delay, s/veh		0.0			12.3			7.2			8.7	
Approach LOS					B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.3	15.4		8.2	4.0	17.6		8.2
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	18.0	30.0		30.0	18.0	30.0		30.0
Max Q Clear Time (g_c+I1), s	3.7	5.4		0.0	2.0	3.8		4.2
Green Ext Time (p_c), s	0.2	6.0		0.0	0.0	6.1		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	8.7
HCM 2010 LOS	A

Intersection	
Intersection Delay, s/veh	11
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	4	45	54	0	29	29	3	0	46	208	54
Peak Hour Factor	0.92	0.79	0.79	0.79	0.92	0.79	0.79	0.79	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	5	57	68	0	37	37	4	0	49	224	58
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	9.6	9.6	11.6
HCM LOS	A	A	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	15%	4%	48%	0%
Vol Thru, %	68%	44%	48%	99%
Vol Right, %	18%	52%	5%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	308	103	61	257
LT Vol	208	45	29	254
Through Vol	54	54	3	2
RT Vol	46	4	29	1
Lane Flow Rate	331	130	77	299
Geometry Grp	1	1	1	1
Degree of Util (X)	0.439	0.193	0.124	0.404
Departure Headway (Hd)	4.768	5.32	5.79	4.972
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	745	678	622	729
Service Time	2.865	3.323	3.796	2.972
HCM Lane V/C Ratio	0.444	0.192	0.124	0.41
HCM Control Delay	11.6	9.6	9.6	11.3
HCM Lane LOS	B	A	A	B
HCM 95th-tile Q	2.3	0.7	0.4	2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	1	254	2
Peak Hour Factor	0.92	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	1	295	2
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	11.3
HCM LOS	B

Lane

APPENDIX E

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – EXISTING + PROJECT + 4 "ADJACENT CUMULATIVE PROJECTS

Intersection	
Int Delay, s/veh	4.4

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	40	160	497	35	144	741
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	80	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	70	70	75	75	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	57	229	663	47	185	950

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1530	355	0	0	709	0
Stage 1	686	-	-	-	-	-
Stage 2	844	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	108	641	-	-	886	-
Stage 1	461	-	-	-	-	-
Stage 2	382	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	85	641	-	-	886	-
Mov Cap-2 Maneuver	203	-	-	-	-	-
Stage 1	461	-	-	-	-	-
Stage 2	302	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	26.1	0	1.6
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	448	886	-
HCM Lane V/C Ratio	-	-	0.638	0.208	-
HCM Control Delay (s)	-	-	26.1	10.1	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	4.3	0.8	-

Intersection	
Intersection Delay, s/veh	13
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	10	56	108	0	19	109	8	0	58	145	7
Peak Hour Factor	0.92	0.74	0.74	0.74	0.92	0.54	0.54	0.54	0.92	0.81	0.81	0.81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	14	76	146	0	35	202	15	0	72	179	9
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	12	13.2	13.3
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	28%	6%	14%	3%
Vol Thru, %	69%	32%	80%	93%
Vol Right, %	3%	62%	6%	5%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	210	174	136	239
LT Vol	145	56	109	222
Through Vol	7	108	8	11
RT Vol	58	10	19	6
Lane Flow Rate	259	235	252	275
Geometry Grp	1	1	1	1
Degree of Util (X)	0.424	0.367	0.414	0.444
Departure Headway (Hd)	5.894	5.62	5.918	5.812
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	607	633	602	615
Service Time	3.982	3.714	4.009	3.897
HCM Lane V/C Ratio	0.427	0.371	0.419	0.447
HCM Control Delay	13.3	12	13.2	13.5
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.1	1.7	2	2.3

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	6	222	11
Peak Hour Factor	0.92	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	7	255	13
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	13.5
HCM LOS	B

Lane

Intersection	
Intersection Delay, s/veh	23.4
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	1	0	13	0	228	0	89	0	10	128	279
Peak Hour Factor	0.92	0.71	0.71	0.71	0.92	0.82	0.82	0.82	0.92	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	0	18	0	278	0	109	0	12	154	336
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	10.5	22.5	26.7
HCM LOS	B	C	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	7%	72%	47%
Vol Thru, %	31%	0%	0%	53%
Vol Right, %	67%	93%	28%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	417	14	317	357
LT Vol	128	0	0	189
Through Vol	279	13	89	1
RT Vol	10	1	228	167
Lane Flow Rate	502	20	387	372
Geometry Grp	1	1	1	1
Degree of Util (X)	0.79	0.039	0.689	0.653
Departure Headway (Hd)	5.663	7.111	6.415	6.319
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	638	501	564	573
Service Time	3.706	5.194	4.458	4.367
HCM Lane V/C Ratio	0.787	0.04	0.686	0.649
HCM Control Delay	26.7	10.5	22.5	20.5
HCM Lane LOS	D	B	C	C
HCM 95th-tile Q	7.7	0.1	5.3	4.7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	167	189	1
Peak Hour Factor	0.92	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	174	197	1
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	20.5
HCM LOS	C

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	253	0	111	0	421	318	146	635	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	0	0	0	312	0	137	0	561	424	192	836	0
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.81	0.81	0.81	0.75	0.75	0.75	0.76	0.76	0.76
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	135	435	0	550	0	370	3	769	581	250	2181	0
Arrive On Green	0.00	0.00	0.00	0.23	0.00	0.23	0.00	0.40	0.40	0.14	0.62	0.00
Sat Flow, veh/h	1247	1863	0	1774	0	1583	1774	1923	1453	1774	3632	0
Grp Volume(v), veh/h	0	0	0	312	0	137	0	516	469	192	836	0
Grp Sat Flow(s),veh/h/ln	1247	1863	0	1774	0	1583	1774	1770	1606	1774	1770	0
Q Serve(g_s), s	0.0	0.0	0.0	8.7	0.0	3.9	0.0	13.2	13.2	5.5	6.3	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	8.7	0.0	3.9	0.0	13.2	13.2	5.5	6.3	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.90	1.00		0.00
Lane Grp Cap(c), veh/h	135	435	0	550	0	370	3	708	642	250	2181	0
V/C Ratio(X)	0.00	0.00	0.00	0.57	0.00	0.37	0.00	0.73	0.73	0.77	0.38	0.00
Avail Cap(c_a), veh/h	641	1191	0	1269	0	1012	133	765	695	700	2662	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	19.0	0.0	17.1	0.0	13.5	13.5	22.0	5.1	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.9	0.0	0.6	0.0	3.3	3.6	4.9	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	4.4	0.0	1.7	0.0	7.0	6.4	3.1	3.1	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	19.9	0.0	17.7	0.0	16.8	17.1	26.9	5.2	0.0
LnGrp LOS				B		B		B	B	C	A	
Approach Vol, veh/h		0			449			985			1028	
Approach Delay, s/veh		0.0			19.2			17.0			9.3	
Approach LOS					B			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.5	25.3		16.4	0.0	36.8		16.4
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	21.0	23.0		34.0	4.0	40.0		34.0
Max Q Clear Time (g_c+I1), s	7.5	15.2		0.0	0.0	8.3		10.7
Green Ext Time (p_c), s	0.4	6.1		0.0	0.0	16.8		1.7

Intersection Summary	
HCM 2010 Ctrl Delay	14.2
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	75.8
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	158	116	118	0	274	53	3	0	73	248	190
Peak Hour Factor	0.92	0.78	0.78	0.78	0.92	0.75	0.75	0.75	0.92	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	199	119	151	0	292	57	4	0	85	231	219
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	77.6	69.5	77.1
HCM LOS	F	F	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	40%	83%	1%
Vol Thru, %	49%	30%	16%	74%
Vol Right, %	37%	30%	1%	25%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	511	392	330	446
LT Vol	248	116	53	329
Through Vol	190	118	3	113
RT Vol	73	158	274	4
Lane Flow Rate	534	469	353	427
Geometry Grp	1	1	1	1
Degree of Util (X)	1	1	0.96	1
Departure Headway (Hd)	9.273	9.368	9.792	9.318
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	395	389	374	389
Service Time	7.333	7.428	7.792	7.377
HCM Lane V/C Ratio	1.352	1.206	0.944	1.098
HCM Control Delay	77.1	77.6	69.5	77.3
HCM Lane LOS	F	F	F	F
HCM 95th-tile Q	12	12	10.6	12

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	4	329	113
Peak Hour Factor	0.92	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	4	296	127
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	77.3
HCM LOS	F

Lane

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	25	48	350	37	77	369
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	80	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	94	94	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	59	343	39	90	429

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	756	191	0	0	382	0
Stage 1	362	-	-	-	-	-
Stage 2	394	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	344	818	-	-	1173	-
Stage 1	675	-	-	-	-	-
Stage 2	650	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	318	818	-	-	1173	-
Mov Cap-2 Maneuver	434	-	-	-	-	-
Stage 1	675	-	-	-	-	-
Stage 2	600	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	11.7	0	1.4
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	628	1173	-
HCM Lane V/C Ratio	-	-	0.144	0.076	-
HCM Control Delay (s)	-	-	11.7	8.3	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.2	-

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	15	34	39	0	11	15	2	0	40	170	17
Peak Hour Factor	0.92	0.74	0.74	0.74	0.92	0.70	0.70	0.70	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	20	46	53	0	16	21	3	0	42	195	18
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.9	8.7	9.9
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	18%	17%	39%	1%
Vol Thru, %	75%	39%	54%	94%
Vol Right, %	7%	44%	7%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	227	88	28	215
LT Vol	170	34	15	203
Through Vol	17	39	2	9
RT Vol	40	15	11	3
Lane Flow Rate	255	119	40	239
Geometry Grp	1	1	1	1
Degree of Util (X)	0.325	0.161	0.059	0.305
Departure Headway (Hd)	4.593	4.882	5.266	4.599
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	780	731	676	779
Service Time	2.635	2.937	3.331	2.641
HCM Lane V/C Ratio	0.327	0.163	0.059	0.307
HCM Control Delay	9.9	8.9	8.7	9.7
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.4	0.6	0.2	1.3

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	3	203	9
Peak Hour Factor	0.92	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	3	226	10
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	9.7
HCM LOS	A

Lane

Intersection	
Intersection Delay, s/veh	11.6
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	1	0	7	0	98	0	39	0	19	189	89
Peak Hour Factor	0.92	0.75	0.75	0.75	0.92	0.59	0.59	0.59	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	0	9	0	166	0	66	0	22	222	105
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.5	11.4	12
HCM LOS	A	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	12%	72%	13%
Vol Thru, %	64%	0%	0%	86%
Vol Right, %	30%	88%	28%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	297	8	137	250
LT Vol	189	0	0	216
Through Vol	89	7	39	2
RT Vol	19	1	98	32
Lane Flow Rate	349	11	232	278
Geometry Grp	1	1	1	1
Degree of Util (X)	0.463	0.016	0.353	0.388
Departure Headway (Hd)	4.873	5.445	5.472	5.137
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	744	660	662	706
Service Time	2.873	3.455	3.472	3.137
HCM Lane V/C Ratio	0.469	0.017	0.35	0.394
HCM Control Delay	12	8.5	11.4	11.4
HCM Lane LOS	B	A	B	B
HCM 95th-tile Q	2.5	0	1.6	1.8

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	32	216	2
Peak Hour Factor	0.92	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	36	240	2
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	11.4
HCM LOS	B

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	112	0	54	1	333	175	88	306	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	0	0	0	156	0	75	1	362	190	101	352	0
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.72	0.72	0.72	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	233	279	0	499	0	238	6	874	451	133	1631	0
Arrive On Green	0.00	0.00	0.00	0.15	0.00	0.15	0.00	0.39	0.39	0.08	0.46	0.00
Sat Flow, veh/h	1319	1863	0	1774	0	1583	1774	2260	1167	1774	3632	0
Grp Volume(v), veh/h	0	0	0	156	0	75	1	282	270	101	352	0
Grp Sat Flow(s),veh/h/ln	1319	1863	0	1774	0	1583	1774	1770	1657	1774	1770	0
Q Serve(g_s), s	0.0	0.0	0.0	2.5	0.0	1.3	0.0	3.6	3.7	1.7	1.8	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	2.5	0.0	1.3	0.0	3.6	3.7	1.7	1.8	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.70	1.00		0.00
Lane Grp Cap(c), veh/h	233	279	0	499	0	238	6	685	641	133	1631	0
V/C Ratio(X)	0.00	0.00	0.00	0.31	0.00	0.32	0.17	0.41	0.42	0.76	0.22	0.00
Avail Cap(c_a), veh/h	1315	1807	0	1954	0	1536	1033	1717	1607	1033	3433	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	12.2	0.0	11.7	15.4	6.9	6.9	14.0	5.0	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.4	0.0	0.8	13.8	0.4	0.4	8.5	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	1.3	0.0	0.6	0.0	1.8	1.7	1.2	0.9	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	12.6	0.0	12.5	29.2	7.3	7.4	22.6	5.1	0.0
LnGrp LOS				B		B	C	A	A	C	A	
Approach Vol, veh/h		0			231			553			453	
Approach Delay, s/veh		0.0			12.6			7.4			9.0	
Approach LOS					B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.3	16.0		8.6	4.0	18.3		8.6
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	18.0	30.0		30.0	18.0	30.0		30.0
Max Q Clear Time (g_c+I1), s	3.7	5.7		0.0	2.0	3.8		4.5
Green Ext Time (p_c), s	0.2	6.3		0.0	0.0	6.4		0.8

Intersection Summary	
HCM 2010 Ctrl Delay	8.9
HCM 2010 LOS	A

Intersection	
Intersection Delay, s/veh	13.5
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	62	56	57	0	45	30	6	0	46	223	55
Peak Hour Factor	0.92	0.79	0.79	0.79	0.92	0.79	0.79	0.79	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	78	71	72	0	57	38	8	0	49	240	59
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	12.3	10.8	14.3
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	35%	56%	1%
Vol Thru, %	69%	32%	37%	84%
Vol Right, %	17%	33%	7%	14%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	324	175	81	322
LT Vol	223	56	30	272
Through Vol	55	57	6	46
RT Vol	46	62	45	4
Lane Flow Rate	348	222	103	349
Geometry Grp	1	1	1	1
Degree of Util (X)	0.523	0.362	0.181	0.524
Departure Headway (Hd)	5.409	5.879	6.34	5.399
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	662	609	562	663
Service Time	3.472	3.952	4.428	3.461
HCM Lane V/C Ratio	0.526	0.365	0.183	0.526
HCM Control Delay	14.3	12.3	10.8	14.3
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	3.1	1.6	0.7	3.1

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	4	272	46
Peak Hour Factor	0.92	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	5	291	53
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	14.3
HCM LOS	B

Lane

APPENDIX F

PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS – EXISTING + PROJECT + TOTAL CUMULATIVE PROJECTS

Intersection	
Int Delay, s/veh	4.7

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	40	165	515	35	147	758
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	80	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	70	70	75	75	78	78
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	57	236	687	47	188	972

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1573	367	0	0	733	0
Stage 1	710	-	-	-	-	-
Stage 2	863	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	101	630	-	-	868	-
Stage 1	448	-	-	-	-	-
Stage 2	373	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	79	630	-	-	868	-
Mov Cap-2 Maneuver	195	-	-	-	-	-
Stage 1	448	-	-	-	-	-
Stage 2	292	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	28.1	0	1.7
HCM LOS	D		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	439	868	-
HCM Lane V/C Ratio	-	-	0.667	0.217	-
HCM Control Delay (s)	-	-	28.1	10.3	-
HCM Lane LOS	-	-	D	B	-
HCM 95th %tile Q(veh)	-	-	4.8	0.8	-

Intersection	
Intersection Delay, s/veh	13.6
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	11	56	109	0	19	109	13	0	58	154	7
Peak Hour Factor	0.92	0.74	0.74	0.74	0.92	0.54	0.54	0.54	0.92	0.81	0.81	0.81
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	15	76	147	0	35	202	24	0	72	190	9
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	12.5	13.8	14
HCM LOS	B	B	B

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	26%	6%	13%	4%
Vol Thru, %	70%	32%	77%	92%
Vol Right, %	3%	62%	9%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	219	176	141	246
LT Vol	154	56	109	226
Through Vol	7	109	13	11
RT Vol	58	11	19	9
Lane Flow Rate	270	238	261	283
Geometry Grp	1	1	1	1
Degree of Util (X)	0.448	0.385	0.442	0.463
Departure Headway (Hd)	6.101	5.831	6.088	6.026
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	595	621	595	602
Service Time	4.101	3.842	4.098	4.026
HCM Lane V/C Ratio	0.454	0.383	0.439	0.47
HCM Control Delay	14	12.5	13.8	14.1
HCM Lane LOS	B	B	B	B
HCM 95th-tile Q	2.3	1.8	2.3	2.4

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	9	226	11
Peak Hour Factor	0.92	0.87	0.87	0.87
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	10	260	13
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	14.1
HCM LOS	B

Lane

Intersection	
Intersection Delay, s/veh	25.2
Intersection LOS	D

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	1	0	13	0	234	0	90	0	10	136	279
Peak Hour Factor	0.92	0.71	0.71	0.71	0.92	0.82	0.82	0.82	0.92	0.83	0.83	0.83
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	0	18	0	285	0	110	0	12	164	336
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	10.6	24	29.3
HCM LOS	B	C	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	7%	72%	46%
Vol Thru, %	32%	0%	0%	53%
Vol Right, %	66%	93%	28%	0%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	425	14	324	362
LT Vol	136	0	0	193
Through Vol	279	13	90	1
RT Vol	10	1	234	168
Lane Flow Rate	512	20	395	377
Geometry Grp	1	1	1	1
Degree of Util (X)	0.816	0.04	0.711	0.67
Departure Headway (Hd)	5.739	7.245	6.48	6.399
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	630	491	557	566
Service Time	3.785	5.334	4.528	4.45
HCM Lane V/C Ratio	0.813	0.041	0.709	0.666
HCM Control Delay	29.3	10.6	24	21.6
HCM Lane LOS	D	B	C	C
HCM 95th-tile Q	8.4	0.1	5.7	5

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	168	193	1
Peak Hour Factor	0.92	0.96	0.96	0.96
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	175	201	1
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	21.6
HCM LOS	C

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	270	0	120	0	430	325	146	642	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	0	0	0	333	0	148	0	573	433	192	845	0
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.81	0.81	0.81	0.75	0.75	0.75	0.76	0.76	0.76
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	129	452	0	559	0	384	3	776	586	247	2174	0
Arrive On Green	0.00	0.00	0.00	0.24	0.00	0.24	0.00	0.40	0.40	0.14	0.61	0.00
Sat Flow, veh/h	1235	1863	0	1774	0	1583	1774	1923	1453	1774	3632	0
Grp Volume(v), veh/h	0	0	0	333	0	148	0	527	479	192	845	0
Grp Sat Flow(s),veh/h/ln	1235	1863	0	1774	0	1583	1774	1770	1606	1774	1770	0
Q Serve(g_s), s	0.0	0.0	0.0	9.8	0.0	4.4	0.0	14.2	14.2	5.8	6.8	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	9.8	0.0	4.4	0.0	14.2	14.2	5.8	6.8	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.90	1.00		0.00
Lane Grp Cap(c), veh/h	129	452	0	559	0	384	3	714	648	247	2174	0
V/C Ratio(X)	0.00	0.00	0.00	0.60	0.00	0.39	0.00	0.74	0.74	0.78	0.39	0.00
Avail Cap(c_a), veh/h	492	1000	0	1081	0	850	571	950	862	571	2174	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	19.7	0.0	17.7	0.0	14.2	14.2	23.2	5.5	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	1.0	0.0	0.6	0.0	2.1	2.3	5.2	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	4.9	0.0	2.0	0.0	7.3	6.7	3.2	3.3	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	20.8	0.0	18.3	0.0	16.3	16.5	28.4	5.6	0.0
LnGrp LOS				C		B		B	B	C	A	
Approach Vol, veh/h		0			481			1006			1037	
Approach Delay, s/veh		0.0			20.0			16.4			9.8	
Approach LOS					C			B			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	11.8	26.5		17.6	0.0	38.3		17.6
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	18.0	30.0		30.0	18.0	30.0		30.0
Max Q Clear Time (g_c+I1), s	7.8	16.2		0.0	0.0	8.8		11.8
Green Ext Time (p_c), s	0.4	6.4		0.0	0.0	13.5		1.8

Intersection Summary	
HCM 2010 Ctrl Delay	14.4
HCM 2010 LOS	B

Intersection	
Intersection Delay, s/veh	78.1
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	162	119	118	0	274	74	6	0	73	249	190
Peak Hour Factor	0.92	0.78	0.78	0.78	0.92	0.75	0.75	0.75	0.92	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	208	153	151	0	329	79	8	0	68	232	177
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	78	79.1	77.6
HCM LOS	F	F	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	41%	77%	1%
Vol Thru, %	49%	30%	21%	73%
Vol Right, %	37%	30%	2%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	512	399	354	456
LT Vol	249	119	74	334
Through Vol	190	118	6	118
RT Vol	73	162	274	4
Lane Flow Rate	476	512	416	437
Geometry Grp	1	1	1	1
Degree of Util (X)	1	1	1	1
Departure Headway (Hd)	9.437	9.535	9.69	9.478
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	391	384	374	385
Service Time	7.437	7.535	7.776	7.478
HCM Lane V/C Ratio	1.217	1.333	1.112	1.135
HCM Control Delay	77.6	78	79.1	77.8
HCM Lane LOS	F	F	F	F
HCM 95th-tile Q	12	11.9	11.8	11.9

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	4	334	118
Peak Hour Factor	0.92	0.89	0.89	0.89
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	4	300	133
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	77.8
HCM LOS	F

Lane

Intersection	
Int Delay, s/veh	1.8

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Vol, veh/h	25	51	366	37	82	398
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	80	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	81	81	94	94	86	86
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	31	63	389	39	95	463

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	831	214	0	0	429	0
Stage 1	409	-	-	-	-	-
Stage 2	422	-	-	-	-	-
Critical Hdwy	6.84	6.94	-	-	4.14	-
Critical Hdwy Stg 1	5.84	-	-	-	-	-
Critical Hdwy Stg 2	5.84	-	-	-	-	-
Follow-up Hdwy	3.52	3.32	-	-	2.22	-
Pot Cap-1 Maneuver	308	791	-	-	1127	-
Stage 1	639	-	-	-	-	-
Stage 2	629	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	282	791	-	-	1127	-
Mov Cap-2 Maneuver	405	-	-	-	-	-
Stage 1	639	-	-	-	-	-
Stage 2	576	-	-	-	-	-

Approach	WB	NB	SB
HCM Control Delay, s	12.1	0	1.5
HCM LOS	B		

Minor Lane/Major Mvmt	NBT	NBR	WBLn1	SBL	SBT
Capacity (veh/h)	-	-	602	1127	-
HCM Lane V/C Ratio	-	-	0.156	0.085	-
HCM Control Delay (s)	-	-	12.1	8.5	-
HCM Lane LOS	-	-	B	A	-
HCM 95th %tile Q(veh)	-	-	0.5	0.3	-

Intersection	
Intersection Delay, s/veh	9.6
Intersection LOS	A

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	17	34	39	0	12	15	5	0	40	176	17
Peak Hour Factor	0.92	0.74	0.74	0.74	0.92	0.70	0.70	0.70	0.92	0.95	0.95	0.95
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	23	46	53	0	17	21	7	0	42	185	18
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	9	8.7	9.8
HCM LOS	A	A	A

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	17%	19%	38%	3%
Vol Thru, %	76%	38%	47%	93%
Vol Right, %	7%	43%	16%	4%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	233	90	32	226
LT Vol	176	34	15	210
Through Vol	17	39	5	9
RT Vol	40	17	12	7
Lane Flow Rate	245	122	46	251
Geometry Grp	1	1	1	1
Degree of Util (X)	0.316	0.166	0.066	0.322
Departure Headway (Hd)	4.631	4.911	5.227	4.617
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	773	726	680	776
Service Time	2.676	2.97	3.296	2.662
HCM Lane V/C Ratio	0.317	0.168	0.068	0.323
HCM Control Delay	9.8	9	8.7	9.9
HCM Lane LOS	A	A	A	A
HCM 95th-tile Q	1.4	0.6	0.2	1.4

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	7	210	9
Peak Hour Factor	0.92	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	8	233	10
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	9.9
HCM LOS	A

Lane

Intersection	
Intersection Delay, s/veh	11.8
Intersection LOS	B

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	1	0	7	0	100	0	39	0	19	195	89
Peak Hour Factor	0.92	0.75	0.75	0.75	0.92	0.59	0.59	0.59	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	1	0	9	0	169	0	66	0	22	229	105
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	8.6	11.6	12.3
HCM LOS	A	B	B

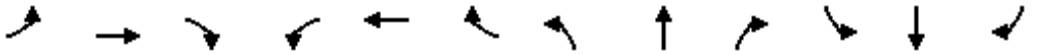
Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	12%	72%	12%
Vol Thru, %	64%	0%	0%	87%
Vol Right, %	29%	88%	28%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	303	8	139	258
LT Vol	195	0	0	224
Through Vol	89	7	39	2
RT Vol	19	1	100	32
Lane Flow Rate	356	11	236	287
Geometry Grp	1	1	1	1
Degree of Util (X)	0.475	0.016	0.361	0.402
Departure Headway (Hd)	4.907	5.507	5.519	5.166
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	738	653	655	702
Service Time	2.907	3.517	3.519	3.166
HCM Lane V/C Ratio	0.482	0.017	0.36	0.409
HCM Control Delay	12.3	8.6	11.6	11.6
HCM Lane LOS	B	A	B	B
HCM 95th-tile Q	2.6	0	1.6	1.9

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	32	224	2
Peak Hour Factor	0.92	0.90	0.90	0.90
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	36	249	2
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	11.6
HCM LOS	B

Lane



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	0	0	0	122	0	59	1	344	196	88	335	0
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	0	0	0	169	0	82	1	374	213	101	385	0
Adj No. of Lanes	1	1	0	1	1	0	1	2	0	1	2	0
Peak Hour Factor	0.92	0.92	0.92	0.72	0.72	0.72	0.92	0.92	0.92	0.87	0.87	0.87
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	221	298	0	505	0	253	5	869	488	131	1663	0
Arrive On Green	0.00	0.00	0.00	0.16	0.00	0.16	0.00	0.40	0.40	0.07	0.47	0.00
Sat Flow, veh/h	1311	1863	0	1774	0	1583	1774	2188	1228	1774	3632	0
Grp Volume(v), veh/h	0	0	0	169	0	82	1	301	286	101	385	0
Grp Sat Flow(s),veh/h/ln	1311	1863	0	1774	0	1583	1774	1770	1646	1774	1770	0
Q Serve(g_s), s	0.0	0.0	0.0	2.9	0.0	1.5	0.0	4.0	4.1	1.8	2.1	0.0
Cycle Q Clear(g_c), s	0.0	0.0	0.0	2.9	0.0	1.5	0.0	4.0	4.1	1.8	2.1	0.0
Prop In Lane	1.00		0.00	1.00		1.00	1.00		0.75	1.00		0.00
Lane Grp Cap(c), veh/h	221	298	0	505	0	253	5	703	654	131	1663	0
V/C Ratio(X)	0.00	0.00	0.00	0.33	0.00	0.32	0.18	0.43	0.44	0.77	0.23	0.00
Avail Cap(c_a), veh/h	1221	1718	0	1858	0	1460	982	1632	1518	982	3265	0
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	0.00	0.00	0.00	1.00	0.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00
Uniform Delay (d), s/veh	0.0	0.0	0.0	12.7	0.0	12.1	16.2	7.1	7.1	14.8	5.1	0.0
Incr Delay (d2), s/veh	0.0	0.0	0.0	0.4	0.0	0.7	15.4	0.4	0.5	9.3	0.1	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.0	0.0	0.0	1.5	0.0	0.7	0.0	2.0	1.9	1.2	1.0	0.0
LnGrp Delay(d),s/veh	0.0	0.0	0.0	13.1	0.0	12.8	31.6	7.5	7.6	24.1	5.2	0.0
LnGrp LOS				B		B	C	A	A	C	A	
Approach Vol, veh/h		0			251			588			486	
Approach Delay, s/veh		0.0			13.0			7.6			9.1	
Approach LOS					B			A			A	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2		4	5	6		8
Phs Duration (G+Y+Rc), s	6.4	16.9		9.2	4.0	19.3		9.2
Change Period (Y+Rc), s	4.0	4.0		4.0	4.0	4.0		4.0
Max Green Setting (Gmax), s	18.0	30.0		30.0	18.0	30.0		30.0
Max Q Clear Time (g_c+I1), s	3.8	6.1		0.0	2.0	4.1		4.9
Green Ext Time (p_c), s	0.2	6.8		0.0	0.0	7.0		0.9

Intersection Summary	
HCM 2010 Ctrl Delay	9.2
HCM 2010 LOS	A

Intersection	
Intersection Delay, s/veh	15.2
Intersection LOS	C

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	64	75	57	0	45	40	8	0	46	225	55
Peak Hour Factor	0.92	0.79	0.79	0.79	0.92	0.79	0.79	0.79	0.92	0.93	0.93	0.93
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	81	95	72	0	57	51	10	0	49	242	59
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	13.7	11.6	15.6
HCM LOS	B	B	C

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	14%	33%	48%	1%
Vol Thru, %	69%	38%	43%	83%
Vol Right, %	17%	29%	9%	15%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	326	196	93	332
LT Vol	225	75	40	277
Through Vol	55	57	8	51
RT Vol	46	64	45	4
Lane Flow Rate	351	248	118	386
Geometry Grp	1	1	1	1
Degree of Util (X)	0.552	0.421	0.219	0.601
Departure Headway (Hd)	5.674	6.216	6.708	5.602
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	627	583	538	637
Service Time	3.772	4.216	4.708	3.697
HCM Lane V/C Ratio	0.56	0.425	0.219	0.606
HCM Control Delay	15.6	13.7	11.6	16.9
HCM Lane LOS	C	B	B	C
HCM 95th-tile Q	3.4	2.1	0.8	4

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	4	277	51
Peak Hour Factor	0.92	0.86	0.86	0.86
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	5	322	59
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	16.9
HCM LOS	C

Lane

APPENDIX G

MID-AFTERNOON PEAK HOUR INTERSECTION ANALYSIS WORKSHEETS

APPENDIX G-1

EXISTING

Intersection	
Intersection Delay, s/veh	37.6
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	7	67	12	0	97	95	53	0	5	141	59
Peak Hour Factor	0.92	0.66	0.66	0.66	0.92	0.84	0.84	0.84	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	15	142	25	0	162	158	88	0	9	249	104
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	17.8	41.3	30.6
HCM LOS	C	E	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	8%	40%	28%
Vol Thru, %	69%	78%	39%	66%
Vol Right, %	29%	14%	22%	6%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	205	86	245	211
LT Vol	141	67	95	140
Through Vol	59	12	53	12
RT Vol	5	7	97	59
Lane Flow Rate	362	182	408	435
Geometry Grp	1	1	1	1
Degree of Util (X)	0.757	0.429	0.856	0.904
Departure Headway (Hd)	7.535	8.457	7.55	7.479
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	478	425	478	483
Service Time	5.604	6.542	5.615	5.544
HCM Lane V/C Ratio	0.757	0.428	0.854	0.901
HCM Control Delay	30.6	17.8	41.3	48.4
HCM Lane LOS	D	C	E	E
HCM 95th-tile Q	6.5	2.1	8.8	10.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	59	140	12
Peak Hour Factor	0.92	0.70	0.70	0.70
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	110	300	26
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	48.4
HCM LOS	E

Lane

Intersection	
Intersection Delay, s/veh	41.8
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	11	53	107	0	128	42	4	0	59	214	108
Peak Hour Factor	0.92	0.82	0.82	0.82	0.92	0.54	0.54	0.54	0.92	0.73	0.73	0.73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	13	65	130	0	237	78	7	0	81	293	148
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	17.8	27.9	66.9
HCM LOS	C	D	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	15%	6%	74%	0%
Vol Thru, %	56%	31%	24%	97%
Vol Right, %	28%	63%	2%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	381	171	174	268
LT Vol	214	53	42	260
Through Vol	108	107	4	7
RT Vol	59	11	128	1
Lane Flow Rate	522	209	322	377
Geometry Grp	1	1	1	1
Degree of Util (X)	1	0.465	0.706	0.777
Departure Headway (Hd)	7.132	8.021	7.883	7.52
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	511	453	458	483
Service Time	5.149	6.021	5.964	5.52
HCM Lane V/C Ratio	1.022	0.461	0.703	0.781
HCM Control Delay	66.9	17.8	27.9	32.1
HCM Lane LOS	F	C	D	D
HCM 95th-tile Q	13.7	2.4	5.4	6.9

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	1	260	7
Peak Hour Factor	0.92	0.71	0.71	0.71
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	1	366	10
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	32.1
HCM LOS	D

Lane

APPENDIX G-2

EXISTING + PROJECT

Intersection	
Intersection Delay, s/veh	38.3
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	7	67	12	0	97	95	53	0	5	145	59
Peak Hour Factor	0.92	0.66	0.66	0.66	0.92	0.84	0.84	0.84	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	15	142	25	0	162	158	88	0	9	252	104
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	17.9	41.9	31.5
HCM LOS	C	E	D

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	2%	8%	40%	28%
Vol Thru, %	69%	78%	39%	67%
Vol Right, %	28%	14%	22%	6%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	209	86	245	213
LT Vol	145	67	95	142
Through Vol	59	12	53	12
RT Vol	5	7	97	59
Lane Flow Rate	365	182	408	436
Geometry Grp	1	1	1	1
Degree of Util (X)	0.767	0.43	0.859	0.908
Departure Headway (Hd)	7.553	8.491	7.577	7.504
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	479	421	478	483
Service Time	5.624	6.583	5.644	5.57
HCM Lane V/C Ratio	0.762	0.432	0.854	0.903
HCM Control Delay	31.5	17.9	41.9	49.2
HCM Lane LOS	D	C	E	E
HCM 95th-tile Q	6.7	2.1	8.8	10.3

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	59	142	12
Peak Hour Factor	0.92	0.70	0.70	0.70
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	110	300	26
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	49.2
HCM LOS	E

Lane

Intersection	
Intersection Delay, s/veh	42.2
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	12	53	107	0	128	42	5	0	59	216	108
Peak Hour Factor	0.92	0.82	0.82	0.82	0.92	0.54	0.54	0.54	0.92	0.73	0.73	0.73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	15	65	130	0	237	78	9	0	81	296	148
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	17.9	28.5	67
HCM LOS	C	D	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	15%	7%	73%	0%
Vol Thru, %	56%	31%	24%	97%
Vol Right, %	28%	62%	3%	3%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	383	172	175	270
LT Vol	216	53	42	261
Through Vol	108	107	5	8
RT Vol	59	12	128	1
Lane Flow Rate	525	210	324	380
Geometry Grp	1	1	1	1
Degree of Util (X)	1	0.464	0.714	0.788
Departure Headway (Hd)	7.184	7.968	7.927	7.455
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	509	449	457	483
Service Time	5.184	6.067	5.978	5.535
HCM Lane V/C Ratio	1.031	0.468	0.709	0.787
HCM Control Delay	67	17.9	28.5	33.2
HCM Lane LOS	F	C	D	D
HCM 95th-tile Q	13.7	2.4	5.6	7.1

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	1	261	8
Peak Hour Factor	0.92	0.71	0.71	0.71
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	1	368	11
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	33.2
HCM LOS	D

Lane

APPENDIX G-3

EXISTING + PROJECT + 4 "ADJACENT" CUMULATIVE PROJECTS

Intersection	
Intersection Delay, s/veh	39.8
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	1	0	7	0	181	0	54	0	22	162	132
Peak Hour Factor	0.92	0.66	0.66	0.66	0.92	0.84	0.84	0.84	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2	0	15	0	302	0	90	0	39	286	233
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	11.5	28.5	52.1
HCM LOS	B	D	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	12%	77%	27%
Vol Thru, %	51%	0%	0%	72%
Vol Right, %	42%	88%	23%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	316	8	235	222
LT Vol	162	0	0	159
Through Vol	132	7	54	2
RT Vol	22	1	181	61
Lane Flow Rate	558	17	392	458
Geometry Grp	1	1	1	1
Degree of Util (X)	0.956	0.039	0.755	0.84
Departure Headway (Hd)	6.173	8.181	6.941	6.602
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	586	440	521	545
Service Time	4.243	6.181	5.011	4.677
HCM Lane V/C Ratio	0.952	0.039	0.752	0.84
HCM Control Delay	52.1	11.5	28.5	35.5
HCM Lane LOS	F	B	D	E
HCM 95th-tile Q	12.9	0.1	6.5	8.7

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	61	159	2
Peak Hour Factor	0.92	0.70	0.70	0.70
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	113	341	4
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	35.5
HCM LOS	E

Lane

Intersection	
Intersection Delay, s/veh	66.8
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	105	67	119	0	132	43	8	0	59	230	109
Peak Hour Factor	0.92	0.82	0.82	0.82	0.92	0.54	0.54	0.54	0.92	0.73	0.73	0.73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	128	82	145	0	244	80	15	0	81	315	149
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	53.9	53.4	75.4
HCM LOS	F	F	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	15%	36%	72%	1%
Vol Thru, %	58%	23%	23%	73%
Vol Right, %	27%	41%	4%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	398	291	183	372
LT Vol	230	67	43	273
Through Vol	109	119	8	96
RT Vol	59	105	132	3
Lane Flow Rate	545	355	339	524
Geometry Grp	1	1	1	1
Degree of Util (X)	1	0.896	0.886	1
Departure Headway (Hd)	8.952	9.094	9.414	8.933
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	409	397	386	409
Service Time	6.952	7.162	7.479	6.933
HCM Lane V/C Ratio	1.333	0.894	0.878	1.281
HCM Control Delay	75.4	53.9	53.4	75.3
HCM Lane LOS	F	F	F	F
HCM 95th-tile Q	12.3	9.2	8.8	12.3

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	3	273	96
Peak Hour Factor	0.92	0.71	0.71	0.71
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	4	385	135
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	75.3
HCM LOS	F

Lane

APPENDIX G-4

EXISTING + PROJECT + TOTAL CUMULATIVE PROJECTS

Intersection	
Intersection Delay, s/veh	45.3
Intersection LOS	E

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	1	0	7	0	183	0	54	0	22	168	132
Peak Hour Factor	0.92	0.66	0.66	0.66	0.92	0.84	0.84	0.84	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2	0	15	0	305	0	90	0	39	296	233
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	11.7	30.3	60
HCM LOS	B	D	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	7%	12%	77%	27%
Vol Thru, %	52%	0%	0%	73%
Vol Right, %	41%	88%	23%	1%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	322	8	237	230
LT Vol	168	0	0	167
Through Vol	132	7	54	2
RT Vol	22	1	183	61
Lane Flow Rate	568	17	395	475
Geometry Grp	1	1	1	1
Degree of Util (X)	0.989	0.04	0.772	0.882
Departure Headway (Hd)	6.264	8.397	7.04	6.677
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	574	429	514	542
Service Time	4.34	6.397	5.118	4.758
HCM Lane V/C Ratio	0.99	0.04	0.768	0.876
HCM Control Delay	60	11.7	30.3	41.4
HCM Lane LOS	F	B	D	E
HCM 95th-tile Q	14.1	0.1	6.9	9.9

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	61	167	2
Peak Hour Factor	0.92	0.70	0.70	0.70
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	113	358	4
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	41.4
HCM LOS	E

Lane

Intersection	
Intersection Delay, s/veh	75.1
Intersection LOS	F

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	107	86	119	0	132	53	10	0	59	232	109
Peak Hour Factor	0.92	0.82	0.82	0.82	0.92	0.54	0.54	0.54	0.92	0.73	0.73	0.73
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	130	105	145	0	244	98	19	0	81	318	149
Number of Lanes	0	0	1	0	0	0	1	0	0	0	1	0

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	1	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	1	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	1	1	1
HCM Control Delay	73.1	70.2	77.4
HCM LOS	F	F	F

Lane	NBLn1	EBLn1	WBLn1	SBLn1
Vol Left, %	15%	34%	68%	1%
Vol Thru, %	58%	28%	27%	73%
Vol Right, %	27%	38%	5%	26%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	400	312	195	382
LT Vol	232	86	53	278
Through Vol	109	119	10	101
RT Vol	59	107	132	3
Lane Flow Rate	548	380	361	538
Geometry Grp	1	1	1	1
Degree of Util (X)	1	0.983	0.965	1
Departure Headway (Hd)	9.382	9.305	9.619	9.359
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	395	388	376	393
Service Time	7.382	7.38	7.692	7.359
HCM Lane V/C Ratio	1.387	0.979	0.96	1.369
HCM Control Delay	77.4	73.1	70.2	77.3
HCM Lane LOS	F	F	F	F
HCM 95th-tile Q	12	11.5	10.8	12

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	3	278	101
Peak Hour Factor	0.92	0.71	0.71	0.71
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	4	392	142
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	1
Conflicting Approach Left	WB
Conflicting Lanes Left	1
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	77.3
HCM LOS	F

Lane

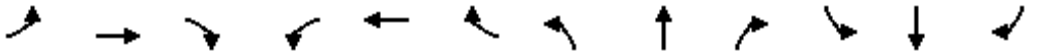
APPENDIX H

POST-MITIGATION OPERATIONS

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	158	116	118	274	53	3	73	248	190	4	329	113
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	199	119	151	292	57	4	85	231	219	4	296	127
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.78	0.78	0.78	0.75	0.75	0.75	0.86	0.86	0.86	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	248	145	184	344	427	30	109	320	303	8	379	162
Arrive On Green	0.14	0.19	0.19	0.19	0.25	0.25	0.06	0.36	0.36	0.00	0.31	0.31
Sat Flow, veh/h	1774	747	948	1774	1721	121	1774	881	835	1774	1238	531
Grp Volume(v), veh/h	199	0	270	292	0	61	85	0	450	4	0	423
Grp Sat Flow(s),veh/h/ln	1774	0	1695	1774	0	1841	1774	0	1715	1774	0	1769
Q Serve(g_s), s	7.1	0.0	10.0	10.4	0.0	1.7	3.1	0.0	14.8	0.1	0.0	14.3
Cycle Q Clear(g_c), s	7.1	0.0	10.0	10.4	0.0	1.7	3.1	0.0	14.8	0.1	0.0	14.3
Prop In Lane	1.00		0.56	1.00		0.07	1.00		0.49	1.00		0.30
Lane Grp Cap(c), veh/h	248	0	329	344	0	457	109	0	622	8	0	541
V/C Ratio(X)	0.80	0.00	0.82	0.85	0.00	0.13	0.78	0.00	0.72	0.53	0.00	0.78
Avail Cap(c_a), veh/h	434	0	415	461	0	478	163	0	708	108	0	676
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	27.3	0.0	25.3	25.4	0.0	19.1	30.3	0.0	18.0	32.5	0.0	20.7
Incr Delay (d2), s/veh	5.9	0.0	10.1	10.7	0.0	0.1	13.1	0.0	3.2	46.6	0.0	4.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.9	0.0	5.6	6.1	0.0	0.9	1.9	0.0	7.5	0.2	0.0	7.6
LnGrp Delay(d),s/veh	33.2	0.0	35.3	36.1	0.0	19.2	43.3	0.0	21.2	79.1	0.0	25.4
LnGrp LOS	C		D	D		B	D		C	E		C
Approach Vol, veh/h		469			353			535			427	
Approach Delay, s/veh		34.4			33.2			24.7			25.9	
Approach LOS		C			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.3	27.7	16.7	16.7	8.0	24.0	13.2	20.3
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	27.0	17.0	16.0	6.0	25.0	16.0	17.0
Max Q Clear Time (g_c+I1), s	2.1	16.8	12.4	12.0	5.1	16.3	9.1	3.7
Green Ext Time (p_c), s	0.0	4.1	0.4	0.7	0.0	3.7	0.3	1.6

Intersection Summary	
HCM 2010 Ctrl Delay	29.2
HCM 2010 LOS	C



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	162	119	118	274	74	6	73	249	190	4	334	118
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	208	153	151	329	79	8	68	232	177	4	300	133
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.78	0.78	0.78	0.75	0.75	0.75	0.86	0.86	0.86	0.89	0.89	0.89
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	257	178	176	380	459	46	87	336	257	8	365	162
Arrive On Green	0.14	0.21	0.21	0.21	0.28	0.28	0.05	0.34	0.34	0.00	0.30	0.30
Sat Flow, veh/h	1774	862	851	1774	1664	169	1774	982	749	1774	1224	543
Grp Volume(v), veh/h	208	0	304	329	0	87	68	0	409	4	0	433
Grp Sat Flow(s),veh/h/ln	1774	0	1713	1774	0	1833	1774	0	1731	1774	0	1767
Q Serve(g_s), s	7.8	0.0	11.8	12.3	0.0	2.5	2.6	0.0	14.0	0.2	0.0	15.7
Cycle Q Clear(g_c), s	7.8	0.0	11.8	12.3	0.0	2.5	2.6	0.0	14.0	0.2	0.0	15.7
Prop In Lane	1.00		0.50	1.00		0.09	1.00		0.43	1.00		0.31
Lane Grp Cap(c), veh/h	257	0	353	380	0	506	87	0	593	8	0	527
V/C Ratio(X)	0.81	0.00	0.86	0.87	0.00	0.17	0.79	0.00	0.69	0.53	0.00	0.82
Avail Cap(c_a), veh/h	438	0	398	490	0	506	129	0	629	103	0	616
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	28.5	0.0	26.3	26.1	0.0	18.9	32.4	0.0	19.5	34.2	0.0	22.4
Incr Delay (d2), s/veh	6.1	0.0	15.8	12.3	0.0	0.2	16.9	0.0	3.0	46.8	0.0	7.7
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.2	0.0	7.1	7.3	0.0	1.3	1.7	0.0	7.2	0.2	0.0	8.7
LnGrp Delay(d),s/veh	34.6	0.0	42.1	38.4	0.0	19.1	49.2	0.0	22.4	81.0	0.0	30.1
LnGrp LOS	C		D	D		B	D		C	F		C
Approach Vol, veh/h		512			416			477			437	
Approach Delay, s/veh		39.1			34.4			26.3			30.6	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.3	27.6	18.7	18.2	7.4	24.5	14.0	23.0
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	25.0	19.0	16.0	5.0	24.0	17.0	18.0
Max Q Clear Time (g_c+I1), s	2.2	16.0	14.3	13.8	4.6	17.7	9.8	4.5
Green Ext Time (p_c), s	0.0	3.7	0.5	0.4	0.0	2.8	0.3	2.0

Intersection Summary	
HCM 2010 Ctrl Delay	32.7
HCM 2010 LOS	C

Intersection	
Intersection Delay, s/veh	26.6
Intersection LOS	D

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	1	0	7	0	181	0	54	0	22	162	132
Peak Hour Factor	0.92	0.66	0.66	0.66	0.92	0.84	0.84	0.84	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2	0	15	0	302	0	90	0	39	286	233
Number of Lanes	0	0	1	0	0	0	1	1	0	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	1	2
HCM Control Delay	11.8	21.9	17.9
HCM LOS	B	C	C

Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	12%	0%	12%	100%	0%	27%
Vol Thru, %	88%	0%	0%	0%	0%	72%
Vol Right, %	0%	100%	88%	0%	100%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	184	132	8	181	54	222
LT Vol	162	0	0	0	0	159
Through Vol	0	132	7	0	54	2
RT Vol	22	0	1	181	0	61
Lane Flow Rate	325	233	17	302	90	458
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.636	0.406	0.04	0.667	0.168	0.876
Departure Headway (Hd)	7.051	6.273	8.401	7.961	6.729	7.008
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	513	575	427	456	536	522
Service Time	4.775	3.997	6.439	5.677	4.445	5.008
HCM Lane V/C Ratio	0.634	0.405	0.04	0.662	0.168	0.877
HCM Control Delay	21.3	13.2	11.8	25.2	10.8	41.6
HCM Lane LOS	C	B	B	D	B	E
HCM 95th-tile Q	4.4	2	0.1	4.8	0.6	9.6

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	61	159	2
Peak Hour Factor	0.92	0.70	0.70	0.70
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	113	341	4
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	41.6
HCM LOS	E

Lane

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	105	67	119	132	43	8	59	230	109	3	273	96
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	128	82	145	244	80	15	81	315	149	4	385	135
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.82	0.82	0.82	0.54	0.54	0.54	0.73	0.73	0.73	0.71	0.71	0.71
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	161	111	197	295	395	74	104	482	228	8	459	161
Arrive On Green	0.09	0.19	0.19	0.17	0.26	0.26	0.06	0.40	0.40	0.00	0.35	0.35
Sat Flow, veh/h	1774	603	1065	1774	1515	284	1774	1197	566	1774	1318	462
Grp Volume(v), veh/h	128	0	227	244	0	95	81	0	464	4	0	520
Grp Sat Flow(s),veh/h/ln	1774	0	1668	1774	0	1799	1774	0	1763	1774	0	1780
Q Serve(g_s), s	4.7	0.0	8.5	8.8	0.0	2.7	3.0	0.0	14.1	0.1	0.0	17.8
Cycle Q Clear(g_c), s	4.7	0.0	8.5	8.8	0.0	2.7	3.0	0.0	14.1	0.1	0.0	17.8
Prop In Lane	1.00		0.64	1.00		0.16	1.00		0.32	1.00		0.26
Lane Grp Cap(c), veh/h	161	0	309	295	0	469	104	0	709	8	0	620
V/C Ratio(X)	0.80	0.00	0.74	0.83	0.00	0.20	0.78	0.00	0.65	0.53	0.00	0.84
Avail Cap(c_a), veh/h	161	0	404	429	0	708	161	0	747	107	0	700
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	29.5	0.0	25.4	26.6	0.0	19.1	30.7	0.0	16.0	32.8	0.0	19.8
Incr Delay (d2), s/veh	23.5	0.0	4.9	8.5	0.0	0.2	12.2	0.0	1.9	46.6	0.0	8.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.3	0.0	4.3	5.0	0.0	1.4	1.8	0.0	7.2	0.2	0.0	10.1
LnGrp Delay(d),s/veh	52.9	0.0	30.3	35.2	0.0	19.3	42.9	0.0	17.9	79.5	0.0	27.9
LnGrp LOS	D		C	D		B	D		B	E		C
Approach Vol, veh/h		355			339			545			524	
Approach Delay, s/veh		38.5			30.7			21.7			28.3	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.3	30.6	15.0	16.2	7.9	27.0	10.0	21.2
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	28.0	16.0	16.0	6.0	26.0	6.0	26.0
Max Q Clear Time (g_c+I1), s	2.1	16.1	10.8	10.5	5.0	19.8	6.7	4.7
Green Ext Time (p_c), s	0.0	5.1	0.3	0.9	0.0	3.3	0.0	1.9

Intersection Summary	
HCM 2010 Ctrl Delay	28.8
HCM 2010 LOS	C

Intersection	
Intersection Delay, s/veh	30.2
Intersection LOS	D

Movement	EBU	EBL	EBT	EBR	WBU	WBL	WBT	WBR	NBU	NBL	NBT	NBR
Vol, veh/h	0	1	0	7	0	183	0	54	0	22	168	132
Peak Hour Factor	0.92	0.66	0.66	0.66	0.92	0.84	0.84	0.84	0.92	0.85	0.85	0.85
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	2	0	15	0	305	0	90	0	39	296	233
Number of Lanes	0	0	1	0	0	0	1	1	0	0	1	1

Approach	EB	WB	NB
Opposing Approach	WB	EB	SB
Opposing Lanes	2	1	1
Conflicting Approach Left	SB	NB	EB
Conflicting Lanes Left	1	2	1
Conflicting Approach Right	NB	SB	WB
Conflicting Lanes Right	2	1	2
HCM Control Delay	12	22.8	19
HCM LOS	B	C	C

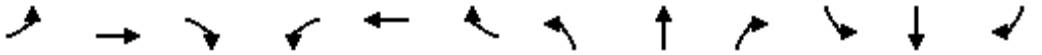
Lane	NBLn1	NBLn2	EBLn1	WBLn1	WBLn2	SBLn1
Vol Left, %	12%	0%	12%	100%	0%	27%
Vol Thru, %	88%	0%	0%	0%	0%	73%
Vol Right, %	0%	100%	88%	0%	100%	1%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	190	132	8	183	54	230
LT Vol	168	0	0	0	0	167
Through Vol	0	132	7	0	54	2
RT Vol	22	0	1	183	0	61
Lane Flow Rate	335	233	17	305	90	475
Geometry Grp	7	7	6	7	7	6
Degree of Util (X)	0.663	0.411	0.04	0.681	0.17	0.928
Departure Headway (Hd)	7.123	6.345	8.555	8.039	6.806	7.024
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes
Cap	506	568	417	451	527	518
Service Time	4.862	4.084	6.628	5.775	4.541	5.057
HCM Lane V/C Ratio	0.662	0.41	0.041	0.676	0.171	0.917
HCM Control Delay	22.8	13.5	12	26.3	10.9	50.5
HCM Lane LOS	C	B	B	D	B	F
HCM 95th-tile Q	4.8	2	0.1	5	0.6	11.2

Intersection	
Intersection Delay, s/veh	
Intersection LOS	

Movement	SBU	SBL	SBT	SBR
Vol, veh/h	0	61	167	2
Peak Hour Factor	0.92	0.70	0.70	0.70
Heavy Vehicles, %	2	2	2	2
Mvmt Flow	0	113	358	4
Number of Lanes	0	0	1	0

Approach	SB
Opposing Approach	NB
Opposing Lanes	2
Conflicting Approach Left	WB
Conflicting Lanes Left	2
Conflicting Approach Right	EB
Conflicting Lanes Right	1
HCM Control Delay	50.5
HCM LOS	F

Lane



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (veh/h)	107	86	119	132	53	10	59	232	109	3	278	101
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		0.99	1.00		0.96	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1863	1863	1900	1863	1863	1900	1863	1863	1900	1863	1863	1900
Adj Flow Rate, veh/h	130	105	145	244	98	19	81	318	149	4	392	142
Adj No. of Lanes	1	1	0	1	1	0	1	1	0	1	1	0
Peak Hour Factor	0.82	0.82	0.82	0.54	0.54	0.54	0.73	0.73	0.73	0.71	0.71	0.71
Percent Heavy Veh, %	2	2	2	2	2	2	2	2	2	2	2	2
Cap, veh/h	155	136	188	292	405	79	104	489	229	8	460	167
Arrive On Green	0.09	0.19	0.19	0.16	0.27	0.27	0.06	0.41	0.41	0.00	0.35	0.35
Sat Flow, veh/h	1774	707	977	1774	1506	292	1774	1201	563	1774	1306	473
Grp Volume(v), veh/h	130	0	250	244	0	117	81	0	467	4	0	534
Grp Sat Flow(s),veh/h/ln	1774	0	1684	1774	0	1798	1774	0	1763	1774	0	1778
Q Serve(g_s), s	5.0	0.0	9.7	9.2	0.0	3.5	3.1	0.0	14.7	0.2	0.0	19.1
Cycle Q Clear(g_c), s	5.0	0.0	9.7	9.2	0.0	3.5	3.1	0.0	14.7	0.2	0.0	19.1
Prop In Lane	1.00		0.58	1.00		0.16	1.00		0.32	1.00		0.27
Lane Grp Cap(c), veh/h	155	0	323	292	0	484	104	0	718	8	0	627
V/C Ratio(X)	0.84	0.00	0.77	0.84	0.00	0.24	0.78	0.00	0.65	0.53	0.00	0.85
Avail Cap(c_a), veh/h	155	0	391	387	0	653	155	0	743	103	0	698
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(I)	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	31.0	0.0	26.4	27.9	0.0	19.7	32.0	0.0	16.5	34.2	0.0	20.6
Incr Delay (d2), s/veh	31.9	0.0	7.7	11.5	0.0	0.3	13.7	0.0	1.9	46.8	0.0	9.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	3.8	0.0	5.2	5.4	0.0	1.8	1.9	0.0	7.5	0.2	0.0	10.9
LnGrp Delay(d),s/veh	62.9	0.0	34.0	39.4	0.0	19.9	45.7	0.0	18.4	81.0	0.0	29.8
LnGrp LOS	E		C	D		B	D		B	F		C
Approach Vol, veh/h		380			361			548			538	
Approach Delay, s/veh		43.9			33.1			22.4			30.1	
Approach LOS		D			C			C			C	

Timer	1	2	3	4	5	6	7	8
Assigned Phs	1	2	3	4	5	6	7	8
Phs Duration (G+Y+Rc), s	4.3	32.0	15.3	17.2	8.0	28.3	10.0	22.5
Change Period (Y+Rc), s	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Max Green Setting (Gmax), s	4.0	29.0	15.0	16.0	6.0	27.0	6.0	25.0
Max Q Clear Time (g_c+I1), s	2.2	16.7	11.2	11.7	5.1	21.1	7.0	5.5
Green Ext Time (p_c), s	0.0	5.3	0.3	0.9	0.0	3.2	0.0	2.1

Intersection Summary	
HCM 2010 Ctrl Delay	31.3
HCM 2010 LOS	C

Appendix H
Noise Technical Report

PICKERING RESIDENTIAL PROJECT

Noise Technical Report

Prepared for
VCS Environmental

November 2013 (Revised April 2014)

PICKERING RESIDENTIAL PROJECT

Noise Technical Report

Prepared for
VCS Environmental

November 2013 (Revised April 2014)

626 Wilshire Boulevard
Suite 1100
Los Angeles, CA 90017
213.599.4300
www.esassoc.com

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Pickering Residential Project
Noise Technical Report

1. Introduction

This technical report has been prepared to assess the potential noise and vibration impacts associated with the Pickering Residential Project ("Project"), which consists of the development of 14 single-family residential dwelling units on an approximately 4.2-acre site in unincorporated County of San Diego (County), California. This report evaluates the potential for the proposed Project to result in impacts associated with a substantial temporary and/or permanent increase in ambient noise levels in the vicinity of the Project site; exposure of people in the vicinity of the Project site to excessive noise and groundborne vibration levels; and whether this exposure is in excess of standards established in the local general plan or noise ordinance.

Data used to prepare this analysis were obtained from the County of San Diego General Plan Noise Element, the County of San Diego Municipal Code, City of Escondido General Plan Community Protection Element, the City of Escondido Municipal Code, and by measuring and modeling existing and future noise levels at the Project site and the surrounding land uses. Information contained in the project Traffic Impact Analysis (TIA) prepared by Linscott Law & Greenspan (April 2014) was used in the modeling of traffic noise exposure.

1.1 Project Location

The proposed Project is located in unincorporated San Diego County and also within the Sphere of Influence (SOI) of the City of Escondido (City). The Project site is bounded by Stanley Avenue to the north, undeveloped land and residential uses to the east, Lehner Avenue to the south, and undeveloped land and residential uses to the west. An aerial map illustrating the Project site and its immediate surrounding uses are presented in **Figure 1**.

2. Project Description

The proposed Project would construction 14 new single-family detached residences on an approximately 4.2-acre site. The Project site is designated under County's Land Use Map as Semi-Rural Residential (SR-1), and is zoned RS (Single-Family Residential). Prior to development of the Project, the Project site will be annexed into the City and will be designated under the City's R-1-10 zoning standards (Single-Family Residential – 10,000 square feet minimum lot size).

SOURCE: NAIP, 2012; ESRI.

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Figure 1

Project Site Location Aerial Map

3. Characteristics of Noise and Vibration

3.1 Noise Principles and Descriptors

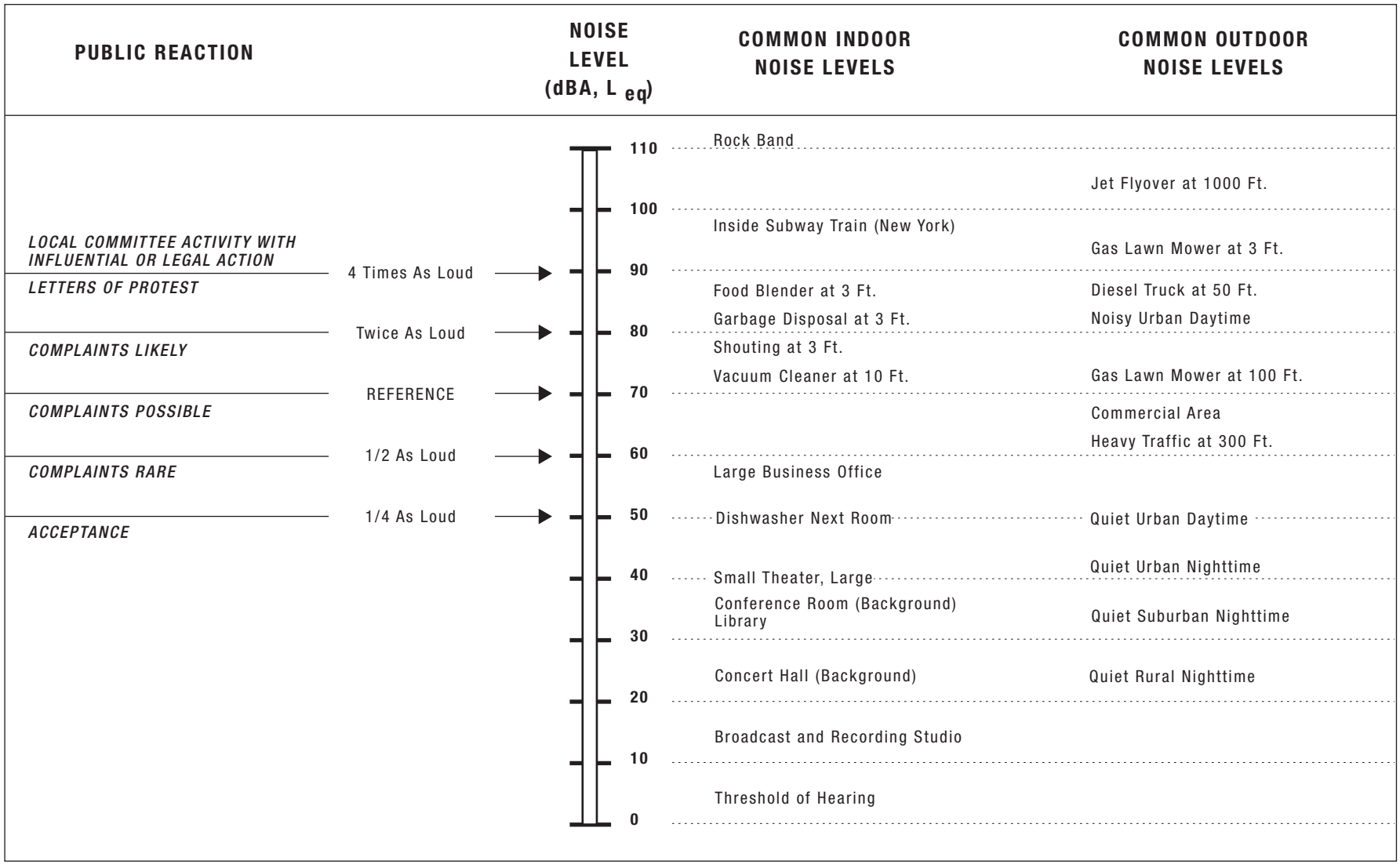
Noise is generally defined as unwanted sound. Sound, traveling in the form of waves from a source, exerts a sound pressure level (referred to as sound level) that is measured in decibels (dB), which is the standard unit of sound amplitude measurement. The dB scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound, with 0 dB corresponding roughly to the threshold of human hearing and 120 to 140 dB corresponding to the threshold of pain. Pressure waves traveling through air exert a force registered by the human ear as sound.

Sound pressure fluctuations can be measured in units of hertz (Hz), which correspond to the frequency of a particular sound. Typically, sound does not consist of a single frequency, but rather a broad band of frequencies varying in levels of magnitude. When all the audible frequencies of a sound are measured, a sound spectrum is plotted consisting of a range of frequency spanning 20 to 20,000 Hz. The sound pressure level, therefore, constitutes the additive force exerted by a sound corresponding to the sound frequency/sound power level spectrum.

The typical human ear is not equally sensitive to all frequencies of the audible sound spectrum. As a consequence, when assessing potential noise impacts, sound is measured using an electronic filter that deemphasizes the frequencies below 1,000 Hz and above 5,000 Hz in a manner corresponding to the human ear's decreased sensitivity to extremely low and extremely high frequencies. This method of frequency weighting is referred to as A-weighting and is expressed in units of A-weighted decibels (dBA). A-weighting follows an international standard methodology of frequency deemphasis and is typically applied to community noise measurements. Some representative noise sources and their corresponding A-weighted noise levels are shown in **Figure 2**. All noise levels presented in this report are A-weighted unless otherwise stated.

3.2 Noise Exposure and Community Noise

An individual's noise exposure is a measure of noise over a period of time. A noise level is a measure of noise at a given instant in time. The noise levels presented in Figure 2 are representative of measured noise at a given instant in time; however, they rarely persist consistently over a long period of time. Rather, community noise varies continuously over a period of time with respect to the contributing sound sources of the community noise environment. Community noise is primarily the product of many distant noise sources, which constitute a relatively stable background noise exposure, with the individual contributors unidentifiable. The background noise level changes throughout a typical day, but does so gradually, corresponding with the addition and subtraction of distant noise sources such as traffic. What makes community noise variable throughout a day, besides the slowly changing background noise, is the addition of short-duration, single-event noise sources (e.g., aircraft flyovers, motor vehicles, sirens), which are readily identifiable to the individual.



SOURCE: ESA, 2013

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Figure 2
Effects of Noise on People

These successive additions of sound to the community noise environment change the community noise level from instant to instant, requiring the measurement of noise exposure over a period of time to legitimately characterize a community noise environment and evaluate cumulative noise impacts. This time-varying characteristic of environmental noise is described using statistical noise descriptors. The most frequently used noise descriptors are summarized below:

L_{eq}: The L_{eq}, or equivalent sound level, is used to describe noise over a specified period of time in terms of a single numerical value; the L_{eq} of a time-varying signal and that of a steady signal are the same if they deliver the same acoustic energy over a given time. The L_{eq} may also be referred to as the average sound level.

L_{max}: The maximum, instantaneous noise level experienced during a given period of time.

L_{min}: The minimum, instantaneous noise level experienced during a given period of time.

L_{dn}: Also termed the day-night average noise level (DNL), the L_{dn} is the average A-weighted noise level during a 24-hour day, obtained after an addition of 10 dB to measured noise levels between the hours of 10:00 P.M. to 7:00 A.M. to account nighttime noise sensitivity.

CNEL: CNEL, or Community Noise Equivalent Level, is the average A-weighted noise level during a 24-hour day that is obtained after an addition of 5 dB to measured noise levels between the hours of 7:00 P.M. to 10:00 P.M. and after an addition of 10 dB to noise levels between the hours of 10:00 P.M. to 7:00 A.M. to account for noise sensitivity in the evening and nighttime, respectively.

3.3 Effects of Noise on People

Noise is generally loud, unpleasant, unexpected, or undesired sound that is typically associated with human activity that is a nuisance or disruptive. The effects of noise on people can be placed into four general categories:

- Subjective effects (e.g., dissatisfaction, annoyance);
- Interference effects (e.g., communication, sleep, and learning interference);
- Physiological effects (e.g., startle response); and
- Physical effects (e.g., hearing loss).

Although exposure to high noise levels has been demonstrated to cause physical and physiological effects, the principal human responses to typical environmental noise exposure are related to subjective effects and interference with activities. Interference effects of environmental noise refer to those effects that interrupt daily activities and include interference with human communication activities, such as normal conversations, watching television, telephone conversations, and interference with sleep. Sleep interference effects can include both awakening and arousal to a lesser state of sleep. With regard to the subjective effects, the responses of individuals to similar noise events are diverse and are influenced by many factors, including the type of noise, the perceived importance of the noise, the appropriateness of the noise to the setting, the duration of the noise, the time of day and the type of activity during which the noise occurs, and individual noise sensitivity.

Overall, there is no completely satisfactory way to measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction on people. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise. Thus, an important way of predicting a human reaction to a new noise environment is the way it compares to the existing environment to which one has adapted (i.e., comparison to the ambient noise environment). In general, the more a new noise level exceeds the previously existing ambient noise level, the less acceptable the new noise level will be judged by those hearing it. With regard to increases in A-weighted noise level, the following relationships generally occur:

- Except in carefully controlled laboratory experiments, a change of 1 dB cannot be perceived;
- Outside of the laboratory, a 3 dB change in noise levels is considered to be a barely perceivable difference;
- A change in noise levels of 5 dB is considered to be a readily perceivable difference; and
- A change in noise levels of 10 dB is subjectively heard as doubling of the perceived loudness.

These relationships occur in part because of the logarithmic nature of sound and the decibel system. The human ear perceives sound in a non-linear fashion, hence the decibel scale was developed. Since the decibel scale is based on logarithms, two noise sources do not combine in a simple additive fashion, but rather logarithmically. For example, if two identical noise sources produce noise levels of 50 dB, the combined sound level would be 53 dB, not 100 dB.

3.4 Noise Attenuation

Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate between 6 dB for hard sites and 7.5 dB for soft sites for each doubling of distance from the reference measurement. Hard sites are those with a reflective surface between the source and the receiver, such as asphalt or concrete surfaces or smooth bodies of water. No excess ground attenuation is assumed for hard sites and the changes in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface such as soft dirt, grass, or scattered bushes and trees. In addition to geometric spreading, an excess ground attenuation value of 1.5 dB (per doubling distance) is normally assumed for soft sites. Line sources (such as traffic noise from vehicles) attenuate at a rate between 3 dB for hard sites and 4.5 dB for soft sites for each doubling of distance from the reference measurement (Caltrans, 1998).

3.5 Fundamentals of Vibration

As described in the Federal Transit Administration's (FTA) Transit Noise and Vibration Impact Assessment (FTA, 2006), ground-borne vibration can be a serious concern for nearby neighbors of a transit system route or maintenance facility, causing buildings to shake and rumbling sounds to be heard. In contrast to airborne noise, ground-borne vibration is not a common environmental problem. It is unusual for vibration from sources such as buses and trucks to be

perceptible, even in locations close to major roads. Some common sources of ground-borne vibration are trains, buses on rough roads, and construction activities such as blasting, pile-driving, and operation of heavy earth-moving equipment.

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. The root mean square (RMS) amplitude is most frequently used to describe the affect of vibration on the human body. The RMS amplitude is defined as the average of the squared amplitude of the signal. Decibel notation (VdB) is commonly used to measure RMS. The relationship of PPV to RMS velocity is expressed in terms of the "crest factor," defined as the ratio of the PPV amplitude to the RMS amplitude. Peak particle velocity is typically a factor of 1.7 to 6 times greater than RMS vibration velocity (FTA, 2006). The decibel notation acts to compress the range of numbers required to describe vibration. Typically, ground-borne vibration generated by man-made activities attenuates rapidly with distance from the source of the vibration. Sensitive receptors for vibration include structures (especially older masonry structures), people (especially residents, the elderly, and sick), and vibration sensitive equipment.

The effects of ground-borne vibration include movement of the building floors, rattling of windows, shaking of items on shelves or hanging on walls, and rumbling sounds. In extreme cases, the vibration can cause damage to buildings. Building damage is not a factor for most projects, with the occasional exception of blasting and pile-driving during construction. Annoyance from vibration often occurs when the vibration levels exceed the threshold of perception by only a small margin. A vibration level that causes annoyance will be well below the damage threshold for normal buildings. The FTA measure of the threshold of architectural damage for conventional sensitive structures is 0.2 in/sec PPV (FTA, 2006).

In residential areas, the background vibration velocity level is usually around 50 VdB (approximately 0.0013 in/sec PPV). This level is well below the vibration velocity level threshold of perception for humans, which is approximately 65 VdB. A vibration velocity level of 75 VdB is considered to be the approximate dividing line between barely perceptible and distinctly perceptible levels for many people (FTA, 2006).

4. Environmental Setting

4.1 Existing Ambient Daytime Noise Levels

The approximately 4.2-acre Project site is located near the northwestern portion of unincorporated San Diego County that is also within the SOI of the City of Escondido, and is generally bounded by Stanley Avenue to the north, undeveloped land and residential uses to the east, Lehner Avenue to the south, and N. Ash Street to the west. The Project site is currently occupied with low-density, rural residential structures. The neighboring land uses located immediately adjacent to the Project site consist of low-density, rural residential structures and undeveloped land. The Rincon Middle School is also located to the southeast, across Lehner

Avenue. Given the location of the Project site, the dominant noise source in the area consists mostly of local vehicle traffic on Stanley Avenue and Lehner Avenue.

Short-term noise level measurements were conducted in the Project vicinity on August 27, 2013, between 10:22 A.M. and 11:54 A.M. to establish ambient noise conditions. Noise measurements were taken at the residential uses located to the north and southwest of the project site, and the existing Rincon Middle School located to the southeast of the Project site. The noise surveys were conducted using a Metrosonics Model db-3080 sound level meter which was calibrated prior to use and operated according to the manufacturer's written specifications. At the measurement sites, the microphone was placed at a height of approximately 5 feet above the local grade. The measured average noise level (L_{eq}) and maximum noise level (L_{max}), and the sources of noise monitored at the measurement locations are shown in **Table 1**. The measurement locations are identified in **Figure 3**.

TABLE 1
EXISTING NOISE ENVIRONMENTS IN PROJECT SITE VICINITY

	Location	Date and Time Period	L_{eq} dB	L_{max} dB	Noise Sources
1.	Rincon Middle School located south of project site, across Lehner Avenue.	08/27/13 10:22 – 10:37 A.M.	50.3	72.5	Traffic on Lehner Avenue; school children voices from afar; cars driving through school parking lot; refuse collection truck on Lehner Avenue.
2.	Single-family residential use located north of project site, across Stanley Avenue.	08/27/13 11:17 – 11:32 A.M.	52.4	71.8	Traffic on Stanley Avenue and Ash Street; overhead aircraft; birds squawking periodically.
3.	Single-family residential use located southwest of the project site, across Lehner Avenue.	08/27/13 11:39 – 11:54 A.M.	60.8	73.4	Traffic on Ash Street and Lehner Avenue.

SOURCE: NAIP, 2012; ESRI.

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Figure 3

Noise Monitoring Locations

4.2 Existing Roadway Noise Levels Offsite

Existing roadway noise levels were calculated for 17 roadway segments located in the vicinity of the Project site. The roadway segments selected for analysis are considered to be those that are expected to be most directly impacted by project-related traffic; which, for the purpose of this analysis, includes the roadways that are located near and immediately adjacent to the Project site. These roadways, when compared to roadways located further away from the Project site, would experience the greatest percentage increase in traffic generated by the Project.

Calculation of the existing roadway noise levels was accomplished using the Federal Highway Administration Highway Noise Prediction Model (FHWA-RD-77-108) and traffic volumes at the study intersections analyzed in the Project's TIA. The model calculates the average noise level at specific locations based on traffic volumes, average speeds, and site environmental conditions. The average daily noise levels along these roadway segments are presented in Table 2.

TABLE 2
EXISTING ROADWAY NOISE LEVELS

Roadway	Roadway Segment	dB L_{dn}/CNEL[a]
N. Broadway	North of Stanley Avenue	62.5/62.9
	South of Stanley Avenue	67.5/67.9
	North of Vista Avenue	67.5/67.9
	South of Vista Avenue	63.0/63.4
N. Ash Street	North of Stanley Avenue	65.1/65.5
	Between Stanley Avenue and Lehner Avenue	67.0/67.5
	South of Lehner Avenue	67.7/68.2
	North of Vista Avenue	67.3/67.7
	South of Vista Avenue	69.5/69.9
Stanley Avenue	East of N. Broadway	57.2/57.5
	West of N. Ash Street	56.7/57.0
	East of N. Ash Street	52.2/52.5
Vista Avenue	East of N. Broadway	59.5/59.8
	West of N. Ash Street	57.2/57.5
	East of N. Ash Street	56.7/57.1
Lehner Avenue	West of N. Ash Street	55.7/56.0
	East of N. Ash Street	59.1/59.5

[a] Values represent noise levels at the property line of the nearest receptors. The noise levels are presented in both L_{dn} and CNEL because both of these noise descriptors are referenced in the noise policies of the City's General Plan Community Protection Element.

TRAFFIC INFORMATION SOURCE: Linscott Law & Greenspan, Traffic Impact Analysis, Pickering Residential Project, April 4, 2014.
TABLE SOURCE: ESA, 2014. Calculation data and results provided in Appendix A.

4.3 Existing Groundborne Vibration Levels

Aside from periodic construction work that may occur throughout the county, the only sources of groundborne vibration in the Project site vicinity are heavy-duty vehicular travel (e.g., refuse trucks, delivery trucks, etc.) on local roadways. Trucks traveling at a distance of 50 feet typically generate groundborne vibration velocity levels of around 63 VdB (approximately 0.006 in/sec PPV), and these levels could reach 72 VdB (approximately 0.016 in/sec PPV) where trucks pass over bumps in the road (FTA, 2006). In terms of PPV levels, a heavy-duty vehicle traveling at a distance of 50 feet can result in a vibration level of approximately 0.001 inch per second.

4.4 Sensitive Receptors

Some land uses are more sensitive to noise levels than others due to the types of activities typically associated with the uses. Residences, hotels, schools, rest homes, and hospitals are generally more sensitive to noise than commercial and industrial land uses. Currently, existing noise-sensitive uses located in the vicinity of the Project site include single-family residential and school uses. Specifically, single-family residential structures are located directly to the north, across Stanley Avenue. Sparsely located single-family residential structures are also located further to the east, south (across Lehner Avenue), and to the west (across N. Ash Street) of the Project site. The Rincon Middle School is located to the southeast of the Project site, across Lehner Avenue.

4.5 Regulatory Setting

Federal Noise Standards

There are no federal noise standards that directly regulate environmental noise related to the construction or operation of the proposed Project. With regard to noise exposure and workers, the Office of Safety and Health Administration (OSHA) regulations safeguard the hearing of workers exposed to occupational noise. Federal regulations also establish noise limits for medium and heavy trucks (more than 4.5 tons, gross vehicle weight rating) under 40 Code of Federal Regulations (CFR), Part 205, Subpart B. The federal truck pass-by noise standard is 80 dB at 15 meters from the vehicle pathway centerline. These controls are implemented through regulatory controls on truck manufacturers.

Federal Transit Authority Vibration Standards

The FTA has adopted vibration standards that are used to evaluate potential building damage impacts related to construction activities. The vibration damage criteria adopted by the FTA are shown in **Table 3**.

TABLE 3
CONSTRUCTION VIBRATION DAMAGE CRITERIA

Building Category	PPV (in/sec)
I. Reinforced-concrete, steel or timber (no plaster)	0.5
II. Engineered concrete and masonry (no plaster)	0.3
III. Non-engineered timber and masonry buildings	0.2
IV. Buildings extremely susceptible to vibration damage	0.12

SOURCE: Federal Transit Administration, Transit Noise and Vibration Impact Assessment, May 2006.

In addition, the FTA has also adopted standards associated with human annoyance for groundborne vibration impacts for the following three land-use categories: Vibration Category 1 – High Sensitivity, Vibration Category 2 – Residential, and Vibration Category 3 – Institutional. The FTA defines Category 1 as buildings where vibration would interfere with operations within the building, including vibration-sensitive research and manufacturing facilities, hospitals with vibration-sensitive equipment, and university research operations. Vibration-sensitive equipment includes, but is not limited to, electron microscopes, high-resolution lithographic equipment, and normal optical microscopes. Category 2 refers to all residential land uses and any buildings where people sleep, such as hotels and hospitals. Category 3 refers to institutional land uses such as schools, churches, other institutions, and quiet offices that do not have vibration-sensitive equipment, but still have the potential for activity interference.

Under conditions where there are an infrequent number of events per day, the FTA has established thresholds of 65 VdB for Category 1 buildings, 80 VdB for Category 2 buildings, and 83 VdB for Category 3 buildings.[1] Under conditions where there are an occasional number of events per day, the FTA has established thresholds of 65 VdB for Category 1 buildings, 75 VdB for Category 2 buildings, and 78 VdB for Category 3 buildings.[2] No thresholds have been adopted or recommended for commercial and office uses.

California Department of Health Services Noise Standards

The California Department of Health Services (DHS) has established guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. These guidelines for land use and noise exposure compatibility are shown in **Table 4**. In addition, Section 65302(f) of the California Government Code requires each county and city in the State to prepare and adopt a comprehensive long-range general plan for its physical development, with Section 65302(g) requiring a noise element to be included in the general plan. The noise element must: (1) identify and appraise noise problems in the community; (2) recognize Office of Noise Control guidelines; and (3) analyze and quantify current and projected noise levels.

1 "Infrequent events" is defined by the Federal Transit Administration as being fewer than 30 vibration events of the same kind per day.

2 "Occasional events" is defined by the Federal Transit Administration as between 30 and 70 vibration events of the same source per day.

TABLE 4
COMMUNITY NOISE EXPOSURE (L_{dn} OR CNEL)

Land Use	Normally Acceptable[a]	Conditionally Acceptable[b]	Normally Unacceptable[c]	Clearly Unacceptable[d]
Single-family, Duplex, Mobile Homes	50 - 60	55 - 70	70 - 75	above 75
Multi-Family Homes	50 - 65	60 - 70	70 - 75	above 75
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 - 70	60 - 70	70 - 80	above 80
Transient Lodging – Motels, Hotels	50 - 65	60 - 70	70 - 80	above 75
Auditoriums, Concert Halls, Amphitheaters	---	50 - 70	---	above 70
Sports Arena, Outdoor Spectator Sports	---	50 - 75	---	above 75
Playgrounds, Neighborhood Parks	50 - 70	---	67 - 75	above 75
Golf Courses, Riding Stables, Water Recreation, Cemeteries	50 - 75	---	70 - 80	above 80
Office Buildings, Business and Professional Commercial	50 - 70	67 - 77	above 75	---
Industrial, Manufacturing, Utilities, Agriculture	50 - 75	70 - 80	above 75	---

[a] 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.

[b] Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise reduction requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

[c] Normally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made and needed noise insulation features included in the design.

[d] Clearly Unacceptable: New construction or development should generally not be undertaken.

SOURCE: Office of Planning and Research, State of California Genera Plan Guidelines, October 2003 (in coordination with the California Department of Health Services).

The State of California also establishes noise limits for vehicles licensed to operate on public roads. For heavy trucks, the State pass-by standard is consistent with the federal limit of 80 dB. The State pass-by standard for light trucks and passenger cars (less than 4.5 tons, gross vehicle rating) is also 80 dB at 15 meters from the centerline. These standards are implemented through controls on vehicle manufacturers and by legal sanction of vehicle operators by state and local law enforcement officials.

The State has also established noise insulation standards for new multi-family residential units, hotels, and motels that would be subject to relatively high levels of transportation-related noise. These requirements are collectively known as the California Noise Insulation Standards (Title 24, California Code of Regulations). The noise insulation standards set forth an interior standard of 45 dB CNEL in any habitable room. They require an acoustical analysis demonstrating how dwelling units have been designed to meet this interior standard where such units are proposed in areas subject to noise levels greater than 60 dB CNEL. Title 24 standards are typically enforced by local jurisdictions through the building permit application process.

State Vibration Standards

There are no State vibration standards applicable to the proposed project. Moreover, according to the California Department of Transportation's (Caltrans) *Transportation and Construction Vibration Guidance Manual* (2013), there are no official Caltrans standards for vibration. However, this manual provides guidelines for assessing vibration damage potential to various types of buildings, ranging from 0.08-0.12 in/sec PPV for extremely fragile historic buildings, ruins, and ancient monuments to 0.50-2.0 in/sec PPV for modern industrial/commercial buildings.

County of San Diego General Plan Noise Element

The California Government Code Section 65302(g) requires that a noise element be included in the General Plan of each county and city in the State. The Noise Element of the County of San Diego General Plan is intended to provide for the control and abatement of environmental noise to protect citizens from excessive exposure. In particular, goals and policies are identified in the Noise Element to preserve the County's quality of life by protecting residents from the obtrusive impacts of noise and noise-generating uses such as traffic, construction, airplanes, and certain industrial uses.

The Noise Element establishes noise exposure levels for different land uses to minimize noise exposure to sensitive areas, ensure the proper function of land uses, and maintain quality of life in the County. Specifically, these noise compatibility guidelines are used by the County to determine the compatibility of land use when evaluating proposed development projects. The guidelines are based, in part, on the community noise compatibility guidelines established by the DHS for use in assessing the compatibility of various land use types with a range of noise levels. The County's noise compatibility guidelines are shown in **Table 5**.

Based on the guidelines shown in Table 5, a land use located in an area identified as "acceptable" indicates that standard construction methods would attenuate exterior noise to an acceptable indoor noise level and that people can carry out outdoor activities with minimal noise interference. Land uses that fall into the "conditionally acceptable" noise environment should have an acoustical study that considers the type of noise source, the sensitivity of the noise receptor, and the degree to which the noise source may interfere with sleep, speech, or other activities characteristic of the land use. For land uses indicated as "conditionally acceptable," structures must be able to attenuate the exterior noise to the indoor noise level as indicated in the noise standards listed in **Table 6**. For land uses where the exterior noise levels fall within the "unacceptable" range, new construction generally should not be undertaken.

TABLE 5
COUNTY OF SAN DIEGO NOISE COMPATIBILITY GUIDELINES

		Exterior Noise Level (dB CNEL)		
	Land Use Category	**Acceptable**[a]	**Conditionally Acceptable**[b]	**Unacceptable**[c]
A	Residential – single family residences, mobile homes, senior housing, convalescent homes	50 - 60	60 - 75	Above 75
B	Residential – multi-family residences, mixed-use (commercial/residential)	50 - 65	65 - 75	Above 75
C	Transient Lodging – motels, hotels, resorts	50 - 65	65 - 75	Above 75
D*	Schools, churches, hospitals, nursing homes, child care facilities	50 - 65	65 - 75	Above 75
E*	Passive recreational parks, nature preserves, contemplative spaces, cemeteries	50 - 65	65 - 75	Above 75
F*	Active parks, golf courses, athletic fields, outdoor spectator sports, water recreation	50 - 70	70 - 75	Above 75
G*	Office/professional, government, medical/dental, commercial, retail, laboratories	50 - 70	70 - 75	Above 75
H*	Industrial, manufacturing, utilities, agriculture, mining, stables, ranching, warehouse, maintenance/repair	50 - 70	Above 70	---

Note: * Denotes facilities used for part of the day; therefore, an hourly standard would be used rather than CNEL (refer to Table 6)

a Acceptable: Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal construction, without any special noise insulation requirements.

b Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis is conducted to determine if noise reduction measures are necessary to achieve acceptable levels for land use. Criteria for determining exterior and interior noise levels are listed in Table 6. If a project cannot mitigate noise to a level deemed acceptable, the appropriate county decision-maker must determine that mitigation has been provided to the greatest extent practicable or that extraordinary circumstances exist.

c Unacceptable: New construction or development shall not be undertaken.

SOURCE: County of San Diego General Plan, Noise Element, 2011.

TABLE 6
COUNTY OF SAN DIEGO NOISE STANDARDS

1. The exterior noise level (as defined in Item 3) standard for Category A shall be 60 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL.
2. The exterior noise level standard for Categories B and C shall be 65 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL.
3. The exterior noise level standard for Categories D and G shall be 65 CNEL and the interior noise level standard shall be 50 dB L_{eq} (one hour average).
4. For single-family detached dwelling units, “exterior noise level” is defined as the noise level measured at an outdoor living area which adjoins and is on the same lot as the dwelling, and which contains at least the following minimum net lot area: (i) for lots less than 4,000 square feet in area, the exterior area shall include 400 square feet, (ii) for lots between 4,000 square feet to 10 acres in area, the exterior area shall include 10 percent of the lot area; (iii) for lots over 10 acres in area, the exterior area shall include 1 acre.
5. For all other residential land uses, "exterior noise level" is defined as noise measured at exterior areas which are provided for private or group usable open space purposes. “Private Usable Open Space” is defined as usable open space intended for use of occupants of one dwelling unit, normally including yards, decks, and balconies. When the noise limit for Private Usable Open Space cannot be met, then a Group Usable Open Space that meets the exterior

noise level standard shall be provided. "Group Usable Open Space" is defined as usable open space intended for common use by occupants of a development, either privately owned and maintained or dedicated to a public agency, normally including swimming pools, recreation courts, patios, open landscaped areas, and greenbelts with pedestrian walkways and equestrian and bicycle trails, but not including off-street parking and loading areas or driveways.

6. For non-residential noise sensitive land uses, exterior noise level is defined as noise measured at the exterior area provided for public use.
7. For noise sensitive land uses where people normally do not sleep at night, the exterior and interior noise standard may be measured using either CNEL or the one-hour average noise level determined at the loudest hour during the period when the facility is normally occupied.
8. The exterior noise standard does not apply for land uses where no exterior use area is proposed or necessary, such as a library.
9. For Categories E and F the exterior noise level standard shall not exceed the limit defined as "Acceptable" in Table 5 or an equivalent one-hour noise standard.

Note: Noise levels are measured at the property line of the noise-sensitive use.

[a] This category includes homes, hospitals, and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance.

[b] This category includes schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material.

SOURCE: County of San Diego General Plan, Noise Element, 2011.

It should also be noted that all new residential development in the County would be required to comply with Title 24 standards of the State Health and Safety Code. These standards establish maximum interior noise levels for new residential development, requiring that sufficient insulation be provided to reduce interior ambient noise levels to 45 dB L_{dn} or CNEL or less.

County of San Diego Municipal Code

Aside from the noise standards established in the County's General Plan Noise Element, community noise control standards have also been adopted as part of the Noise Abatement and Control Ordinance (County Code of Regulatory Ordinances, Title 3, Division 6, Chapter 4) of the County Municipal Code. The following sections of the Noise Abatement and Control Ordinance are relevant to the proposed Project:

Section 36.404 General Sound Level Limits

The County has established exterior sound level limits for different land uses in Section 36.404 (General Sound Level Limits) of the Noise Abatement and Control Ordinance, which are shown in **Table 7**. These sound level limits, presented as one-hour averages, are the allowable noise levels at the property line of the property on which the noise is produced or at any location on a property that is receiving the noise. Where the measured ambient noise level exceeds the applicable limit shown in Table 7, the allowable one-hour average sound level should be the ambient noise level plus three decibels.

TABLE 7
COUNTY OF SAN DIEGO EXTERIOR SOUND LEVEL LIMITS

Zone	Time	One-hour Average Sound Level Limits (dBA)
(1) R-S, R-D, R-R, R-MH, A-70, A-72, S-80, S-81, S-87, S-90, S-92, and R-V and R-U with a density of less than 11 dwelling units per acre	7:00 A.M. to 10:00 P.M.	50
	10:00 P.M. to 7:00 A.M.	45
(2) R-RO, R-C, R-M, S-86, V5, and R-V and R-U with a density of 11 or more dwelling units per acre	7:00 A.M. to 10:00 P.M.	55
	10:00 P.M. to 7:00 A.M.	50
(3) S-94, V4, and all other commercial zones	7:00 A.M. to 10:00 P.M.	60
	10:00 P.M. to 7:00 A.M.	55
(4) V1, V2	7:00 A.M. to 7:00 P.M.	60
	7:00 P.M. to 10:00 P.M.	55
V1	10:00 P.M. to 7:00 A.M.	55
V2	10:00 P.M. to 7:00 A.M.	50
V3	7:00 A.M. to 10:00 P.M.	70
	10:00 P.M. to 7:00 P.M.	65
(5) M-50, M-52, and M-54	Anytime	70
(6) S-82, M-56, and M-58	Anytime	75
(7) S88[a]		

[a] S88 zones are Specific Planning Areas which allow for different uses. The sound level limits in this table that apply in an S88 zone depend on the use being made of the property. The limits in this table under subsection (1) apply to property with a residential, agricultural or civic use. The limits in subsection (3) apply to property with a commercial use. The limits in subsection (5) apply to property with an industrial use that would only be allowed in an M50, M52 or M54 zone. The limits in subsection (6) apply to all property with an extractive use or a use that would only be allowed in an M56 or M58 zone.

SOURCE: County of San Diego Noise Abatement and Control Ordinance, Section 36.404, General Sound Level Limits.

Section 36.408 Hours of Operation of Construction Equipment

With the exception of emergency work, the County prohibits any person to operate, or cause to be operated, construction equipment:

a) Between 7:00 P.M. and 7:00 A.M.

b) On a Sunday or a holiday. For purposes of this section, a holiday means January 1st, the last Monday in May, July 4th, the first Monday in September, December 25th and any day appointed by the President as a special national holiday or the Governor of the State as a special State holiday. A person may, however, operate construction equipment on a Sunday or holiday between the hours of 10:00 A.M. and 5:00 P.M. at the person's residence or for the purpose of constructing a residence for himself or herself, provided that the operation of construction equipment is not carried out for financial consideration or other consideration of any kind and does not violate the limitations in Sections 36.409 and 36.410 of the Noise Abatement and Control Ordinance.

Section 36.409 Sound Level Limitations on Construction Equipment

With the exception of emergency work, the County has deemed it unlawful for any person to operate construction equipment, or cause construction equipment to be operated, that exceeds an average sound level of 75 decibels for an eight-hour period, between 7:00 A.M. and 7:00 P.M., when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received.

Section 36.410 Sound Level Limitations on Impulsive Noise

In addition to the general limitations on sound levels in Section 36.404 and the limitations on construction equipment in Section 36.409 of the Noise Abatement and Control Ordinance, the County has also established additional sound level limitations on impulsive noise levels shown in **Table 8**.

TABLE 8
MAXIMUM SOUND LEVEL (IMPULSIVE) MEASURED AT OCCUPIED PROPERTY

Occupied Property Use	dBA
Residential, village zoning or civic use	82
Agricultural, commercial or industrial	85

SOURCE: County of San Diego Noise Abatement and Control Ordinance, Section 36.410, Sound Level Limitations on Impulsive Noise.

With the exception of emergency work or work on a public road project, no person is allowed to produce, or cause to be produced, an impulsive noise that exceeds the maximum sound level shown in Table 8 when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received for 25 percent of the minutes in the measurement period. The minimum measurement period for any measurements conducted with regards to impulsive noise should be one hour. During the measurement period a measurement should be conducted every minute from a fixed location on an occupied property. The measurements should measure the maximum sound level during each minute of the measurement period. If the sound level caused by construction equipment or the producer of the impulsive noise exceeds the maximum sound level for any portion of any minute, it will deemed that the maximum sound level was exceeded during that minute.

City of Escondido General Plan Community Protection Element

The Community Protection Element of the City of Escondido General Plan is intended to identify sources of noise and provide goals and policies that ensure that noise from various sources does not create an unacceptable noise environment. The Community Protection Element establishes land use noise exposure levels to minimize noise exposure to sensitive areas and to ensure the proper function of land uses and to maintain quality of life in the City. These guidelines are based, in part, on the community noise compatibility guidelines established by the DHS for use in assessing the compatibility of various land use types with a range of noise levels. The City's land use noise exposure levels are shown in **Table 9**. Noise Policy 5.1 in the Community Protection Element requires that developments in the City meet the acceptable exterior noise level standards established in Table 9.

TABLE 9
CITY OF ESCONDIDO LAND USE NOISE EXPOSURE LEVELS

Land Use	Community Noise Exposure (Ldn or CNEL, dB)			
	Normally Acceptable[a]	**Conditionally Acceptable**[b]	**Normally Unacceptable**[c]	**Clearly Unacceptable**[d]
Residential-Single family, Duplex, Mobile Home	50 - 60	60 - 70	70 - 75	above 75
Residential-Multi-family, Residential Mixed Use	50-65	60-70	70-75	above 75
Transient Lodging, Motels, Hotels	50 - 65	60 - 70	70 - 80	above 80
Schools, Libraries, Churches, Hospitals, Nursing Homes	50 - 65	60 - 70	70 - 80	above 80
Auditoriums, Concert Halls, Amphitheaters	---	50 - 70	above 65	--
Sports Arena, Outdoor Spectator Sports	---	50 - 75	above 70	--
Playgrounds, Parks	50 - 70	---	67 - 75	above 73
Golf Course, Riding Stables, Water Recreation, Cemeteries	50 - 75	---	70 - 80	above 80
Office Buildings, Business Commercial, and Professional	50 - 70	65 - 77	above 75	---
Industrial, Manufacturing, Utilities, Agriculture	50 - 75	70 - 80	above 80	---
Agriculture	above 50			

a Normally Acceptable: Specified land use is satisfactory, based on the assumption that buildings involved are of normal conventional construction, without any special noise insulation requirements.

b Conditionally Acceptable: New construction or development should be undertaken only after a detailed analysis of the noise requirements is made and needed noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning will normally suffice.

c Normally Unacceptable: New construction or development should generally be discouraged. If new construction or development does proceed, a detailed analysis of the noise reduction requirements must be made with noise insulation features included in the design.

d Clearly Unacceptable: New construction or development should generally not be undertaken.

SOURCE: City of Escondido General Plan, Community Protection Element, 2012.

Noise Policy 5.2 of the Community Protection Element states that a CNEL of 60 dB or less for single family and 65 dB or less for multi-family uses should be applied as goals where outdoor use is a major consideration (backyards and single family housing developments, and recreation areas in multi-family housing developments), but also recognizes that such levels may not necessarily be achievable in all residential areas. As discussed previously, according to the noise measurement guidelines indicated in the Community Protection Element, noise measurements in residential areas in the City should generally be applied at 10 feet from the backyard property line. However, in certain cases, such as on estate lots where backyards are typically very large, the 60 dB CNEL goal could be applied to a location that is approximately one half of the distance between the back of the main residential structure and the rear property line. The outdoor standard should not normally be applied to balconies or patios associated with residential uses. Additionally, the Community Protection Element states that noise impacts of proposed projects on existing land uses should be evaluated in terms of potential for adverse community response, based on a significant

increase in existing noise levels. For example, if an area currently is below the maximum normally acceptable level, an increase in noise up to the maximum should not necessarily be allowed. Projects increasing noise levels by 5 dB or greater should be considered as generating a significant impact and should require mitigation. Furthermore, Noise Policy 5.3 requires noise attenuation for outdoor spaces in all developments where projected incremental exterior noise levels exceed those shown in **Table 10**.

TABLE 10
EXTERIOR INCREMENTAL ENVIRONMENTAL NOISE IMPACT STANDARDS FOR NOISE-SENSITIVE USES (dB)

Residences and Buildings Where People Normally Sleep[a]		Institutional Land Uses with Primarily Daytime and Evening Uses[b]	
Existing L_{dn}	Allowable Noise Increment	Existing Peak Hour L_{eq}	Allowable Noise Increment
45	8	45	12
50	5	50	9
55	3	55	6
60	2	60	5
65	1	65	3
70	1	70	3
75	0	75	1
80	0	80	0

Note: Noise levels are measured at the property line of the noise-sensitive use.

a This category includes homes, hospitals, and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance.
b This category includes schools, libraries, theaters, and churches where it is important to avoid interference with such activities as speech, meditation, and concentration on reading material.

SOURCE: City of Escondido General Plan, Community Protection Element, 2012.

It should also be noted that all new residential development in the City would be required to comply with Title 24 standards of the State Health and Safety Code. These standards establish maximum interior noise levels for new residential development, requiring that sufficient insulation be provided to reduce interior ambient noise levels to 45 dB L_{dn} or CNEL or less. In particular, Noise Policy 5.4 requires noise attenuation for new noise-sensitive uses including residential, daycare facilities, schools, churches, transient lodging, hotels, motels, hospitals, health care facilities, and libraries if the projected interior noise standard of 45 dB CNEL is exceeded.

Noise Policy 5.5 requires that construction projects and new development to ensure acceptable vibration levels at nearby noise-sensitive uses based on Federal Transit Administration criteria. Noise Policy 5.7 encourages the use of the following strategies associated with site and building design, noise barriers, and construction methods to minimize impacts on and from new development:

1. Site planning responsive to topography:
    - Increase distances between noise sources and receivers;
    - Place non-noise-sensitive land uses such as utility areas, parking lots, and maintenance facilities between the source and the receiver;
    - Use non-noise-sensitive structures such as garages to shield noise-sensitive areas;
    - Orient buildings to shield outdoor spaces from a noise source.
2. Architecture responsive to noise-sensitive spaces:
    - Orient bedrooms away from noise sources;
    - Limit openings and penetrations on portions of buildings impacted by noise.
3. Barriers responsive to reduce noise levels:
    - Ensure that line of sight is interrupted between noise source and the receptor when constructing noise walls;
    - Apply noise insulation to walls, roofs, doors, windows, and other penetrations.

City of Escondido Municipal Code

The following sections of the Escondido Municipal Code are relevant to the proposed Project:

17-229 Sound Level Limits

The City has established exterior sound level limits for different land uses in Section 17-229 (Sound Level Limits) of the Municipal Code, which are shown in **Table 11**. These sound level limits are the allowable noise levels at any point on or beyond the boundaries of the property on which the sound is produced. The noise standards apply to each property or portion of property substantially used for a particular type of land use reasonably similar to the land use types shown in Table 11. Where two or more dissimilar land uses occur on a single property, the more restrictive noise limits apply. Environmental noise is measured by the L_{eq} for the hours as specified in Table 11, and should be measured at the boundary or at any point within the boundary of the receiving or affected property. In addition, the following corrections to the exterior noise level limits shown in Table 11 have also been established in Section 17-229(c)(5), Corrections to Exterior Noise Level Limits, of the Municipal Code:

1. If the noise is continuous, the L_{eq} for any hour will be represented by any lesser time period within that hour. Noise measurements of a few minutes only will thus suffice to define the noise level.
2. If the noise is intermittent, the L_{eq} for any hour may be represented by a time period typical of the operating cycle. Measurement should be made of a representative number of noisy/quiet periods. A measurement period of not less than 15 minutes is, however, strongly recommended when dealing with intermittent noise.
3. In the event the alleged offensive noise, as judged by the enforcement officer, contains a steady, audible sound such as a whine, screech or hum, or contains a repetitive impulsive

noise such as hammering or riveting, the standard limits set forth in Table 11 shall be reduced by 10 dB or to the ambient noise level when such noises are not occurring.

4. If the measured ambient level exceeds that permissible in Table 11, the allowable noise exposure standard shall be the ambient noise level. The ambient level shall be measured when the alleged noise violations source is not operating.

5. The sound level limit at a location on a boundary between two land use classifications is the limit applicable to the receiving land use; provided, however, that the one-hour average sound level limit applicable to extractive industries including, but not limited to, borrow pits and mines, shall be 75 dB at the property line regardless of the zone where the extractive industry is actually located.

TABLE 11
CITY OF ESCONDIDO EXTERIOR SOUND LEVEL LIMITS

Zone	Time	Applicable Limit One-hour Average Sound Level (A-weighted Decibels)
Residential zones	7:00 A.M. to 10:00 P.M.	50
	10:00 P.M. to 7:00 A.M.	45
Multi-residential zones	7:00 A.M. to 10:00 P.M.	55
	10:00 P.M. to 7:00 A.M.	50
Commercial zones	7:00 A.M. to 10:00 P.M.	60
	10:00 P.M. to 7:00 A.M.	55
Light industrial/Industrial park zones	Anytime	70
General Industrial zones	Anytime	75

SOURCE: City of Escondido Municipal Code Section 17-229, Sound Level Limits.

17-234 Construction Equipment

With the exception of emergency work, the City has established the following regulations pertaining to the operation of construction equipment:

a) It shall be unlawful for any person, including the City of Escondido, to operate construction equipment at any construction site, except on Monday through Friday during a week between the hours of 7:00 A.M. and 6:00 P.M. and on Saturdays between the hours of 9:00 A.M. and 5:00 P.M., and provided that the operation of such construction equipment complies with the requirements of subsection (d) of this section.

b) It shall be unlawful for any person, including the City of Escondido, to operate construction equipment at any construction site on Sundays and on days designated by the President, Governor or City Council as public holidays.

c) A person may operate construction equipment at his/her residence or for the purpose of constructing or modifying a residence for himself/herself on Monday through Friday of a week between the hours of 7 A.M. and 6 P.M., and on Saturdays, Sundays, and holidays between the hours of 9 A.M. and 5 P.M.; provided, that such operation of construction

equipment is not carried on for profit or livelihood and complies with the requirements of subsection (d) of this section.

d) No construction equipment or combination of equipment, regardless of age or date of acquisition, shall be operated so as to cause noise in excess of a one-hour average sound level limit of 75 dB at any time, unless a variance has been obtained in advance from the City Manager.

e) Persons engaged in construction for profit or as a business shall post signs at conspicuous places on a construction site, indicating hours of work as prescribed by this article or authorized by permit and the applicable noise level limits.

17-238 Grading

With respect to grading activities, the following regulations have been established in the City Municipal Code:

a) It shall be unlawful for any person, including the City of Escondido, to do any authorized grading at any construction site, except on Mondays through Fridays during a week between the hours of 7:00 A.M. and 6:00 P.M. and, provided a variance has been obtained in advance from the City Manager, on Saturdays from 10:00 A.M. to 5:00 P.M.

b) For the purpose of this section, "grading" shall include but not be limited to, compacting, drilling, rock crushing or splitting, bulldozing, clearing, dredging, digging, filling and blasting.

c) In addition, any equipment used for grading shall not be operated so as to cause noise in excess of a one-hour sound level limit of 75 dB at any time when measured at or within the property lines of any property which is developed and used in whole or in part for residential purposes, unless a variance has been obtained in advance from the City Manager.

17-240(b)(12) Pile Drivers, Pneumatic Hammers, etc.

With respect to the operation of pile drivers or other similar equipment, the following provision has been established in the City Municipal Code:

- No person shall operate between the hours of 6:00 P.M. and 7:00 A.M. on weekdays, or on Saturdays, Sundays or any legal holidays, any pile driver, pneumatic hammer, derrick, or other similar appliance, the use of which is attended by loud or unusual noise, unless a variance has been obtained in advance from the City Manager.

5. Impacts and Mitigation Measures

This section describes the impact analysis relating to noise for the proposed Project. It describes the methods used to determine the impacts of the proposed Project and lists the thresholds used to conclude whether an impact would be significant.

5.1 Methodology

Construction Noise Levels

Construction noise levels were estimated using the FHWA's Roadway Construction Noise Model (RCNM). As the Project's specific construction equipment roster and schedule have not been finalized at this time, an approximate estimate of construction noise levels is conducted for the purpose of this analysis using the general assessment approach recommended by the FTA. In accordance with the FTA's general construction noise assessment approach, the analysis measures the two noisiest pieces of construction equipment operating concurrently at the center of the Project site (FTA, 2006). The estimated construction noise levels resulting from the proposed Project at the nearby off-site sensitive receptors were then analyzed against the construction noise standards established in both the County's Noise Abatement and Control Ordinance and City's municipal code to determine whether an exceedance of allowable noise levels would occur across any adjacent property boundaries.

Roadway Noise Levels

Roadway noise levels were calculated for selected study roadway segments near the Project site based on information provided in the TIA for the proposed Project. The roadway segments selected for analysis are expected to be most directly impacted by Project-related traffic, which, for the purpose of this analysis, includes the roadways that are nearest to the Project site that also run in front of the identified noise-sensitive receptors. These roadways, when compared to roadways located further away from the Project site, would experience the greatest percentage increase in traffic generated by the proposed Project. The noise levels were calculated using the FHWA's Highway Traffic Noise Prediction Model (FHWA-RD-77-108) and traffic volumes from the Project's TIA.

Groundborne Vibration Levels

Groundborne vibration levels resulting from construction activities at the Project site were estimated using data published by the FTA in its *Transit Noise and Vibration Impact Assessment* (2006) document. Potential vibration levels resulting from construction of the residential uses under the proposed Project are identified for off-site locations that are sensitive to vibration, including the existing residences and school, based on their distance from construction activities. While the City has not adopted any thresholds for construction or operational groundborne vibration impacts, the County currently uses the vibration criteria established in Caltrans' *Transportation and Construction Vibration Guidance Manual* document. As such, the potential vibration levels at off-site sensitive locations resulting from implementation of the proposed Project are analyzed against the vibration criteria established by Caltrans to determine whether an exceedance of allowable vibration levels would occur.

5.2 Thresholds of Significance

Based on the CEQA Guidelines, a project would have a significant effect on the environment with respect to noise and/or ground-borne vibration if it would result in:

- 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;
- Exposure of persons to, or generation of, excessive ground-borne vibration or ground-borne noise levels;
- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project;
- Exposure of people residing or working in the project area to excessive noise levels (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); or
- Exposure of people residing or working in the project area to excessive noise levels (for a project within the vicinity of a private airstrip).

With respect to the last two issues, no airport or private airstrip is currently located in the vicinity of the Project site. The nearest airport to the Project site is the McClellan-Palomar Airport, which is located approximately 11 miles east of the Project site. Therefore, no impacts associated with airports or private airstrips are anticipated and these criteria will not be discussed further in this report.

Noise Criteria

For the purpose of determining whether the Project would result in the exposure of persons to, or generate, noise levels that would exceed established noise standards, the Project's forecasted construction and stationary operational noise levels will be evaluated to see if the applicable construction noise regulations of the County and City are violated and the operational noise standards of the County and City (see Table 7 and 11, respectively) are exceeded.

The state CEQA Guidelines does not define the levels at which permanent and temporary increases in ambient noise are considered "substantial." Therefore, with regards to traffic noise, the significance of the proposed Project's noise impacts can be determined by comparing estimated Project-related noise levels to existing no-Project noise levels. According to the *County of San Diego Guidelines for Determining Significance, Noise* document, an increase of 10 dB (CNEL) over pre-existing noise levels is considered to be a significant noise impact. In addition, according to the City's General Plan Community Protection Element, noise impacts of proposed projects on existing land uses should be evaluated in terms of potential for adverse community response, based on a significant increase in existing noise levels. Projects increasing noise levels by 5 dB or greater should be considered as generating a significant impact and should require mitigation. In addition, Noise Policy 5.3 of the Community Protection Element requires noise attenuation for outdoor spaces in all developments where projected incremental exterior noise levels exceed those shown in Table 10. Thus, with regards to traffic noise, the significance of the Project's noise impacts is evaluated based on the aforementioned County and City noise criteria.

Vibration Criteria

The state CEQA Guidelines do not define the levels at which groundborne vibration or groundborne noises are considered "excessive." As such, with respect to construction-related vibration impacts at occupied residential and institutional land uses (e.g., schools, churches, libraries, other institutions, and quiet offices), the vibration criteria for structural damage and human annoyance established in Caltrans' *Transportation and Construction Vibration Guidance Manual* (2013), which are shown in Tables 12 and 13, respectively, are used in this analysis.

TABLE 12
CALTRANS VIBRATION DAMAGE POTENTIAL THRESHOLD CRITERIA

	Maximum PPV (in/sec)	
Structure and Condition	**Transient Sources**	**Continuous/Frequent Intermittent Sources**
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

SOURCE: Caltrans, Transportation and Construction Vibration Guidance Manual, September 2013.

TABLE 13
CALTRANS VIBRATION ANNOYANCE POTENTIAL CRITERIA

	Maximum PPV (in/sec)	
Structure and Condition	**Transient Sources**	**Continuous/Frequent Intermittent Sources**
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

Note: Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

SOURCE: Caltrans, Transportation and Construction Vibration Guidance Manual, September 2013.

Given the nature of the proposed Project as a residential development, any "excessive" groundborne vibration or noises that would occur at the Project site would be those generated

during project construction. During its operation, the Project would not involve the use of heavy machinery or generate heavy-duty truck trips that are often associated with large commercial or industrial uses. As such, no sources of "excessive" groundborne vibration or noise levels are anticipated during Project operations. Additionally, the Project would not locate new residential uses in an area that would be impacted by any existing sources of groundborne vibration and noise (e.g., commuter railroad line, rapid transit stations, etc.), as the Project site is surrounded by low-density rural residential uses and undeveloped lands.

5.3 Project Impacts

Construction Noise

Construction of the proposed Project would require the use of heavy equipment during the grading and excavation activities at the Project site, installation of new utilities, paving, and building fabrication for the proposed residential buildings. Development activities would also involve the use of smaller power tools, generators, and other sources of noise. During each stage of development, there would be a different mix of equipment. As such, construction activity noise levels at and near the Project site would fluctuate depending on the particular type, number, and duration of use of the various pieces of construction equipment.

Table 14 shows the hourly noise levels (L_{max}) produced by various types of construction equipment based on a distance of 50 feet between the equipment and noise receptor. It should be noted that L_{max} noise levels associated with the construction equipment would only be generated when the equipment are operated at full power. Typically, the operating cycle for a piece of construction equipment would involve one or two minutes of full power operation followed by three or four minutes at lower power settings. As such, the L_{max} noise levels shown in Table 14 would only occur occasionally throughout the construction day.

TABLE 14
MAXIMUM NOISE LEVELS FROM CONSTRUCTION EQUIPMENT

Construction Equipment	Noise Level at 50 Feet (dB, L_{max})
Dump Truck	76
Excavator	81
Air Compressor	78
Backhoe	78
Grader	85
Front End Loader	79
Dozer	82
Tractor	84
Paver	77
Roller	80

SOURCE: Federal Highway Administration, Roadway Construction Noise Model User's Guide, 2006.

During construction, three basic types of activities would be expected to occur and generate noise at the Project site. The first activity would involve demolition of the existing on-site structures, followed by grading and excavation at the Project site to accommodate the foundation for the

proposed residential uses. The third type of construction activity that would generate noise would involve the physical construction of the proposed residential structures.

During construction of the Project, the nearest and most notable offsite sensitive receptors to the Project site would be the surrounding residential uses and the Rincon Middle School. Due to the use of construction equipment during the construction phases, the Project would expose these surrounding off-site sensitive receptors to increased exterior noise levels. According to Section 36.409 of the County's Noise Abatement and Noise Control Ordinance, with the exception of emergency work the County has deemed it unlawful for any person to operate construction equipment, or cause construction equipment to be operated, that exceeds an average sound level of 75 dB for an eight-hour period, between 7:00 A.M. and 7:00 P.M., when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received. In addition, with respect to the City's construction noise regulations, Section 17-234 of the City Municipal Code stipulates that construction equipment or a combination of equipment are not allowed to operate so as to cause noise in excess of a one-hour average sound level limit of 75 dB at any time, unless a variance has been obtained in advance from the City Manager.

During Project construction, the noise levels experienced at the nearest off-site receptors would vary depending on the distance of the construction equipment within the site to the receptor. For instance, the construction noise levels experienced at the off-site receptors to the north would be the greatest when construction equipment are operating in the northern portion of the Project site, while noise levels at these receptors would be the lowest when construction equipment are operating in the southern portion of the Project site. Thus, the noise levels would fluctuate over the course of a construction day as equipment moves back and forth across the Project site. As discussed previously, because the Project's specific construction equipment roster and schedule have not been finalized at this time, an approximate estimate of construction noise levels is conducted for the purpose of this analysis using the general assessment approach recommended by the FTA. **Table 15** shows the estimated construction noise levels that would occur at the nearest off-site sensitive uses during construction at the Project site. The estimated noise levels at the off-site sensitive receptors were calculated using the FHWA's RCNM, and were based on the concurrent operation of the two noisiest pieces of equipment (i.e., grader and tractor) at the center of the Project site.

TABLE 15
EXTERIOR NOISE AT OFF-SITE SENSITIVE USES FROM PROJECT CONSTRUCTION

Off-site Sensitive Land Uses	Location	Approximate Distance to Project Site Center (ft.)[a]	Estimated Noise Levels (dB L_{eq})[b]	Applicable County 8-hour and City 1-hour Averaged Noise Standard (dB L_{eq})
Residences	North of the Project site, across Stanley Ave.	400	66	75
Residence	Directly east of the Project site	145	74	75
Rincon Middle School	Southeast of the Project site, across Lehner Ave.	567	63	75
Residence	South of the Project site, across Lehner Avenue	590	62	75
Residence	Southwest of the Project site	450	65	75
Residences	West of the Project site	433	65	75

[a] The approximate distances are measured from the center of the Project site to the nearest sensitive-receptor property line.
[b] In accordance with the general construction noise assessment approach recommended by the FTA, it is assumed that the two noisiest pieces of construction equipment used at the Project site (i.e., grader and tractor) would be operating concurrently.

As shown in Table 15, the estimated construction noise levels generated by the Project would range from 62 dB L_{eq} at the nearest residential use property line located south of the Project site, across Lehner Avenue, to 74 dB L_{eq} at the nearest residential use located east of the Project site. Overall, none of the identified nearest off-site sensitive receptors would be exposed to noise levels that exceed 75 dB L_{eq}. Thus, under the scenario where the construction noise levels shown in Table 15 at the off-site sensitive receptors would occur for a full hour, the City's 1-hour average noise standard of 75 dB for construction activities would not be exceeded. Furthermore, since the 1-hour average construction noise levels would not exceed 75 dB, then an 8-hour average of those noise levels (i.e., County construction noise standard) would also not exceed 75 dB. Therefore, the Project's construction activities would not violate the construction noise standards of the County's Noise Abatement and Control Ordinance or the City's municipal code.

Despite not exceeding the County's or the City's construction noise standards, when the Project's estimated construction noise levels are compared with the ambient daytime noise levels that were measured at the nearby off-site sensitive uses to the Project site (refer to Table 1), the exterior noise levels at these off-site sensitive receptors would experience a notable increase in noise levels during construction of the Project. It should be noted, however, that the construction-related noise levels associated with development under the Project would be temporary in nature, and would not generate continuously high noise levels, although occasional single-event disturbances from grading and construction are possible. In addition, construction equipment engines would also likely be intermittently turned on and off over the course of a construction day. Nonetheless, although construction noise levels would only be temporary in nature, Mitigation Measures Noise-1 through Noise-7, which would require the implementation of noise reduction devices and techniques during Project construction, are recommended to reduce the construction-related noise levels at nearby receptors to the maximum extent feasible. With the

implementation of Mitigation Measures Noise-1 through Noise-7, the temporary construction noise impacts would be minimized and impacts would be less than significant.

The following mitigation measures shall be implemented to reduce the temporary noise impacts associated with an increase in ambient daytime noise levels at the nearby sensitive receptors during Project construction to the extent practicable:

Mitigation Measure Noise-1: The Project Applicant shall ensure that all construction equipment will have properly operating mufflers.

Mitigation Measure Noise-2: Noise and groundborne vibration construction activities whose specific location on the Project site may be flexible (e.g., operation of compressors and generators, cement mixing, general truck idling) shall be conducted as far as possible from the nearest noise- and vibration-sensitive land uses.

Mitigation Measure Noise-3: Construction activities associated with the proposed Project shall, to the extent feasible, be scheduled so as to avoid operating several pieces of equipment simultaneously, which causes high noise levels. When the use of impact tools are necessary, they shall be hydraulically or electrically powered wherever possible to avoid noise associated with compressed air exhaust from pneumatically powered tools. Where use of pneumatic tools is unavoidable, an exhaust muffler on the compressed air exhaust shall be used and external jackets on the tools themselves shall be used where feasible.

Mitigation Measure Noise-4: The Applicant shall locate stationary construction noise sources away from adjacent receptors, to the extent feasible, and ensure that they are muffled and enclosed within temporary sheds, incorporate insulation barriers, or other measures to the extent feasible.

Mitigation Measure Noise-5: If the Project is under the jurisdiction of the County at the time of development, the Applicant shall notify all construction workers prior to the commencement of construction that activities generating impulsive noise levels at the Project site must be limited to no more than 15 minutes in a given hour when such activities are located adjacent to an off-site sensitive receptor. Impulsive noise is defined by the County as a single noise event or a series of single noise events that causes a high peak noise level of short duration (one second or less) measured at a specific location (Section 36.410 of the County's Noise Abatement and Control Ordinance).

Mitigation Measure Noise-6: The Applicant shall designate a construction relations officer to serve as a liaison with surrounding residents and property owners who is responsible for responding to any concerns regarding construction noise and vibration. The liaison's telephone number(s) shall be prominently displayed at the Project site. Signs shall also be posted at the Project site that include permitted construction days and hours.

Mitigation Measure Noise-7: The Applicant shall comply with the permitted construction hours designated by the applicable jurisdiction for the Project at the time of development. If the Project is under the jurisdiction of the County at the time of development, construction activities shall be limited to between the hours of 7:00 A.M. and 7:00 P.M. from Monday through Saturday. Further, no construction activity shall be undertaken on Sundays and recognized County holidays

(Section 36.408 of the County's Noise Abatement and Control Ordinance). If the Project is under the jurisdiction of the City at the time of development, construction activities shall be limited to between the hours of 7:00 A.M. and 6:00 P.M. from Monday through Friday, and between the hours of 9:00 A.M. and 5:00 P.M. on Saturdays. Further, no construction activity shall be undertaken on Sundays and recognized City holidays (Section 17-234 of the City's Municipal Code).

Exposure to Groundborne Vibration – Construction

Construction activities that would occur within the Project site would include demolition and grading and excavation, which would have the potential to generate low levels of groundborne vibration. As such, the existing residential uses located in the immediate vicinity of the Project site could be exposed to the generation of excessive groundborne vibration or groundborne noise levels related to construction activities. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to structural damage at the highest levels. Site ground vibrations from construction activities very rarely reach the levels that can damage structures, but they may be perceived in buildings very close to a construction site. No pile-driving activities would be required for construction of the proposed Project.

The various PPV and RMS velocity (in VdB) levels for the types of construction equipment that would operate during the construction of the proposed Project are identified in **Table 16**. on the information presented in Table 16, vibration velocities could reach as high as approximately 0.089 inch-per-second PPV at 25 feet from the source activity, depending on the type of construction equipment in use. This corresponds to a RMS velocity level (in VdB) of 87 VdB at 25 feet from the source activity.

TABLE 16
VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

	Approximate PPV (in/sec)					Approximate RMS (VdB)				
Equipment	**25 Feet**	**50 Feet**	**60 Feet**	**75 Feet**	**100 Feet**	**25 Feet**	**50 Feet**	**60 Feet**	**75 Feet**	**100 Feet**
Large Bulldozer	0.089	0.031	0.024	0.017	0.011	87	78	76	73	69
Loaded Trucks	0.076	0.027	0.020	0.015	0.010	86	77	75	72	68
Jackhammer	0.035	0.012	0.009	0.007	0.004	79	70	68	65	61
Small Bulldozer	0.003	0.001	0.0008	0.0006	0.0004	58	49	47	44	40

SOURCE: FTA, 2006.

Construction activities associated with the proposed Project would have the potential to impact the nearest surrounding off-site sensitive receptors to the Project site, which include the surrounding residential uses to the north, east, south, southwest, and west, and the Rincon Middle School located to the southeast. **Table 17** shows the construction-related groundborne vibration levels that would occur at the identified offsite sensitive uses during construction at the Project site.

TABLE 17
GROUNDBORNE VIBRATION LEVELS AT OFF-SITE SENSITIVE USES

Off-site Sensitive Land Use	Approximate Distance to project site (ft.)[a]	Estimated PPV (in/sec)
Residences located north of the Project site, across Stanley Avenue	110	0.01
Residence located directly east of the Project site	183	0.004
Rincon Middle School located southeast of the Project site, across Lehner Avenue	360	0.002
Residence located south of the Project site, across Lehner Avenue	356	0.002
Residence located southwest of the Project site, across Lehner Avenue	240	0.003
Residences located west of the Project site, across N. Ash Street.	324	0.002

ft. = feet
in/sec = inches per second.

[a] For the groundborne vibration analysis, approximate distances are measured from the nearest project site boundary to the nearest sensitive-receptor structure located offsite.

As shown in Table 17, the vibration velocities forecasted to occur at the off-site sensitive receptors could potentially range from 0.002 in/sec PPV at the Rincon Middle School and the off-site residence located south of the Project site, across Lehner Avenue, to 0.01 in/sec PPV at the residences located north of the Project site, across Stanley Avenue. None of the buildings at the identified off-site sensitive use locations are considered to be fragile structures that are extremely susceptible to vibration damage. For the purpose of this analysis, the identified off-site residential structures surrounding the project site are considered to be "older residential structures," while the Rincon Middle School structures are considered to be "modern industrial/commercial buildings," based on the structure descriptions provided under Caltrans vibration criteria (refer to Table 12). With respect to the vibration sources associated with Project construction, it is not anticipated that any continuous/frequent intermittent sources of vibration would occur as no pile-driving or compaction activities would be required at the Project site. As such, only transient sources of vibration are anticipated to be generated at the Project site during construction. Based on the information shown in Table 17, none of the existing off-site residential structures would be exposed to PPV groundborne vibration levels that exceed the 0.5 inches per second criteria for transient sources. In addition, the Rincon Middle School would not be exposed to PPV groundborne vibration levels that exceed the 2.0 inches per second criteria for transient sources. Furthermore, the highest vibration level of 0.01 in/sec PPV at the residences located north of the Project would be barely perceptible with respect to Caltrans vibration annoyance potential criteria (refer to Table 13). As such, groundborne vibration impacts at off-site sensitive receptors during Project construction with respect to building damage and human annoyance would be less than significant.

Operational Noise

Heating, Ventilating, and Air Conditioning Equipment Noise

Heating, ventilating, and air conditioning (HVAC) units and exhaust fans may be installed on the proposed single-family residential units. Due to their proximity, the noise levels generated by the new HVAC units and exhaust fans for the proposed Project could potentially disturb the existing residential uses to the north and east of the Project site. However, it should be noted that as an industry practice, the design of the onsite HVAC units and other noise-generating mechanical equipment associated with the new residential units at the project site would typically be equipped with noise muffling devices or shielding (e.g., enclosures) to reduce noise levels that may affect nearby noise-sensitive uses. In addition, for the proposed project, all HVAC units would be located in either the rear or side of the new residences where they would be shielded from neighboring uses by blocked walls. Furthermore, the HVAC units installed would be typical of those used at other existing residences in the project vicinity, and generally would not represent a substantial source of noise. Thus, impacts from HVAC-related noise levels associated with the proposed project would be less than significant.

Furthermore, in order to ensure that onsite operational noise would not adversely affect the future residents at the Project site, Mitigation Measure Noise-8 would be implemented to ensure that all exterior windows associated with the proposed residential uses would be constructed such that sufficient sound insulation is provided to ensure that interior noise levels would be below a L_{dn} or CNEL of 45 dB in any residential unit.

The following measures shall be implemented to reduce the potential noise impacts related to the HVAC equipment:

Mitigation Measure Noise-8: Prior to the issuance of a certificate of occupancy, the Applicant shall ensure that all exterior windows associated with the proposed residential uses at the Project site shall be constructed to provide a sufficient amount of sound insulation to ensure that interior noise levels would be below a L_{dn} or CNEL of 45 dB in any room.

Exposure to Groundborne Vibration – Operation

The proposed Project would involve a residential development consisting of 14 single-family residential uses on a 4.2-acre site. Overall, the proposed residential uses would not generally include stationary equipment that would result in high vibration levels, which are more typical for large industrial projects. While groundborne vibration within and surrounding the Project site may currently result from heavy-duty vehicular travel (e.g., refuse trucks and delivery trucks) on the nearby local roadways, the proposed residential uses would not result in the increased use of these existing heavy-duty vehicles on the local roadways. Additionally, the Project also would not locate new residential uses in an area that would be impacted by any existing sources of groundborne vibration and noise (e.g., commuter railroad line, rapid transit stations, etc.), as the Project site is surrounded by low-density rural residential uses and undeveloped lands. As such, vibration impacts associated with operation of the future residential uses under the proposed Project would be less than significant.

Traffic Noise

The increase in traffic resulting from implementation of the proposed Project would increase the ambient noise levels at sensitive uses located in proximity to the Project area. Based on the TIA prepared for the proposed Project in combination with an analysis of the surrounding land uses, roadway noise levels were forecasted using the FHWA Model to determine if the Project's vehicular traffic would result in a significant impact at noise-sensitive receptor locations located in proximity to the Project area.

Off-site locations in the Project vicinity would experience a slight increase in noise resulting from the additional traffic generated by the proposed Project. With respect to the County's noise criteria, an increase of 10 dB CNEL over pre-existing noise levels is considered to be a significant noise impact. With respect to the City's noise criteria, developments that result in an incremental increase in exterior noise levels exceeding those shown in Table 10, which can range from 0 to 8 dB L_{dn} depending on pre-existing noise levels, would be considered to be a significant noise impact that would require noise attenuation. As discussed previously, the Project site is anticipated to be annexed into the City prior to development of the Project. Thus, the applicable noise criteria from the City, instead of the County, are used for this analysis. It should be noted that the City's allowable noise increase criteria is more stringent than the County's criteria. Thus, even under a scenario where the Project site is not annexed by the City prior to development of the Project, the use of the City's criteria in this report provides an analysis that is more conservative in nature.

The increases in noise levels at selected roadway segments located in proximity to the Project site resulting from the Project are identified in **Table 18**. As shown, the proposed Project would increase local noise levels by a maximum of 0.8 dB L_{dn} at the roadway segment of Stanley Avenue, east of N. Ash Street. As this noise increase would not exceed the City's allowable noise increment, this impact would be less than significant. In addition, as the other roadway segments that are located even further away from the Project site would experience less traffic increases due to the Project, the increase in local noise levels at these roadway segments would also not exceed the County's allowable noise increments, and impacts would be less than significant.

Furthermore, aside from residential receptors, the City has also established allowable noise increase increments for institutional land uses that have primarily daytime and evening uses. As shown in Table 10, whereas the allowable noise increments for residences and buildings where people normally sleep are based on the existing L_{dn} noise levels at those receptors, the allowable noise increments for institutional land uses are based on the existing peak hour L_{eq} noise levels at the receptors. Since institutional land uses such as schools and churches are also located in the Project area, the potential noise impacts at these uses resulting from increased traffic noise levels associated with the proposed Project are also analyzed. The increase in peak hour noise levels as a result of the Project at the roadway segments located in proximity to the Project site where institutional land uses are located is identified in **Table 19.**

TABLE 18
ROADWAY NOISE LEVELS WITH PROJECT

		Noise Levels in dB L_{dn}/CNEL[a]				
Roadway Segment	**Existing Land Uses Located Along Roadway Segment[b]**	**Existing Traffic Volumes**	**Existing + Project Traffic Volumes**	**Increase (L_{dn})[c]**	**Allowable Noise Increment[d]**	**Significant?**
N. Broadway, north of Stanley Avenue	Residential	62.5/62.9	62.5/62.9	0.0	1	No
N. Broadway, south of Stanley Avenue	Residential/School	67.5/67.9	67.5/68.0	0.0	1	No
N. Broadway, north of Vista Avenue	Residential/School	67.5/67.9	67.5/68.0	0.0	1	No
N. Broadway, south of Vista Avenue	Residential/Church	63.0/63.4	63.0/63.4	0.0	1	No
N. Ash Street, north of Stanley Avenue	Residential	65.1/65.5	65.1/65.5	0.0	1	No
N. Ash Street, between Stanley Avenue and Lehner Avenue	Residential	67.0/67.5	67.1/67.5	0.1	1	No
N. Ash Street, south of Lehner Avenue	Residential	67.7/68.2	67.8/68.2	0.1	1	No
N. Ash Street, north of Vista Avenue	Residential	67.3/67.7	67.3/67.8	0.0	1	No
N. Ash Street, south of Vista Avenue	Residential	69.5/69.9	69.5/69.9	0.0	1	No
Stanley Avenue, east of N. Broadway	Residential	57.2/57.5	57.3/57.7	0.1	3	No
Stanley Avenue, west of N. Ash Street	Residential	56.7/57.0	56.8/57.1	0.1	3	No
Stanley Avenue, east of N. Ash Street	Residential	52.2/52.5	53.0/53.4	0.8	5	No
Vista Avenue, east of N. Broadway	Residential/School/ Church	59.5/59.8	59.5/59.8	0.0	2	No
Vista Avenue, west of N. Ash Street	Residential	57.2/57.5	57.3/57.6	0.1	3	No
Vista Avenue, east of N. Ash Street	Residential	56.7/57.1	56.8/57.1	0.1	3	No
Lehner Avenue, west of N. Ash Street	Residential	55.7/56.0	55.7/56.0	0.0	3	No
Lehner Avenue, east of N. Ash Street	Residential/School	59.1/59.5	59.1/59.5	0.0	2	No

a Values represent noise levels from the centerline of each roadway to the approximate receptor property line. The noise levels are presented in both L_{dn} and CNEL because both of these noise descriptors are referenced in the noise policies of the City's General Plan Community Protection Element.

b Where more than one noise-sensitive land use is identified, the allowable noise increment for the land use where people could be present for 24 hours (e.g., residential uses) is used.

c Given that the City's noise standards for allowable incremental noise increases (Table 10) are given in dB L_{dn}, the increase in traffic noise levels associated with implementation of the Project is presented for dB L_{dn}.

d For the purpose of determining the applicable allowable noise increment from Table 10, the existing traffic noise levels were rounded off to the nearest "Existing L_{dn}" value shown in Table 10.

TRAFFIC INFORMATION SOURCE: Linscott Law & Greenspan, Traffic Impact Analysis, Pickering Residential Project, April 4, 2014.

TABLE SOURCE: ESA, 2014. Calculation data and results provided in Appendix A.

TABLE 19
PEAK HOUR ROADWAY NOISE LEVELS WITH PROJECT

Roadway Segment	Existing Land Uses Located Along Roadway Segment	Peak Hour Noise Levels in dB L_{eq}[a]				
		Existing Traffic Volumes	Existing + Project Traffic Volumes	Increase (L_{eq})	Allowable Noise Increment[b]	Significant?
N. Broadway, south of Stanley Avenue	School	71.0	71.0	0.0	3	No
N. Broadway, north of Vista Avenue	School	71.0	71.0	0.0	3	No
N. Broadway, south of Vista Avenue	Church	65.9	65.9	0.0	3	No
Vista Avenue, east of N. Broadway	School/ Church	63.4	63.4	0.0	3	No
Lehner Avenue, east of N. Ash Street	School	65.1	65.1	0.0	3	No

a Values represent noise levels from the centerline of each roadway to the approximate receptor property line.

b For the purpose of determining the applicable allowable noise increment from Table 10, the existing traffic noise levels were rounded off to the nearest "Existing L_{dn}" value shown in Table 10.

TRAFFIC INFORMATION SOURCE: Linscott Law & Greenspan, Traffic Impact Analysis, Pickering Residential Project, April 4, 2014.
TABLE SOURCE: ESA, 2014. Calculation data and results provided in Appendix A.

As shown in Table 19, traffic introduced by the proposed Project would not increase the peak hour noise levels at any of the identified roadway segments where institutional uses are located. Thus, impacts would be less than significant.

Cumulative Noise and Vibration

Cumulative noise assessment considers development of the proposed project in combination with ambient growth and other development projects within the vicinity of the proposed Project. As noise is a localized phenomenon, and drastically decreases as distance from the source increases, only projects and ambient growth in the nearby area could combine with the proposed Project to result in cumulative noise impacts.

Development of the proposed Project in combination with the related projects would result in an increase in construction-related and traffic-related noise in either the County or City, depending on which jurisdiction the Project is located in at the time of development. However, each of the related projects would be subject to either Section 36.404 of the County Noise Abatement and Control Ordinance, which establishes the allowable exterior noise standards for various types of land uses in the County, or Section 17-229 of the City Municipal Code, which establishes the allowable exterior noise standards for various types of land uses in the City. In addition, the construction activities associated with all related projects would also be subject to either Section 36.409 of the County Noise Abatement and Control Ordinance, which establishes the permitted hours for construction as well as allowable noise levels for construction equipment in the County,

or Section 17-234 of the City Municipal Code, which establishes the permitted hours for construction in the City.

Construction noise is localized in nature and decreases substantially with distance. Consequently, in order to achieve a substantial cumulative increase in construction noise levels, more than one source emitting high levels of construction noise would need to be in close proximity to the proposed Project. The nearest anticipated related projects to the Project site are the proposed Baker and Zenner residential developments located approximately 286 feet to the east and 365 feet to the west of the Project site, respectively, which are associated with the same Applicant as the Project. Given that these related projects are located in proximity to the Project site and that their construction schedules may be relatively similar to that of the Project, it is anticipated that a substantial increase in construction noise levels at nearby noise-sensitive receptors in the Project area would occur should construction of these related projects potentially occur at the same time as the Project. As such, if all three projects were to begin construction at the same time, a temporary cumulative noise impact is anticipated to occur in the Project area. However, the construction activities associated with the Project would not exceed either the County's or City's applicable noise level standards for construction. In addition, the proposed Project would further implement mitigation measures to reduce construction noise levels to the maximum extent feasible at nearby off-site sensitive receptors. Therefore, the Project's contribution to this cumulative impact would be less than significant.

Cumulative development associated with the Project in combination with other related projects may result in the exposure of people to or the generation of excessive groundborne vibration. As discussed above, the nearest related projects to the proposed project are the proposed Baker and Zenner residential developments located to the east and west of the Project site. However, whereas the potential concurrent construction of both the Project and the related projects may result in more vibration events in the Project area vicinity, the magnitude of vibration levels experienced by each off-site receptor would not be greater due to the rapid attenuation of groundborne vibration. As shown in Table 16, vibration levels generated by heavy construction equipment (e.g., large bulldozer) would not exceed Caltrans' 0.5 inches per second criteria for transient sources or 0.3 inches per second criteria for continuous/frequent intermittent sources even at a distance as close as 25 feet. Thus, given that the proposed Baker and Zenner residential developments are located approximately 286 feet to the east and 365 feet to the west of the Project site, respectively, even if construction activities associated with the Project and the related projects were to occur concurrently, there would be sufficient distance between the pieces of construction equipment used at each respective site such that a receptor would not be exposed to cumulative groundborne vibration levels. Therefore, future development would result in a less-than-significant cumulative impact in terms of groundborne vibration.

Cumulative mobile source noise impacts would occur primarily as a result of increased traffic on local roadways due to the proposed Project and related projects within the study area. Therefore, cumulative traffic-generated noise impacts have been assessed based on the contribution of the proposed Project to the future cumulative base traffic volumes on the roadway segments in the Project vicinity. The noise levels associated with future cumulative base without Project traffic volumes and future cumulative base with Project traffic volumes are identified in **Table 20**. As

shown, the Project's maximum contribution to cumulative traffic noise levels would be 0.6 dB L_{dn} at the segment of Stanley Avenue, east of N. Ash Street. As the increase in roadway noise at this roadway segment would exceed the allowable incremental noise increase of 3.0 dB L_{dn}, the noise increase associated with the Project would not be substantial based on the City's noise standards for allowable incremental noise increases.[3] Aside from this roadway segment, all of the remaining roadways in the project area would not be exposed to incremental noise increases from the Project that would exceed the City's noise standards for allowable incremental noise increases. Therefore, the Project's contribution to cumulative traffic noise impacts would be less than significant.

TABLE 20
PROJECT CONTRIBUTION TO CUMULATIVE ROADWAY NOISE LEVELS

		Noise Levels in dB L_{dn}/CNEL[a]				
Roadway Segment	**Existing Land Uses Located Along Roadway Segment[b]**	**Existing + Cumulative Traffic Volumes**	**Existing + Cumulative + Project Traffic Volumes**	**Increase (L_{dn})[c]**	**Allowable Noise Increment[d]**	**Significant?**
N. Broadway, north of Stanley Avenue	Residential	62.8/63.2	62.8/63.2	0.0	1	No
N. Broadway, south of Stanley Avenue	Residential/School	67.8/68.3	67.9/68.3	0.1	1	No
N. Broadway, north of Vista Avenue	Residential/School	67.8/68.3	67.9/68.3	0.1	1	No
N. Broadway, south of Vista Avenue	Residential/Church	63.6/64.0	63.6/64.1	0.0	1	No
N. Ash Street, north of Stanley Avenue	Residential	65.3/65.8	65.4/65.8	0.1	1	No
N. Ash Street, between Stanley Avenue and Lehner Avenue	Residential	67.6/68.0	67.7/68.1	0.1	1	No
N. Ash Street, south of Lehner Avenue	Residential	69.0/69.4	69.0/69.5	0.0	1	No
N. Ash Street, north of Vista Avenue	Residential	68.5/68.9	68.6/69.0	0.1	1	No
N. Ash Street, south of Vista Avenue	Residential	69.9/70.3	70.0/70.4	0.1	1	No
Stanley Avenue, east of N. Broadway	Residential	57.9/58.2	58.0/58.3	0.1	2	No
Stanley Avenue, west of N. Ash Street	Residential	57.3/57.6	57.4/57.8	0.1	3	No
Stanley Avenue, east of N. Ash Street	Residential	54.2/54.6	54.8/55.1	0.6	3	No
Vista Avenue, east of N. Broadway	Residential/School/ Church	60.4/60.7	60.4/60.8	0.0	2	No
Vista Avenue, west of N. Ash Street	Residential	59.9/60.2	59.9/60.3	0.0	2	No
Vista Avenue, east of N. Ash Street	Residential	58.2/58.6	58.3/58.6	0.1	2	No

[3] As discussed previously, because the Project site is anticipated to be annexed into the City prior to development of the Project, the applicable noise criteria from the City, instead of the County, is used for this analysis. Since the City's allowable noise increase criteria is more stringent than the County's criteria, even under a scenario where the Project site is not annexed by the City prior to development of the Project, the use of the City's criteria in this report provides an analysis that is more conservative in nature.

Roadway Segment	Existing Land Uses Located Along Roadway Segment[b]	Noise Levels in dB L_{dn}/CNEL[a]				
		Existing + Cumulative Traffic Volumes	Existing + Cumulative + Project Traffic Volumes	Increase (L_{dn})[c]	Allowable Noise Increment[d]	Significant?
Lehner Avenue, west of N. Ash Street	Residential	49.5/49.9	49.5/49.9	0.0	5	No
Lehner Avenue, east of N. Ash Street	Residential/School	59.0/59.4	59.0/59.4	0.0	2	No

a Values represent noise levels from the centerline of each roadway to the approximate receptor property line. The noise levels are presented in both L_{dn} and CNEL because both of these noise descriptors are referenced in the noise policies of the City's General Plan Community Protection Element.

b Where more than one noise-sensitive land use is identified, the allowable noise increment for the land use where people could be present for 24 hours (e.g., residential uses) is used.

c Given that the City's noise standards for allowable incremental noise increases (Table 10) are given in dB L_{dn}, the increase in traffic noise levels associated with implementation of the Project is presented for dB L_{dn}.

d For the purpose of determining the applicable allowable noise increment from Table 10, the existing traffic noise levels were rounded off to the nearest "Existing L_{dn}" value shown in Table 10.

TRAFFIC INFORMATION SOURCE: Linscott Law & Greenspan, Traffic Impact Analysis, Pickering Residential Project, April 4, 2014.

TABLE SOURCE: ESA, 2014. Calculation data and results provided in Appendix A.

Furthermore, the Project's contribution to cumulative traffic-generated noise impacts are also analyzed at institutional land uses (i.e., churches and schools) in the Project area using the allowable noise increase criteria established by the City. The increase in peak hour noise levels associated with future cumulative base without Project traffic volumes and future cumulative base with Project traffic volumes at the roadway segments where institutional land uses are located in the Project area is identified in **Table 21**.

TABLE 21
PEAK HOUR PROJECT CONTRIBUTION TO CUMULATIVE ROADWAY NOISE LEVELS

Roadway Segment	Existing Land Uses Located Along Roadway Segment	Peak Hour Noise Levels in dB L_{eq}[a]: Existing + Cumulative Traffic Volumes	Existing + Cumulative + Project Traffic Volumes	Increase (L_{eq})	Allowable Noise Increment[b]	Significant?
N. Broadway, south of Stanley Avenue	School	71.1	71.2	0.1	3	No
N. Broadway, north of Vista Avenue	School	71.1	71.1	0.0	3	No
N. Broadway, south of Vista Avenue	Church	66.1	66.1	0.0	3	No
Vista Avenue, east of N. Broadway	School/ Church	63.7	63.7	0.0	3	No
Lehner Avenue, east of N. Ash Street	School	64.9	64.9	0.0	3	No

a Values represent noise levels from the centerline of each roadway to the approximate receptor property line.

b For the purpose of determining the applicable allowable noise increment from Table 10, the existing traffic noise levels were rounded off to the nearest "Existing L_{dn}" value shown in Table 10.

TRAFFIC INFORMATION SOURCE: Linscott Law & Greenspan, Traffic Impact Analysis, Pickering Residential Project, April 4, 2014.
TABLE SOURCE: ESA, 2014. Calculation data and results provided in Appendix A.

As shown, the Project's maximum contribution to cumulative peak hour traffic noise levels would be 0.1 dB L_{eq} at the segment of N. Broadway, south of Stanley Avenue. As this noise increase would not exceed the allowable incremental noise increase of 3.0 dB L_{eq}, the noise increase would not be substantial. As the remaining roadways analyzed would not be exposed to any noise level increases attributable to the Project, the peak hour noise increases at these roadway segments would also not be substantial. Therefore, the Project's contribution to cumulative peak hour traffic noise impacts at institutional land uses would be less than significant.

6. References

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APPENDIX A

Noise Monitoring Data and Traffic Noise Level Calculations

****
Filename.....308019
Test Location.....Pickering Residential Project
Employee Name.....Terrance Wong
Employee Number.....
Department.....

Calibrator Type.....Metrosonics db 3080/4555
Calibrator Cal. Date...
****

METROSONICS db-3080 V1.20 SERIAL #Y4555
REPORT PRINTED ON 08/27/13 at 17:05:06

User ID: _____

Pickering Residential Project
Metrosonics dB 3080
Serial #: 4555

LOGGING STARTED.....08/27/13 at 10:22:21
TOTAL LOGGING TIME...0 DAYS 00:15:00
LOGGING STOPPED.....08/27/13 at 10:37:21
TOTAL INTERVALS.....1
INTERVAL LENGTH.....00:15:00

AUTO STOP.....YES
CLOCK SYNCH.....YES
RESPONSE RATE.....SLOW
FILTER.....A WT.

PRE-TEST CALIBRATION TIME....08/27/13 AT 10:18:02
PRE-TEST CALIBRATION RANGE...40.7 TO 140.7 dB
POST-TEST CALIBRATION NOT DONE
CUTOFF USED FOR TIME HISTORY Lav...NONE

<<< SUMMARY REPORT FOR TEST NUMBER 1 OF 7 >>>

EXCHANGE RATE.....3dB
CUTOFFS..... 80dB 90dB
CEILING.....115dB
DOSE CRITERION LEVEL... 90dB
DOSE CRITERION LENGTH.. 8 HOURS

Lav..... 50.3dB
Lav (80)..... 40.7dB
Lav (90)..... 40.7dB
SEL..... 79.7dB

TWA..... 40.7dB
TWA (80)..... 40.7dB
TWA (90)..... 40.7dB

Lmax..... 72.5dB 08/27/13 at 10:32:04
Lpk.....UNDER RANGE
TIME OVER 115dB...00:00:00.00

DOSE (80)..... 0.00%
PROJ. DOSE (80).. 0.00%
DOSE (90)..... 0.00%
PROJ. DOSE (90).. 0.00%

<<< TIME HISTORY REPORT FOR TEST NUMBER 1 OF 7 >>>

TIME	Lav dBA	Lmax dBA	L(10.0) dBA	L(90.0) dBA
08/27/13 10:22:21	50.3	72.5	51.7	44.7

****
Filename.....308019
Test Location.....Pickering Residential Project
Employee Name.....Terrance Wong
Employee Number.....
Department.....

Calibrator Type.....Metrosonics db 3080/4555
Calibrator Cal. Date...
****

METROSONICS db-3080 V1.20 SERIAL #Y4555
REPORT PRINTED ON 08/27/13 at 17:06:56

User ID: _____

Pickering Residential Project
Metrosonics dB 3080
Serial #: 4555

LOGGING STARTED.....08/27/13 at 11:17:24
TOTAL LOGGING TIME...0 DAYS 00:15:00
LOGGING STOPPED.....08/27/13 at 11:32:24
TOTAL INTERVALS.....1
INTERVAL LENGTH.....00:15:00

AUTO STOP.....YES
CLOCK SYNCH.....YES
RESPONSE RATE.....SLOW
FILTER.....A WT.

PRE-TEST CALIBRATION TIME....08/27/13 AT 10:18:02
PRE-TEST CALIBRATION RANGE...40.7 TO 140.7 dB
POST-TEST CALIBRATION NOT DONE
CUTOFF USED FOR TIME HISTORY Lav...NONE

<<< SUMMARY REPORT FOR TEST NUMBER 4 OF 7 >>>

EXCHANGE RATE.....3dB
CUTOFFS..... 80dB 90dB
CEILING.....115dB
DOSE CRITERION LEVEL... 90dB
DOSE CRITERION LENGTH.. 8 HOURS

Lav..... 52.4dB
Lav (80)..... 40.7dB
Lav (90)..... 40.7dB
SEL..... 81.8dB

TWA..... 40.7dB
TWA (80)..... 40.7dB
TWA (90)..... 40.7dB

Lmax..... 71.8dB 08/27/13 at 11:30:44
Lpk.....UNDER RANGE
TIME OVER 115dB...00:00:00.00

DOSE (80)..... 0.00%
PROJ. DOSE (80).. 0.00%
DOSE (90)..... 0.00%
PROJ. DOSE (90).. 0.00%

<<< TIME HISTORY REPORT FOR TEST NUMBER 4 OF 7 >>>

TIME	Lav dBA	Lmax dBA	L(10.0) dBA	L(90.0) dBA
08/27/13 11:17:24	52.4	71.8	52.7	44.7

****
Filename.....308019
Test Location.....Pickering Residential Project
Employee Name.....Terrance Wong
Employee Number.....
Department.....

Calibrator Type.....Metrosonics db 3080/4555
Calibrator Cal. Date...
****

METROSONICS db-3080 V1.20 SERIAL #Y4555
REPORT PRINTED ON 08/27/13 at 17:07:15

User ID: _____

Pickering Residential Project
Metrosonics dB 3080
Serial #: 4555

LOGGING STARTED.....08/27/13 at 11:39:15
TOTAL LOGGING TIME...0 DAYS 00:15:00
LOGGING STOPPED.....08/27/13 at 11:54:15
TOTAL INTERVALS.....1
INTERVAL LENGTH.....00:15:00

AUTO STOP.....YES
CLOCK SYNCH.....YES
RESPONSE RATE.....SLOW
FILTER.....A WT.

PRE-TEST CALIBRATION TIME....08/27/13 AT 10:18:02
PRE-TEST CALIBRATION RANGE...40.7 TO 140.7 dB
POST-TEST CALIBRATION NOT DONE
CUTOFF USED FOR TIME HISTORY Lav...NONE

<<< SUMMARY REPORT FOR TEST NUMBER 5 OF 7 >>>

EXCHANGE RATE.....3dB
CUTOFFS..... 80dB 90dB
CEILING.....115dB
DOSE CRITERION LEVEL... 90dB
DOSE CRITERION LENGTH.. 8 HOURS

Lav..... 60.8dB
Lav (80)..... 40.7dB
Lav (90)..... 40.7dB
SEL..... 90.2dB

TWA..... 45.8dB
TWA (80)..... 40.7dB
TWA (90)..... 40.7dB

Lmax..... 73.4dB 08/27/13 at 11:52:02
Lpk.....UNDER RANGE
TIME OVER 115dB...00:00:00.00

DOSE (80)..... 0.00%
PROJ. DOSE (80).. 0.00%
DOSE (90)..... 0.00%
PROJ. DOSE (90).. 0.00%

<<< TIME HISTORY REPORT FOR TEST NUMBER 5 OF 7 >>>

TIME	Lav dBA	Lmax dBA	L(10.0) dBA	L(90.0) dBA
08/27/13 11:39:15	60.8	73.4	65.7	46.7

Roadway Construction Noise Model (RCNM),Version 1.1

Report date: 11/25/2013
Case Description: Pickering Residential Project

---- Receptor #1 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residence to the north	Residential	70	60	50

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		400	0
Tractor	No	40	84		400	0

Results

Equipment	Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Grader	66.9	63	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	65.9	62	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	66.9	65.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #2 ----

Description	Land Use	Baselines (dBA) Daytime	Evening	Night
Residence to the east	Residential	70	60	50

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		145	0
Tractor	No	40	84		145	0

Results

Equipment	Calculated (dBA) *Lmax	Leq	Noise Limits (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq	Noise Limit Exceedance (dBA) Day Lmax	Day Leq	Evening Lmax	Evening Leq	Night Lmax	Night Leq
Grader	75.8	71.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	74.8	70.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	75.8	74.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #3 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Rincon Middle School	Residential	70	60	50

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		567	0
Tractor	No	40	84		567	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	63.9	59.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	62.9	58.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	63.9	62.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #4 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residence to the south	Residential	70	60	50

Equipment

Description	Impact Device	Usage(%)	Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		590	0
Tractor	No	40	84		590	0

Results

	Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
			Day		Evening		Night		Day		Evening		Night	
Equipment	*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader	63.6	59.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor	62.6	58.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	63.6	62.1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #5 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night

Residence to the southwes	Residential	70	60	50

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		450	0
Tractor	No	40	84		450	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader		65.9	61.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		64.9	60.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	65.9	64.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

---- Receptor #6 ----

Baselines (dBA)

Description	Land Use	Daytime	Evening	Night
Residence to the west	Residential	70	60	50

Description	Impact Device	Usage(%)	Equipment Spec Lmax (dBA)	Actual Lmax (dBA)	Receptor Distance (feet)	Estimated Shielding (dBA)
Grader	No	40	85		433	0
Tractor	No	40	84		433	0

Results

		Calculated (dBA)		Noise Limits (dBA)						Noise Limit Exceedance (dBA)					
				Day		Evening		Night		Day		Evening		Night	
Equipment		*Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq	Lmax	Leq
Grader		66.2	62.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Tractor		65.2	61.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Total	66.2	64.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

*Calculated Lmax is the Loudest value.

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Noise Levels

Project:	Pickering Residential Project
Description:	Existing Traffic Noise Levels
Traffic Volumes Source:	Linscott Law & Greenspan, Traffic Impact Analysis, Pickering Residential Project, April 4, 2014.
Ldn/CNEL:	Ldn

Traffic Distribution		
	Day:	77.70%
	Evening	12.70%
	Night	9.60%

Roadway Segment	Segment Location	Peak Hr. Volumes	ADT[a]	Speed	Distance[b]	Offset (dB)	% Med. Trucks	% Hvy. Trucks	Peak Hr. dB Leq	dB Ldn
N. Broadway	North of Stanley Ave.	0	8,360	45	45	-5	0.018	0.007	0.0	62.5
	South of Stanley Ave.	1,297	7,640	45	42	0	0.018	0.007	71.0	67.5
	North of Vista Ave.	1,297	7,640	45	42	0	0.018	0.007	71.0	67.5
	South of Vista Ave.	1,586	10,740	45	50	-5	0.018	0.007	65.9	63.0
N. Ash Street	North of Stanley Ave.	0	3,950	45	32	0	0.018	0.007	0.0	65.1
	South of Stanley Ave.	0	4,200	45	22	0	0.018	0.007	0.0	67.0
	North of Lehner Ave.	0	4,200	45	22	0	0.018	0.007	0.0	67.0
	South of Lehner Ave.	0	4,700	45	21	0	0.018	0.007	0.0	67.7
	North of Vista Ave.	0	4,650	45	23	0	0.018	0.007	0.0	67.3
	South of Vista Ave.	0	7,040	45	21	0	0.018	0.007	0.0	69.5
Stanley Avenue	East of N. Broadway	0	1,620	25	22	0	0.018	0.007	0.0	57.2
	West of N. Ash St.	0	1,290	25	20	0	0.018	0.007	0.0	56.7
	East of N. Ash St.	0	660	25	28	0	0.018	0.007	0.0	52.2
Vista Avenue	East of N. Broadway	803	4,170	25	33	0	0.018	0.007	63.4	59.5
	West of N. Ash St.	0	1,770	25	24	0	0.018	0.007	0.0	57.2
	East of N. Ash St.	0	1,600	25	24	0	0.018	0.007	0.0	56.7
Lehner Avenue	West of N. Ash St.	0	1,200	25	23	0	0.018	0.007	0.0	55.7
	East of N. Ash St.	816	2,660	25	23	0	0.018	0.007	65.1	59.1

[a] With the exception of the five roadway segments where ADT volumes were provided in the traffic report, the remaining ADTs were derived from the PM peak hour traffic volumes. The peak hour traffic volumes on a particular roadway segment were assumed to be 10 percent of the ADT.

[b] The traffic noise levels are estimated from the centerline of the roadway to the property line of the receptor.

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Noise Levels

Project:	Pickering Residential Project
Description:	Existing Traffic Noise Levels
Traffic Volumes Source:	Linscott Law & Greenspan, Traffic Impact Analysis, Pickering Residential Project, April 4, 2014.
Ldn/CNEL:	CNEL

Traffic Distribution		
	Day:	77.70%
	Evening	12.70%
	Night	9.60%

Roadway Segment	Segment Location	Peak Hr. Volumes	ADT[a]	Speed	Distance[b]	Offset (dB)	% Med. Trucks	% Hvy. Trucks	Peak Hr. dB Leq	dB Ldn
N. Broadway	North of Stanley Ave.	0	8,360	45	45	-5	0.018	0.007	0.0	62.9
	South of Stanley Ave.	1,297	7,640	45	42	0	0.018	0.007	71.0	67.9
	North of Vista Ave.	1,297	7,640	45	42	0	0.018	0.007	71.0	67.9
	South of Vista Ave.	1,586	10,740	45	50	-5	0.018	0.007	65.9	63.4
N. Ash Street	North of Stanley Ave.	0	3,950	45	32	0	0.018	0.007	0.0	65.5
	South of Stanley Ave.	0	4,200	45	22	0	0.018	0.007	0.0	67.5
	North of Lehner Ave.	0	4,200	45	22	0	0.018	0.007	0.0	67.5
	South of Lehner Ave.	0	4,700	45	21	0	0.018	0.007	0.0	68.2
	North of Vista Ave.	0	4,650	45	23	0	0.018	0.007	0.0	67.7
	South of Vista Ave.	0	7,040	45	21	0	0.018	0.007	0.0	69.9
Stanley Avenue	East of N. Broadway	0	1,620	25	22	0	0.018	0.007	0.0	57.5
	West of N. Ash St.	0	1,290	25	20	0	0.018	0.007	0.0	57.0
	East of N. Ash St.	0	660	25	28	0	0.018	0.007	0.0	52.5
Vista Avenue	East of N. Broadway	803	4,170	25	33	0	0.018	0.007	63.4	59.8
	West of N. Ash St.	0	1,770	25	24	0	0.018	0.007	0.0	57.5
	East of N. Ash St.	0	1,600	25	24	0	0.018	0.007	0.0	57.1
Lehner Avenue	West of N. Ash St.	0	1,200	25	23	0	0.018	0.007	0.0	56.0
	East of N. Ash St.	816	2,660	25	23	0	0.018	0.007	65.1	59.5

[a] With the exception of the five roadway segments where ADT volumes were provided in the traffic report, the remaining ADTs were derived from the PM peak hour traffic volumes. The peak hour traffic volumes on a particular roadway segment were assumed to be 10 percent of the ADT.

[b] The traffic noise levels are estimated from the centerline of the roadway to the property line of the receptor.

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Noise Levels

Project:	Pickering Residential Project
Description:	Existing + Project Traffic Noise Levels
Traffic Volumes Source:	Linscott Law & Greenspan, Traffic Impact Analysis, Pickering Residential Project, April 4, 2014.
Ldn/CNEL:	Ldn

Traffic Distribution		
	Day:	77.70%
	Evening	12.70%
	Night	9.60%

Roadway Segment	Segment Location	Peak Hr. Volumes	ADT[a]	Speed	Distance[b]	Offset (dB)	% Med. Trucks	% Hvy. Trucks	Peak Hr. dB Leq	dB Ldn
N. Broadway	North of Stanley Ave.	0	8,370	45	45	-5	0.018	0.007	0.0	62.5
	South of Stanley Ave.	1,301	7,680	45	42	0	0.018	0.007	71.0	67.5
	North of Vista Ave.	1,301	7,680	45	42	0	0.018	0.007	71.0	67.5
	South of Vista Ave.	1,592	10,810	45	50	-5	0.018	0.007	65.9	63.0
N. Ash Street	North of Stanley Ave.	0	3,970	45	32	0	0.018	0.007	0.0	65.1
	South of Stanley Ave.	0	4,270	45	22	0	0.018	0.007	0.0	67.1
	North of Lehner Ave.	0	4,270	45	22	0	0.018	0.007	0.0	67.1
	South of Lehner Ave.	0	4,770	45	21	0	0.018	0.007	0.0	67.8
	North of Vista Ave.	0	4,720	45	23	0	0.018	0.007	0.0	67.3
	South of Vista Ave.	0	7,080	45	21	0	0.018	0.007	0.0	69.5
Stanley Avenue	East of N. Broadway	0	1,670	25	22	0	0.018	0.007	0.0	57.3
	West of N. Ash St.	0	1,320	25	20	0	0.018	0.007	0.0	56.8
	East of N. Ash St.	0	800	25	28	0	0.018	0.007	0.0	53.0
Vista Avenue	East of N. Broadway	805	4,190	25	33	0	0.018	0.007	63.4	59.5
	West of N. Ash St.	0	1,800	25	24	0	0.018	0.007	0.0	57.3
	East of N. Ash St.	0	1,610	25	24	0	0.018	0.007	0.0	56.8
Lehner Avenue	West of N. Ash St.	0	1,200	25	23	0	0.018	0.007	0.0	55.7
	East of N. Ash St.	816	2,660	25	23	0	0.018	0.007	65.1	59.1

[a] With the exception of the five roadway segments where ADT volumes were provided in the traffic report, the remaining ADTs were derived from the PM peak hour traffic volumes. The peak hour traffic volumes on a particular roadway segment were assumed to be 10 percent of the ADT.

[b] The traffic noise levels are estimated from the centerline of the roadway to the property line of the receptor.

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Noise Levels

Project:	Pickering Residential Project
Description:	Existing + Project Traffic Noise Levels
Traffic Volumes Source:	Linscott Law & Greenspan, Traffic Impact Analysis, Pickering Residential Project, April 4, 2014.
Ldn/CNEL:	CNEL

Traffic Distribution		
	Day:	77.70%
	Evening	12.70%
	Night	9.60%

Roadway Segment	Segment Location	Peak Hr. Volumes	ADT[a]	Speed	Distance[b]	Offset (dB)	% Med. Trucks	% Hvy. Trucks	Peak Hr. dB Leq	dB Ldn
N. Broadway	North of Stanley Ave.	0	8,370	45	45	-5	0.018	0.007	0.0	62.9
	South of Stanley Ave.	1,301	7,680	45	42	0	0.018	0.007	71.0	68.0
	North of Vista Ave.	1,301	7,680	45	42	0	0.018	0.007	71.0	68.0
	South of Vista Ave.	1,592	10,810	45	50	-5	0.018	0.007	65.9	63.4
N. Ash Street	North of Stanley Ave.	0	3,970	45	32	0	0.018	0.007	0.0	65.5
	South of Stanley Ave.	0	4,270	45	22	0	0.018	0.007	0.0	67.5
	North of Lehner Ave.	0	4,270	45	22	0	0.018	0.007	0.0	67.5
	South of Lehner Ave.	0	4,770	45	21	0	0.018	0.007	0.0	68.2
	North of Vista Ave.	0	4,720	45	23	0	0.018	0.007	0.0	67.8
	South of Vista Ave.	0	7,080	45	21	0	0.018	0.007	0.0	69.9
Stanley Avenue	East of N. Broadway	0	1,670	25	22	0	0.018	0.007	0.0	57.7
	West of N. Ash St.	0	1,320	25	20	0	0.018	0.007	0.0	57.1
	East of N. Ash St.	0	800	25	28	0	0.018	0.007	0.0	53.4
Vista Avenue	East of N. Broadway	805	4,190	25	33	0	0.018	0.007	63.4	59.8
	West of N. Ash St.	0	1,800	25	24	0	0.018	0.007	0.0	57.6
	East of N. Ash St.	0	1,610	25	24	0	0.018	0.007	0.0	57.1
Lehner Avenue	West of N. Ash St.	0	1,200	25	23	0	0.018	0.007	0.0	56.0
	East of N. Ash St.	816	2,660	25	23	0	0.018	0.007	65.1	59.5

[a] With the exception of the five roadway segments where ADT volumes were provided in the traffic report, the remaining ADTs were derived from the PM peak hour traffic volumes. The peak hour traffic volumes on a particular roadway segment were assumed to be 10 percent of the ADT.

[b] The traffic noise levels are estimated from the centerline of the roadway to the property line of the receptor.

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Noise Levels

Project:	Pickering Residential Project
Description:	Existing + Cumulative Traffic Noise Levels
Traffic Volumes Source:	Linscott Law & Greenspan, Traffic Impact Analysis, Pickering Residential Project, April 4, 2014.
Ldn/CNEL:	Ldn

Traffic Distribution		
	Day:	77.70%
	Evening	12.70%
	Night	9.60%

Roadway Segment	Segment Location	Peak Hr. Volumes	ADT[a]	Speed	Distance[b]	Offset (dB)	% Med. Trucks	% Hvy. Trucks	Peak Hr. dB Leq	dB Ldn
N. Broadway	North of Stanley Ave.	0	8,960	45	45	-5	0.018	0.007	0.0	62.8
	South of Stanley Ave.	1,344	8,220	45	42	0	0.018	0.007	71.1	67.8
	North of Vista Ave.	1,334	8,220	45	42	0	0.018	0.007	71.1	67.8
	South of Vista Ave.	1,661	12,350	45	50	-5	0.018	0.007	66.1	63.6
N. Ash Street	North of Stanley Ave.	0	4,220	45	32	0	0.018	0.007	0.0	65.3
	South of Stanley Ave.	0	4,790	45	22	0	0.018	0.007	0.0	67.6
	North of Lehner Ave.	0	4,790	45	22	0	0.018	0.007	0.0	67.6
	South of Lehner Ave.	0	6,270	45	21	0	0.018	0.007	0.0	69.0
	North of Vista Ave.	0	6,220	45	23	0	0.018	0.007	0.0	68.5
	South of Vista Ave.	0	7,780	45	21	0	0.018	0.007	0.0	69.9
Stanley Avenue	East of N. Broadway	0	1,900	25	22	0	0.018	0.007	0.0	57.9
	West of N. Ash St.	0	1,490	25	20	0	0.018	0.007	0.0	57.3
	East of N. Ash St.	0	1,060	25	28	0	0.018	0.007	0.0	54.2
Vista Avenue	East of N. Broadway	861	5,210	25	33	0	0.018	0.007	63.7	60.4
	West of N. Ash St.	0	3,300	25	24	0	0.018	0.007	0.0	59.9
	East of N. Ash St.	0	2,260	25	24	0	0.018	0.007	0.0	58.2
Lehner Avenue	West of N. Ash St.	0	290	25	23	0	0.018	0.007	0.0	49.5
	East of N. Ash St.	771	2,600	25	23	0	0.018	0.007	64.9	59.0

[a] With the exception of the five roadway segments where ADT volumes were provided in the traffic report, the remaining ADTs were derived from the PM peak hour traffic volumes. The peak hour traffic volumes on a particular roadway segment were assumed to be 10 percent of the ADT.

[b] The traffic noise levels are estimated from the centerline of the roadway to the property line of the receptor.

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Noise Levels

Project:	Pickering Residential Project
Description:	Existing + Cumulative Traffic Noise Levels
Traffic Volumes Source:	Linscott Law & Greenspan, Traffic Impact Analysis, Pickering Residential Project, April 4, 2014.
Ldn/CNEL:	CNEL

Traffic Distribution		
	Day:	77.70%
	Evening	12.70%
	Night	9.60%

Roadway Segment	Segment Location	Peak Hr. Volumes	ADT[a]	Speed	Distance[b]	Offset (dB)	% Med. Trucks	% Hvy. Trucks	Peak Hr. dB Leq	dB Ldn
N. Broadway	North of Stanley Ave.	0	8,960	45	45	-5	0.018	0.007	0.0	63.2
	South of Stanley Ave.	1,344	8,220	45	42	0	0.018	0.007	71.1	68.3
	North of Vista Ave.	1,334	8,220	45	42	0	0.018	0.007	71.1	68.3
	South of Vista Ave.	1,661	12,350	45	50	-5	0.018	0.007	66.1	64.0
N. Ash Street	North of Stanley Ave.	0	4,220	45	32	0	0.018	0.007	0.0	65.8
	South of Stanley Ave.	0	4,790	45	22	0	0.018	0.007	0.0	68.0
	North of Lehner Ave.	0	4,790	45	22	0	0.018	0.007	0.0	68.0
	South of Lehner Ave.	0	6,270	45	21	0	0.018	0.007	0.0	69.4
	North of Vista Ave.	0	6,220	45	23	0	0.018	0.007	0.0	68.9
	South of Vista Ave.	0	7,780	45	21	0	0.018	0.007	0.0	70.3
Stanley Avenue	East of N. Broadway	0	1,900	25	22	0	0.018	0.007	0.0	58.2
	West of N. Ash St.	0	1,490	25	20	0	0.018	0.007	0.0	57.6
	East of N. Ash St.	0	1,060	25	28	0	0.018	0.007	0.0	54.6
Vista Avenue	East of N. Broadway	861	5,210	25	33	0	0.018	0.007	63.7	60.7
	West of N. Ash St.	0	3,300	25	24	0	0.018	0.007	0.0	60.2
	East of N. Ash St.	0	2,260	25	24	0	0.018	0.007	0.0	58.6
Lehner Avenue	West of N. Ash St.	0	290	25	23	0	0.018	0.007	0.0	49.9
	East of N. Ash St.	771	2,600	25	23	0	0.018	0.007	64.9	59.4

[a] With the exception of the five roadway segments where ADT volumes were provided in the traffic report, the remaining ADTs were derived from the PM peak hour traffic volumes. The peak hour traffic volumes on a particular roadway segment were assumed to be 10 percent of the ADT.

[b] The traffic noise levels are estimated from the centerline of the roadway to the property line of the receptor.

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Noise Levels

Project:	Pickering Residential Project
Description:	Existing + Project + Cumulative Traffic Noise Levels
Traffic Volumes Source:	Linscott Law & Greenspan, Traffic Impact Analysis, Pickering Residential Project, April 4, 2014.
Ldn/CNEL:	Ldn

Traffic Distribution		
	Day:	77.70%
	Evening	12.70%
	Night	9.60%

Roadway Segment	Segment Location	Peak Hr. Volumes	ADT[a]	Speed	Distance[b]	Offset (dB)	% Med. Trucks	% Hvy. Trucks	Peak Hr. dB Leq	dB Ldn
N. Broadway	North of Stanley Ave.	0	8,970	45	45	-5	0.018	0.007	0.0	62.8
	South of Stanley Ave.	1,348	8,260	45	42	0	0.018	0.007	71.2	67.9
	North of Vista Ave.	1,338	8,260	45	42	0	0.018	0.007	71.1	67.9
	South of Vista Ave.	1,667	12,420	45	50	-5	0.018	0.007	66.1	63.6
N. Ash Street	North of Stanley Ave.	0	4,240	45	32	0	0.018	0.007	0.0	65.4
	South of Stanley Ave.	0	4,860	45	22	0	0.018	0.007	0.0	67.7
	North of Lehner Ave.	0	4,860	45	22	0	0.018	0.007	0.0	67.7
	South of Lehner Ave.	0	6,340	45	21	0	0.018	0.007	0.0	69.0
	North of Vista Ave.	0	6,290	45	23	0	0.018	0.007	0.0	68.6
	South of Vista Ave.	0	7,820	45	21	0	0.018	0.007	0.0	70.0
Stanley Avenue	East of N. Broadway	0	1,950	25	22	0	0.018	0.007	0.0	58.0
	West of N. Ash St.	0	1,540	25	20	0	0.018	0.007	0.0	57.4
	East of N. Ash St.	0	1,200	25	28	0	0.018	0.007	0.0	54.8
Vista Avenue	East of N. Broadway	861	5,230	25	33	0	0.018	0.007	63.7	60.4
	West of N. Ash St.	0	3,330	25	24	0	0.018	0.007	0.0	59.9
	East of N. Ash St.	0	2,270	25	24	0	0.018	0.007	0.0	58.3
Lehner Avenue	West of N. Ash St.	0	290	25	23	0	0.018	0.007	0.0	49.5
	East of N. Ash St.	771	2,600	25	23	0	0.018	0.007	64.9	59.0

[a] With the exception of the five roadway segments where ADT volumes were provided in the traffic report, the remaining ADTs were derived from the PM peak hour traffic volumes. The peak hour traffic volumes on a particular roadway segment were assumed to be 10 percent of the ADT.

[b] The traffic noise levels are estimated from the centerline of the roadway to the property line of the receptor.

FHWA-RD-77-108 Highway Traffic Noise Prediction Model
Predicted Noise Levels

Project:	Pickering Residential Project
Description:	Existing + Project + Cumulative Traffic Noise Levels
Traffic Volumes Source:	Linscott Law & Greenspan, Traffic Impact Analysis, Pickering Residential Project, April 4, 2014.
Ldn/CNEL:	CNEL

Traffic Distribution		
	Day:	77.70%
	Evening	12.70%
	Night	9.60%

Roadway Segment	Segment Location	Peak Hr. Volumes	ADT[a]	Speed	Distance[b]	Offset (dB)	% Med. Trucks	% Hvy. Trucks	Peak Hr. dB Leq	dB Ldn
N. Broadway	North of Stanley Ave.	0	8,970	45	45	-5	0.018	0.007	0.0	63.2
	South of Stanley Ave.	1,348	8,260	45	42	0	0.018	0.007	71.2	68.3
	North of Vista Ave.	1,338	8,260	45	42	0	0.018	0.007	71.1	68.3
	South of Vista Ave.	1,667	12,420	45	50	-5	0.018	0.007	66.1	64.1
N. Ash Street	North of Stanley Ave.	0	4,240	45	32	0	0.018	0.007	0.0	65.8
	South of Stanley Ave.	0	4,860	45	22	0	0.018	0.007	0.0	68.1
	North of Lehner Ave.	0	4,860	45	22	0	0.018	0.007	0.0	68.1
	South of Lehner Ave.	0	6,340	45	21	0	0.018	0.007	0.0	69.5
	North of Vista Ave.	0	6,290	45	23	0	0.018	0.007	0.0	69.0
	South of Vista Ave.	0	7,820	45	21	0	0.018	0.007	0.0	70.4
Stanley Avenue	East of N. Broadway	0	1,950	25	22	0	0.018	0.007	0.0	58.3
	West of N. Ash St.	0	1,540	25	20	0	0.018	0.007	0.0	57.8
	East of N. Ash St.	0	1,200	25	28	0	0.018	0.007	0.0	55.1
Vista Avenue	East of N. Broadway	861	5,230	25	33	0	0.018	0.007	63.7	60.8
	West of N. Ash St.	0	3,330	25	24	0	0.018	0.007	0.0	60.3
	East of N. Ash St.	0	2,270	25	24	0	0.018	0.007	0.0	58.6
Lehner Avenue	West of N. Ash St.	0	290	25	23	0	0.018	0.007	0.0	49.9
	East of N. Ash St.	771	2,600	25	23	0	0.018	0.007	64.9	59.4

[a] With the exception of the five roadway segments where ADT volumes were provided in the traffic report, the remaining ADTs were derived from the PM peak hour traffic volumes. The peak hour traffic volumes on a particular roadway segment were assumed to be 10 percent of the ADT.

[b] The traffic noise levels are estimated from the centerline of the roadway to the property line of the receptor.

Appendix I
School District
Approval Letter

Escondido UNION SCHOOL DISTRICT

May 20, 2013

BOARD OF EDUCATION
Paulette Donnellon
Jose Fragozo
Joan Gardner
Marty Hranek
Linda Woods

SUPERINTENDENT
Jennifer Walters

Mark Ferraro, President
Pacific Land Investors, LLC
101 Pacifica, Suite 200
Irvine, CA 92618

Subject: School Availability
REF: _____ Escondido, CA
APN No.: 224-142-0400

Dear Mr. Ferraro,

Because of continuing growth throughout the area, the Escondido Union School District cannot guarantee that adequate facilities will be available to house students generated in this development. The district does not receive sufficient funds within the current state school funding mechanisms to cover the combined costs involved in improving education, rehabilitating current facilities, and constructing new classrooms for our expanding community.

However, through the mechanism of enacting and collecting developer fee contributions, the district should be able to provide interim facilities to house students within the district. Please note that each school within the district has specific boundaries that determine the eligibility for priority attendance of all students. There is no guarantee, however, that a child will attend that school or that the boundaries will not be adjusted to meet school housing needs. The current schools' attendance zones relevant to this project are North Broadway Elementary and Rincon Middle schools.

Please note that the district does not provide student transportation except for those qualified special education students.

Thank you for your interest in our school system. Please do not hesitate to contact us if we can be of further service.

Sincerely,

Martha Maes
Director, Facilities Planning & Construction

/ck

CARILYN GILBERT
EDUCATION CENTER

2310 Aldergrove Ave.
Escondido, CA 92029
Tel (760) 432-2400
www.eusd.org

Appendix J
Water Quality Technical Report

WATER QUALITY TECHNICAL REPORT

PICKERING PARCEL
CITY OF ESCONDIDO
APN 224-142-01

Prepared for:

Pacific Land Investors, LLC
101 Pacifica, Suite 200
Irvine, CA 92618

Prepared by:

bha, Inc
land planning, civil engineering, surveying
5115 Avenida Encinas, Suite L
Carlsbad, CA 92008-4387
(760) 931-8700

November 1, 2013

W.O. 963-1286-400 BL

INTRODUCTION

A Water Quality Technical Report (WQTR) is required by the City of Escondido for any proposed development. The purpose of this WQTR is to address the water quality impacts from the proposed Pickering Parcel in the City of Escondido. The goal of the WQTR is to develop and implement practicable policies to ensure to the maximum extent practicable that development does not increase pollutant loads from the project site and considers urban runoff flow rates and velocities. Best Management Practices (BMPs) will be utilized to provide a long-term solution to water quality. The WQTR identifies appropriate BMPs for certain designated project types to achieve this goal. This WQTR is intended to ensure the effectiveness of the BMPs through maintenance that is based on long-term planning.

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Attachment 1: Vicinity Map

Attachment 2: WQTR Exhibit

Attachment 3: "Technical Memorandum: SWMM Modeling for Hydromodification Compliance of Pickering Property" from Tory R. Walker Engineering, Inc.

Attachment 4: Maintenance Plan for Pickering Parcel, Escondido

Attachment 5: References

I. PROJECT SETTING

A. Project Name, Location, Description

The project site is located in the City of Escondido, APN 224-142-01, in northern San Diego County. For purpose of this report, the project will be referred as "Pickering Parcel". The Pickering Parcel project is located approximately 1.5 miles east of the I-15 freeway and Centre City Parkway off ramp, near the Reidy Creek Golf Course. It is bordered by Stanley Avenue to the northwest, Lehner Avenue to the southeast, and North Ash Street along the southwestern property line. Proposed development is a 4.2-acre residential subdivision with 13 new single family dwellings, and public roadway with a cul-de-sac. This project is in a neighborhood composed of mostly single family residential homes with pens for horses.

B. Existing Site Features and Conditions

In the existing conditions, the site has two single family dwellings in the middle of the parcel, and a number of storage sheds and horse pens spread throughout on the remaining portion of the property. The site is moderately sloped with several landscaping areas and bare ground in the horse pens, varying between 764 and 729 feet above mean sea level. The predominant soil type existing on-site is Type B. Ground Water was not found on-site.

Along Stanley Avenue, Lehner Avenue, and North Ash Street, rural side-road ditches collect street runoff and convey it downstream. Onsite surface runoff flows south-westerly and eventually enters an existing catch basin at the northeasterly corner of North Ash Street and Lehner Avenue. The proposed Tentative Map for the parcel to the northwest of the site, City of Escondido Tract No. 889, has been shown on the plans as part of the existing drainage study. Tract No. 889 is proposing a concrete brow ditch along the property line that would intercept all off-site run-on to the new proposed development at Pickering Parcel.

C. Proposed Site Features and Conditions

The site entrance along Stanley Avenue will collect a small amount of surface runoff from Stanley Avenue, where a proposed road widening and sidewalk area will be constructed. Surface runoff generated by the new development will be captured on the street and conveyed to a modified D-25 Type Curb Outlet at the back of the proposed cul-de-sac, which will drain to a bioretention basin located in the back of the development. This basin will provide treatment and detention of the storm water per City of Escondido SUSMP requirements, and will outlet to a new catch basin that will be installed along Lehner Avenue connecting to an existing 66" storm drain. All 4.2 acres are to be disturbed; the site is 11% impervious pre-development, and 50% impervious post-development.

D. Opportunities and Constraints for Stormwater Control

The Type B soil existing on-site provides an opportunity for infiltration of storm water runoff into the native soils. This will be accomplished in the bioretention basins, which will be unlined to encourage infiltration. Other opportunities include the moderate slope of the site, which help provide natural drainage of the site without additional grading.

II. Low Impact Development Design Strategies

A. Optimization of Site Layout

Grading on the site has been minimized due to the moderate slope of the existing site. Storm water flows from impervious areas can be conveyed via the surface flow to bioretention treatment facilities, eliminating the need for excavation and installation of underground storm drains. Post-development site flow will mimic existing drainage conditions, and will discharge from the site at below historical flowrates (see Drainage Report for discussion and calculations). Impervious surfaces have been minimized where feasible. There are no natural or designated Open Space areas existing on-site.

III. Hydromodification Analysis

A. Hydromodification Applicability

This project has been determined to be a Priority Development Project and subject to Hydromodification Controls. This is based on Table 1-1 from the City of Escondido SUSMP, and on Figure 6-1, HMP Applicability Determination/Decision Matrix from the City of Escondido Hydromodification Plan (HMP). Both of these forms are provided in the following pages.

B. Flow Control Performance Criteria

This project will not utilize SCCWRP Screening tools, and will be subject to $0.1Q_2$ flow-control criteria as set forth in the City of Escondido HMP. The LIDs and BMP facilities have been sized for the flow range from 0.1Q2 to Q10, as detailed in the "Technical Memorandum: SWMM Modeling for Hydromodification Compliance of Pickering Property," dated October 23, 2013 from Tory R. Walker Engineering, Inc. provided in Attachment 3 of this WQTR.

Table 1-1. Priority Development/SUSMP Projects

			Is the project in any of these categories?
Yes ☒	No ☐	**A**	**Housing subdivisions of 10 or more dwelling units.** Examples: Single-family homes, multifamily homes, condominiums, and apartments.
Yes ☒	No ☐	**B**	**Pollutant-generating projects that disturb 1 acre or more of land.** Projects that generate pollutants at levels greater than background levels and disturb 1 acre or more of land are considered priority development projects. In most cases linear pathway projects that are for infrequent vehicle use (such as emergency or maintenance access) or for pedestrian or bicycle use are not considered pollutant generating above background levels if they are built with pervious surfaces, or if they allow runoff to sheet flow to surrounding pervious surfaces.
Yes ☐	No ☒	**C**	**Automotive repair shop.** A facility categorized in any one of **Standard Industrial Classification (SIC)** codes 5013, 5014, 5541, 7532–7534, or 7536–7539.
Yes ☐	No ☒	**D**	**Restaurant.** Any facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC code 5812), where the land area for development is greater than 5,000 square feet. Restaurants where land development is less than 5,000 square feet shall meet all SUSMP requirements except the requirements for structural treatment best management practices and numeric sizing criteria and hydromodification.
Yes ☐	No ☒	**E**	**Hillside development greater than 5,000 square feet.** Any development that would create 5,000 square feet of impervious surface and is located in an area with known erosive soil conditions, where the development would grade on any natural slope that is 25% or greater.
Yes ☐	No ☒	**F**	**Environmentally sensitive areas.** All development located within or directly adjacent to, or discharging directly to, an environmentally sensitive area (ESA) (where discharges from the development or redevelopment would enter receiving waters within the ESA) that would either create 2,500 square feet of impervious surface on a proposed project site or increase the area of imperviousness of a proposed project site to 10% or more of its naturally occurring condition. "Directly adjacent" means situated within 200 feet of the ESA. "Discharging directly to" means outflow from a drainage conveyance system that is composed entirely of flows from the subject development or redevelopment site, and not commingled with flows from adjacent lands.
Yes ☐	No ☒	**G**	**Parking lots 5,000 square feet or more** or with 15 or more parking spaces and potentially exposed to urban runoff.
Yes ☐	No ☒	**I**	**Retail gasoline outlets** that (a) are 5,000 square feet or larger or (b) support projected average daily traffic of 100 or more vehicles per day.
Yes ☒	No ☐	**H**	**Streets, roads, highways, and freeways.** Any paved surface that is 5,000 square feet or greater used to transport automobiles, trucks, motorcycles, and other vehicles.

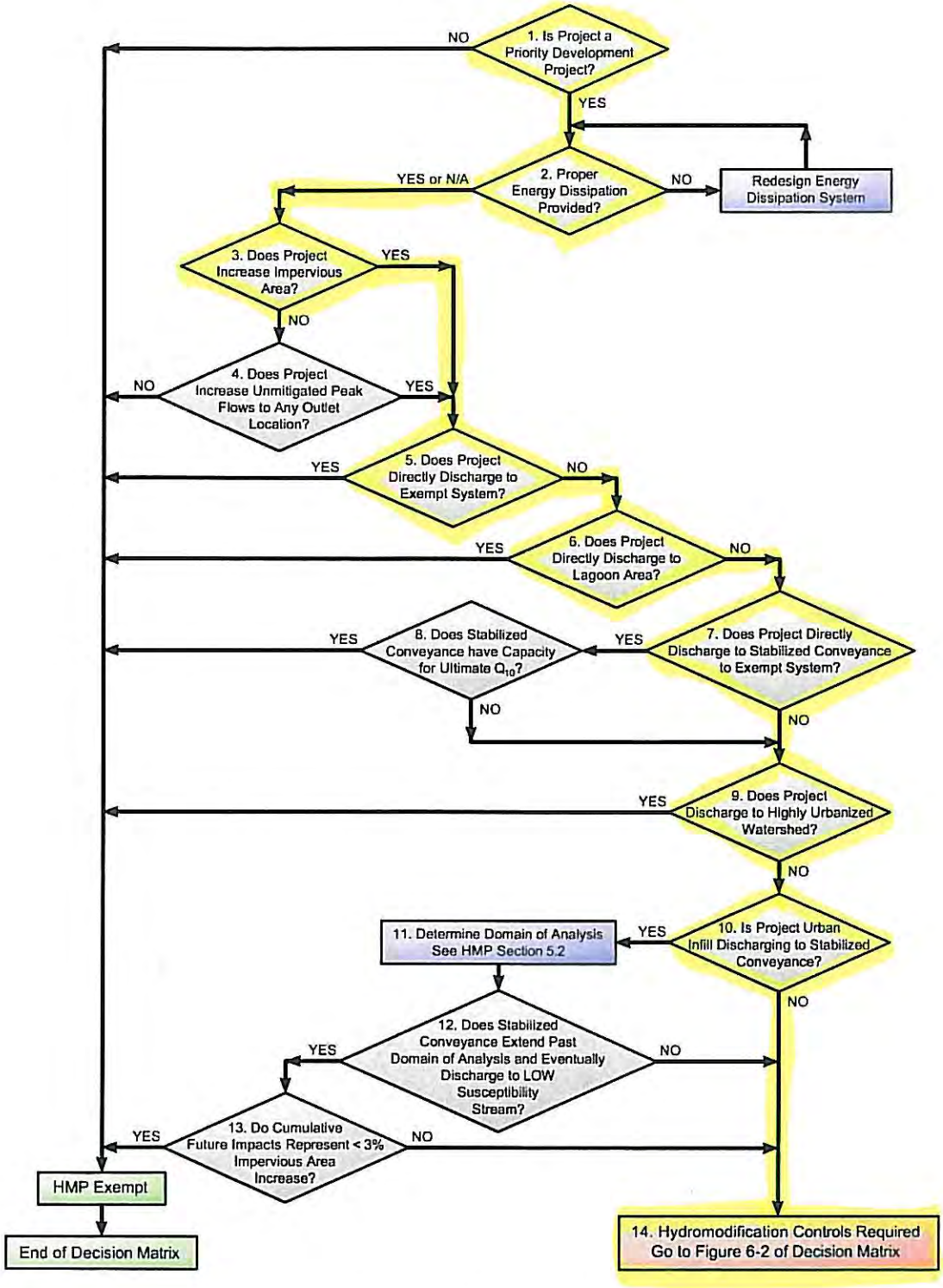

Figure 6-1. HMP Applicability Determination/Decision Matrix

Use of contents on this sheet is subject to the limitations specified at the end of this document.
Appendix B to the City of Escondido Standard Urban Stormwater Management Plan

IV. Documentation of Drainage Design

A. Drainage Management Areas

Table 1: Tabulation of DMA Surfaces as shown on WQTR Exhibit:
- Roof and driveway areas are preliminary estimations. This table is intended to be modified at Final Grading once building footprints and driveway sections are finalized.

Soil Type	Slope Class	Rain Gauge	Depth to Ground Water
B	Moderate	Oceanside	not found

DMA #1	DMA Area (sf)	Post-Project surface type
Lot 1	4900	roof+dwy
	4867	ldsp
Lot 2	4900	roof+dwy
	5022	ldsp
Lot 3	4100	roof+dwy
	5677	ldsp
Lot 4	4100	roof+dwy
	5883	ldsp
Lot 5	4100	roof+dwy
	5970	ldsp
Lot 6	4100	roof+dwy
	7704	ldsp
Lot 7	4100	roof+dwy
	10209	ldsp
Lot 8	4900	roof+dwy
	5236	ldsp
Lot 9	4900	roof+dwy
	4935	ldsp
Lot 10	4100	roof+dwy
	5936	ldsp
Lot 11	4100	roof+dwy
	5546	ldsp
Lot 12	4100	roof+dwy
	5303	ldsp
Lot 13	4100	roof+dwy
	4812	ldsp
Street & Landscape	34249	pvment
	12851	ldsp

Total Impervious Area (sf)	Total Landscape Area (sf)	Drains To:	IMP Area (sf)
90749	89951	Basin 1	4136

Description of DMA Surfaces as shown on WQTR Exhibit:

DMA 1 encompasses the full site, Lots 1-13 and the street area, due to the fact that all drainage will be treated and mitigated at one IMP, known as Basin 1 in this WQTR. All drainage is conveyed via surface flow to a modified D-25 Curb Outlet at the end of the cul-de-sac, and directed to Basin 1 for treatment and detention prior to discharge to the Storm Drain below Lehner Ave.

B. Integrated Management Practices

The proposed Integrated Management Practices for this project are the one bioretention basin, Basin 1, between Lots 7 and 8. This basin has been sized by a SWMM Modeling Analysis according to City of Escondido HMP specifications; see Attachment 3 for calculations and Cross Section Details.

V. Source Control Measures

A. Description of Site Activities and Potential Sources of Pollutants

Following Table 2-1 (see below) of the City of Escondido SUSMP, this project qualifies under "Detached Residential Development" and "Streets, Highways, Freeways" and is subject to the following anticipated general pollutant categories: Sediment, Nutrients, Heavy Metals, Organic Compounds, Trash and Debris, Oxygen Demanding Substances, Oil and Grease, Bacteria and Viruses, and Pesticides.

Table 2-1: Anticipated and Potential Pollutants Generated by Land Use Type

	General Pollutant Categories								
PDP Categories	Sediments	Nutrients	Heavy Metals	Organic Compounds	Trash & Debris	Oxygen Demanding Substances	Oil & Grease	Bacteria & Viruses	Pesticides
Detached Residential Development	X	X			X	X	X	X	X
~~Attached Residential Development~~	~~X~~	~~X~~			~~X~~	~~P(1)~~	~~P(2)~~	~~P~~	~~X~~
~~Commercial Development 1 acre or greater~~	~~P(1)~~	~~P(1)~~		~~P(2)~~	~~X~~	~~P(5)~~	~~X~~	~~P(3)~~	~~P(3)~~
~~Heavy industry /industrial development~~	~~X~~		~~X~~	~~X~~	~~X~~	~~X~~	~~X~~		
~~Automotive Repair Shops~~			~~X~~	~~X(4)(5)~~	~~X~~		~~X~~		
~~Restaurants~~					~~X~~	~~X~~	~~X~~	~~X~~	~~P(1)~~
~~Hillside Development ≥5,000 ft²~~	~~X~~	~~X~~			~~X~~	~~X~~	~~X~~		~~X~~
~~Parking Lots~~	~~P(1)~~	~~P(1)~~	~~X~~		~~X~~	~~P(1)~~	~~X~~		~~P(1)~~
~~Retail Gasoline Outlets~~			~~X~~	~~X~~	~~X~~	~~X~~	~~X~~		
Streets, Highways & Freeways	X	P(1)	X	X(5)	X	P(3)	X	X	P(1)

X = anticipated

P = potential

(1) A potential pollutant if landscaping exists on-site.

(2) A potential pollutant if the project includes uncovered parking areas.

(3) Including solvents.

(4) A potential pollutant if land use involves food or animal waste products.

(5) Including petroleum hydrocarbons.

Table 2-2 highlights the effectiveness of the proposed bioretention facilities in regards to the Anticipated Pollutants of Concern shown in Table 2-1. Bioretention Basins are appropriate for satisfying the treatment and flow-control requirements of the City of Escondido HMP.

TABLE 2-2: GROUPS OF POLLUTANTS and Relative Effectiveness of Treatment Facilities

Pollutants of Concern	Bioretention Facilities (LID)	~~Settling Basins (Dry Ponds)~~	~~Infiltration Facilities or Practices (LID)~~	~~Media Filters~~	~~Higher-rate biofilters~~	~~Higher-rate media filters~~	~~Trash Racks & Hydro-dynamic Devices~~
Coarse Sediment and Trash	High	~~High~~	~~High~~	~~High~~	~~High~~	~~High~~	~~High~~
Pollutants that tend to associate with fine particles during treatment	High	~~High~~	~~High~~	~~High~~	~~Medium~~	~~Medium~~	~~Low~~
Pollutants that tend to be dissolved following treatment	Medium	~~Low~~	~~High~~	~~Low~~	~~Low~~	~~Low~~	~~Low~~

This project is located in the Escondido HSA (904.62) of the Escondido Creek HA, in the Carlsbad HU. Escondido Creek is listed on the 2008 California 303(d) List of Water Quality Limited Segments for DDT, Enteroccoccus, Fecal Coliform, Manganese, Phosphate, Selenium, Sulphates, Total Dissolved Solids, Total Nitrogen as N, and Toxicity.

Ground Water for Escondido Creek is listed for Existing Beneficial Use under Municipal, Agricultural, REC1, REC2, Warm, Cold, and Wild. It is listed for Potential Beneficial Use under Industrial.

See Attachment 4- References for documentation.

B. Table Showing Sources, Permanent Source Controls, and Operational Source Controls

Potential Source of Runoff Pollutants	*Permanent Source Control BMPs*	*Operational Source Control BMPs*
A. **On-site storm drain inlets**	**Mark all inlets with the words "No Dumping! Flows to Bay" or similar where feasible.**	**Maintain and periodically repaint or replace inlet markings.** **Provide stormwater pollution prevention information to new site owners, lessees, or operators.** **See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com** **Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."**
D2. **Landscape/ Outdoor Pesticide Use**	**Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution.** **Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions.** **Consider using pest-resistant plants, especially adjacent to hardscape.** **To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.**	**Maintain landscaping using minimum or no pesticides.** **See applicable operational BMPs in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com** **Provide IPM information to new owners, lessees and operators.**

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	… THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Project Drawings	3 Permanent Controls—List in WQTR Table and Narrative	4 Operational BMPs—Include in WQTR Table and Narrative
✓ A. **On-site storm drain inlets**	✓ **Locations of inlets.**	✓ **Mark all inlets with the words "No Dumping! Flows to Bay" or similar where feasible.**	✓ **Maintain and periodically repaint or replace inlet markings.** ✓ **Provide stormwater pollution prevention information to new site owners, lessees, or operators.** ✓ **See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com** ✓ **Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."**
❑ B. **Interior floor drains and elevator shaft sump pumps**		❑ **State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.**	❑ **Inspect and maintain drains to prevent blockages and overflow.**
❑ C. **Interior parking garages**		❑ **State that parking garage floor drains will be plumbed to the sanitary sewer.**	❑ **Inspect and maintain drains to prevent blockages and overflow.**
❑ D1. **Need for future indoor & structural pest control**		❑ **Note building design features that discourage entry of pests.**	❑ **Provide Integrated Pest Management information to owners, lessees, and operators.**

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	… THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Project Drawings	3 Permanent Controls—List in WQTR Table and Narrative	4 Operational BMPs—Include in WQTR Table and Narrative
✓ D2. **Landscape/ Outdoor Pesticide Use** **Note: Should be consistent with project landscape plan (if applicable).**	❑ **Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained.** ❑ **Show self-retaining landscape areas, if any.** ✓ **Show stormwater treatment facilities.**	**State that final landscape plans will accomplish all of the following:** ❑ **Preserve existing native trees, shrubs, and ground cover to the maximum extent possible.** ✓ **Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution.** ✓ **Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated soil conditions.** ✓ **Consider using pest-resistant plants, especially adjacent to hardscape.** ✓ **To insure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.**	✓ **Maintain landscaping using minimum or no pesticides.** ✓ **See applicable operational BMPs in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com** ✓ **Provide IPM information to new owners, lessees and operators.**
❑ E. **Pools, spas, ponds, decorative fountains, and other water features.**	❑ **Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet.**	❑ **If the local municipality requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.**	❑ **See applicable operational BMPs in Fact Sheet SC-72, "Fountain and Pool Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	… THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Project Drawings	3 Permanent Controls—List in WQTR Table and Narrative	4 Operational BMPs—Include in WQTR Table and Narrative
❑ F. **Food service**	❑ **For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floor mats, containers, and equipment.** ❑ **On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.**	❑ **Describe the location and features of the designated cleaning area.** ❑ **Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated.**	❑
❑ G. **Refuse areas**	❑ **Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas.** ❑ **If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent run-on and show locations of berms to prevent runoff from the area.** ❑ **Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer.**	❑ **State how site refuse will be handled and provide supporting detail to what is shown on plans.** ❑ **State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.**	❑ **State how the following will be implemented:** **Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	… THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Project Drawings	3 Permanent Controls—List in WQTR Table and Narrative	4 Operational BMPs—Include in WQTR Table and Narrative
❑ H. **Industrial processes.**	❑ **Show process area.**	❑ **If industrial processes are to be located on site, state: "All process activities to be performed indoors. No processes to drain to exterior or to storm drain system."**	❑ **See Fact Sheet SC-10, "Non-Stormwater Discharges" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**
❑ I. **Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.)**	❑ **Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run-on or run-off from area.** ❑ **Storage of non-hazardous liquids shall be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults.** ❑ **Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site.**	❑ **Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains.** **Where appropriate, reference documentation of compliance with the requirements of local Hazardous Materials Programs for:** ▪ **Hazardous Waste Generation** ▪ **Hazardous Materials Release Response and Inventory** ▪ **California Accidental Release (CalARP)** ▪ **Aboveground Storage Tank** ▪ **Uniform Fire Code Article 80 Section 103(b) & (c) 1991** ▪ **Underground Storage Tank**	❑ **See the Fact Sheets SC-31, "Outdoor Liquid Container Storage" and SC-33, "Outdoor Storage of Raw Materials " in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	… THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Project Drawings	3 Permanent Controls—List in WQTR Table and Narrative	4 Operational BMPs—Include in WQTR Table and Narrative
❑ J. Vehicle and Equipment Cleaning	❑ **Show on drawings as appropriate:** **(1) Commercial/industrial facilities having vehicle /equipment cleaning needs shall either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses.** **(2) Multi-dwelling complexes shall have a paved, bermed, and covered car wash area (unless car washing is prohibited on-site and hoses are provided with an automatic shut-off to discourage such use).** **(3) Washing areas for cars, vehicles, and equipment shall be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer.** **(4) Commercial car wash facilities shall be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility shall discharge to the sanitary sewer, or a wastewater reclamation system shall be installed.**	❑ **If a car wash area is not provided, describe measures taken to discourage on-site car washing and explain how these will be enforced.**	**Describe operational measures to implement the following (if applicable):** ❑ **Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system.** ❑ **Car dealerships and similar may rinse cars with water only.** ❑ **See Fact Sheet SC-21, "Vehicle and Equipment Cleaning," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	… THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Project Drawings	3 Permanent Controls—List in WQTR Table and Narrative	4 Operational BMPs—Include in WQTR Table and Narrative
❑ K. Vehicle/Equipment Repair and Maintenance	❑ **Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to prevent run-on and runoff of stormwater.** ❑ **Show secondary containment for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries or other hazardous materials or hazardous wastes are used or stored. Drains shall not be installed within the secondary containment areas.** ❑ **Add a note on the plans that states either (1) there are no floor drains, or (2) floor drains are connected to wastewater pretreatment systems prior to discharge to the sanitary sewer and an industrial waste discharge permit will be obtained.**	❑ **State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area.** ❑ **State that there are no floor drains or if there are floor drains, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.** ❑ **State that there are no tanks, containers or sinks to be used for parts cleaning or rinsing or, if there are, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.**	**In the SUSMP report, note that all of the following restrictions apply to use the site:** ❑ **No person shall dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinsewater from parts cleaning into storm drains.** ❑ **No vehicle fluid removal shall be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids shall be contained or drained from the vehicle immediately.** ❑ **No person shall leave unattended drip parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment.**

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	… THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Project Drawings	3 Permanent Controls—List in WQTR Table and Narrative	4 Operational BMPs—Include in WQTR Table and Narrative
☐ L. Fuel Dispensing Areas	☐ **Fueling areas1 shall have impermeable floors (i.e., Portland cement concrete or equivalent smooth impervious surface) that are: a) graded at the minimum slope necessary to prevent ponding; and b) separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable.** ☐ **Fueling areas shall be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area1.] The canopy [or cover] shall not drain onto the fueling area.**		☐ **The property owner shall dry sweep the fueling area routinely.** ☐ **See the Business Guide Sheet, "Automotive Service—Service Stations" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

[1] **The fueling area shall be defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater.**

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	… THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPs		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Project Drawings	3 Permanent Controls—List in WQTR Table and Narrative	4 Operational BMPs—Include in WQTR Table and Narrative
❑ M. Loading Docks	❑ **Show a preliminary design for the loading dock area, including roofing and drainage. Loading docks shall be covered and/or graded to minimize run-on to and runoff from the loading area. Roof downspouts shall be positioned to direct stormwater away from the loading area. Water from loading dock areas should be drained to the sanitary sewer where feasible. Direct connections to storm drains from depressed loading docks are prohibited.** ❑ **Loading dock areas draining directly to the sanitary sewer shall be equipped with a spill control valve or equivalent device, which shall be kept closed during periods of operation.** ❑ **Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.**		❑ **Move loaded and unloaded items indoors as soon as possible.** ❑ **See Fact Sheet SC-30, "Outdoor Loading and Unloading," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**

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1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on Project Drawings	3 Permanent Controls—List in WQTR Table and Narrative	4 Operational BMPs—Include in WQTR Table and Narrative
❑ N. Fire Sprinkler Test Water		❑ **Provide a means to drain fire sprinkler test water to the sanitary sewer.**	❑ **See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com**
O. Miscellaneous Drain or Wash Water ❑ Boiler drain lines ❑ Condensate drain lines ❑ Rooftop equipment ❑ Drainage sumps ❑ Roofing, gutters, and trim.		❑ **Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system.** ❑ **Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system.** ❑ **Rooftop mounted equipment with potential to produce pollutants shall be roofed and/or have secondary containment.** ❑ **Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water.** ❑ **Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.**	

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR STORMWATER CONTROL PLAN SHOULD INCLUDE THESE SOURCE CONTROL BMPs		
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❑ P. Plazas, sidewalks, and parking lots.			❑ **Plazas, sidewalks, and parking lots shall be swept regularly to prevent the accumulation of litter and debris. Debris from pressure washing shall be collected to prevent entry into the storm drain system. Washwater containing any cleaning agent or degreaser shall be collected and discharged to the sanitary sewer and not discharged to a storm drain.**

VI. Maintenance Plan for Stanley Avenue Project

Maintenance Plan provided in its entirety in Attachment 3 of this WQTR.

VII. Construction Plan SUSMP Checklist

SUSMP Page #	BMP Description	See Plan Sheet #s
63	Bioretention Basin 1	

VIII. Certification

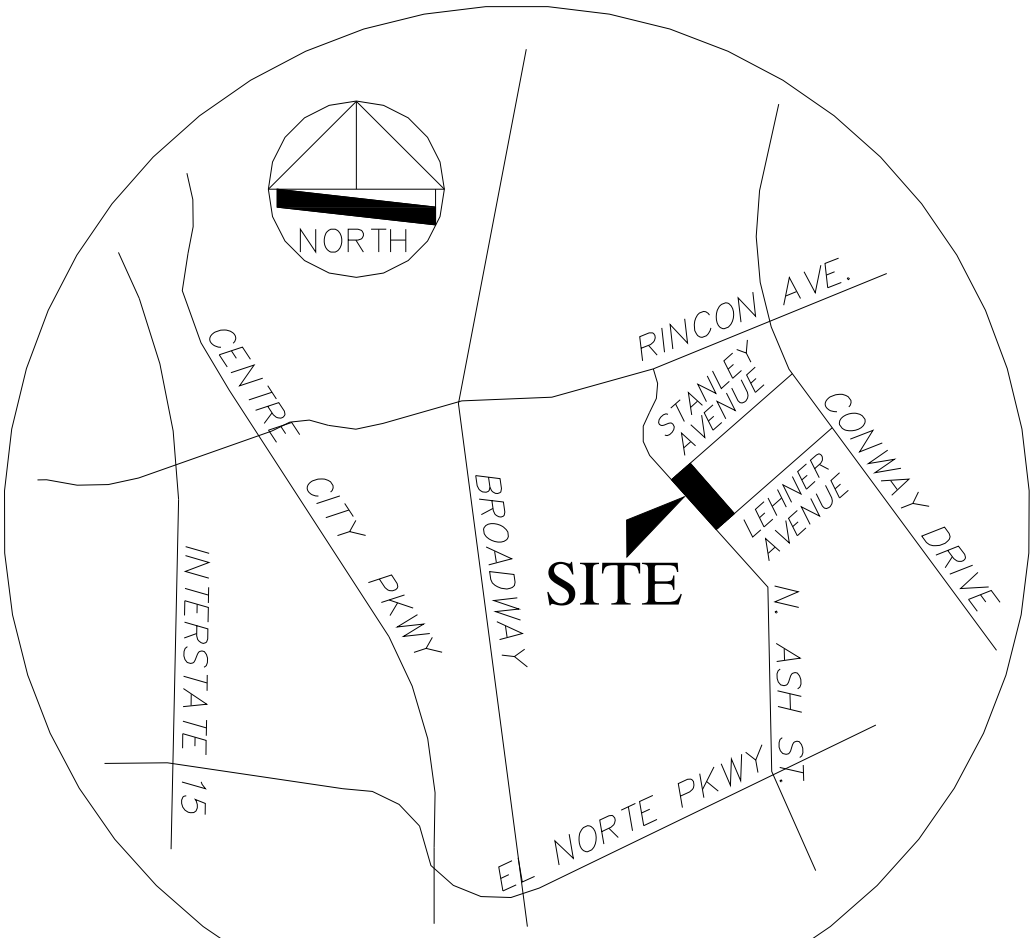
The selection, sizing, and preliminary design of stormwater treatment and other control measures in this plan meet the requirements of the San Diego Regional Water Quality Control Board Order R9-2007-0001 and subsequent amendments.

_____

Ronald L. Holloway RCE 29271 Date

ATTACHMENT 1:

VICINITY MAP



VICINITY MAP

NOT TO SCALE

ATTACHMENT 2:

WQTR EXHIBIT

ATTACHMENT 3:

"TECHNICAL MEMORANDUM: SWMM MODELING FOR HYDROMODIFICATION COMPLIANCE OF PICKERING PROPERTY" FROM TORY R. WALKER ENGINEERING, INC.

TECHNICAL MEMORANDUM:

SWMM Modeling for Hydromodification Compliance of:

Pickering Property

Prepared for:

Pacific Land Investors, LLC

October 23, 2013

Prepared by:

Luis Parra, PhD, CPSWQ, ToR, D.WRE.
R.C.E. 66377

TORY R. WALKER ENGINEERING, INC.
WATER RESOURCES PLANNING & ENGINEERING
122 CIVIC CENTER DRIVE, SUITE 206, VISTA, CA 92084 PH:760-414-9212 WWW.TRWENGINEERING.COM

TORY R. WALKER ENGINEERING, INC.
WATER RESOURCES PLANNING & ENGINEERING

TECHNICAL MEMORANDUM

TO: Mark Ferraro
Pacific Land Investors, LLC

FROM: Tory Walker, PE, CFM, LEED GA
Luis Parra, PhD, PE, CPSWQ, ToR, D.WRE.

DATE: October 23, 2013

RE: Summary of SWMM Modeling for Hydromodification Compliance for Pickering Property, Escondido, CA.

INTRODUCTION

This memorandum summarizes the approach used to model the Pickering Property, a proposed single family residential development project site in the City of Escondido using the Environmental Protection Agency (EPA) Storm Water Management Model 5.0 (SWMM). SWMM analyses were prepared for the pre- and post-developed conditions at the site in order to determine if the proposed LID bioretention facility has sufficient volume to meet the current Hydromodification Management Plan (HMP) requirements from the San Diego Regional Water Quality Control Board (SDRWQCB).

SWMM MODEL DEVELOPMENT

The Pickering project proposes a residential development on the current property, with thirteen (13) residential lots and a servicing cul-de-sac. Two (2) SWMM models were prepared for this study: the first for the pre-development and the second for the post-development conditions. The project site drains to one (1) Point of Compliance (POC-1) located at the southwestern corner of the property near the intersection of Ash Street and Lehner Avenue.

SWMM program was used because we have found it to be more comparable to San Diego area watersheds than the alternative San Diego Hydrology Model (SDHM). For both SWMM models, flow duration curves were prepared to determine if the proposed HMP facility is sufficient to meet the current HMP requirements.

The inputs required to develop SWMM include rainfall, watershed characteristics, and BMP configurations. The Oceanside Gage from the Project Clean Water website was used for this study, since it is the most representative of the project site precipitation due to elevation and proximity to the project location.

The Escondido gage is not recommended for continuous simulation because 22% of the intensities higher than 0.5 in/hr have data problems, and the highest intensities measured do not belong to the location of the gage (were copied form Wolford gage, at an elevation 850 feet higher than Escondido). Similarly, Wolford data was not used for two reasons: 1) Analysis using Oceanside are usually more conservative than using Wolford, and lead to larger hydromodification BMPs; and 2) the project location is situated in the area of influence of Oceanside in the Brown & Caldwell calculation map. For all these reasons Oceanside data was considered the most appropriate for the specific project location.

Evaporation for the site was modeled using average monthly values from the County hourly dataset. The site was modeled with Type B hydrologic soil as this is the existing soil determined from the San Diego County Hydrology Manual (June 2003) Soil Map. Soils have been assumed to be compacted in the existing condition to represent the current state of the site, as well as in the proposed condition. Other SWMM inputs for the subareas are discussed in the appendices of this document, where the selection of the parameters is explained in detail.

HMP MODELING

DEVELOPED CONDITIONS

Storm water runoff from the post-project condition is routed to a single POC (POC-1) located at the southwest corner of the project site near the adjacent intersection of Ash Street and Lehner Avenue. Runoff from the developed project site is drained to one (1) onsite receiving bioretention LID BMP. Once flows are routed via the proposed LID BMP, all flows are then conveyed via storm drain to the aforementioned POC.

It is assumed all storm water quality requirements for the project will be met by the bioretention LID BMP (as the minimum required treatment footprint areas are met by the proposed BMP design). However, detailed water quality requirements are not discussed within this technical memo. For further information in regards to storm water quality requirements for the project, please refer to the site specific Storm Water Management Plan (SWMP).

TABLE 1 – SUMMARY OF DEVELOPED CONDITIONS

DMA	Tributary Area, A (Ac) (2)	Impervious Percentage, Ip	Slope	WQ 85th Percentile(1)	
				Area Required (ft^2)	Area Provided (ft^2)
DMA 1	4.148	51.5%	5.4%	4079	4100

(1): 85th percentile required area corresponds to approximately 4% of the impervious area plus 0.4% of the pervious area draining to the IMP (simplified SUSMP equation)

(2): BMP Areas are subtracted from the overall DMA to ensure areas are not double counted in the SWMM model.

One (1) LID bioretention basin is located within the project site and is responsible for handling hydromodification requirements for the entire project. In developed conditions, the basin will have a surface depth of 2.22 feet and a riser-spillway structure (see dimensions in Table 2). Flows will then discharge from the basin via a low flow orifice outlet within the gravel layer. The riser structure will act as a spillway such that peak flows can be safely discharged to the receiving storm drain system.

Regarding ponding elevations, the top of BMP 1 is placed at an elevation of 730.22 ft, while its surface bottom is at 728.00 ft. The invert of the riser is 1.22 ft below the top of the pond (729.00 ft).

Beneath the basin's invert lies the proposed LID bioretention portion of the drainage facility. This portion of the basin is comprised of a 3-inch layer of mulch, an 18-inch layer of amended soil (a highly sandy, organic rich compost with an infiltration capacity of at least 5 in/hr) and a 12-inch layer of gravel for additional detention, and to accommodate the French drain system. This system is to be located beneath the bioretention layers to intercept treated storm water and convey these flows to a small diameter lower outlet orifice (see Table 2 for lower orifice dimension). Once flows have been routed by

the outlet structure, flows are then discharged to the receiving POC discharge location. A portion of the runoff will infiltrate into the native soils, as no liner has been provided, and the soil type allows for infiltration.

The bioretention basin was modeled using the bioretention LID module within SWMM. The bioretention module can model the underground gravel storage layer, underdrain with an orifice plate, amended soil layer, and a surface storage pond up to the elevation of the invert of the spillway.

It should be noted that detailed outlet structure location and elevations will be shown on the construction plans based on the recommendations of this study.

BMP MODELING FOR HMP PURPOSES

Modeling of dual purpose Water Quality/HMP BMPs

One (1) LID BMP bioretention basin is proposed for water quality treatment and hydromodification conformance for the project site. Table 2 illustrates the dimensions required for HMP compliance according to the SWMM model that was developed for this project.

TABLE 2 – SUMMARY OF DEVELOPED DUAL PURPOSE BMPS:

BMP	Impervious Tributary Area (Ac)	DIMENSIONS					
		Area[(1)], (ft^2)	Gravel Depth[(2)] (in)	Lower Orif. D (in)[(3)]	Depth Riser Invert (in)[(4)]	Perimeter Length[(5)] (ft)	Total Surface Depth[(6)] (in)
1	2.083	4100	12	2.0	12	8	26.6

Notes:
(1): Area of amended soil equals area of gravel
(2): Gravel depth needed to comply with hydromodification purposes
(3): Diameter of orifice in gravel layer with invert at bottom of layer; tied with HMP min threshold ($0.1 \cdot Q_2$).
(4): Depth of ponding beneath riser structure's surface spillway.
(5): Overflow length, the internal perimeter of the riser is 8 ft (2 ft x 2 ft internal dimensions).
(6): Total surface depth of BMP from top crest elevation to surface invert.

FLOW DURATION CURVE COMPARISON

The Flow Duration Curve (FDC) for the site was compared at the POC by exporting the hourly runoff time series results from SWMM to an Excel spreadsheet. The FDC was compared between 10% of the existing condition Q_2 up to the existing condition Q_{10}. The Q_2 and Q_{10} were determined with a partial duration statistical analysis of the runoff time series in a spreadsheet using the Cunnane plotting position method (which is the preferred plotting methodology in the HMP Permit). As the SWMM Model includes a statistical analysis based on the Weibull Plotting Position Method, the Weibull Method was also used within the spreadsheet to ensure that the results were similar to those obtained by the SWMM Model.

The range between 10% of Q_2 and Q_{10} was divided into 100 equal time intervals; the number of hours that each flow rate was exceeded was counted from the hourly series. Additionally, the intermediate

peaks with a return period "i" were obtained (Q_i with i=3 to 9). For the purpose of the plot, the values were presented as percentage of time exceeded for each flow rate. FDC comparison at the POC is illustrated in Figure 1 in both normal and logarithmic scale. Attachment 5 provides a detailed drainage exhibit for the post-developed condition.

As can be seen in Figure 1, the FDC for the proposed condition with the HMP BMP is below the curve for the existing condition in both peak flows and durations. The additional runoff volume generated from developing the site will be released to the existing point of discharge at a flow rate below the 10% Q_2 lower threshold. Additionally, the project will also not increase peak flow rates between the Q_2 and the Q_{10}, as shown in the graphic and also in the peak flow tables in Attachment 1.

SUMMARY

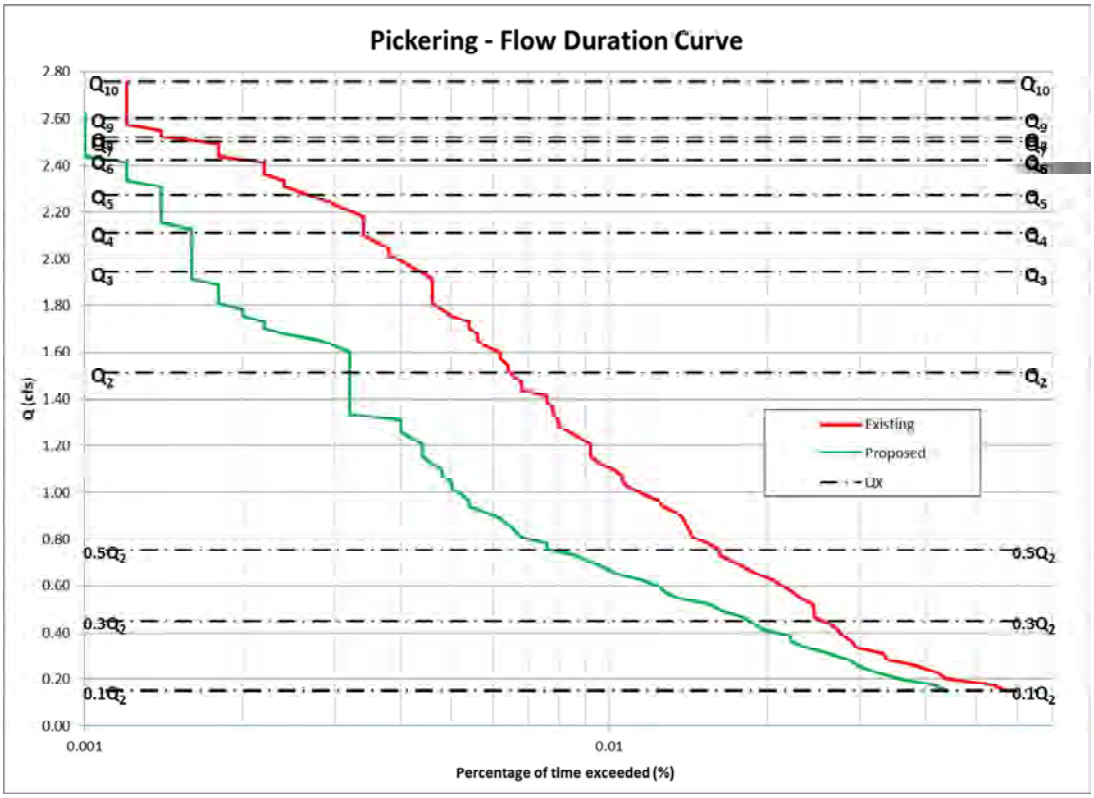
This study has demonstrated that the proposed and interim HMP BMP provided for the Pickering Property site is sufficient to meet the current HMP criteria if the cross-sectional areas and volumes recommended within this technical memorandum, and the respective orifices and outlet structures, are incorporated as specified within the proposed project site.

KEY ASSUMPTIONS

1. Type B Soil is representative of the existing condition site.

ATTACHMENTS

1. Q_2 to Q_{10} Comparison Tables
2. FDC Plots (log and natural "x" scale) and Flow Duration Table.
3. List of the "n" largest Peaks: Pre-Development and Post-Development Conditions
4. Elevation vs. Area Curves and Elevations vs. Discharge Curves to be used in SWMM
5. Pre & Post Development Maps, Project plan and section sketches
6. SWMM Input Data in Input Format (Existing and Proposed Models)
7. SWMM Screens and Explanation of Significant Variables
8. Soil Map
9. Summary files from the SWMM Model



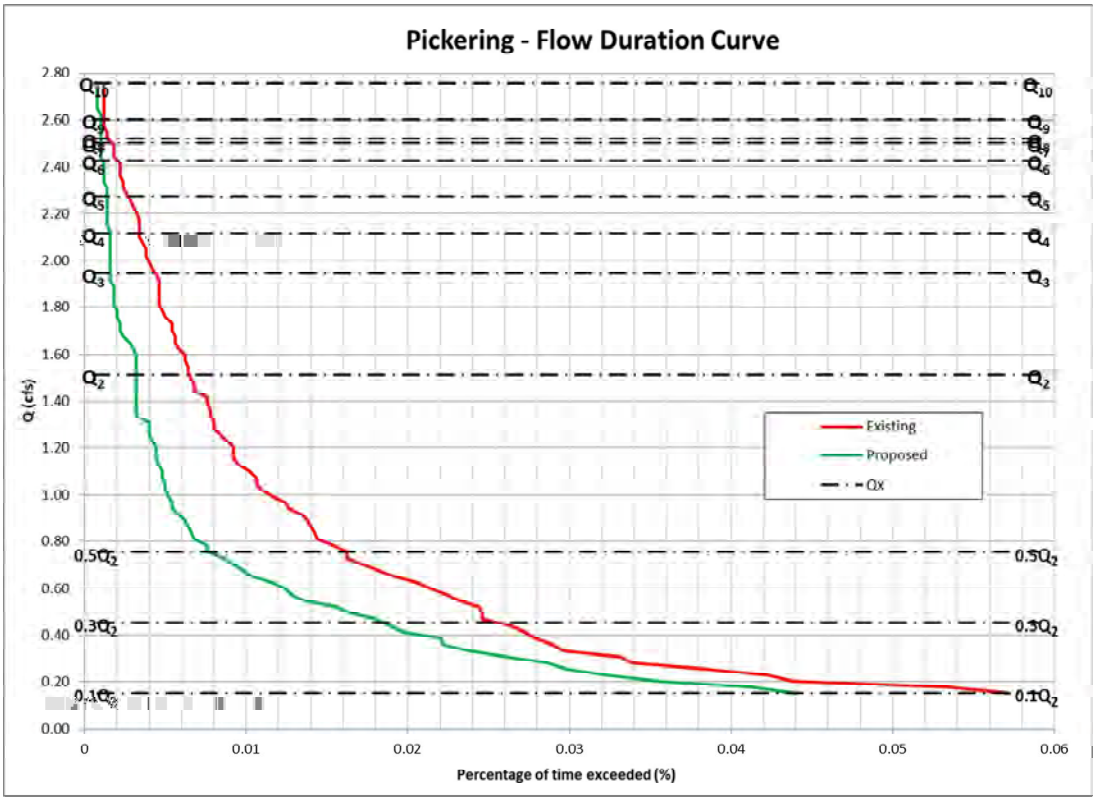


Figure 1a and 1b. Flow Duration Curve Comparison for POC-1 (logarithmic and normal "x" scale)

ATTACHMENT 1.

Q_2 to Q_{10} Comparison Table – POC 1

Return Period	Existing Condition (cfs)	Mitigated Condition (cfs)	Reduction, Exist - Mitigated (cfs)
2-year	1.510	0.710	0.800
3-year	1.946	1.031	0.914
4-year	2.116	1.313	0.803
5-year	2.274	1.617	0.657
6-year	2.425	1.674	0.751
7-year	2.500	1.800	0.700
8-year	2.521	1.990	0.531
9-year	2.602	2.171	0.431
10-year	2.757	2.294	0.463

ATTACHMENT 2

FLOW DURATION CURVE ANALYSIS

1) Flow duration curve shall not exceed the existing conditions by more than 10%, neither in peak flow nor duration.

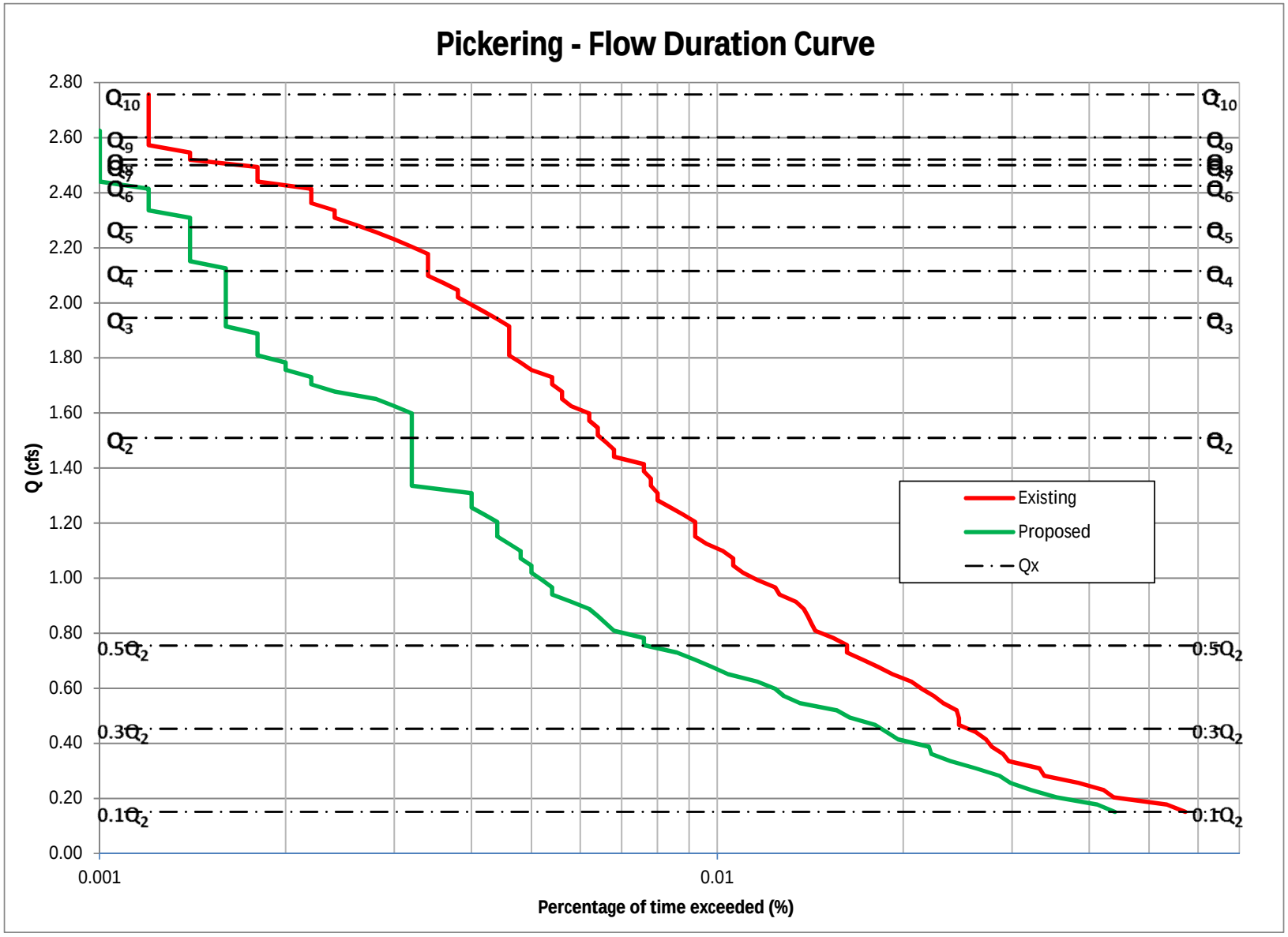
The figures on the following pages illustrate that the flow duration curve in post-development conditions after the proposed BMP is below the existing flow duration curve. The flow duration curve table following the curve shows that if the interval $0.10Q_2 – Q_{10}$ is divided in 100 sub-intervals, then a) the post development divided by pre-development durations are never larger than 110% (the permit allows up to 110%); and b) there are no more than 10 intervals in the range 101%-110% which would imply an excess over 10% of the length of the curve (the permit allows less than 10% of excesses measured as 101-110%).

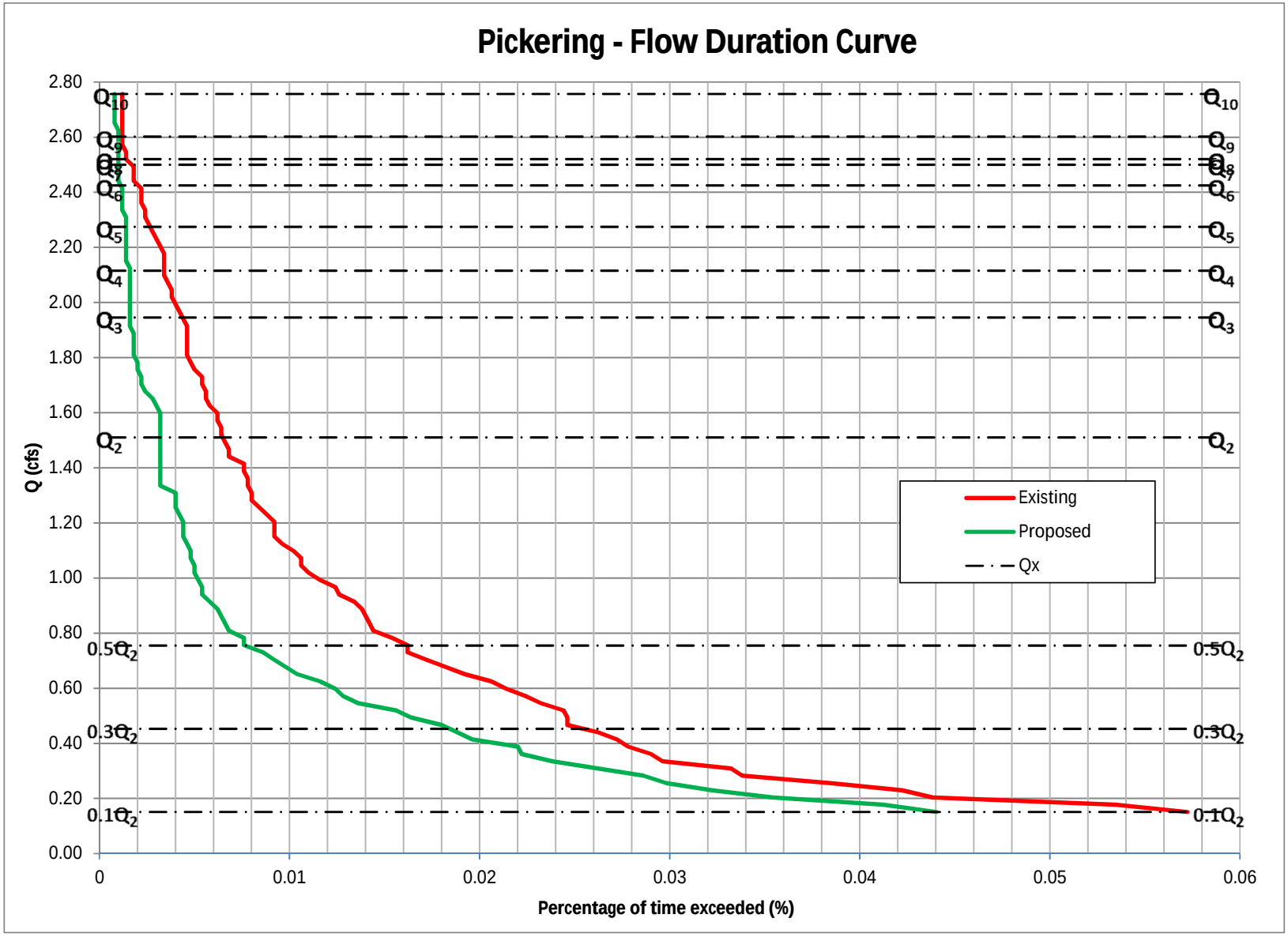
Consequently, the design passes the hydromodification test.

It is important to note that the flow duration curve can be expressed in the "x" axis as percentage of time, hours per year, total number of hours, or any other similar time variable. As those variables only differ by a multiplying constant, their plot in logarithmic scale is going to look exactly the same, and compliance can be observed regardless of the variable selected. However, in order to satisfy the City of Escondido HMP example, % of time exceeded is the variable of choice in the flow duration curve. The selection of a logarithmic scale in lieu of the normal scale is preferred, as differences between the pre-development and post-development curves can be seen more clearly in the entire range of analysis. Both graphics are presented just to prove the difference.

In terms of the "y" axis, the peak flow value is the variable of choice. As an additional analysis performed by TRWE, not only the range of analysis is clearly depicted (10% of Q_2 to Q_{10}) but also all intermediate flows are shown (Q_2, Q_3, Q_4, Q_5, Q_6, Q_7, Q_8 and Q_9) in order to demonstrate compliance at any range $Q_x – Q_{x+1}$. It must be pointed out that one of the limitations of both the SWMM and SDHM models is that the intermediate analysis is not performed (to obtain Q_i from i = 2 to 10). TRWE performed the analysis using the Cunnane Plotting position Method (the preferred method in the HMP permit) from the "n" largest independent peak flows obtained from the continuous time series.

The largest "n" peak flows are attached in this appendix, as well as the values of Q_i with a return period "i", from i=2 to 10. The Q_i values are also added into the flow-duration plot.


Pickering - Flow Duration Curve
Q (cfs)
2.80
2.60
2.40
2.20
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
Q_{10}
Q_9
Q_8
Q_7
Q_6
Q_5
Q_4
Q_3
Q_2
$0.5Q_2$
$0.3Q_2$
$0.1Q_2$
Existing
Proposed
Qx
0.001
0.01
Percentage of time exceeded (%)


Pickering - Flow Duration Curve
Q (cfs)
Percentage of time exceeded (%)
2.80
2.60
2.40
2.20
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
0
0.01
0.02
0.03
0.04
0.05
0.06
Q_{10}
Q_9
Q_8
Q_7
Q_6
Q_5
Q_4
Q_3
Q_2
$0.5Q_2$
$0.3Q_2$
$0.1Q_2$
Existing
Proposed
Qx

Flow Duration Curve Data for Escondido Pickering , Escondido Ca - POC 1

Q2 =	1.51	cfs	Fraction	10 %
Q10 =	2.76	cfs		
Step =	0.0263	cfs		
Count =	499679	hours		
	57.00	years		

	Existing Condition			Detention Optimized			Pass or
Interval	Q (cfs)	Hours > Q	% time	Hours>Q	% time	Post/Pre	Fail?
1	0.151	286	5.72E-02	220	4.40E-02	77%	Pass
2	0.177	267	5.34E-02	206	4.12E-02	77%	Pass
3	0.204	219	4.38E-02	177	3.54E-02	81%	Pass
4	0.230	211	4.22E-02	161	3.22E-02	76%	Pass
5	0.256	192	3.84E-02	149	2.98E-02	78%	Pass
6	0.283	169	3.38E-02	143	2.86E-02	85%	Pass
7	0.309	166	3.32E-02	131	2.62E-02	79%	Pass
8	0.335	148	2.96E-02	119	2.38E-02	80%	Pass
9	0.362	145	2.90E-02	111	2.22E-02	77%	Pass
10	0.388	139	2.78E-02	110	2.20E-02	79%	Pass
11	0.414	136	2.72E-02	98	1.96E-02	72%	Pass
12	0.441	131	2.62E-02	94	1.88E-02	72%	Pass
13	0.467	123	2.46E-02	90	1.80E-02	73%	Pass
14	0.493	123	2.46E-02	82	1.64E-02	67%	Pass
15	0.519	122	2.44E-02	78	1.56E-02	64%	Pass
16	0.546	116	2.32E-02	68	1.36E-02	59%	Pass
17	0.572	112	2.24E-02	64	1.28E-02	57%	Pass
18	0.598	107	2.14E-02	62	1.24E-02	58%	Pass
19	0.625	103	2.06E-02	58	1.16E-02	56%	Pass
20	0.651	96	1.92E-02	52	1.04E-02	54%	Pass
21	0.677	91	1.82E-02	49	9.81E-03	54%	Pass
22	0.704	86	1.72E-02	46	9.21E-03	53%	Pass
23	0.730	81	1.62E-02	43	8.61E-03	53%	Pass
24	0.756	81	1.62E-02	38	7.60E-03	47%	Pass
25	0.783	77	1.54E-02	38	7.60E-03	49%	Pass
26	0.809	72	1.44E-02	34	6.80E-03	47%	Pass
27	0.835	71	1.42E-02	33	6.60E-03	46%	Pass
28	0.862	70	1.40E-02	32	6.40E-03	46%	Pass
29	0.888	69	1.38E-02	31	6.20E-03	45%	Pass
30	0.914	67	1.34E-02	29	5.80E-03	43%	Pass
31	0.941	63	1.26E-02	27	5.40E-03	43%	Pass
32	0.967	62	1.24E-02	27	5.40E-03	44%	Pass
33	0.993	58	1.16E-02	26	5.20E-03	45%	Pass
34	1.020	55	1.10E-02	25	5.00E-03	45%	Pass
35	1.046	53	1.06E-02	25	5.00E-03	47%	Pass
36	1.072	53	1.06E-02	24	4.80E-03	45%	Pass

Interval	Existing Condition			Detention Optimized			Pass or Fail?
	Q (cfs)	Hours > Q	% time	Hours>Q	% time	Post/Pre	
37	1.099	51	1.02E-02	24	4.80E-03	47%	Pass
38	1.125	48	9.61E-03	23	4.60E-03	48%	Pass
39	1.151	46	9.21E-03	22	4.40E-03	48%	Pass
40	1.178	46	9.21E-03	22	4.40E-03	48%	Pass
41	1.204	46	9.21E-03	22	4.40E-03	48%	Pass
42	1.230	44	8.81E-03	21	4.20E-03	48%	Pass
43	1.256	42	8.41E-03	20	4.00E-03	48%	Pass
44	1.283	40	8.01E-03	20	4.00E-03	50%	Pass
45	1.309	40	8.01E-03	20	4.00E-03	50%	Pass
46	1.335	39	7.81E-03	16	3.20E-03	41%	Pass
47	1.362	39	7.81E-03	16	3.20E-03	41%	Pass
48	1.388	38	7.60E-03	16	3.20E-03	42%	Pass
49	1.414	38	7.60E-03	16	3.20E-03	42%	Pass
50	1.441	34	6.80E-03	16	3.20E-03	47%	Pass
51	1.467	34	6.80E-03	16	3.20E-03	47%	Pass
52	1.493	33	6.60E-03	16	3.20E-03	48%	Pass
53	1.520	32	6.40E-03	16	3.20E-03	50%	Pass
54	1.546	32	6.40E-03	16	3.20E-03	50%	Pass
55	1.572	31	6.20E-03	16	3.20E-03	52%	Pass
56	1.599	31	6.20E-03	16	3.20E-03	52%	Pass
57	1.625	29	5.80E-03	15	3.00E-03	52%	Pass
58	1.651	28	5.60E-03	14	2.80E-03	50%	Pass
59	1.678	28	5.60E-03	12	2.40E-03	43%	Pass
60	1.704	27	5.40E-03	11	2.20E-03	41%	Pass
61	1.730	27	5.40E-03	11	2.20E-03	41%	Pass
62	1.757	25	5.00E-03	10	2.00E-03	40%	Pass
63	1.783	24	4.80E-03	10	2.00E-03	42%	Pass
64	1.809	23	4.60E-03	9	1.80E-03	39%	Pass
65	1.836	23	4.60E-03	9	1.80E-03	39%	Pass
66	1.862	23	4.60E-03	9	1.80E-03	39%	Pass
67	1.888	23	4.60E-03	9	1.80E-03	39%	Pass
68	1.915	23	4.60E-03	8	1.60E-03	35%	Pass
69	1.941	22	4.40E-03	8	1.60E-03	36%	Pass
70	1.967	21	4.20E-03	8	1.60E-03	38%	Pass
71	1.993	20	4.00E-03	8	1.60E-03	40%	Pass
72	2.020	19	3.80E-03	8	1.60E-03	42%	Pass
73	2.046	19	3.80E-03	8	1.60E-03	42%	Pass
74	2.072	18	3.60E-03	8	1.60E-03	44%	Pass
75	2.099	17	3.40E-03	8	1.60E-03	47%	Pass
76	2.125	17	3.40E-03	8	1.60E-03	47%	Pass
77	2.151	17	3.40E-03	7	1.40E-03	41%	Pass
78	2.178	17	3.40E-03	7	1.40E-03	41%	Pass
79	2.204	16	3.20E-03	7	1.40E-03	44%	Pass
80	2.230	15	3.00E-03	7	1.40E-03	47%	Pass
81	2.257	14	2.80E-03	7	1.40E-03	50%	Pass

Interval	Existing Condition			Detention Optimized			Pass or Fail?
	Q (cfs)	Hours > Q	% time	Hours>Q	% time	Post/Pre	
82	2.283	13	2.60E-03	7	1.40E-03	54%	Pass
83	2.309	12	2.40E-03	7	1.40E-03	58%	Pass
84	2.336	12	2.40E-03	6	1.20E-03	50%	Pass
85	2.362	11	2.20E-03	6	1.20E-03	55%	Pass
86	2.388	11	2.20E-03	6	1.20E-03	55%	Pass
87	2.415	11	2.20E-03	6	1.20E-03	55%	Pass
88	2.441	9	1.80E-03	5	1.00E-03	56%	Pass
89	2.467	9	1.80E-03	5	1.00E-03	56%	Pass
90	2.494	9	1.80E-03	5	1.00E-03	56%	Pass
91	2.520	7	1.40E-03	5	1.00E-03	71%	Pass
92	2.546	7	1.40E-03	5	1.00E-03	71%	Pass
93	2.573	6	1.20E-03	5	1.00E-03	83%	Pass
94	2.599	6	1.20E-03	5	1.00E-03	83%	Pass
95	2.625	6	1.20E-03	5	1.00E-03	83%	Pass
96	2.651	6	1.20E-03	4	8.01E-04	67%	Pass
97	2.678	6	1.20E-03	4	8.01E-04	67%	Pass
98	2.704	6	1.20E-03	4	8.01E-04	67%	Pass
99	2.730	6	1.20E-03	4	8.01E-04	67%	Pass
100	2.757	6	1.20E-03	4	8.01E-04	67%	Pass

Peak Flows calculated with Cunnane Plotting Position

Return Period	Pre-dev. Q	Post-Dev. Q	Reduction
10	2.757	2.294	0.463
9	2.602	2.171	0.431
8	2.521	1.990	0.531
7	2.500	1.800	0.700
6	2.425	1.674	0.751
5	2.274	1.617	0.657
4	2.116	1.313	0.803
3	1.946	1.031	0.914
2	1.510	0.710	0.800

ATTACHMENT 3

List of the "n" Largest Peaks: Pre & Post-Developed Conditions

List of Peak events and Determination of P2 and P10 (Post-Development)
Pickering - POC 1

T	Cunnane	Weibull				Period of Return	
10	**2.29**	**2.34**	Peaks	Date	Posit	Weibull	Cunnane
9	**2.17**	**2.23**	0.39	2/16/1980	57	1.02	1.01
8	**1.99**	**2.06**	0.39	2/20/1980	56	1.04	1.03
7	**1.80**	**1.84**	0.39	10/12/1987	55	1.05	1.05
6	**1.67**	**1.69**	0.39	2/23/1998	54	1.07	1.07
5	**1.62**	**1.63**	0.4	2/18/1980	53	1.09	1.09
4	**1.31**	**1.31**	0.42	11/29/1985	52	1.12	1.11
3	**1.03**	**1.04**	0.43	2/3/1998	51	1.14	1.13
2	**0.71**	**0.71**	0.45	2/13/1954	50	1.16	1.15
			0.45	1/25/1969	49	1.18	1.18
			0.47	1/12/1960	48	1.21	1.20
			0.47	2/2/1960	47	1.23	1.23
			0.47	1/7/2008	46	1.26	1.25
			0.48	10/29/2000	45	1.29	1.28
			0.49	1/29/1983	44	1.32	1.31
			0.49	12/25/1983	43	1.35	1.34
			0.54	1/22/1967	42	1.38	1.38
			0.54	3/1/1983	41	1.41	1.41
			0.55	4/1/1958	40	1.45	1.44
			0.56	2/4/1958	39	1.49	1.48
			0.57	2/13/1992	38	1.53	1.52
			0.6	2/26/2004	37	1.57	1.56
			0.6	2/18/2005	36	1.61	1.61
			0.63	1/11/1980	35	1.66	1.65
			0.63	2/23/2005	34	1.71	1.70
			0.64	10/20/2004	33	1.76	1.75
			0.66	3/11/1995	32	1.81	1.81
			0.66	11/22/1996	31	1.87	1.87
			0.7	2/10/1978	30	1.93	1.93
			0.71	1/13/1957	29	2.00	2.00
			0.74	1/16/1993	28	2.07	2.07
			0.74	3/5/1995	27	2.15	2.15
			0.74	11/30/2007	26	2.23	2.23
			0.79	3/1/1991	25	2.32	2.33
			0.8	1/13/1997	24	2.42	2.42
			0.81	1/20/1962	23	2.52	2.53
			0.87	12/5/1966	22	2.64	2.65
			0.89	10/27/2004	21	2.76	2.78
			1	1/16/1952	20	2.90	2.92
			1.06	1/9/2005	19	3.05	3.08
			1.12	1/15/1978	18	3.22	3.25
			1.21	8/17/1977	17	3.41	3.45
			1.25	3/8/1968	16	3.63	3.67
			1.31	1/6/1979	15	3.87	3.92
			1.32	2/15/1986	14	4.14	4.21
			1.33	2/22/2008	13	4.46	4.54
			1.61	1/16/1978	12	4.83	4.93
			1.66	3/17/1982	11	5.27	5.40
			1.67	11/22/1965	10	5.80	5.96
			1.74	1/29/1980	9	6.44	6.65
			1.89	2/25/1969	8	7.25	7.53
			2.13	2/25/2003	7	8.29	8.67
			2.32	3/1/1978	6	9.67	10.21
			2.43	1/4/1978	5	11.60	12.43
			3.66	1/4/1995	4	14.50	15.89
			3.67	1/15/1979	3	19.33	22.00
			3.93	10/1/1983	2	29.00	35.75
			4.54	4/14/2003	1	58.00	95.33

Note:
Cunnane is the preferred method by the HMP permit.

List of Peak events and Determination of P2 and P10 (Pre-Development)
Pickering - POC 1

T	Cunnane	Weibull				Period of Return	
10	**2.76**	**2.90**	Peaks	Date	Posit	Weibull	Cunnane
9	**2.60**	**2.67**	0.91	2/18/1980	57	1.02	1.01
8	**2.52**	**2.54**	0.91	2/13/1992	56	1.04	1.03
7	**2.50**	**2.50**	0.94	9/18/1963	55	1.05	1.05
6	**2.42**	**2.44**	0.94	2/22/1998	54	1.07	1.07
5	**2.27**	**2.28**	0.94	11/8/2002	53	1.09	1.09
4	**2.12**	**2.13**	0.94	2/12/2003	52	1.12	1.11
3	**1.95**	**1.95**	0.95	12/24/1971	51	1.14	1.13
2	**1.51**	**1.51**	0.98	1/15/1978	50	1.16	1.15
			0.99	3/8/1968	49	1.18	1.18
			0.99	12/31/2004	48	1.21	1.20
Note:			0.99	1/11/2005	47	1.23	1.23
Cunnane is the preferred			1	12/24/1988	46	1.26	1.25
method by the HMP permit.			1	2/4/1994	45	1.29	1.28
			1.03	11/11/1985	44	1.32	1.31
			1.09	1/6/1979	43	1.35	1.34
			1.1	4/27/1960	42	1.38	1.38
			1.11	8/17/1977	41	1.41	1.41
			1.13	2/14/1998	40	1.45	1.44
			1.15	1/18/1993	39	1.49	1.48
			1.22	12/2/1961	38	1.53	1.52
			1.24	3/1/1991	37	1.57	1.56
			1.25	3/2/1980	36	1.61	1.61
			1.28	2/12/1992	35	1.66	1.65
			1.31	3/11/1995	34	1.71	1.70
			1.37	2/15/1986	33	1.76	1.75
			1.42	12/30/1991	32	1.81	1.81
			1.42	2/17/1998	31	1.87	1.87
			1.49	1/16/1978	30	1.93	1.93
			1.51	1/29/1980	29	2.00	2.00
			1.57	2/23/1998	28	2.07	2.07
			1.62	10/20/2004	27	2.15	2.15
			1.63	2/16/1980	26	2.23	2.23
			1.7	11/22/1965	25	2.32	2.33
			1.75	1/29/1983	24	2.42	2.42
			1.75	2/27/1983	23	2.52	2.53
			1.77	2/3/1998	22	2.64	2.65
			1.8	2/10/1978	21	2.76	2.78
			1.93	3/17/1982	20	2.90	2.92
			1.96	1/16/1952	19	3.05	3.08
			1.98	11/15/1952	18	3.22	3.25
			2.01	10/27/2004	17	3.41	3.45
			2.05	12/19/1970	16	3.63	3.67
			2.09	4/1/1958	15	3.87	3.92
			2.18	1/14/1993	14	4.14	4.21
			2.25	2/20/1980	13	4.46	4.54
			2.27	3/1/1978	12	4.83	4.93
			2.3	2/18/2005	11	5.27	5.40
			2.42	10/29/2000	10	5.80	5.96
			2.5	2/25/1969	9	6.44	6.65
			2.5	9/23/1986	8	7.25	7.53
			2.55	2/4/1958	7	8.29	8.67
			2.79	2/25/2003	6	9.67	10.21
			3.44	1/4/1995	5	11.60	12.43
			3.61	1/15/1979	4	14.50	15.89
			3.93	1/4/1978	3	19.33	22.00
			4	10/1/1983	2	29.00	35.75
			4.4	4/14/2003	1	58.00	95.33

ATTACHMENT 4

AREA VS ELEVATION

The area vs. elevation curve in the model is calculated in Excel and imported into the model. The summary of elevations has been provided on the following page. The stage storage of the basins provided in the SWMM model represents the volume provided above the top of the riser elevation.

DISCHARGE VS ELEVATION

The orifice has been selected to maximize its size while still restricting flows to conform with the required 10% of the Q2 event flow as mandated in the Final Hydromodification Management Plan by Brown & Caldwell, dated March 2011. While Tory R. Walker Engineering (TRWE) acknowledges that these orifices are small, to increase the size of these outlets would impact the basin's ability to restrict flows beneath the HMP thresholds, thus preventing the BMP from conformance with HMP requirements.

In order to further reduce the risk of blockage of the orifice, regular maintenance of the riser and orifice must be performed to ensure potential blockages are minimized. A detail of the orifice and riser structure is provided in Attachment 5 of this memorandum.

No stage-storage calculations for the lower portion of the basins were performed for the ultimate condition as there are no surface orifices; all flows drain via the low flow orifice beneath the HMP facility or via the emergency spillway. A stage-discharge relationship was developed to represent the flows spilling over the riser structure (for peak over flow events), which is located on the following pages.

Bioretention -1

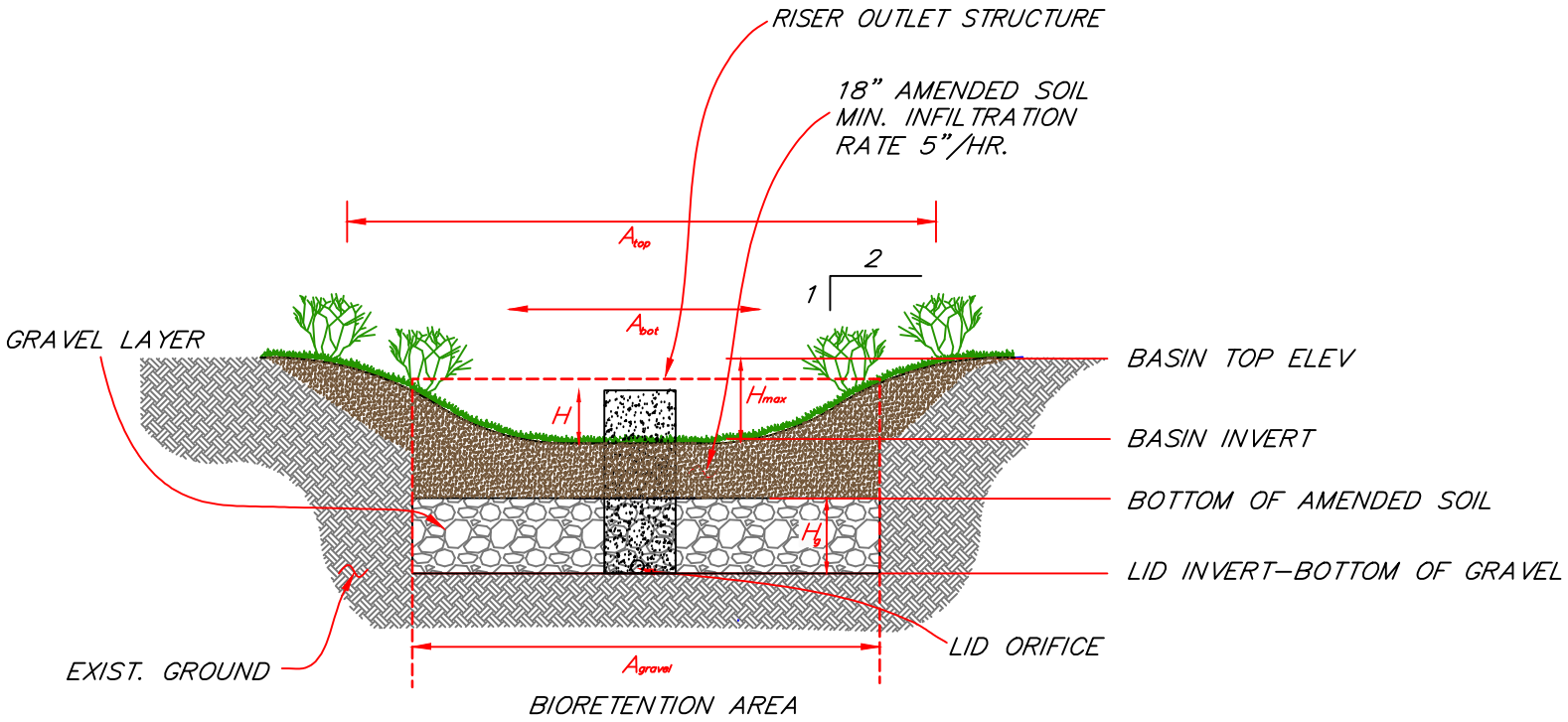
h (ft)	Q (cfs)
0	0
0.1	0.784
0.2	2.22
0.3	4.08
0.4	6.27
0.5	8.77
0.6	11.53
0.7	14.52
0.8	17.75
0.9	21.17
0.97	23.69

Bioretention -1

h (ft)	A (sft)
0.00	4758
0.25	4922
0.50	5087
0.75	5252
1.00	5416
1.22	5561

ATTACHMENT 5

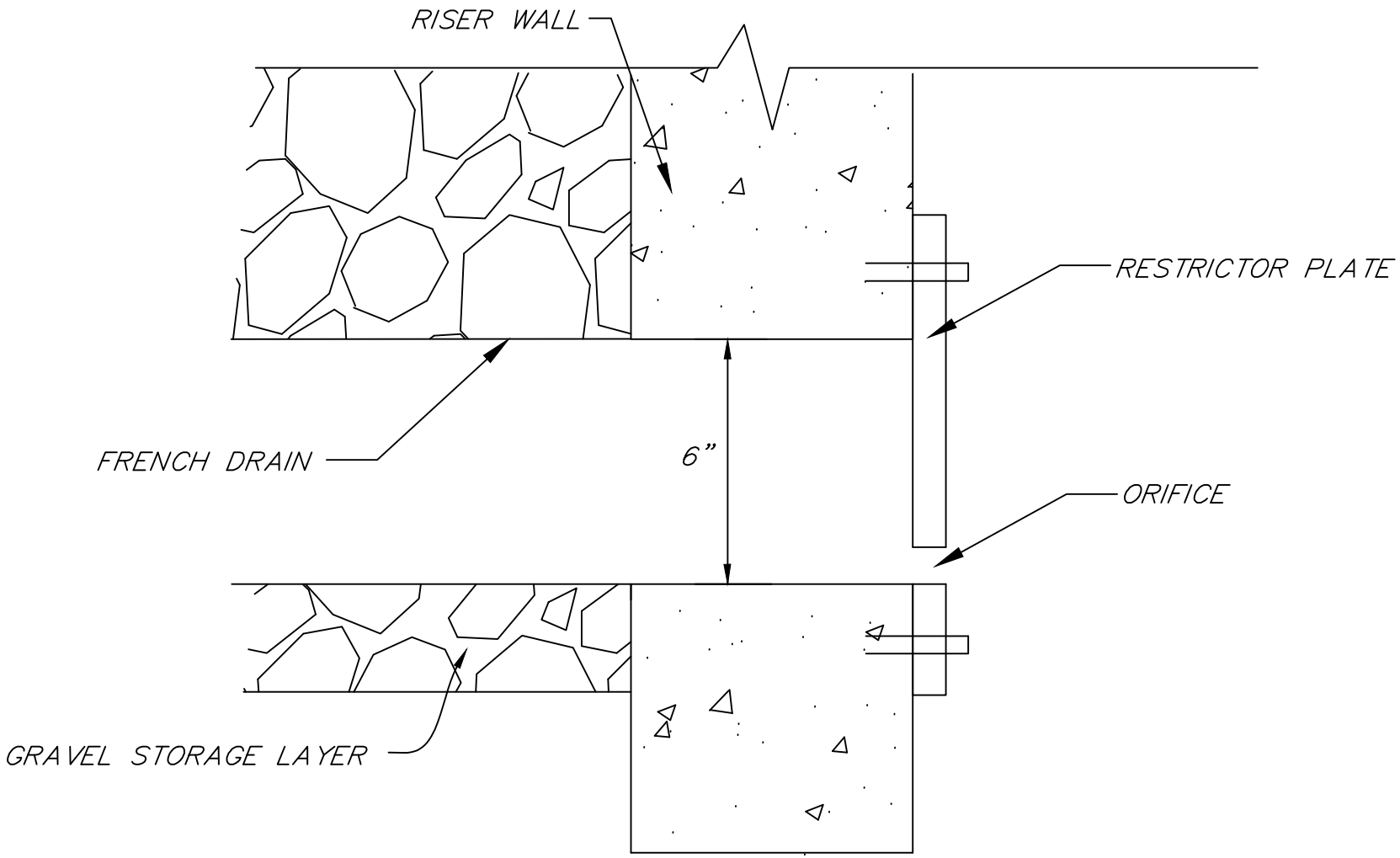
Pre & Post-Developed Maps, Project Plan and Detention Section Sketches



BIORETENTION AREA CROSS SECTION

NOT TO SCALE

BMP	H(FT)	Hmax (FT)	Hg (FT)	LID Orifice (IN)	Ag (FT^2)	Abot (FT^2)
1	1	2.22	1	2.00	4100	4100



LID ORIFICE DETAIL

NOT TO SCALE

ATTACHMENT 6

SWMM Input Data in Input Format (Existing & Proposed Models)

Pickering Post-Dev

```
[TITLE]

[OPTIONS]
FLOW_UNITS           CFS
INFILTRATION         GREEN_AMPT
FLOW_ROUTING         KINWAVE
START_DATE           10/01/1951
START_TIME           00:00:00
REPORT_START_DATE    10/01/1951
REPORT_START_TIME    00:00:00
END_DATE             09/30/2008
END_TIME             23:00:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          01:00:00
WET_STEP             00:15:00
DRY_STEP             04:00:00
ROUTING_STEP         0:01:00
ALLOW_PONDING        NO
INERTIAL_DAMPING     PARTIAL
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         0
NORMAL_FLOW_LIMITED  BOTH
SKIP_STEADY_STATE    NO
FORCE_MAIN_EQUATION  H-W
LINK_OFFSETS         DEPTH
MIN_SLOPE            0

[EVAPORATION]
;;Type       Parameters
;;---------- ----------
MONTHLY      .041   .076   .118   .192   .237   .318   .308   .286   .217   .14    .067   .041
DRY_ONLY     NO

[RAINGAGES]
;;               Rain      Time   Snow   Data
;;Name           Type      Intrvl Catch  Source
;;-------------- --------- ------ ------ ----------
Oceanside        INTENSITY 1:00   1.0    TIMESERIES Oceanside

[SUBCATCHMENTS]
;;                                                Total    Pcnt.             Pcnt.    Curb     Snow
;;Name           Raingage         Outlet          Area     Imperv   Width    Slope    Length   Pack
;;-------------- ---------------- --------------- -------- -------- -------- -------- -------- --------
;Subarea A w/o bioretention
DMA-1            Oceanside        BR-1            4.0429   51.53    226      3.5      0
BR-1             Oceanside        DIV-1           0.0941   0        34.2     0        0

[SUBAREAS]
;;Subcatchment   N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo    PctRouted
;;-------------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
DMA-1            .012       0.05       .02        .1         25         OUTLET
BR-1             0.012      0.05       .02        .1         25         OUTLET

[INFILTRATION]
;;Subcatchment   Suction    HydCon     IMDmax
;;-------------- ---------- ---------- ----------
DMA-1            3          0.15       0.32
BR-1             3          0.15       0.32

[LID_CONTROLS]
;;               Type/Layer Parameters
;;-------------- ---------- ----------
LID-1            BC
LID-1            SURFACE    12.96      0.05       0          0          5
LID-1            SOIL       18         0.4        0.2        0.1        5          5          1.5
LID-1            STORAGE    12         0.67       0.15       0
LID-1            DRAIN      0.3248     0.5        0          6

[LID_USAGE]
;;Subcatchment   LID Process      Number  Area       Width      InitSatur  FromImprv  ToPerv     Report File
;;-------------- ---------------- ------- ---------- ---------- ---------- ---------- ---------- -----------
BR-1             LID-1            1       4100       0          0          100        0          "Y:\Projects\298 (Pacific Land Investors, LLC)\C

[OUTFALLS]
;;               Invert     Outfall    Stage/Table      Tide
;;Name           Elev.      Type       Time Series      Gate
;;-------------- ---------- ---------- ---------------- ----
POC-1            0          FREE                        NO

[DIVIDERS]
;;               Invert     Diverted         Divider
;;Name           Elev.      Link             Type       Parameters
;;-------------- ---------- ---------------- ---------- ----------
DIV-1            0          BYPASS-1         CUTOFF     0.09847    0          0          0          0

[STORAGE]
;;               Invert   Max.     Init.    Storage    Curve                    Ponded   Evap.
;;Name           Elev.    Depth    Depth    Curve      Params                   Area     Frac.    Infiltration Parameters
;;-------------- -------- -------- -------- ---------- -------- -------- -------- -------- -------- ----------------------
BASIN-1          0        0.97     0        TABULAR    BASIN-1                   5561     1
```

Pickering Post-Dev

```
[CONDUITS]
;;               Inlet            Outlet                      Manning    Inlet      Outlet     Init.      Max.
;;Name           Node             Node             Length     N          Offset     Offset     Flow       Flow
;;-------------- ---------------- ---------------- ---------- ---------- ---------- ---------- ---------- ----------
BYPASS-1         DIV-1            BASIN-1          10         0.01       0          0          0          0
UDRAIN-1         DIV-1            POC-1            10         0.01       0          0          0          0

[OUTLETS]
;;               Inlet            Outlet           Outflow    Outlet          Qcoeff/                    Flap
;;Name           Node             Node             Height     Type            QTable           Qexpon    Gate
;;-------------- ---------------- ---------------- ---------- --------------- ---------------- ---------- ----
ORIFICE-1        BASIN-1          POC-1            0          TABULAR/DEPTH   OUTLET-1                    NO

[XSECTIONS]
;;Link           Shape        Geom1            Geom2      Geom3      Geom4      Barrels
;;-------------- ------------ ---------------- ---------- ---------- ---------- ----------
BYPASS-1         DUMMY        0                0          0          0          1
UDRAIN-1         DUMMY        0                0          0          0          1

[LOSSES]
;;Link           Inlet      Outlet     Average    Flap Gate
;;-------------- ---------- ---------- ---------- ----------

[CURVES]
;;Name           Type       X-Value    Y-Value
;;-------------- ---------- ---------- ----------
OUTLET-1         Rating     0          0
OUTLET-1                    0.1        0.784
OUTLET-1                    0.2        2.22
OUTLET-1                    0.3        4.08
OUTLET-1                    0.4        6.27
OUTLET-1                    0.5        8.77
OUTLET-1                    0.6        11.53
OUTLET-1                    0.7        14.52
OUTLET-1                    0.8        17.75
OUTLET-1                    0.9        21.17
OUTLET-1                    0.97       23.69

OUTLET-2         Rating     0.000      0.000
OUTLET-2                    0.042      0.316
OUTLET-2                    0.083      0.895
OUTLET-2                    0.125      1.644
OUTLET-2                    0.167      2.531
OUTLET-2                    0.208      3.537
OUTLET-2                    0.250      4.650
OUTLET-2                    0.292      5.860
OUTLET-2                    0.333      7.159
OUTLET-2                    0.375      8.543
OUTLET-2                    0.417      10.005
OUTLET-2                    0.458      11.543
OUTLET-2                    0.500      13.152

BASIN-1          Storage    0.00       4922
BASIN-1                     0.25       5087
BASIN-1                     0.50       5252
BASIN-1                     0.75       5416
BASIN-1                     0.97       5561

BASIN-2          Storage    0.00       1984.3
BASIN-2                     0.25       2101.8
BASIN-2                     0.50       2221

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
Oceanside        FILE "Y:\Projects\298 (Pacific Land Investors, LLC)\01 (Lehner Ave HMP Design)\Pickering\SWMM\OsideRain.prn"

[REPORT]
INPUT      NO
CONTROLS   NO
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None

[COORDINATES]
;;Node           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
POC-1            -605.850           3259.053
DIV-1            -1500.000          6250.000
BASIN-1          -2500.000          5500.000

[VERTICES]
;;Link           X-Coord            Y-Coord
;;-------------- ------------------ ------------------

[Polygons]
;;Subcatchment   X-Coord            Y-Coord
;;-------------- ------------------ ------------------
```

```
DMA-1            -1500.000          9200.000
BR-1             -1500.000          7200.000

[SYMBOLS]
;;Gage           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
Oceanside        327.684            9152.542
```

Pickering Pre-Development

```
[TITLE]

[OPTIONS]
FLOW_UNITS           CFS
INFILTRATION         GREEN_AMPT
FLOW_ROUTING         KINWAVE
START_DATE           10/17/1948
START_TIME           00:00:00
REPORT_START_DATE    10/17/1948
REPORT_START_TIME    00:00:00
END_DATE             10/17/2005
END_TIME             23:00:00
SWEEP_START          01/01
SWEEP_END            12/31
DRY_DAYS             0
REPORT_STEP          01:00:00
WET_STEP             00:15:00
DRY_STEP             04:00:00
ROUTING_STEP         0:01:00
ALLOW_PONDING        NO
INERTIAL_DAMPING     PARTIAL
VARIABLE_STEP        0.75
LENGTHENING_STEP     0
MIN_SURFAREA         0
NORMAL_FLOW_LIMITED  BOTH
SKIP_STEADY_STATE    NO
FORCE_MAIN_EQUATION  H-W
LINK_OFFSETS         DEPTH
MIN_SLOPE            0

[EVAPORATION]
;;Type       Parameters
;;---------- ----------
MONTHLY      0.041  0.076  0.118  0.192  0.237  0.318  0.308  0.286  0.217  0.14   0.067  0.041
DRY_ONLY     NO

[RAINGAGES]
;;               Rain      Time   Snow   Data
;;Name           Type      Intrvl Catch  Source
;;-------------- --------- ------ ------ ----------
OCEANSIDE        INTENSITY 1:00   1.0    TIMESERIES OCEANSIDE

[SUBCATCHMENTS]
;;                                                Total    Pcnt.             Pcnt.    Curb     Snow
;;Name           Raingage         Outlet           Area     Imperv   Width    Slope    Length   Pack
;;-------------- ---------------- ---------------- -------- -------- -------- -------- -------- --------
DMA-B            OCEANSIDE        POC-1            4.1483   10.7     248      5.4      0

[SUBAREAS]
;;Subcatchment   N-Imperv   N-Perv     S-Imperv   S-Perv     PctZero    RouteTo    PctRouted
;;-------------- ---------- ---------- ---------- ---------- ---------- ---------- ----------
DMA-B            0.012      0.05       0.02       0.1        25         OUTLET

[INFILTRATION]
;;Subcatchment   Suction    HydCon     IMDmax
;;-------------- ---------- ---------- ----------
DMA-B            3          0.15       0.32

[LID_CONTROLS]
;;               Type/Layer Parameters
;;-------------- ---------- ----------
LID_A1           BC
LID_A1           SURFACE    16         0          0          0.1        5
LID_A1           SOIL       24         0.4        0.2        0.1        5          5          1.5
LID_A1           STORAGE    18         0.67       0.01875    0
LID_A1           DRAIN      0.1999     0.5        0          6

[LID_USAGE]
;;Subcatchment   LID Process      Number  Area       Width      InitSatur  FromImprv  ToPerv     Report File
;;-------------- ---------------- ------- ---------- ---------- ---------- ---------- ---------- -----------

[OUTFALLS]
;;               Invert     Outfall    Stage/Table      Tide
;;Name           Elev.      Type       Time Series      Gate
;;-------------- ---------- ---------- ---------------- ----
POC-1            0          FREE                        NO

[TIMESERIES]
;;Name           Date       Time       Value
;;-------------- ---------- ---------- ----------
OCEANSIDE        FILE "Y:\Projects\298 (Pacific Land Investors, LLC)\01 (Lehner Ave HMP Design)\Pickering\SWMM\OsideRain.prn"

[REPORT]
INPUT      NO
CONTROLS   NO
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]

[MAP]
DIMENSIONS 0.000 0.000 10000.000 10000.000
Units      None
```

Pickering Pre-Development

```
[COORDINATES]
;;Node           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
POC-1            2500.000           2700.000

[VERTICES]
;;Link           X-Coord            Y-Coord
;;-------------- ------------------ ------------------

[Polygons]
;;Subcatchment   X-Coord            Y-Coord
;;-------------- ------------------ ------------------
DMA-B            2500.000           6000.000
DMA-B            2500.000           6000.000

[SYMBOLS]
;;Gage           X-Coord            Y-Coord
;;-------------- ------------------ ------------------
OCEANSIDE        1525.424           6864.407
```

ATTACHMENT 7

EPA SWMM FIGURES AND EXPLANATIONS

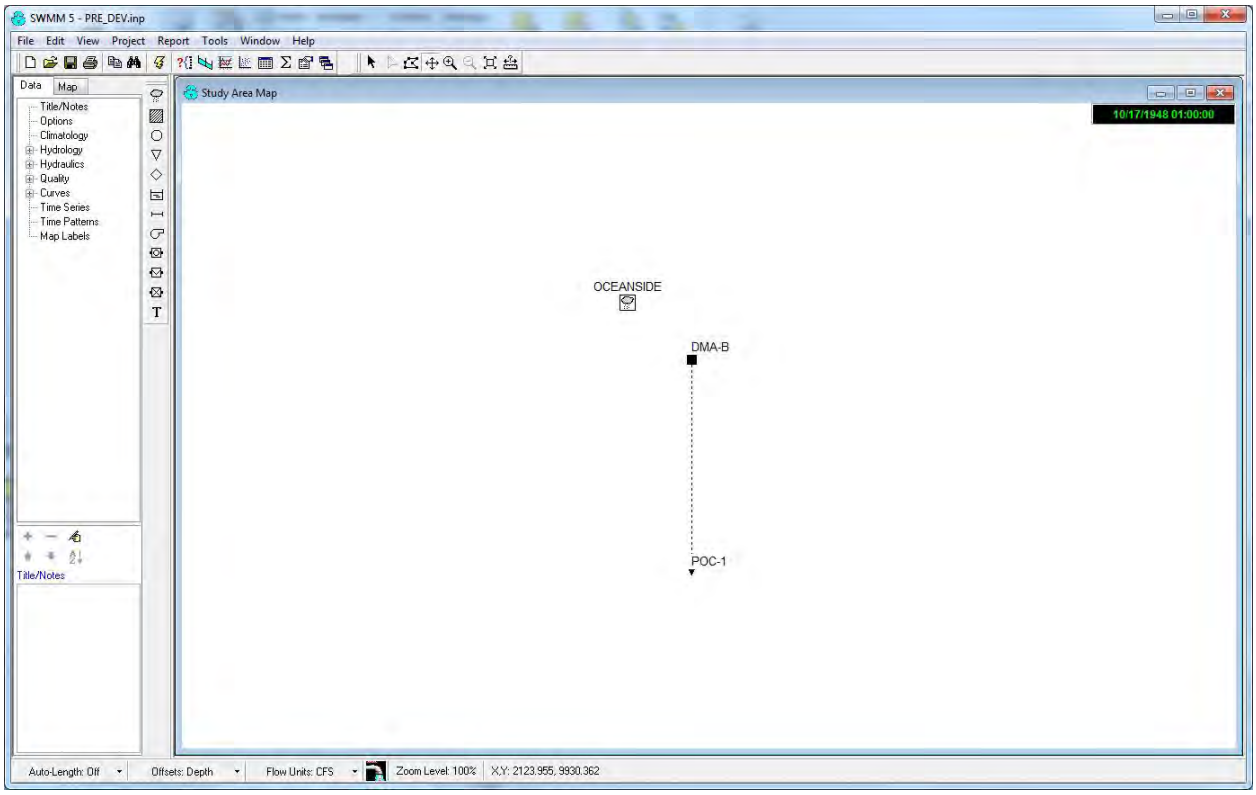
Per the attached, the reader can see the screens associated with the EPA-SWMM Model in both pre-development and post-development conditions. Each portion, i.e., sub-catchments, outfalls, storage units, weir as a discharge, and outfalls (point of compliance), are also shown.

Variables for modeling are associated with typical recommended values by the EPA-SWMM model, typical values found in technical literature (such as Maidment's Handbook of Hydrology). Recommended values for the SWMM model have been attained from the interim Orange County criteria established for their SWMM calibration. Currently, no recommended values have been established by the San Diego County HMP Permit for the SWMM Model.

Soil characteristics of the existing soils were determined from the San Diego County Hydrology Manual (June 2003) Soil Map.

Some values incorporated within the SWMM model have been determined from the professional experience of TRWE using conservative assumptions that have a tendency to increase the size of the needed BMP and also generate a long-term runoff as a percentage of rainfall similar to those measured in gage stations in Southern California by the USGS.

PRE-DEVELOPED CONDITION



Outfall POC-1

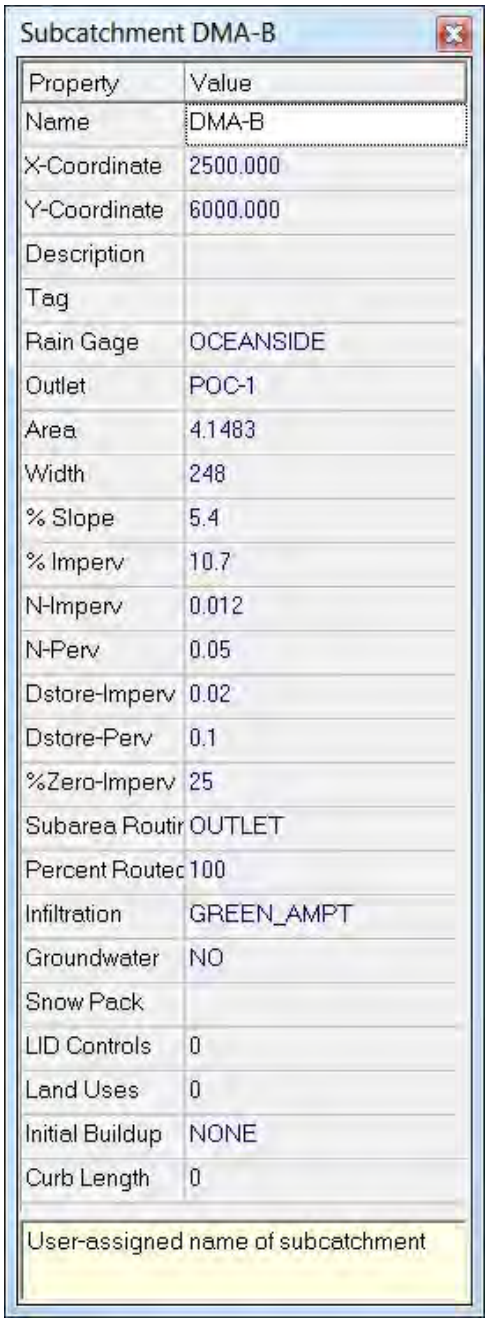
Property	Value
Name	POC-1
X-Coordinate	2500.000
Y-Coordinate	2700.000
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*

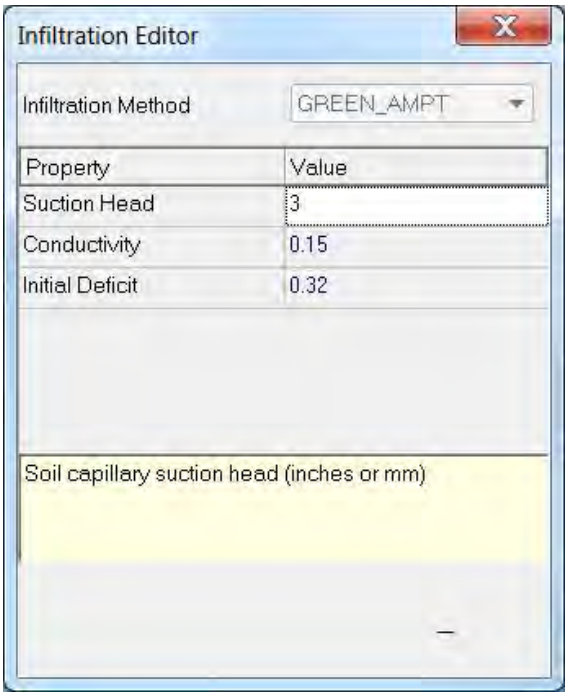
User-assigned name of outfall

Rain Gage OCEANSIDE

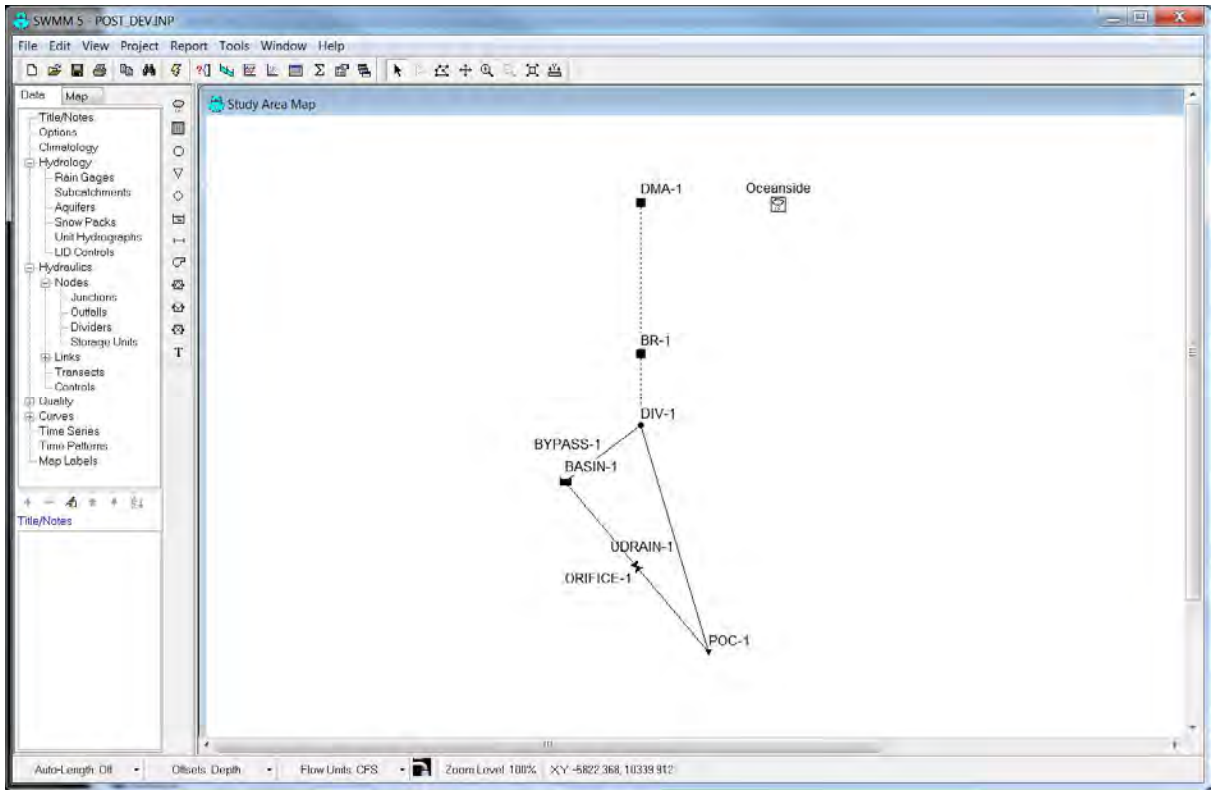
Property	Value
Name	OCEANSIDE
X-Coordinate	1525.424
Y-Coordinate	6864.407
Description	
Tag	
Rain Format	INTENSITY
Time Interval	1:00
Snow Catch Factor	1.0
Data Source	TIMESERIES
TIME SERIES:	
- Series Name	OCEANSIDE
DATA FILE:	
- File Name	*
- Station ID	*
- Rain Units	IN

User-assigned name of rain gage


Subcatchment DMA-B
Property
Value
Name
DMA-B
X-Coordinate
2500.000
Y-Coordinate
6000.000
Description
Tag
Rain Gage
OCEANSIDE
Outlet
POC-1
Area
4.1483
Width
248
% Slope
5.4
% Imperv
10.7
N-Imperv
0.012
N-Perv
0.05
Dstore-Imperv
0.02
Dstore-Perv
0.1
%Zero-Imperv
25
Subarea Routir
OUTLET
Percent Routec
100
Infiltration
GREEN_AMPT
Groundwater
NO
Snow Pack
LID Controls
0
Land Uses
0
Initial Buildup
NONE
Curb Length
0
User-assigned name of subcatchment


Infiltration Editor
Infiltration Method
GREEN_AMPT
Property
Value
Suction Head
3
Conductivity
0.15
Initial Deficit
0.32
Soil capillary suction head (inches or mm)

POST-DEVELOPED CONDITION



Outfall POC-1

Property	Value
Name	POC-1
X-Coordinate	-605.850
Y-Coordinate	3259.053
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Tide Gate	NO
Type	FREE
Fixed Outfall	
Fixed Stage	0
Tidal Outfall	
Curve Name	*
Time Series Outfall	
Series Name	*

User-assigned name of outfall

Rain Gage Oceanside

Property	Value
Name	Oceanside
X-Coordinate	1000.000
Y-Coordinate	8000.000
Description	
Tag	
Rain Format	INTENSITY
Time Interval	1:00
Snow Catch Factor	1.0
Data Source	TIMESERIES
TIME SERIES:	
- Series Name	Oceanside
DATA FILE:	
- File Name	*
- Station ID	*
- Rain Units	IN

User-assigned name of rain gage

Subcatchment DMA-1

Property	Value
Name	DMA-1
X-Coordinate	-1500.000
Y-Coordinate	9200.000
Description	Subarea A w/o bioretention
Tag	
Rain Gage	Oceanside
Outlet	BR-1
Area	4.0429
Width	226
% Slope	3.5
% Imperv	51.53
N-Imperv	.012
N-Perv	0.05
Dstore-Imperv	.02
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routir	OUTLET
Percent Routec	100
Infiltration	GREEN_AMPT
Groundwater	NO
Snow Pack	
LID Controls	0
Land Uses	0
Initial Buildup	NONE
Curb Length	0

User-assigned name of subcatchment

Subcatchment BR-1

Property	Value
Name	BR-1
X-Coordinate	-1500.000
Y-Coordinate	7200.000
Description	
Tag	
Rain Gage	Oceanside
Outlet	DIV-1
Area	0.0941
Width	34.2
% Slope	0
% Imperv	0
N-Imperv	0.012
N-Perv	0.05
Dstore-Imperv	.02
Dstore-Perv	.1
%Zero-Imperv	25
Subarea Routir	OUTLET
Percent Routec	100
Infiltration	GREEN_AMPT
Groundwater	NO ...
Snow Pack	
LID Controls	1
Land Uses	0
Initial Buildup	NONE
Curb Length	0

Groundwater flow parameters (click to edit)

Infiltration Editor

Infiltration Method: GREEN_AMPT

Property	Value
Suction Head	3
Conductivity	0.15
Initial Deficit	0.32

EXPLANATION OF SELECTED VARIABLES

Sub Catchment Areas:

Please refer to the attached diagrams that indicate the DMA and Bio-Retention BMP (BMP) sub areas modeled within the project site at both the pre and post developed conditions draining to the POC.

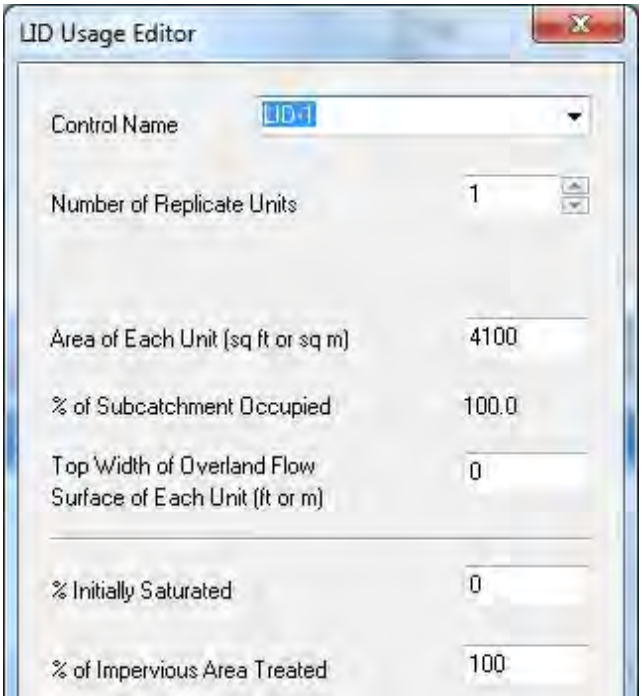
Parameters for the pre- and post-developed models include soil type B as determined from the County of San Diego Hydrology Manual Soil Map. Suction head, conductivity and initial deficit corresponds to average values expected for these soils types, according to sources consulted, professional experience, and approximate values obtained by the interim Orange County modeling approach.

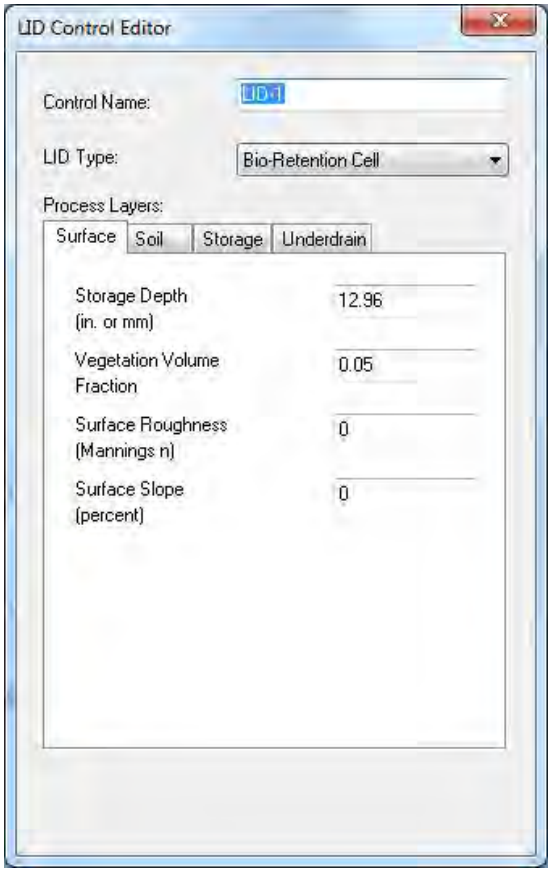
TRWE selected infiltration values, such that the percentage of total precipitation that becomes runoff, is realistic for the soil types and slightly smaller than measured values for Southern California watersheds.

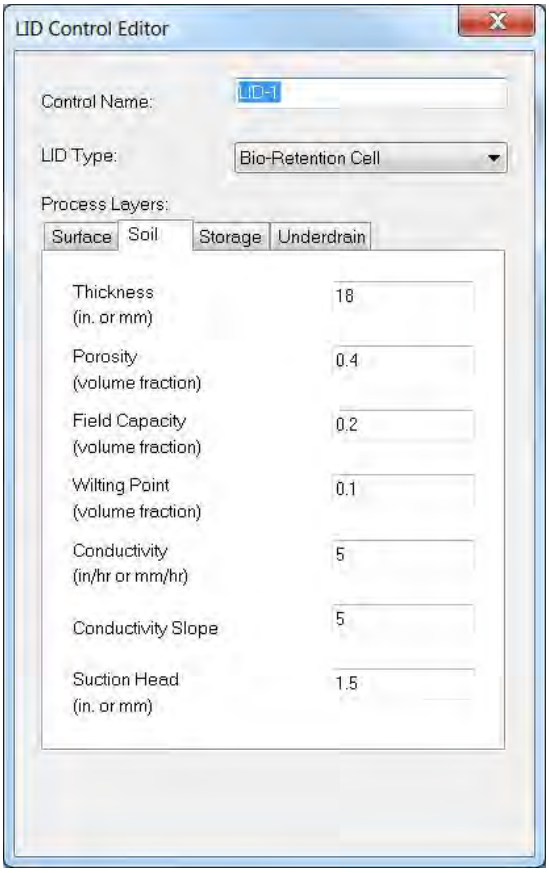
Selection of a Kinematic Approach: As the continuous model is based on hourly rainfall, and the time of concentration for the pre-development and post-development conditions is significantly smaller than 60 minutes, precise routing of the flows through the impervious surfaces, the underdrain pipe system, and the discharge pipe was considered unnecessary. The truncation error of the precipitation into hourly steps is much more significant than the precise routing in a system where the time of concentration is much smaller than 1 hour.

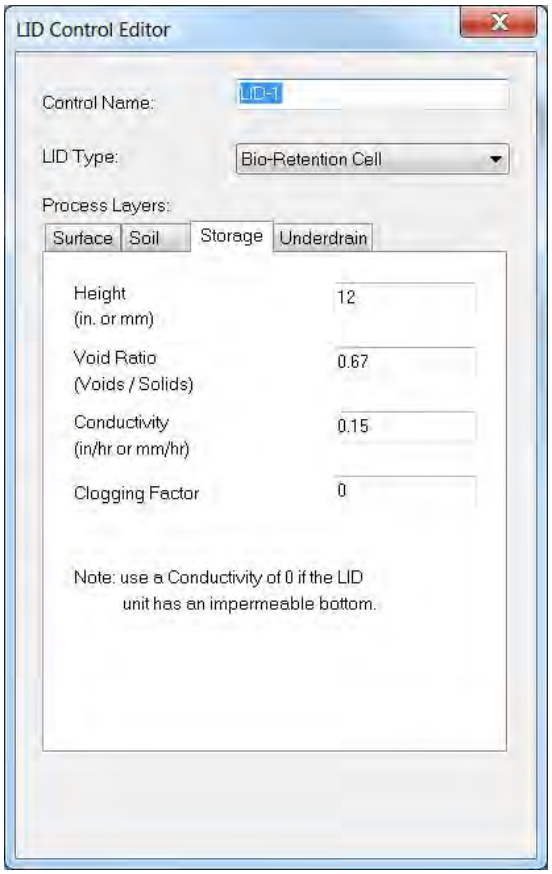
Sub-catchment BMP:

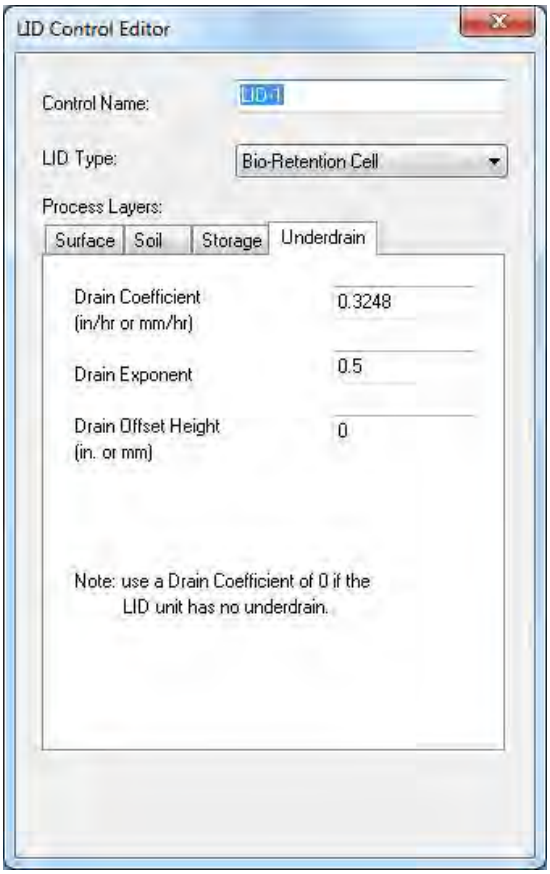
The area of bio-retention must be equal to the area of the development tributary to the bioretention facility (area that drains into the bioretention, equal external area plus bio-retention itself). Five (5) decimal places were given regarding the areas of the bio-retention to insure that the area used by the program for the LID subroutine corresponds exactly with this tributary.




LID Control Editor
Control Name:
LID-1
LID Type:
Bio-Retention Cell
Process Layers:
Surface
Soil
Storage
Underdrain
Storage Depth
(in. or mm)
12.96
Vegetation Volume
Fraction
0.05
Surface Roughness
(Mannings n)
0
Surface Slope
(percent)
0


LID Control Editor
Control Name:
LID-1
LID Type:
Bio-Retention Cell
Process Layers:
Surface
Soil
Storage
Underdrain
Thickness
(in. or mm)
18
Porosity
(volume fraction)
0.4
Field Capacity
(volume fraction)
0.2
Wilting Point
(volume fraction)
0.1
Conductivity
(in/hr or mm/hr)
5
Conductivity Slope
5
Suction Head
(in. or mm)
1.5


LID Control Editor
Control Name:
LID-1
LID Type:
Bio-Retention Cell
Process Layers:
Surface
Soil
Storage
Underdrain
Height
(in. or mm)
12
Void Ratio
(Voids / Solids)
0.67
Conductivity
(in/hr or mm/hr)
0.15
Clogging Factor
0
Note: use a Conductivity of 0 if the LID
unit has an impermeable bottom.


LID Control Editor
Control Name:
LID-1
LID Type:
Bio-Retention Cell
Process Layers:
Surface
Soil
Storage
Underdrain
Drain Coefficient
(in/hr or mm/hr)
0.3248
Drain Exponent
0.5
Drain Offset Height
(in. or mm)
0
Note: use a Drain Coefficient of 0 if the
LID unit has no underdrain.

LID Control Editor: Explanation of Significant Variables

Storage Depth:

The storage depth variable within the SWMM model is representative of the storage volume provided beneath the engineered soil and mulch components of the bioretention facility.

Porosity: A porosity value of 0.4 has been selected for the model. The amended soil is to be highly sandy in content in order to have a saturated hydraulic conductivity of approximately 5 in/hr.

TRWE considers such a value to be slightly high; however, in order to comply with the HMP Permit, the value recommended by the Copermittees for the porosity of amended soil is 0.4, per Appendix A of the Final Hydromodification Management Plan by Brown & Caldwell, dated March 2011. Such porosity is equal to the porosity of the gravel per the same document.

Void Ratio: The ratio of the void volume divided by the soil volume is directly related to porosity as n/(1-n). As the underdrain layer is composed of gravel, a porosity value of 0.4 has been selected (also per Appendix A of the Final HMP document), which results in a void ratio of 0.4/(1-0.4) = 0.67 for the gravel detention layer.

Conductivity: Due to the natural soil existing on site, infiltration was a viable addition to the LID design. As the BMP is not lined, the conductivity value was set to 0.15 to represent infiltration for compacted Type B soil.

Clogging factor: A clogging factor was not used (0 indicates that there is not clogging assumed within the model). The reason for this is related to the fairness of a comparison with the SDHM model and the HMP sizing tables: a clogging factor was not considered, and instead, a conservative value of infiltration was recommended.

Drain (Flow) coefficient: The flow coefficient in the SWMM Model is the coefficient needed to transform the orifice equation into a general power law equation of the form:

$$q = C(H - H_D)^n \qquad (1)$$

where q is the peak flow in in/hr, n is the exponent (typically 0.5 for orifice equation), H_D is the elevation of the centroid of the orifice in inches (assumed equal to the invert of the orifice for small orifices and in our design equal to 0) and H is the depth of the water in inches.

The general orifice equation can be expressed as:

$$Q = \frac{\pi}{4} c_g \frac{D^2}{144} \sqrt{2g \frac{(H - H_D)}{12}} \qquad (2)$$

where Q is the peak flow in cfs, D is the diameter in inches, c_g is the typical discharge coefficient for orifices (0.61-0.63 for thin walls and around 0.75-0.8 for thick walls), g is the acceleration of gravity in ft/s^2, and H and H_D are defined above and are also used in inches in Equation (2).

Detention Basin 1

Storage Unit BASIN-1

Property	Value
Name	BASIN-1
X-Coordinate	-2500.000
Y-Coordinate	5500.000
Description	
Tag	
Inflows	NO
Treatment	NO
Invert El.	0
Max. Depth	0.97
Initial Depth	0
Ponded Area	5561
Evap. Factor	1
Infiltration	NO
Storage Curve	TABULAR
Functional Curv	
Coefficient	1000
Exponent	0
Constant	0
Tabular Curve	
Curve Name	BASIN-1

User-assigned name of storage unit

Storage Curve Editor

Curve Name: BASIN-1

Description:

	Depth (ft)	Area (ft2)
1	0.00	4922
2	0.25	5087
3	0.50	5252
4	0.75	5416
5	0.97	5561
6		
7		
8		
9		

Outlet ORIFICE-1

Property	Value
Name	ORIFICE-1
Inlet Node	BASIN-1
Outlet Node	POC-1
Description	
Tag	
Inlet Offset	0
Flap Gate	NO
Rating Curve	TABULAR/DEPTH
Functional Curv	
Coefficient	10.0
Exponent	0.5
Tabular Curve	
Curve Name	OUTLET-1

Rating Curve Editor

Curve Name: OUTLET-1

Description:

	Head (ft)	Outflow (CFS)
1	0	0
2	0.1	0.784
3	0.2	2.22
4	0.3	4.08
5	0.4	6.27
6	0.5	8.77
7	0.6	11.53
8	0.7	14.52
9	0.8	17.75
10	0.9	21.17
11	0.97	23.69

ATTACHMENT 8

Soil Map

ATTACHMENT 9

Summary Files from the SWMM Model

Pickering Post-Dev

```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.0 (Build 5.0.022)
--------------------------------------------------------------

***********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
***********************************************************

***************
Analysis Options
***************
Flow Units ............... CFS
Process Models:
  Rainfall/Runoff ........ YES
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Flow Routing Method ...... KINWAVE
Starting Date ............ OCT-01-1951 00:00:00
Ending Date .............. SEP-30-2008 23:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 01:00:00
Wet Time Step ............ 00:15:00
Dry Time Step ............ 04:00:00
Routing Time Step ........ 60.00 sec


WARNING 04: minimum elevation drop used for Conduit BYPASS-1

WARNING 04: minimum elevation drop used for Conduit UDRAIN-1

*************************        Volume         Depth
Runoff Quantity Continuity     acre-feet        inches
*************************     ---------       -------
Total Precipitation ......       232.486       674.360
Evaporation Loss .........        20.777        60.267
Infiltration Loss ........       122.781       356.146
Surface Runoff ...........        91.326       264.906
Final Surface Storage ....         0.000         0.000
Continuity Error (%) .....        -1.032


*************************        Volume        Volume
Flow Routing Continuity        acre-feet      10^6 gal
*************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......        91.300        29.751
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
External Outflow .........        91.132        29.697
Internal Outflow .........         0.000         0.000
Storage Losses ...........         0.157         0.051
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.000         0.000
Continuity Error (%) .....         0.012


*******************************
Highest Flow Instability Indexes
*******************************
All links are stable.


************************
Routing Time Step Summary
************************
Minimum Time Step           :    60.00 sec
Average Time Step           :    60.00 sec
Maximum Time Step           :    60.00 sec
Percent in Steady State     :     0.00
Average Iterations per Step :     1.00


**************************
Subcatchment Runoff Summary
**************************

-----------------------------------------------------------------------------------------------------------
                         Total      Total      Total      Total      Total       Total     Peak  Runoff
                        Precip      Runon       Evap      Infil     Runoff      Runoff   Runoff   Coeff
Subcatchment                in         in         in         in         in    10^6 gal      CFS
-----------------------------------------------------------------------------------------------------------
DMA-1                   674.36       0.00      40.46     310.75     327.88       35.99     4.56   0.486
BR-1                    674.36   14087.16     911.45    2306.59   11646.31       29.76     4.60   0.789


**********************
```

Pickering Post-Dev

LID Performance Summary
****

Subcatchment	LID Control	Total Inflow in	Evap Loss in	Infil Loss in	Surface Outflow in	Drain Outflow in	Init. Storage in	Final Storage in	Pcnt. Error
BR-1	LID-1	14761.52	911.26	2306.11	1237.49	10406.40	0.00	0.00	-0.68

****
Node Depth Summary
****

Node	Type	Average Depth Feet	Maximum Depth Feet	Maximum HGL Feet	Time of Max Occurrence days hr:min
POC-1	OUTFALL	0.00	0.00	0.00	0 00:00
DIV-1	DIVIDER	0.00	0.00	0.00	0 00:00
BASIN-1	STORAGE	0.00	0.32	0.32	18823 17:15

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow CFS	Maximum Total Inflow CFS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 gal	Total Inflow Volume 10^6 gal
POC-1	OUTFALL	0.00	4.60	18823 17:15	0.000	29.694
DIV-1	DIVIDER	4.60	4.60	18823 17:15	29.749	29.749
BASIN-1	STORAGE	0.00	4.51	18823 17:15	0.000	3.755

****
Node Surcharge Summary
****

Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Feet	Min. Depth Below Rim Feet
DIV-1	DIVIDER	499679.02	0.000	0.000
BASIN-1	STORAGE	499679.02	0.319	0.651

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary
****

Storage Unit	Average Volume 1000 ft3	Avg Pcnt Full	E&I Pcnt Loss	Maximum Volume 1000 ft3	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow CFS
BASIN-1	0.001	0	1	1.606	32	18823 17:15	4.50

****
Outfall Loading Summary
****

Outfall Node	Flow Freq. Pcnt.	Avg. Flow CFS	Max. Flow CFS	Total Volume 10^6 gal
POC-1	3.27	0.07	4.60	29.694
System	3.27	0.07	4.60	29.694

****
Link Flow Summary
****

Link	Type	Maximum |Flow| CFS	Time of Max Occurrence days hr:min	Maximum |Veloc| ft/sec	Max/ Full Flow	Max/ Full Depth

```
-------------------------------------------------------------------------------
BYPASS-1             DUMMY        4.51  18823  17:15
UDRAIN-1             DUMMY        0.10    107  11:50
ORIFICE-1            DUMMY        4.50  18823  17:15


************************
Conduit Surcharge Summary
************************

-------------------------------------------------------------------------------
                                                        Hours        Hours
                      --------- Hours Full --------   Above Full   Capacity
Conduit               Both Ends  Upstream  Dnstream   Normal Flow   Limited
-------------------------------------------------------------------------------
BYPASS-1                   0.01      0.01      0.01  499679.02         0.01
UDRAIN-1                   0.01      0.01      0.01  499679.02         0.01


Analysis begun on:  Mon Oct 28 17:53:21 2013
Analysis ended on:  Mon Oct 28 17:53:52 2013
Total elapsed time: 00:00:31
```

Pickering Pre-Development

```
EPA STORM WATER MANAGEMENT MODEL - VERSION 5.0 (Build 5.0.022)
--------------------------------------------------------------

***********************************************************
NOTE: The summary statistics displayed in this report are
based on results found at every computational time step,
not just on results from each reporting time step.
***********************************************************

***************
Analysis Options
***************
Flow Units ............... CFS
Process Models:
  Rainfall/Runoff ........ YES
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... NO
  Water Quality .......... NO
Infiltration Method ...... GREEN_AMPT
Starting Date ............ OCT-17-1948 00:00:00
Ending Date .............. OCT-17-2005 23:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 01:00:00
Wet Time Step ............ 00:15:00
Dry Time Step ............ 04:00:00


*************************        Volume         Depth
Runoff Quantity Continuity     acre-feet        inches
*************************     ---------       -------
Total Precipitation ......       224.800       650.290
Evaporation Loss .........         3.393         9.815
Infiltration Loss ........       191.120       552.863
Surface Runoff ...........        31.177        90.189
Final Surface Storage ....         0.000         0.000
Continuity Error (%) .....        -0.396


*************************        Volume        Volume
Flow Routing Continuity        acre-feet      10^6 gal
*************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......        31.177        10.160
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
External Outflow .........        31.177        10.160
Internal Outflow .........         0.000         0.000
Storage Losses ...........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.000         0.000
Continuity Error (%) .....         0.000


**************************
Subcatchment Runoff Summary
**************************

-----------------------------------------------------------------------------------------------------
                         Total      Total      Total      Total      Total       Total     Peak  Runoff
                        Precip      Runon       Evap      Infil     Runoff      Runoff   Runoff   Coeff
Subcatchment                in         in         in         in         in    10^6 gal      CFS
-----------------------------------------------------------------------------------------------------
DMA-B                   650.29       0.00       9.81     552.86      90.19       10.16     4.40   0.139


Analysis begun on:  Tue Oct 22 10:46:39 2013
Analysis ended on:  Tue Oct 22 10:46:53 2013
Total elapsed time: 00:00:14
```

ATTACHMENT 4:

MAINTENANCE PLAN FOR PICKERING PARCEL PROJECT

MAINTENANCE PLAN FOR PICKERING PARCEL PROJECT
CITY OF ESCONDIDO

General Outline:

I. Purpose and scope
II. Inspection, Maintenance Log and Self-Verification Forms
III. Updates, Revisions and Errata
IV. Introduction
V. Responsibility for Maintenance
    A. General
    B. Staff Training Program
    C. Records
    D. Safety
VI. Summary of Drainage Areas and Stormwater Facilities
    A. Drainage Areas
    B. Treatment and Flow-Control Facilities
VII. Facility Documentation
VIII. Maintenance Schedule or Matrix
    A. Maintenance Schedule for each facility with specific requirements
    B. Service Agreement Information

I. Purpose and Scope

This section was prepared based on the Chapter 5 of City of Escondido Standard Urban Stormwater Mitigation Plan (SUSMP). The goal is to insure that the Project proponent accepts responsibility for all facilities maintenance, repair, and replacement from the time they are constructed until the ownership and maintenance responsibilities is formally transferred to the new owner. Facilities shall be maintained in perpetuity and comply with the City's self-inspection, reporting, and verification requirements.

II. Inspection, Maintenance Log and Self-Verification Forms

Fill the forms on the following pages for each BMP using the maintenance schedule here and the inspection-maintenance checklists in Section VII. These forms shall be signed by the responsible party and retained for at least (5) years. Use the Water Quality Technical Report Exhibit for the location of BMPs. (Make duplicate copies of these forms and fill out those, not the original ones.)

III. Updates, Revisions and Errata

This maintenance plan is a living document and based on the changes made by maintenance personnel, such as replacement of mechanical equipments, addition maintenance procedure shall be added and maintenance plan shall be kept up to date.

Please add the revisions and updates to the maintenance plan to this section if any, these revisions maybe transmitted to the County at any time. However, at a minimum, updates to the maintenance plan must accompany the annual inspection repor**t.**

IV. Introduction

The project site is located in the City of Escondido, APN 224-142-01, in northern San Diego County. For purpose of this report, the project will be referred as "Pickering Parcel". The Pickering Parcel project is located approximately 1.5 miles east of the I-15 freeway and Centre City Parkway off ramp, near the Reidy Creek Golf Course. It is bordered by Stanley Avenue to the northwest, Lehner Avenue to the southeast, and North Ash Street along the southwestern property line. Proposed development is a 4.2-acre residential subdivision with 13 new single family dwellings, and public roadway with a cul-de-sac. This project is in a neighborhood composed of mostly single family residential homes with pens for horses. The total disturbed area will be 4.2 ac on a 4.2 gross acre site.

This project is encompassed by one drainage management area, draining to a bioretention basin. The bioretention facility is incorporated into the project design to treat the water from the roofs, impervious walkways and driveways. The Project runoff will be discharged into an existing storm drain under Lehner Avenue.

V. Responsibility for Maintenance

A. General

Pacific Land Investors, LLC. will enter into a Stormwater Facilities Maintenance Agreement (SWFMA) with the City of Escondido to maintain designated facilities herein this section for the Stanley Avenue Project.

The SWFMA will serve as the mechanism to ensure that proper inspection and maintenance is done in an efficient and timely manner.

Responsible Party

Pacific Land Investors, LLC.
101 Pacifica, Suite 200
Irvine, CA 92618

Pacific Land Investors, LLC. will have the direct responsibility for maintenance of Stormwater controls. A Home Owner's Association (HOA) shall be formed, or establish another mechanism to the satisfaction of the City. Funding for the maintenance activities shall be provided by Pacific Land Investors LLC., the HOA, or other mechanism to the satisfaction of the City.

Whenever the property is sold and whenever designated individual change, immediately the updated contact information must be provided to the City of Escondido.

B. Staff Training Program

Staff training and education program shall be carried out twice a year, once prior to the rainy season (October 15) and once during the early dry season (April).

The inspection and maintenance training program consists of the operation and function of the bioretention basins. Please refer to the sections VI and VII for fact sheets and checklists.

It is the responsibility of Pacific Land Investors, LLC. to convey the maintenance and inspection information to the employees. Maintenance personnel must be qualified to properly maintain

Stormwater management facilities. Inadequately trained personnel can cause additional problems resulting in additional maintenance costs.

C. Records

Pacific Land Investors, LLC. shall retain education, inspection, and maintenance forms and documents for at least five (5) years.

D. Safety

Keep safety considerations at the forefront of inspection procedures at all times. Likely hazards should be anticipated and avoided. Never enter a confined space (outlet structure, manhole, etc) without proper training or equipment. A confined space should never be entered without at least one additional person present.

If a toxic or flammable substance is discovered, leave the immediate area and contact the local Sheriff at 911.

Potentially dangerous (e.g., fuel, chemicals, hazardous materials) substances found in the areas must be referred to the local Sheriff's Office immediately for response by the Hazardous Materials Unit. The emergency contact number is 911.

Vertical drops may be encountered in areas located within and around the facility. Avoid walking on top of retaining walls or other structures that have a significant vertical drop. If a vertical drop is identified within the pond that is greater than 48" in height, make the appropriate note/comment on the maintenance inspection form.

VI. Summary of Drainage Areas and Stormwater Facilities

A. Drainage Areas

DMA 1 encompasses the full site, Lots 1-13 and the street area, due to the fact that all drainage will be treated and mitigated at one IMP, known as Basin 1 in this WQTR. All drainage is conveyed via surface flow to a modified D-25 Curb Outlet at the end of the cul-de-sac, and directed to Basin 1 for treatment and detention prior to discharge to the Storm Drain below Lehner Ave.

B. Treatment and Flow-Control Facilities

All stormwater runoff will be treated by the bioretention basin. The treated runoff will percolate into the existing ground as much as possible, with an overflow outlet connecting to the existing storm drain under Lehner Avenue.

See the Water Quality Technical Report Exhibit for the location of BMPs.

The bioretention basin is designed to treat and detain runoff and allow percolation into the underlying soil. Pollutants are removed as the runoff passes through the soil layer and the underlying layer of gravel or drain rock. There will be an overflow outlet, which conveys flows that exceed the capacity of the planter. All the basins for this Project are sized based on the City of Escondido SUSMP. See the calculation and sizing tables in Attachment 2.

VII. Facility Documentation

Please see the following pages regarding the BMPs details and maintenance fact sheets.

VIII. Maintenance Schedule and Checklist

Fill out the Checklists in the following pages for each BMP. The Required Maintenance activities are at the end of this section. At the discretion of the Project proponent, a qualified Stormwater company may be hired to perform the required inspection and maintenance and provide necessary reports.

FREE RECORDING REQUESTED
PURSUANT TO GOVERNMENT
CODE SECTION 27383
RECORDING REQUESTED BY:

CITY OF ESCONDIDO

WHEN RECORDED MAIL TO:

DIR. OF ENGINEERING SERVICES
CITY OF ESCONDIDO
201 N. BROADWAY
ESCONDIDO, CA 92025

(SPACE ABOVE FOR RECORDER'S USE ONLY)

Documentary Transfer Tax $_____
Signature _____

STORM WATER CONTROL FACILITY MAINTENANCE AGREEMENT
APN NO. _____

THIS AGREEMENT for the design, construction, maintenance and repair of the Storm Water Control Facilities (SWCF(s)), installed on the property as identified in the San Diego County Assessor Tax Roll for 20__, as APN No. _____, and commonly known as _____, Escondido, California, ("Property") is entered into between the **CITY OF ESCONDIDO**, a municipal corporation ("CITY") and _____**,** Developer and/or Property Owner ("LOT OWNER(s)"), and in accordance with the CITY of Escondido Grading Plan No. GP__-_____ ("Grading Plan"). ("Agreement")

WHEREAS, installation and maintenance of Storm Water Control Facilities is required pursuant to the Escondido Municipal Code, the California Regional Water Quality Control Board ("RWQCB") and by the CITY as a condition of approval of property development; and

WHEREAS, LOT OWNER(s) is the owner of certain real property being developed that provides benefit to the general public and the CITY and meets the requirements of the California RWQCB Order R9-2007-0001 and National Pollution Discharge Elimination System No. CAS0108758; and

WHEREAS, the current and future subdivision LOT OWNER(s) will use the SWCF(s) as installed per the Grading Plan and the provisions of the Water Quality Technical Report ("Storm Water Plan") prepared by the LOT OWNER(s) and submitted to the CITY, dated _____, 20__; and

WHEREAS, it is the mutual desire of the parties to this Agreement that the SWCF(s) be maintained in a safe and usable condition by the LOT OWNER(s); and

WHEREAS, it is the mutual desire of the parties to this Agreement to establish a method for the maintenance and repair of the SWCF(s); and

WHEREAS, the CITY shall have the right but not the obligation to enforce full compliance with the terms and conditions of this Agreement; and

WHEREAS, it is the mutual intention of the parties that this Agreement constitute a covenant running with the land, binding upon each successive LOT OWNER of all or any portion of the property.

NOW, THEREFORE, IT IS HEREBY AGREED AS FOLLOWS:

1. The Property is benefited by this Agreement, and present and successive LOT OWNER(s) of all or any portion of the property are expressly bound hereby for the benefit of the land. In the event any of the herein described parcels of land are subdivided further, the LOT OWNER(s), heirs, assigns and successors in interest of each such newly created parcel shall be liable under this Agreement for their then pro rata share of expenses and such pro rata shares of expenses shall be computed to reflect such newly created parcels.

2. The cost and expense of maintaining the SWCF(s) shall be the responsibility of and paid by the LOT OWNER(s) or their heirs, assigns and successors in interest. The SWCF(s) shall be constructed and maintained by the LOT OWNER(s) in accordance with the CITY- approved Grading Plan and Storm Water Plan, on file with the CITY.

3. Repair and maintenance responsibilities for all structural SWCF(s) and required Best Management Practices associated with the project are set forth in the Storm Water Plan. LOT OWNER(s) shall, as changes occur, provide the CITY with the name, title, and phone number the persons or entities responsible for maintenance and reporting activity, the persons or entities responsible for funding, schedules and procedures for inspection and maintenance of the SWCF(s) and implementation of worker training requirements, and any other activities necessary to ensure BMP maintenance. The Storm Water Plan shall provide for the servicing of all SWCF(s) as needed and at least once during August or September of each year, and for the retention of inspection and maintenance records for at least three (3) years. LOT OWNER(s) shall submit annual certification to the CITY's Department of Engineering Services between September 1 and October 1 of each year until the property is redeveloped. The certification shall document all maintenance performed and compliance with applicable permits.

4. CITY shall have the right to inspect the SWCF(s) and records as needed to ensure the SWCF(s) are being properly maintained.

5. Should any LOT OWNER(s) fail to pay their share of costs and expenses as required to use, maintain or repair the SWCF(s) in this Agreement, then the CITY or any other LOT OWNER shall be entitled without further notice to institute legal action for the collection of funds advanced on behalf of the LOT OWNER who did not pay their share of costs and expenses and shall be entitled to recover in such action in addition to the funds advanced, interest thereon at the current prime rate of interest, until paid, all costs and disbursements of such action, including such sum or sums as the court may fix as and for a reasonable attorney's fees.

6. Any liability of the LOT OWNER(s) to any worker employed to make repairs or provide maintenance under this Agreement, or to third persons, as well as any liability of the LOT OWNER(s) for damage to the property of agent, or any such worker, or any third persons, as a result of or arising out of repairs and maintenance under this Agreement, shall be borne, as between the LOT OWNER(s) in the same percentages as they bear the costs and expenses of such repairs and maintenance. Each LOT OWNER shall be responsible for and maintain his own insurance, if any. By this Agreement, the parties do not intend to provide for the sharing of liability

with respect to personal injury or property damage other than that attributable to the repairs and maintenance undertaken under this Agreement. Each of the LOT OWNER(s) agrees to indemnify the others from any and all liability for injury to him or damage to their property when such injury or damage results from, arises out of, or is attributable to any maintenance or repairs undertaken pursuant to this Agreement.

7. CITY Indemnification.

a) To the fullest extent permitted by law, LOT OWNER(s) shall jointly and severally indemnify, defend with legal counsel reasonably satisfactory to the CITY, and hold harmless the CITY and the CITY's officers, directors, employees, and council members (hereinafter referred to as "Indemnitees") from all actions, fines, sanctions, levies, penalties, orders and assessments of any kind harmless against any and all liability, loss, damage, fine, penalty, expense, claim, or cost (including without limitation costs and fees of litigation) of every nature (collectively referred to as "RWQCB Orders") that may arise out of or relate to LOT OWNER(s)'s obligations for implementation of storm water management in accordance with the RWQCB Order R9-2007-0001 and subsequent amendments, including any reasonable attorney's fees, costs and expenses incurred by the Indemnitees in responding to any RWQCB Orders arising out of or relating to implementation of storm water management. LOT OWNER(s) obligations shall include but not be limited to design, construction, maintenance and required documentation of the maintenance activities related to all storm water treatment measures proposed for the project and included in the STORM WATER PLAN, dated _____, arising out of or in connection with this Agreement or its performance (including acts of omission) except for liability caused by the Indemnitees willful misconduct.

b) LOT OWNER(s) obligation to defend shall apply whether or not Indemnitees were negligent or otherwise at fault and whether or not the RWQCB's Orders have any merit. LOT OWNER(s) obligation to defend shall apply with full force and effect regardless of any concurrent negligence or fault by the Indemnitees, or any of them. However LOT OWNER(s) shall not be obligated under this Agreement to indemnify any Indemnitee after entry of a non-appealable final judgment after trial or award in a judicial proceeding for that portion of the final judgment that arises from the willful misconduct of that Indemnitee.

c) LOT OWNER(s) duty to defend the Indemnitees is separate, independent and free standing from LOT OWNER(s) duty to indemnify and hold harmless the Indemnitees. LOT OWNER(s) defense obligation shall arise immediately upon receipt by CITY or LOT OWNER(s) of any written Notice of Violation or equivalent notice of intent to levy any fines, penalties or sanctions against Indemnitees by the RWQCB or other enforcement agency, and shall continue until the entry of any final and non-appealable RWQCB or other enforcement orders.

d) LOT OWNER(s) obligation to indemnify, defend and hold harmless shall be carried on to future property OWNERS and shall continue until the time that the site is redeveloped.

e) It is expressly understood and agreed that the foregoing provisions will survive termination of this Agreement, unless the property is properly redeveloped.

(f) The indemnity protections provided by this Agreement are not intended to exceed the indemnity available under applicable law. If the indemnity protections are found by a court to be

unlawful in any way, the protection shall be curtailed or adjusted, but only to the minimum extent required to conform to applicable law.

(g) Nothing in the Agreement, the specifications or other contract documents or CITY approval of the plans and specifications or inspection of the work is intended to include a review, inspection, acknowledgment of any responsibility for any such matter, and CITY, CITY's engineer, and their consultants, and each of their officials, directors, officers, employees and agents, shall have absolutely no responsibility or liability thereof.

8. If, in the CITY's sole judgment said SWCF(s) are not being maintained to standards set forth in paragraph 3 of this Agreement, the CITY may thereupon provide written notice to all LOT OWNER(s) to initiate repairs or construction within ninety (90) days. Upon failure to demonstrate good faith to make repairs or construction within thirty ninety (90), the LOT OWNER(s) agree that the CITY may make all needed repairs to said SWCF(s) and/or construct SWCF(s) to meet the standards set forth in paragraph 3 and to then assess costs to all LOT OWNER(s) equally.

9. If the CITY elects to make necessary maintenance or repairs in accordance with this Agreement, said work shall be without warranty. Said repairs shall be accepted "as is" by the LOT OWNER(s) without any warranty of workmanship and be guaranteed and indemnified by them in accordance this Agreement.

10. The foregoing covenants shall run with the land and shall be deemed to be for the benefit of the land of each of the LOT OWNER(s) and each and every person who shall at any time own all or any portion of the property referred to herein.

11. It is understood and agreed that the covenants herein contained shall be binding on the heirs, executors, administrators, successors, and assigns of each of the LOT OWNER(s).

12. This Agreement shall be recorded and that all obligations created shall constitute a covenant running with the land and any subsequent purchaser of all or any portion thereof, by acceptance of delivery of a deed and/or conveyance regardless of form shall be deemed to have consented to and become bound by this Agreement.

13. The terms of this Agreement may be amended in writing upon majority approval of the LOT OWNER(s) and consent of the CITY.

14. This Agreement shall be governed by the laws of the State of California. In the event that any of the provisions of this Agreement are held to be unenforceable or invalid by any court of competent jurisdiction, the validity, and enforceability of the remaining provisions shall not be affected thereby.

SIGNATURE PAGE FOLLOWS ON PAGE 5:

SIGNATURE PAGE

LOT OWNER(s):

_____
PRINT NAME AND TITLE

_____ _____
SIGNATURE DATE SIGNED

_____
PRINT NAME AND TITLE

_____ _____
SIGNATURE DATE SIGNED

_____
PRINT NAME AND TITLE

_____ _____
SIGNATURE DATE SIGNED

ATTACH CALIFORNIA ALL PURPOSE NOTARY ACKNOWLEDGMENT FOR ABOVE SIGNATURES

CITY OF ESCONDIDO,
a municipal Corporation

Date Signed: _____ By: _____
Director of Engineering Services

APPROVED AS TO FORM:
Jeffrey Epp, City Attorney

ATTEST:
Diane Halverson, City Clerk

By: _____ By: _____

Table 2.3

INSPECTION AND MAINTENANCE OF BMPS AND STRUCTURES

Type Structural BMP:	Bioretention Basin
Routine Actions	Check and cut the height of vegetation, remove deleterious plant material, and check for any slope failures.
Maintenance Indicator	Average vegetation height exceeds 12 inches, emergence of trees , or woody vegetation/Less than 90 percent vegetation coverage in strip invert/swale or less than 70 percent on swale side slope/Debris or litter present/Sediment at or near vegetation height, channeling of flow, inhibited flow due to change in slope/Burrows, holes, mounds/Inlet structures, outlet structures, side slopes or other features damaged. Pools of standing water.
Field Measurement	Visual observation of sediment, debris and litter, bare non vegetated areas, standing water areas, ruts and holes.
Measurement Frequency	Monthly during the rainy season (October through March) and quarterly during the dry weather season (April through September).and after each major storm event (0.75 in).

Maintenance Activity	Remove and replace all dead and diseased vegetation, replace vegetation with vegetation with similar growth requirements, treat vegetation with low-toxic and slow release type fertilizers or equivalent method. Till or replace soil as necessary to maintain a minimum of 3 inches between top of mulch and overflow weir. Remove accumulated sediment, trash and debris within the Bioretention Basin and dispose of properly. Confirm that no clogging will occur and that the basin will drain with in 3 to 4 hours. Direct ponded water to pervious landscaped area. Remove any standing water by draining water into the overflow inlet, Fill the depression, and replace mulch. Back flushing the underdrain may be able to remove obstructions, if not the soil media and underdrain may need to be removed and replaced. Repair or replace any damaged or disconnected piping and outlet structure. Any burrows, holes, and mounds should be repaired utilizing soil that is properly tamped and mulch is replaced. In the case of damage to inlet/outlet structures or side slopes, corrective action prior to October 1st. Consult Engineer if an immediate solution is not evident.
Type Structural Bmp:	Landscaping and Irrigation System
Routine Action	Inspect for over watering, damaged components, misdirected spray, moisture sensor/pressure drop sensors function, Denuded areas, and unstable slopes.
Maintenance Indicator	Over watering, damaged components, misdirected spray, moisture sensor not in place or required adjustment. denuded areas, unstable slopes.
Field Measurement	Visual inspection
Measurement Frequency	Twice per year, prior to October 1st (rainy season), during early dry season (April), and after each major storm event (0.75 in).

Maintenance Activity	Adjust amount of watering to proper level, repair or replace damaged components, realign misdirected spray, replace and adjust moisture sensors and pressure drop sensors, plant or mulch denuded area with drought tolerant species, stabilize slopes with combination of fiber mats and slope planting.
Type Source Control Bmp:	Roof Drainage
Maintenance Activity	Inspect roof twice annually to clean roof drain inlets of sediment/debris and drainage obstacles. Inspect drain outlet to ensure it is clear of obstructions. Remove all items that may inhibit flow from the roof to the open-pavers or landscaping areas, depending on the location of the roof drain.
Type Source Control Bmp:	Catch Basins
Maintenance Activity	Remove catch basin grate and inspect for obstructions as part of bioretention maintenance activities. To be performed monthly during the rainy season (October through March) and quarterly during the dry weather season (April through September).and after each major storm event (0.75 in). Routinely check for structural damage that may impair functionality of the storm drain facility.

Date/Time of Training:_____

Training Performed by:_____
Title: Stormwater BMP Manager

Address:_____
Phone Number:_____

Site Design BMPs:

☐ **Parking areas, driveways and roof drains shall not be connected directly to the storm drain system or street, and must flow through bio retention basins or self retaining areas prior to discharging into the storm drain system.**

Source Control BMPs:

Source Control BMPs include Irrigation System Function and Landscaping Design & Coverage.

Irrigation System:

☐ **The Irrigation System Design must be reviewed periodically for function. It shall include automatic water shut off device in the event of broken sprinkler heads or lines.**

☐ **Over spray, pressure drop sensor function.**

☐ **Moisture sensor function.**

Landscape Design:

☐ **Shall be specific to the landscape area with regards to plants species and specific water requirements.**

☐ **Use drought tolerant or native species of ground cover and canopy intercepting shrubs and trees.**

☐ **Denuded areas shall be planted or mulched.**

☐ **Slopes shall be stabilized with a combination of fiber mats and slope planting.**

Treatment Control BMPs:

Treatment Control BMPs include a Bio Retention Basin.

- ☐ **Manager to tour the site with the owner to show location of the Treatment Control BMPs.**

Bio Retention Basin:

- ☐ **Basin must be inspected monthly during the rainy season (October through March) and quarterly during the dry weather season (April through September) and after each major storm event (0.75 in) for erosion, damage to vegetation, and sediment and debris accumulation.**
- ☐ **Basin shall be inspected after every heavy rainfall event.**
- ☐ **Trash tends to accumulate in basin areas. Remove litter prior to any maintenance activity, and prior to any predicted storm event to prevent it becoming washed into the storm drain.**
- ☐ **Sediment accumulating in basin shall be removed when it builds up to a depth of 3 inches at any spot, or covers vegetation.**
- ☐ **Basin shall be inspected regularly for pools of standing water. Basin can become a nuisance due to mosquito breeding in standing water if obstructions develop (e.g. debris accumulation, invasive vegetation) and/or if proper drainage slopes are not implemented and maintained.**
- ☐ **The inlet structure at the downstream end shall be free of blockage.**
- ☐ **Burrows, holes, and mounds shall not be present on the basin surface. Repair/ backfill firmly and mulch and vegetation.**

List of attendees and signature of the manager:

	Stormwater BMP Manager signature

*** All forms should be retained for at least five (5) years.**

Date/Time of Inspection: _____

Inspection Performed by: _____

_____

Address: _____

Phone Number: _____

- **Irrigation System:**
  - **Over Watering** ☐ **Yes** ☐ **No**
  - **Pressure Drop Function right** ☐ **Yes** ☐ **No**
  - **Damaged Components** ☐ **Yes** ☐ **No**
  - **Misdirected/Over Spray** ☐ **Yes** ☐ **No**
  - **Soil Moisture Sensors In Place** ☐ **Yes** ☐ **No**
  - **Moisture Sensors Require Adjustment** ☐ **Yes** ☐ **No**

Action Required: _____

_____

_____

- **Landscaping**
  - **Denuded Areas** ☐ **Yes** ☐ **No**
  - **Unstable Slopes** ☐ **Yes** ☐ **No**

Action Required: _____

_____

_____

■ **Bio Retention Basin**

- **Vegetation**

➢ **Dead or dying vegetation present**	☐ **Yes**	☐ **No**
➢ **Average vegetation height exceeds 12 inches**	☐ **Yes**	☐ **No**
➢ **Less than 90% vegetation coverage in swale bottom**	☐ **Yes**	☐ **No**
➢ **Sediment at or above 3 inches in height**	☐ **Yes**	☐ **No**
➢ **Channelization or erosion in the Basin**	☐ **Yes**	☐ **No**
➢ **Trash and Debris Present**	☐ **Yes**	☐ **No**
➢ **Burrows/Holes/Mounds on the Basin surface**	☐ **Yes**	☐ **No**
➢ **Pools of standing water**	☐ **Yes**	☐ **No**

Action Required: _____

_____

_____

Signature: _____

Storm Water BMP Manager **Date**

All forms should be retained for at least five (5) years.

Date/Time of Maintenance: _____

Maintenance Performed by: _____

_____

Address: _____

Phone Number: _____

- **Irrigation System:**
  - **Adjust amount of watering to proper level.**
  - **Repair/Replace Damaged Components.**
  - **Realign misdirected spray.**
  - **Repair/Replace/Adjust pressure drop sensors.**
  - **Repair/Replace soil moisture sensors.**
  - **Adjust soil moisture sensors to proper level.**
- **Landscaping:**
  - **Plant/Mulch denuded areas.**
  - **Use drought or native species of ground cover and canopy intercepting shrubs and trees.**
  - **Stabilize slopes with a combination of fiber mats and slope planting.**
- **Bio Retention Basin**
  - **Cut vegetation to an average height of 6 inches.**
  - **Remove sediment to avoid concentrated flows in the basin.**
  - **Remove sediment if build up is 3 inches or more.**
  - **Debris, litter and blockages cleared.**
  - **Repair/Backfill firmly burrows, holes, and mounds on the basin surface.**

- **Control weeds, and water grass during dry conditions.**
- **Remove any standing water by draining it into the inlet, and repair any depressions.**
- **Fix any holes or siltation around the Rip Rap area at the top of the basin.**

Signature: _____

Storm Water BMP Manager **Date**

All forms should be retained for at least five (5) years.

Stormwater Facility Operation and Maintenance Fact Sheet

► BIORETENTION FACILITIES

These facilities remove pollutants primarily by filtering runoff slowly through aerobic, biologically active soil. Routine maintenance is needed to ensure that flow is unobstructed, that erosion is prevented, and that soils are held together by plant roots and are biologically active. Typical maintenance consists of the following:

- Inspect inlets for channels, exposure of soils, or other evidence of erosion. Clear any obstructions and remove any accumulation of sediment. Examine rock or other material used as a splash pad and replenish if necessary.

- Inspect outlets for erosion or plugging.

- Inspect side slopes for evidence of instability or erosion and correct as necessary.

- Observe the surface of bioretention facility soil for uniform percolation throughout. If portions of the bioretention facility do not drain within 24 hours after the end of a storm, the soil should be tilled and replanted. Remove any debris or accumulations of sediment.

- Confirm that check dams and flow spreaders are in place and level and that rivulets and channelization are effectively prevented.

- Examine the vegetation to ensure that it is healthy and dense enough to provide filtering and to protect soils from erosion. Replenish mulch as necessary, remove fallen leaves and debris, prune large shrubs or trees, and mow turf areas. When mowing, remove no more than 1/3 height of grasses. Confirm that irrigation is adequate and not excessive and that sprays do not directly enter overflow grates. Replace dead plants and remove noxious and invasive vegetation.

- Abate any potential vectors by filling holes in the ground in and around the bioretention facility and by insuring that there are no areas where water stands longer than 48 hours following a storm. If mosquito larvae are present and persistent, contact the San Diego County Vector Control Program for information and advice. Mosquito larvicides should be applied only when absolutely necessary and then only by a licensed individual or contractor.

Bioretention TC-32

Design Considerations

- Soil for Infiltration
- Tributary Area
- Slope
- Aesthetics
- Environmental Side-effects

Description

The bioretention best management practice (BMP) functions as a soil and plant-based filtration device that removes pollutants through a variety of physical, biological, and chemical treatment processes. These facilities normally consist of a grass buffer strip, sand bed, ponding area, organic layer or mulch layer, planting soil, and plants. The runoff's velocity is reduced by passing over or through buffer strip and subsequently distributed evenly along a ponding area. Exfiltration of the stored water in the bioretention area planting soil into the underlying soils occurs over a period of days.

Targeted Constituents

☑	Sediment	■
☑	Nutrients	▲
☑	Trash	■
☑	Metals	■
☑	Bacteria	■
☑	Oil and Grease	■
☑	Organics	■

Legend ***(Removal Effectiveness)***

- ● Low
- ▲ Medium
- ■ High

California Experience

None documented. Bioretention has been used as a stormwater BMP since 1992. In addition to Prince George's County, MD and Alexandria, VA, bioretention has been used successfully at urban and suburban areas in Montgomery County, MD; Baltimore County, MD; Chesterfield County, VA; Prince William County, VA; Smith Mountain Lake State Park, VA; and Cary, NC.

Advantages

- Bioretention provides stormwater treatment that enhances the quality of downstream water bodies by temporarily storing runoff in the BMP and releasing it over a period of four days to the receiving water (EPA, 1999).
- The vegetation provides shade and wind breaks, absorbs noise, and improves an area's landscape.

Limitations

- The bioretention BMP is not recommended for areas with slopes greater than 20% or where mature tree removal would

be required since clogging may result, particularly if the BMP receives runoff with high sediment loads (EPA, 1999).

- Bioretention is not a suitable BMP at locations where the water table is within 6 feet of the ground surface and where the surrounding soil stratum is unstable.
- By design, bioretention BMPs have the potential to create very attractive habitats for mosquitoes and other vectors because of highly organic, often heavily vegetated areas mixed with shallow water.
- In cold climates the soil may freeze, preventing runoff from infiltrating into the planting soil.

Design and Sizing Guidelines

- The bioretention area should be sized to capture the design storm runoff.
- In areas where the native soil permeability is less than 0.5 in/hr an underdrain should be provided.
- Recommended minimum dimensions are 15 feet by 40 feet, although the preferred width is 25 feet. Excavated depth should be 4 feet.
- Area should drain completely within 72 hours.
- Approximately 1 tree or shrub per 50 ft^2 of bioretention area should be included.
- Cover area with about 3 inches of mulch.

Construction/Inspection Considerations

Bioretention area should not be established until contributing watershed is stabilized.

Performance

Bioretention removes stormwater pollutants through physical and biological processes, including adsorption, filtration, plant uptake, microbial activity, decomposition, sedimentation and volatilization (EPA, 1999). Adsorption is the process whereby particulate pollutants attach to soil (e.g., clay) or vegetation surfaces. Adequate contact time between the surface and pollutant must be provided for in the design of the system for this removal process to occur. Thus, the infiltration rate of the soils must not exceed those specified in the design criteria or pollutant removal may decrease. Pollutants removed by adsorption include metals, phosphorus, and hydrocarbons. Filtration occurs as runoff passes through the bioretention area media, such as the sand bed, ground cover, and planting soil.

Common particulates removed from stormwater include particulate organic matter, phosphorus, and suspended solids. Biological processes that occur in wetlands result in pollutant uptake by plants and microorganisms in the soil. Plant growth is sustained by the uptake of nutrients from the soils, with woody plants locking up these nutrients through the seasons. Microbial activity within the soil also contributes to the removal of nitrogen and organic matter. Nitrogen is removed by nitrifying and denitrifying bacteria, while aerobic bacteria are responsible for the decomposition of the organic matter. Microbial processes require oxygen and can result in depleted oxygen levels if the bioretention area is not adequately

aerated. Sedimentation occurs in the swale or ponding area as the velocity slows and solids fall out of suspension.

The removal effectiveness of bioretention has been studied during field and laboratory studies conducted by the University of Maryland (Davis et al, 1998). During these experiments, synthetic stormwater runoff was pumped through several laboratory and field bioretention areas to simulate typical storm events in Prince George's County, MD. Removal rates for heavy metals and nutrients are shown in Table 1.

Table 1 Laboratory and Estimated Bioretention Davis et al. (1998); PGDER (1993)

Pollutant	Removal Rate
Total Phosphorus	70-83%
Metals (Cu, Zn, Pb)	93-98%
TKN	68-80%
Total Suspended Solids	90%
Organics	90%
Bacteria	90%

Results for both the laboratory and field experiments were similar for each of the pollutants analyzed. Doubling or halving the influent pollutant levels had little effect on the effluent pollutants concentrations (Davis et al, 1998).

The microbial activity and plant uptake occurring in the bioretention area will likely result in higher removal rates than those determined for infiltration BMPs.

Siting Criteria

Bioretention BMPs are generally used to treat stormwater from impervious surfaces at commercial, residential, and industrial areas (EPA, 1999). Implementation of bioretention for stormwater management is ideal for median strips, parking lot islands, and swales. Moreover, the runoff in these areas can be designed to either divert directly into the bioretention area or convey into the bioretention area by a curb and gutter collection system.

The best location for bioretention areas is upland from inlets that receive sheet flow from graded areas and at areas that will be excavated (EPA, 1999). In order to maximize treatment effectiveness, the site must be graded in such a way that minimizes erosive conditions as sheet flow is conveyed to the treatment area. Locations where a bioretention area can be readily incorporated into the site plan without further environmental damage are preferred. Furthermore, to effectively minimize sediment loading in the treatment area, bioretention only should be used in stabilized drainage areas.

Additional Design Guidelines

The layout of the bioretention area is determined after site constraints such as location of utilities, underlying soils, existing vegetation, and drainage are considered (EPA, 1999). Sites with loamy sand soils are especially appropriate for bioretention because the excavated soil can be backfilled and used as the planting soil, thus eliminating the cost of importing planting soil.

The use of bioretention may not be feasible given an unstable surrounding soil stratum, soils with clay content greater than 25 percent, a site with slopes greater than 20 percent, and/or a site with mature trees that would be removed during construction of the BMP.

Bioretention can be designed to be off-line or on-line of the existing drainage system (EPA, 1999). The drainage area for a bioretention area should be between 0.1 and 0.4 hectares (0.25 and 1.0 acres). Larger drainage areas may require multiple bioretention areas. Furthermore, the maximum drainage area for a bioretention area is determined by the expected rainfall intensity and runoff rate. Stabilized areas may erode when velocities are greater than 5 feet per second (1.5 meter per second). The designer should determine the potential for erosive conditions at the site.

The size of the bioretention area, which is a function of the drainage area and the runoff generated from the area is sized to capture the water quality volume.

The recommended minimum dimensions of the bioretention area are 15 feet (4.6 meters) wide by 40 feet (12.2 meters) long, where the minimum width allows enough space for a dense, randomly-distributed area of trees and shrubs to become established. Thus replicating a natural forest and creating a microclimate, thereby enabling the bioretention area to tolerate the effects of heat stress, acid rain, runoff pollutants, and insect and disease infestations which landscaped areas in urban settings typically are unable to tolerate. The preferred width is 25 feet (7.6 meters), with a length of twice the width. Essentially, any facilities wider than 20 feet (6.1 meters) should be twice as long as they are wide, which promotes the distribution of flow and decreases the chances of concentrated flow.

In order to provide adequate storage and prevent water from standing for excessive periods of time the ponding depth of the bioretention area should not exceed 6 inches (15 centimeters). Water should not be left to stand for more than 72 hours. A restriction on the type of plants that can be used may be necessary due to some plants' water intolerance. Furthermore, if water is left standing for longer than 72 hours mosquitoes and other insects may start to breed.

The appropriate planting soil should be backfilled into the excavated bioretention area. Planting soils should be sandy loam, loamy sand, or loam texture with a clay content ranging from 10 to 25 percent.

Generally the soil should have infiltration rates greater than 0.5 inches (1.25 centimeters) per hour, which is typical of sandy loams, loamy sands, or loams. The pH of the soil should range between 5.5 and 6.5, where pollutants such as organic nitrogen and phosphorus can be adsorbed by the soil and microbial activity can flourish. Additional requirements for the planting soil include a 1.5 to 3 percent organic content and a maximum 500 ppm concentration of soluble salts.

Soil tests should be performed for every 500 cubic yards (382 cubic meters) of planting soil, with the exception of pH and organic content tests, which are required only once per bioretention area (EPA, 1999). Planting soil should be 4 inches (10.1 centimeters) deeper than the bottom of the largest root ball and 4 feet (1.2 meters) altogether. This depth will provide adequate soil for the plants' root systems to become established, prevent plant damage due to severe wind, and provide adequate moisture capacity. Most sites will require excavation in order to obtain the recommended depth.

Planting soil depths of greater than 4 feet (1.2 meters) may require additional construction practices such as shoring measures (EPA, 1999). Planting soil should be placed in 18 inches or greater lifts and lightly compacted until the desired depth is reached. Since high canopy trees may be destroyed during maintenance the bioretention area should be vegetated to resemble a terrestrial forest community ecosystem that is dominated by understory trees. Three species each of both trees and shrubs are recommended to be planted at a rate of 2500 trees and shrubs per hectare (1000 per acre). For instance, a 15 foot (4.6 meter) by 40 foot (12.2 meter) bioretention area (600 square feet or 55.75 square meters) would require 14 trees and shrubs. The shrub-to-tree ratio should be 2:1 to 3:1.

Trees and shrubs should be planted when conditions are favorable. Vegetation should be watered at the end of each day for fourteen days following its planting. Plant species tolerant of pollutant loads and varying wet and dry conditions should be used in the bioretention area.

The designer should assess aesthetics, site layout, and maintenance requirements when selecting plant species. Adjacent non-native invasive species should be identified and the designer should take measures, such as providing a soil breach to eliminate the threat of these species invading the bioretention area. Regional landscaping manuals should be consulted to ensure that the planting of the bioretention area meets the landscaping requirements established by the local authorities. The designers should evaluate the best placement of vegetation within the bioretention area. Plants should be placed at irregular intervals to replicate a natural forest. Trees should be placed on the perimeter of the area to provide shade and shelter from the wind. Trees and shrubs can be sheltered from damaging flows if they are placed away from the path of the incoming runoff. In cold climates, species that are more tolerant to cold winds, such as evergreens, should be placed in windier areas of the site.

Following placement of the trees and shrubs, the ground cover and/or mulch should be established. Ground cover such as grasses or legumes can be planted at the beginning of the growing season. Mulch should be placed immediately after trees and shrubs are planted. Two to 3 inches (5 to 7.6 cm) of commercially-available fine shredded hardwood mulch or shredded hardwood chips should be applied to the bioretention area to protect from erosion.

Maintenance

The primary maintenance requirement for bioretention areas is that of inspection and repair or replacement of the treatment area's components. Generally, this involves nothing more than the routine periodic maintenance that is required of any landscaped area. Plants that are appropriate for the site, climatic, and watering conditions should be selected for use in the bioretention cell. Appropriately selected plants will aide in reducing fertilizer, pesticide, water, and overall maintenance requirements. Bioretention system components should blend over time through plant and root growth, organic decomposition, and the development of a natural

soil horizon. These biologic and physical processes over time will lengthen the facility's life span and reduce the need for extensive maintenance.

Routine maintenance should include a biannual health evaluation of the trees and shrubs and subsequent removal of any dead or diseased vegetation (EPA, 1999). Diseased vegetation should be treated as needed using preventative and low-toxic measures to the extent possible. BMPs have the potential to create very attractive habitats for mosquitoes and other vectors because of highly organic, often heavily vegetated areas mixed with shallow water. Routine inspections for areas of standing water within the BMP and corrective measures to restore proper infiltration rates are necessary to prevent creating mosquito and other vector habitat. In addition, bioretention BMPs are susceptible to invasion by aggressive plant species such as cattails, which increase the chances of water standing and subsequent vector production if not routinely maintained.

In order to maintain the treatment area's appearance it may be necessary to prune and weed. Furthermore, mulch replacement is suggested when erosion is evident or when the site begins to look unattractive. Specifically, the entire area may require mulch replacement every two to three years, although spot mulching may be sufficient when there are random void areas. Mulch replacement should be done prior to the start of the wet season.

New Jersey's Department of Environmental Protection states in their bioretention systems standards that accumulated sediment and debris removal (especially at the inflow point) will normally be the primary maintenance function. Other potential tasks include replacement of dead vegetation, soil pH regulation, erosion repair at inflow points, mulch replenishment, unclogging the underdrain, and repairing overflow structures. There is also the possibility that the cation exchange capacity of the soils in the cell will be significantly reduced over time. Depending on pollutant loads, soils may need to be replaced within 5-10 years of construction (LID, 2000).

Cost

Construction Cost

Construction cost estimates for a bioretention area are slightly greater than those for the required landscaping for a new development (EPA, 1999). A general rule of thumb (Coffman, 1999) is that residential bioretention areas average about $3 to $4 per square foot, depending on soil conditions and the density and types of plants used. Commercial, industrial and institutional site costs can range between $10 to $40 per square foot, based on the need for control structures, curbing, storm drains and underdrains.

Retrofitting a site typically costs more, averaging $6,500 per bioretention area. The higher costs are attributed to the demolition of existing concrete, asphalt, and existing structures and the replacement of fill material with planting soil. The costs of retrofitting a commercial site in Maryland, Kettering Development, with 15 bioretention areas were estimated at $111,600.

In any bioretention area design, the cost of plants varies substantially and can account for a significant portion of the expenditures. While these cost estimates are slightly greater than those of typical landscaping treatment (due to the increased number of plantings, additional soil excavation, backfill material, use of underdrains etc.), those landscaping expenses that would be required regardless of the bioretention installation should be subtracted when determining the net cost.

Perhaps of most importance, however, the cost savings compared to the use of traditional structural stormwater conveyance systems makes bioretention areas quite attractive financially. For example, the use of bioretention can decrease the cost required for constructing stormwater conveyance systems at a site. A medical office building in Maryland was able to reduce the amount of storm drain pipe that was needed from 800 to 230 feet - a cost savings of $24,000 (PGDER, 1993). And a new residential development spent a total of approximately $100,000 using bioretention cells on each lot instead of nearly $400,000 for the traditional stormwater ponds that were originally planned (Rappahanock,). Also, in residential areas, stormwater management controls become a part of each property owner's landscape, reducing the public burden to maintain large centralized facilities.

Maintenance Cost

The operation and maintenance costs for a bioretention facility will be comparable to those of typical landscaping required for a site. Costs beyond the normal landscaping fees will include the cost for testing the soils and may include costs for a sand bed and planting soil.

References and Sources of Additional Information

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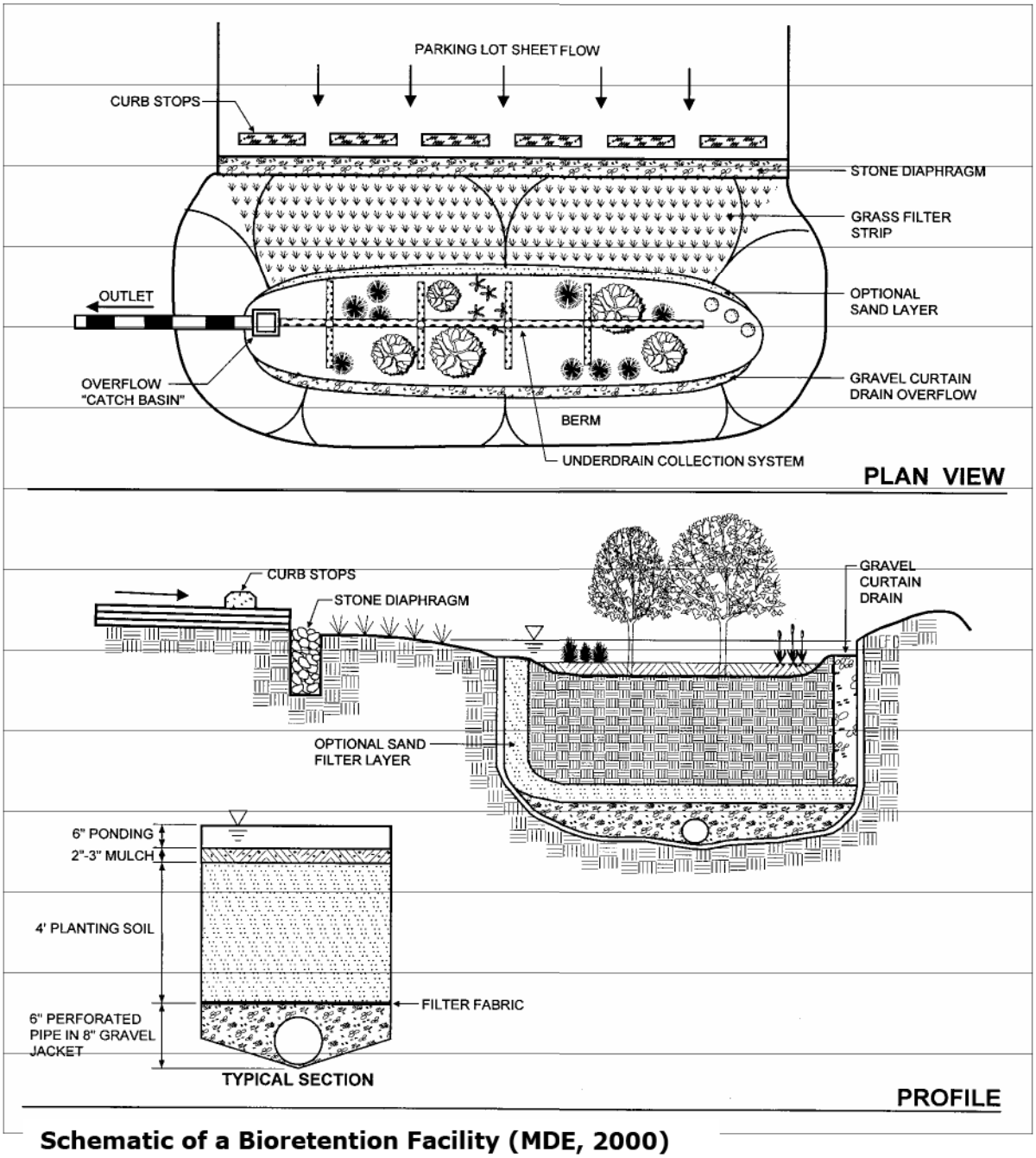

Schematic of a Bioretention Facility (MDE, 2000)

ATTACHMENT 5:

REFERENCES

Table 2-2. BENEFICIAL USES OF INLAND SURFACE WATERS

Inland Surface Waters [1, 2]	Hydrologic Unit Basin Number	BENEFICIAL USE														
		MUN	AGR	IND	PROC	GWR	FRSH	POW	REC1	REC2	BIOL	WARM	COLD	WILD	RARE	SPWN
San Marcos Creek Watershed																
Batiquitos Lagoon	4.51	See Coastal Waters – Table 2-3														
San Marcos Creek	4.52	+	●						●	●		●		●		
unnamed intermittent streams	4.53	+	●						●	●		●		●		
San Marcos Creek	4.51	+	●						●	●		●		●		
Encinitas Creek	4.51	+	●						●	●		●		●		
Escondido Creek Watershed																
San Elijo Lagoon	4.61	See Coastal Waters – Table 2-3														
Escondido Creek	4.63	●	●	○				●	●	●		●	●	●		
Lake Wohlford	4.63	See Reservoirs & Lakes – Table 2-4														
Lake Dixon	4.62	See Reservoirs & Lakes – Table 2-4														
Escondido Creek	4.62	●	●	○					●	●		●	●	●		
Reidy Canyon	4.62	●	●	○					●	●		●	●	●		
Escondido Creek	4.61	●	●	○					●	●	●	●	●	●		

● Existing Beneficial Use

○ Potential Beneficial Use

\+ Excepted from MUN (See Text)

[1] Waterbodies are listed multiple times if they cross hydrologic area or sub area boundaries.

[2] Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

				• Toxicity ◦ Unknown Nonpoint Source ◦ Unknown Point Source ◦ Urban Runoff/Storm Sewers	3 Miles	2008	5A	2019
9	English Canyon	River & Stream	90113000 / 18070301	• Benzo[b]fluoranthene ◦ Source Unknown	3.6 Miles	2006	5A	2019
				• Dieldrin ◦ Source Unknown	3.6 Miles	2006	5A	2019
				• Sediment Toxicity ◦ Unknown Nonpoint Source ◦ Unknown Point Source ◦ Urban Runoff/Storm Sewers	3.6 Miles	2006	5A	2019
				• Selenium ◦ Source Unknown	3.6 Miles	2008	5A	2019
9	Escondido Creek	River & Stream	90462000 / 18070303	• DDT (Dichlorodiphenyltrichloroethane) ◦ Source Unknown	26 Miles	2006	5A	2019
				• Enterococcus ◦ Source Unknown	26 Miles	2008	5A	2019
				• Fecal Coliform ◦ Source Unknown	26 Miles	2008	5A	2019
				• Manganese ◦ Source Unknown	26 Miles	2006	5A	2019
				• Phosphate ◦ Source Unknown	26 Miles	2006	5A	2019
				• Selenium ◦ Source Unknown	26 Miles	2006	5A	2019
				• Sulfates ◦ Source Unknown	26 Miles	2006	5A	2019
				• Total Dissolved Solids ◦ Source Unknown	26 Miles	2006	5A	2019
				• Total Nitrogen as N ◦ Source Unknown	26 Miles	2008	5A	2019

				• Toxicity ◦ Unknown Nonpoint Source ◦ Unknown Point Source ◦ Urban Runoff/Storm Sewers	26 Miles	2008	5A	2019
9	Famosa Slough and Channel	Estuary	90711000 / 18070304	• Eutrophic ◦ Nonpoint Source ◦ Point Source ◦ Urban Runoff/Storm Sewers	32 Acres	1990	5A	2019
9	Felicita Creek	River & Stream	90523000 / 18070304	• Aluminum ◦ Source Unknown	0.92 Miles	2006	5A	2019
				• Total Dissolved Solids ◦ Agricultural Return Flows ◦ Flow Regulation/Modification ◦ Unknown Nonpoint Source ◦ Unknown Point Source ◦ Urban Runoff/Storm Sewers	0.92 Miles	2002	5A	2019
9	Forester Creek	River & Stream	90712000 / 18070304	• Fecal Coliform ◦ Spills ◦ Unknown Nonpoint Source ◦ Unknown Point Source ◦ Urban Runoff/Storm Sewers	6.4 Miles	2002	5A	2005
				• *Impairment Located at lower 1 mile.*				
				• Phosphorus ◦ Agricultural Return Flows ◦ Unknown Nonpoint Source ◦ Unknown Point Source ◦ Urban Runoff/Storm Sewers	6.4 Miles	2006	5A	2019
				• Selenium ◦ Source Unknown	6.4 Miles	2008	5A	2019
				• Total Dissolved Solids ◦ Agricultural Return Flows ◦ Flow Regulation/Modification ◦ Unknown Nonpoint Source ◦ Unknown Point Source ◦ Urban Runoff/Storm Sewers	6.4 Miles	2002	5A	2019
				• *Impairment Located at lower 1 mile.*				
				• pH ◦ Habitat Modification ◦ Industrial Point Sources ◦ Spills ◦ Unknown Nonpoint Source	6.4 Miles	2002	5A	2019